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ANNALS  
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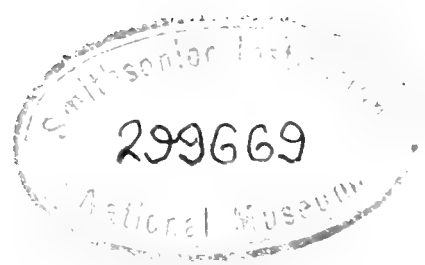
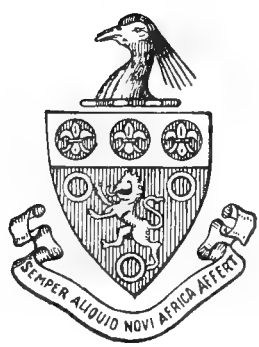
*VOLUME XIX*

بسم الله الرحمن الرحيم

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ANNALS  
OF THE  
SOUTH AFRICAN MUSEUM

VOLUME XIX



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- Part 1, March 1924.
- Part 2, November 1923.
- Part 3, August 1924.
- Part 4, April 1925.



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# ANNALS

OF THE

# SOUTH AFRICAN MUSEUM

VOLUME XIX.

PART I, containing:—

- 1.—*Some South African Parasitic Hymenoptera of the families Evaniidae, Braceniidae, Alysiidae and Plumariidae, in the South African Museum with a Catalogue of the known species.* — By CHARLES T. BRUES.
- 2.—*South African Megaloptera.* — By P. EBSSEN—PETERSEN.
- 3.—*Some Mosquitos from Ovamboland, S. W. Africa, and from the Cape Province.* — By F. W. EDWARDS, F. E. S.  
(Published by permission of the Trustees of the British Museum).
- 4.—*The South African Nemestrinidae (Diptera) as represented in the South African Museum.* — By M. BEZZI.
- 5.—*The South African Mydaiidae (Diptera) as represented in the South African Museum.* — By Prof. M. BEZZI.
- 6.—*South African Crustacea (Part XII of S. A. Crustacea, for the Marine Investigations in South Africa).* — By the Rev. THOMAS R. R. STEBBING, M.A., F.R.S., F.L.S., F.Z.S., Fellow of King's College, London, Hon. Memb. of New Zealand Inst., Hon. Fellow of Worcester College, Oxford.  
(Plates I—VII of vol. XIX. Plates CXVI—CXXII of Crustacea).



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1. — *Some South African Parasitic Hymenoptera of the families Evaniidae, Braconidae, Alysiidae and Plumariidae, in the South African Museum with a Catalogue of the known species.* <sup>1)</sup> — By CHARLES T. BRUES.

Some time ago, I received from Dr. L. Peringuey, the director of the South African Museum, a quite extensive collection of parasitic Hymenoptera belonging to the families *Evaniidae*, *Braconidae* and *Alysiidae*. Since then Dr. Peringuey has made several other smaller sendings of material more recently accumulated by the Museum. He also compared many of the specimens with the types of species described by Cameron in 1906 and in addition sent me some types and co-types for examination.

With all of this material, I have been able to recognize a large number of species previously described from South Africa, as well as a few first discovered in Equatorial Africa. In addition there were a number of forms not hitherto described. With the exception of two or three species, all those considered are from the South African (or "Cape") region, including that part of the continent south of the Zambesi and Cunene rivers.

In the Catalogue of species included in the present paper, this boundary has been adhered to, and I have listed all of the described species known from this region, belonging to the *Evaniidae*, *Braconidae*, *Alysiidae* and *Konowiellidae*. Some *Stephanidae* have been sent to me, but the material in this family was so limited that it has seemed best not to include it in the present consideration. The family *Konowiellidae*, based upon the Neotropical *Plumarius* (= *Konowiella*?) is without doubt not a close relative of the other families mentioned, but as *Plumarius* was first described as an *Evaniid* and later placed in the *Braconidae*, it did not seem out of place to include it in this paper, particularly as its discovery in Africa is quite unexpected.

By far the greatest number of South African parasitic Hymenoptera have been described by Cameron in several extensive papers. First, in 1905, he dealt with the collections of the Albany Museum in Grahamstown; in 1906 with those of the South African Museum; in 1909 and 1910 with those of the Royal Zoological Museum in Berlin; and in 1911 with those of the Transvaal Museum. In addition to these he published several shorter papers in various other journals.

<sup>1)</sup> Contributions from the Entomological Laboratory of the Bussey Institution, Harvard University, No. 171.

Fortunately Cameron's descriptions are usually rather extended and his species can usually be recognized. In these same papers he erected a considerable series of genera, some of which have been shown to be synonymous or invalid. The same is true of some of his species, particularly in so far as synonymy is concerned.

In various papers, mainly between 1905 and 1914, Szépligeti published descriptions of many forms, the majority from Equatorial Africa although there are some South African species and I have recognized others in the material before me. The descriptions of this author are often extremely brief and unsatisfactory.

Several of the earlier Hymenopterists have described South African species of the families here dealt with but aside from a quite considerable number by Brullé (1846) and some by Holmgren (1868) they are very much scattered.

All of these papers, I have re-examined in the light of the present material and have been able to place a number of the species of these earlier authors.

## FAMILY EVANIIDAE.

### ODONTAULACUS, Kieffer.

#### ODONTAULACUS AFRICANUS, sp. nov.

♀. Length 10 mm.; ovipositor about 6 mm. Black; upper side of first segment of abdomen, except at base and apex, bright fulvous; legs, except coxae, trochanters and tarsi, fulvo-ferruginous. Wings infuscated, strongly so on the apical half. Head long behind the eyes, almost as thick as broad when viewed from above; shining above, with large, well separated punctures; front strongly transversely convex above the antennae, with only a very slight median impression; its surface punctate like the vertex; facial impression between antenna and eye deep, shining and impunctate below; clypeus coarsely punctate, shining, with a short median tooth on its anterior margin; oral margin at sides of clypeus smooth and shining; malar space punctate, about one third as long as the width of the eye; head behind more sparsely punctate than in front. Eyes bare. Middle lobe of mesonotum coarsely transversely ridged, impressed medially in front and faintly so behind on basal half; lateral lobes coarsely reticulate, more or less transversely; scutellum transversely ridged at middle, punctate on sides; propodeum before the petiole similarly ridged, more or less areolate on apical slope and very finely rugose-reticulate on the sides. Neck of prothorax shining, coarsely, sparsely punctate; propleura

more or less obliquely reticulate or areolate; mesopleura confluent punctate, smooth along the posterior margin and more or less reticulate along the anterior margin; metapleura coarsely confluent punctate above; finely reticulate-rugose below. Hind coxae rugose-punctate, more or less distinctly transversely rugose apically. Abdomen of the usual form. Tarsal claws slender with two teeth below before apex, both acute, the second much the larger and very close to the apex, the first well removed from the base of the claw; tibiae very distinctly spinulose. Wings with the second section of the radius twice as long as the first and half as long as the second; cubitus arising just above the middle of the basal vein; stalk of first discoidal cell nearly as long as the first recurrent nervure; second cubital cell twice as long below as above, receiving the recurrent nervure at its middle; upper third of second transverse cubitus present, very oblique; discal venation of hind wings distinct.

Type from Matroosberg, Ceres District, Cape Province (3500 feet) (R.M. Lightfoot), January 1917.

This is the first member of the genus to be discovered in the Ethiopian region, in fact, the whole subfamily *Aulacinae* is practically absent in this part of the world. It is not very typical in the form of the tarsal claws, upon which the genera are to a great extent founded. The teeth are longer than is usual in other members of the genus and approach those of *Pristaulacus*, which, however, always has at least three teeth. Of the various species which I have seen it is most similar to *O. bilobatus* Prov., from North America, and that species too has long, acute tarsal claws. It is an interesting addition to the South African fauna.

#### GASTERUPTION, Latreille.

##### GASTERUPTION JOHANNIS, Cameron.

Ann. S. Afric. Mus., vol. 5, p. 24. (1906).

The type has the first discoidal cell triangular, not four-sided and the species is wrongly placed in Kieffer's key (Das Tierreich, p. 232). It falls next to *G. sanguineum* Kieff. also from Cape Province but the two species appear to be distinct and separable as follows:

Propodeum coarsely transversely striate; metapleura and upper half of mesopleura punctate-reticulate	<i>G. sanguineum</i> Kieff.
Propodeum reticulate; metapleura reticulate; mesopleura reticulate, more coarsely so below and with a dull smooth space anteriorly	<i>G. johannis</i> Cam.

The length of the ovipositor is 12 mm. and the body 14 mm. in *johannis*.

## GASTERUPTION PULCHRIPENNE, Cam.

Ann. S. Afric. Mus., vol. 5, p. 23. (1906).

The mesonotum is rugose-reticulate, but not noticeably transversely so; the collar is about as long as the distance from the tegula to the anterior border of the mesonotum; the propodeum is reticulated over its entire surface; the first discoidal cell is large, nearly twice as long as the second; the head is very long behind the eyes and the ocelli are close together, far removed from the occipital margin.

## GASTERUPTION FLAVONOTATUM, Kieff.

Bull. Soc. Hist. Nat., Metz, vol. 3, p. 94 (1911).

One female from Barberton, Transvaal, April, 1911 (H. Edwards). This was originally described from Willowmore, Cape Province.

## GASTERUPTION FUSCIPENNE, sp. nov.

♀. Length 14 mm.; ovipositor 13–14 mm. Black, with the humeri, entire pleurae, sides of second and third abdominal segments and all tibiae (darker externally) rufous or rufo-ferruginous, wings strongly infuscated except on the basal third. Head comparatively short, broadly rounded and but little narrowed behind, the temples barely as long as the width of the eye; hind margin strongly carinate below, more weakly so above; surface opaque, leathery, bare except for some short white pubescence along the sides of the face; cheeks nearly as long as the pedicel of the antennae; posterior ocelli slightly closer to the eye than to one another and twice as far from the occipital margin as from one another. Antennae rather stout near the middle, fourth and following joints clothed with minute, dense, spiny pubescence; scape as long as the third joint; second slightly over half as long; fourth slightly shorter than the second and third together, nearly three times as long as thick; following very gradually growing shorter except the apical joint. Antennae inserted just below the middle of the eye. Collar as long as the lower edge of the propleura, shorter than the distance from the humerus to the tegula, irregularly punctate above, pronotum with a rather large, acute tooth at each lateral angle. Mesonotum nearly twice as long as wide, with a transverse sculpture composed of punctures and irregular striae combined. Scutellum with fine shagreened sculpture medially, with a lateral punctate line, outside

of which it is coarsely, obliquely striate. Propodeum finely punctate-reticulate, with a distinct median shining ridge. Pleurae almost without pubescence, except for fine sparse whitish hair on the meso- and metapleurae. Propleura leathery, except for the usual horizontal and vertical crenate lines; mesopleura finely rugose, with a smoother area anteriorly below and some indistinct, oblique striae near the tegula; metapleura similar, with some oblique striae near the base of the hind wing. Abdominal petiole slightly longer than the thorax. Ovipositor brown; its sheaths black, with the apices white. Hind coxae strongly transversely striate above; faintly obliquely striate on the sides and leathery below; hind tibiae stouter than usual. Anterior discoidal cell four-sided, but with the outer side very oblique; lower side less than two-thirds as long as the upper which is slightly shorter than the first section of the radius and three times as long as the height of the cell.

Two specimens from Cape Town (R. M. Lightfoot) Jan. 1913.

This species is related to *G. aethiopicum* Stadelmann and *G. tenuicauda* Kieffer, from both of which it differs in the sculpture of the mesonotum, unicolorous hind tibiae and darker wings.

GASTERUPTION PERINGUEYI sp. nov.

♀. Length 14 mm.; ovipositor 16 mm. Black or piceous, with rufous markings on the head and thorax; wings slightly infuscated. Head with the sides of the clypeus, malar space and mandibles, except tips, rufous; lower part of propleura, its apex near the tegula, humeral angles of mesonotum and articulation at base of abdominal petiole rufous; tegulae rufo-piceous; outer surface of four anterior tibiae and the first joint of their tarsi white; hind tibiae with an incomplete annulus at base, and a spot at tip of their first tarsal joint, white; sheaths of ovipositor white at tips. Head one-half longer than wide, narrowed behind the eyes, the part behind the eyes less than half the length of the eye; occipital rim barely evident above; front and vertex subopaque; paired ocelli nearer the eye than to one another and farther from the posterior margin of the head; face subshining, silvery pilose at sides; first flagellar joint slightly longer than the scape and nearly twice as long as the two preceding together; following decreasing in length. Malar space almost wanting. Neck long, but shorter than the distance of the tegula from the front border of the mesonotum, shining and finely cross-striate in front; anterior angles of propleura each produced into a strong tooth, its surface reticulate medially, shagreened around the border. Meso-

notum with large widely separated punctures on the disc, with distinct transverse ridged sculpture before and behind; parapsidal grooves well impressed. Scutellum nearly smooth medially, very finely reticulate-punctate laterally. Propodeum with a median shining ridge, on the sides coarsely irregularly reticulate, shagreened anteriorly at each side of the insertion of the petiole. Hind coxae finely, transversely striate and shining above, dull and granulate below; almost as long as the propodeum. Petiole very long and slender, fully as long as the entire thorax, its surface opaque, finely granulate, without any striation; second and third segments each half as long as the petiole; remainder of abdomen more shining. Hind tibiae rather less strongly clavate than usual; hind metatarsus as long as the following joints together. First discoidal cell four-sided, one-third as long as the first section of the cubitus which arises well below the junction of the median and basal veins; its lower side two thirds as long as the upper.

Type from Cape Town, Cape Province (Péringuey), 1915.

This species is similar to *G. punctulatum* Schlett. differing in the sculpture of the mesonotum, hind coxae, and head, and in the color of the abdomen. The form of the first discoidal cell and the origin of the cubitus are also different.

GASTERUPTION CRASSIVENTRE, Cameron.

Ann. S. Afr. Mus., vol. 5, p. 23. (1906).

The head is unusually short and broadly rounded behind and the entire body is extremely stout. The first discoidal cell is not distinctly four-sided, and consequently the species will not run out correctly in Kieffer's table in "Das Tierreich".

GASTERUPTION FOSSATUM sp. nov.

♀. Length 10 mm.; ovipositor nearly as long as the body. Almost entirely black or dark piceous. Mandibles, except teeth, and four anterior legs beyond the knees, excepting a darker band on the middle of the tibiae, brownish-yellow; tips of first, second and third segments obscurely ferruginous or rufous; hind tibiae obscurely pale brownish at base; hind metatarsi fuscous; wings nearly hyaline; sheaths of ovipositor entirely black. Head long and narrow, nearly twice as long as broad, almost semicircularly rounded behind the eyes; upper surface shining and polished; face densely silvery pilose on the sides, between which it is subopaque and minutely punctulate;



malar space short, but distinctly present; occipital carina almost wanting; posterior ocelli as far from one another as from the eye, nearly twice as far from the occipital margin. Antennae with the first four joints of about equal length although the third and fourth, which are strictly equal, are each about one-fifth longer than the basal ones; following to ninth about of equal length, but becoming thicker till the ninth is about one-half longer than wide. Neck about one fourth shorter than the line from humerus to tegula, its surface shining, finely punctate. Mesonotum before the furrows shining, with deep, sparse, coarse punctures irregularly disposed; behind the furrows finely punctate with a few large punctures intermixed and almost impunctate on its posterior part. Scutellum also shining, nearly impunctate. Propodeum very finely rugose-reticulate, with a broad median sulcus, deepest behind, the center of which is smooth and polished. Hind coxae shining, very minutely transversely aciculate. Abdomen of the usual form, sub-shining, the petiole nearly as long as the thorax. Propleura almost smooth, except for a small triangular, reticulate area behind; mesopleura and metapleura finely rugose punctate. Thickened portion of hind femora rather slender. First discoidal cell distinctly foursided; cubitus arising at the same point as the basal vein; first discoidal cell one third as long as the first section of the cubitus.

Type from Mfongosi, Zululand (W. E. Jones) Dec. 1916.

This species may be readily known by the sulcate metathorax and the nearly equal first four antennal segments.

### TRICHOFOENUS, Kieffer.

#### TRICHOFOENUS PEDICELLATUS, sp. nov.

♀. Length 11 mm.; ovipositor 6 mm. Black, three basal segments of abdomen rufo-piceous; spot at base of all tibiae pale yellowish; extreme apex of four anterior tibiae, basal three joints of front tarsi and half of basal joint of middle tibiae, pale yellow; antennae piceous brown, black at base; wings hyaline, with a brownish tinge. Head about twice as long as wide, very long behind the eyes, its width at vertex less than half that just above the eyes; surface subopaque, but not distinctly punctate nor striate; vertex with a fine, but not transparent carina; posterior ocelli more than three times as far from the vertex as from one another; face silvery pubescent medially as well as on the sides; malar space wanting. Scape of antennae twice as long as thick, distinctly longer than the pedicel, first flagellar joint one half longer than the pedicel; second distinctly longer than the

first and much thicker. Neck very long, one fourth longer than the distance from the tegula to the anterior margin of the mesonotum; its surface coarsely shagreened. Mesonotum and scutellum shagreened, sub-shining; parapsidal grooves indicated by crenate lines; scutellum separated by a smooth, straight, grooved line, preceded by a crenate groove that extends laterally and forward past the tegula; lateral crenate furrows of scutellum not very deeply impressed. Propodeum with a raised, rounded smooth median line; finely reticulate elsewhere; its posterior face gently declivous. Hind coxae transversely striate on apical half minutely roughened basally, on the sides, and below; hind tibiae only moderately thickened apically. Propleura shagreened, with a vertical and horizontal crenate line meeting below and defining a large triangular area; mesopleura reticulate, except for a small shagreened space above; metapleura reticulate. Wings with the cubitus arising just below the basal vein; second and third sections of radius equal, each one-fourth longer than the first; first discoidal cell two-fifths as long as its petiole, scarcely four-sided, the very oblique apex nearly as long as the lower side. Abdominal petiole slightly longer than the thorax; abdomen rather dull and more distinctly pubescent than usual, as is the entire body. Sheaths of ovipositor black, except for an obscure rufous spot at the extreme tip.

Type from Mfongosi, Zululand (W. E. Jones), February 1914.

The eyes are distinctly hairy and the species belongs to this genus as defined by Kieffer. It is most closely related to *T. scutilicauda* Kieffer from Australia.

#### EVANIA, Fabricus.

##### EVANIA APPENDIGASTER, Linné.

There are numerous specimens from Durban and Cape Town.

##### EVANIA PERINGUEYI, Cameron.

Ann. S. Afr. Mus., vol. 5, p. 19. (1906).

This is undoubtedly the widespread *E. appendigaster* L. The type is identical structurally, but differs in the paler color of the legs, parts of the body and venation of the wings, due evidently to its being a teneral, not fully colored specimen.

EVANIA FULVOSPINA, Cameron.

Ann. S. Afr. Mus., vol. 5, p. 21. (1906).

In addition to the type from Cape Town there are three specimens from Mfongosi, Zululand (W. E. Jones) and one from Pilgrim's Rest, Transvaal (L. Schunke).

The parapsidal furrows are not clearly defined, but are present in the type, which is a female and in the female from the Transvaal. In the Zululand examples, all males, they are somewhat more distinct. In the male the abdominal petiole is much longer, nearly twice as long as the upper edge of the propodeum.

This species is evidently very similar to the European *E. incerta* Kieffer, which I have not seen.

EVANIA RUFISCAPA, sp. nov.

♂. Length 3.6 mm. Black, first three joints of antennae below and the four anterior tibiae rufous; wings hyaline, venation paler than usual, except near the costa; tegulae rufo-piceous. Head and thorax shining, only very sparsely white pubescent above, more strongly so on the sides. Front faintly excavated above the antennae and with a trace of a carina on each side from the base of each antenna upward toward the ocelli; rugose-punctate, more finely so medially and with indications of vertical striae or aciculations; vertex with rather large, irregular, scarcely confluent punctures; ocelli in a very low triangle, the posterior pair as far from the posterior margin of the head as from one another and only half as far from the eye; face strongly convex, with rather coarse irregular striae converging toward the mouth, with a groove extending from the inner base of each mandible nearly to the eye; cheeks striate like the face, less than half as long as the eye; head behind smooth and polished. Antennal scape as long as the following two joints; second joint scarcely longer than wide, half as long as the third; fourth fully as long as the second and third together and the following about three times as long as thick; mesonotum with distinct, deeply impressed parapsidal furrows; with large, shallow, well-separated punctures; smooth along the sides; scutellum with similar, more or less confluent punctures. Propodeum with its posterior surface nearly vertical and slightly concave, finely reticulate before the petiole; coarsely so elsewhere as are also the metapleurae. Mesopleura with the polished space occupying almost all of its upper half. Metasternal process long, with short, divergent arms. Petiole of abdomen twice as long as the space separating it from the scutellum; rather finely and somewhat irregularly grooved

longitudinally, except at the extreme base. Legs rather long, hind tibia and femur together as long as the body; hind tibiae distinctly spinulose on the outer surface, longer spur slightly over half the length of the metatarsus; tarsal claws bifid at apex. Basal vein parallel with the subcosta on its upper two thirds, but not unusually close to it; cubitus arising near the upper end of the basal, so that the upper section is only half as long as the transverse cubitus; the latter but little more than half the length of the first section of the cubitus; first recurrent nervure (transverse discoidal of Kieffer) suddenly bent upward at tip; apex of radial cell blunt, the radius entering the costa almost at a right angle; six frenulum hooks.

Type from Mfongosi, Zululand, Feb. 1914. (W. E. Jones.)

This species is related to *E. divergens* Kohl. from West Africa, differing in the length of the antennal joints and the form of the radical cell. From *E. rimosa* Enderlein, also from West Africa it differs by its non-carinate scutellum and in the conformation of the basal joints of the antennae. It is also much smaller than either of these species.

#### PROSEVANIA, Kieffer.

##### PROSEVANIA AFRA, Kieffer.

Ann. Soc. Ent. France, vol. 80, p. 157. (1911).

Das Tierreich, Lief. 30, p. 63. (1912).

Three specimens from Mfongosi, Zululand (W. E. Jones) extend considerably the known range of the single African species which was described from San Antonio in the Congo. The genus is well represented in the East Indies.

#### BRACHYGASTER, Leach.

##### BRACHYGASTER BIDENTATA, Kieffer.

Bull. Soc. Ent. France, 1911, p. 304 (diagnosis)

Das Tierreich, Lief. 30, p. 36. (1912). (description)

A ♂ specimen from Potchefstroom, Transvaal (T. Ayres), another from Bulawayo, Southern Rhodesia, and a third, from Kaapmuiden, Transvaal (R. W. Tucker), Oct. 30, 1918. This species was described from the Transvaal. The Rhodesian example has the third and fourth antennal joints a little longer, the prongs of the metasternal process less divergent and a few striae on the petiole, thus approaching *B. minuta*, var. *aethiopica* Kieffer, although it has the sides of the face carinate as in *B. bidentata*.

FAMILY BRACONIDAE.

SUBFAMILY STEPHANISCINAE.

OGMOPHASMUS, Enderlein.

Archiv Naturgesch. Abth. A. Heft 2, p. 13 (July 1912).

Cameron, Ann. Soc. Ent. Belgique, vol. 56, p. 368 (October 1912)  
(*Rhopalospathius*).

There is no doubt that *Rhopalospathius* is the same as *Ogmophasmus*, and possibly the type species may be identical.

OGMOPHASMUS ERYTHROTHORAX (Cameron).

Ann. Soc. Ent. Belgique, vol. 56, p. 371 (1912) (*Rhopalospathius*).

There are two specimens of this species of this species from Mfongosi, Zululand (W. E. Jones), January 1917 and March 1917. These may represent a new species but agree well with Cameron's description. The base of the stigma is white and the head and thorax are both in great part rufous.

SUBFAMILY SPATHIINAE.

SPATHIUS, Nees.

SPATHIUS STRIATICEPS, sp. nov.

♀. Length 4.5 mm.; ovipositor as long as the body. Piceous varied with yellowish brown. Front, except margins; apical part of antennae; thorax, except prothorax; and petiole of abdomen piceous; remainder of body and legs pale, including tegulae; the abdomen stained with rufopiceous, and the femora blackened above. Wings nearly hyaline, stigma black with pale base; veins dilute brown. Front, vertex and face, except for two median tubercles, transversely striate; head behind smooth. Head considerably wider than long, the occiput deeply emarginate, with a strong carina; ocelli on a smooth tubercle, very close together; eyes entire, small, broadly oval, nearly twice as long as the smooth malar space. Antennae very long and slender; scape short,

obovate; first flagellar joint one-half longer than the second and fully twice as long as the scape; succeeding joints shorter. Pronotum coarsely transversely wrinkled above. Mesonotum about as long as wide, shagreened, transversely striate anteriorly on the sides, the middle lobe sharply declivous in front; parapsidal furrows coarsely transversely striate on the anterior half of the mesonotum, the striae extending more or less beyond the furrows; behind they are separated from a smooth median furrow by a fine raised line; basal groove of scutellum composed of four elongate foveae separated by short carinae; disc of scutellum only slightly convex. Propodeum more or less transversely reticulate, with a large area on each side that is smooth basally; superomedian area lozenge-shaped, more acute in front. Abdominal petiole nearly as long as the thorax, of even width, the spiracles tuberculate, placed at its anterior third; surface above irregularly, more or less longitudinally reticulate; body of abdomen highly polished, no longer than the petiole; second segment gradually widened behind where it is nearly as wide as long; following segments rapidly narrowed, together but little less than half as long as the second. Propleura finely rugose-reticulate below, above with some longitudinal striae, between with a horizontal impression crossed by some coarse striae or carinae. Mesopleura smooth with the oblique furrow crenate and with some foveae to the sides anteriorly, with a coarsely crenate line inside the posterior margin. Metapleura reticulate, much more coarsely so near the propodeum. Legs long and slender, the femora thickened, obclavate; hind coxae with a minute tooth below at the base. Body and legs clothed with sparse whitish hair. Radial cell nearly attaining the wing tip; third section of radius as long as the other two together; first one-third as long as the second; nervulus interstitial; recurrent nervure long, entering near the base of the second cubital cell; the latter somewhat widened toward the apex which is only one third shorter than the top; nervellus originating distinctly below the recurrent nervure; hind wing with the radial cell simple, the submedian cell two-thirds as long as the median.

Type from Mfongosi, Zululand (W. E. Jones), April, 1916. Three paratypes, from Acornhoek, Eastern Transvaal (R. W. Tucker), November 1918. In the paratypes the striation of the head does not extend above the ocelli, but they appear otherwise to be identical with the type.

This species and the following differ from most members of this highly polymorphic genus in the non-globose head, with deeply emarginate occiput.

SPATHIUS LAEVICEPS, sp. nov.

♀. Length 4.5 mm.; ovipositor one-fourth longer than the body. Entirely dull fulvous, the tarsi and the antennae toward tips, darkened; sheaths of ovipositor piceous. Wings subhyaline; stigma pale yellow, veins piceous. Head entirely shining and without sculpture; considerably wider than thick, the temples arcuately rounded, much narrower than the eyes; occipital deeply and broadly emarginate; occipital carina strong but not distinctly raised; ocelli small and very close together; front nearly flat. Eyes of moderate size, broadly oval, three times as long as the smooth malar space. Antennal scape short, obovate; first flagellar joint nearly twice as long as the scape; second noticeably shorter, following decreasing, but all long and slender. Pronotum very coarsely and irregularly transversely wrinkled. Mesonotum sub-shining, shagreened, the middle lobe strongly convex; parapsidal furrows deep anteriorly where a few of their transverse ridges extend to the sides of the middle lobe; behind more shallow and confused with some foveae and short transverse ridges that extend between them and slightly on to the lateral lobes. Scutellum shining, with four foveae at base separated by sharp ridges. Propodeum areolate behind, the carinae distinct, but not strongly elevated; superomedian area pentagonal, with a posterior side adjoining the petiolar area; nearly smooth anteriorly, rugulose-reticulate posteriorly. Propleurae rugulose below, coarsely longitudinally wrinkled above. Mesopleura with the center smooth and shining; the lower oblique furrow and anterior margin crenate; upper corner horizontally wrinkled; posterior edge with a crenate furrow. Metapleura reticulate. Hind coxa with a minute tooth at its lower angle, the femora obclavate; legs clothed with stiff pale hairs. Abdominal petiole nearly as long as the thorax, of nearly even width, finely and irregularly reticulate or rugose, without distinct longitudinal sculpture; second segment widened to the tip, considerably longer than wide; following short and narrowed. Basal vein straight; nervulus very slightly postfurcal; radial cell almost reaching the tip of the wing; third section of radius slightly longer than the other two sections together, second nearly three times as long as the first, one-half longer than the second transverse cubitus and as long as the first; recurrent nervure long, received a considerable distance beyond the base of the second cubital cell, the latter parallel, not widened toward apex; nervellus originating distinctly below the recurrent nervure. Radial cell of hind wing simple, not divided; submedian cell two-fifths as long as the median.

Type from Komati Poort, Eastern Transvaal (R. W. Tucker), November 1918.

This species is readily distinguished from the preceding by its pale body and stigma as well as by the sculpture of the head, thorax and abdominal petiole.

SUBFAMILY HORMIINAE.

SPATHIOHORMIUS, Enderlein.

SPATHIOHORMIUS DENTATUS. sp. nov.

♀. Length 5.5 mm.; ovipositor distinctly longer than the abdomen. Black, the orbits and base of antennal flagellum and tegulae rufopiceous; legs marked with pale brownish yellow as follows: fore legs, including coxae, except middle of femora; middle legs, beyond coxae, except spot on femora, hind trochanters and tibiae and tarsi, except tips. Body and legs with sparse, stiff, pale hairs. Wings yellowish hyaline, stigma piceous, pale at base; veins fuscous, costa fulvous at base. Head a little broader than long, the temples short, arcuately narrowed; vertex and head behind shagreened; front narrowed toward the base of the antennae, the ocelli not much farther from the eye than from another, face convex, nearly smooth; eyes large, slightly emarginate next to the antennae; malar space less than half the diameter of the eye, without a distinct furrow. Antennae as long as the body, very slender, with more than 30 joints; scape twice as long as thick, flagellar joints all very long and slender, the first to fourth very slightly decreasing in length. Pronotum coarsely transversely wrinkled; mesonotum nearly twice as long as broad, its surface shagreened; parapsidal furrows not meeting behind, marked by large shallow foveae, between them near the base of the scutellum are two raised lines defining a median groove. Scutellum weakly convex, carinate laterally at the base, basal furrow broad, with several cross lines near the median line. Propodeum with four large basal areas defined by carinae, the median ones more than half as long as the propodeum; areas shagreened, apical portion rugose-reticulate. Propleura, above, longitudinally reticulate, below and the prosternum shagreened. Mesopleura below with a deep, narrow horizontal groove extending its entire length, its surface bare; shagreened; anteriorly above with a more or less triangular raised area separated by an arcuate furrow, and with a smooth furrowed line next to the posterior margin. Metapleura reticulate, its edge produced into a small tooth just above the middle coxa. Abdomen slightly longer than



the thorax, subsessile or slightly clavate, the first segment fully twice as long as broad at tip; sides evenly narrowed, the base more than half as wide as the apex. Entire dorsum of abdomen regularly, coarsely longitudinally striate, with minute transverse lines between the striae; the first segment with two of the striae on each side thickened at the base to form short carinae; second and third segments together as long as the first, the second longer than the third, suturiform articulation broad and shallow, but well marked; fourth segment transverse with a constriction or impressed groove near the base; fourth segment with four large teeth at apex, the median pair acute, separated by an angular emargination, the lateral obtuse, separated inwardly by an arcuate emargination and externally by a sinuation of the lateral margin of the segment. Legs short and thick, the femora stout, especially the posterior pair; these only two-thirds the length of the tibiae and less than four times as long as thick; hind coxae with a blunt tooth at the lower angle; the legs and especially the tibiae with the sparse whitish hairs very stiff and bristly. Wings with the median vein only slightly curved; nervulus very short, postfurcal by its own length; cubitus, discoidal and middle section of radius parallel as are also the basal, first transverse cubital and recurrent nervure, the latter received at the base of the second cubital cell; radial cell nearly attaining the wing tip, the third section of the radius as long as the first and second; second three times as long as the first and twice as long as the second transverse cubitus; nervellus interstitial with the discoidal vein; stigma emitting the radius at its middle. Hind wing with the radial cell simple, indistinct; sub-median cell as long as the median.

Type from Mfongosi, Zululand (W. E. Jones), April 1916.

This peculiar species might easily be separated as a distinct genus or subgenus on account of the dentate apex to the abdomen, but it agrees otherwise closely with Enderlein's diagnosis of *Spathiohormius*, which is unfortunately unknown to me in nature.

#### HORMIOPTERUS, Giraud.

##### HORMIOPTERUS CAPENSIS, sp. nov.

♀. Length 4.5 mm.; ovipositor nearly as long as the abdomen. Black; underside of scape and of flagellum at base, and tarsi fuscous; trochanters more or less piceous. Wings hyaline, with fuscous markings as follows: spot before middle of median cell; crossband extending from just before nervulus to origin of nervellus; apical portion beyond middle of stigma, darkest in radial cell and much weaker

near wing tip, with a hyaline spot just beyond the stigma and a streak along the second transverse cubitus; veins piceous; stigma black, with the basal third whitish. Head scarcely broader than thick, the temples broad; rugulose above, the face shagreened, cheeks and head behind, faintly shagreened, polished; ocelli in a nearly equilateral triangle, nearly three times as far from the eyes as from one another. Eyes small, oval, no longer than the malar space, which is smooth, without furrow. Antennae with more than 20 joints; scape elongate-oval, no longer than the first flagellar joint which is four times as long as thick; second one-fourth shorter, following decreasing in length, those toward apex fully twice as long as thick. Mesonotum and scutellum rather coarsely shagreened; parapsidal furrows weakly foveate in front, the inner edges sharply marked as the middle lobe is raised above the lateral ones anteriorly; behind evanescent, with some longitudinal wrinkles between them next to the scutellum. Posterior edge of mesonotum indicated by a linear impression; basal scutellar furrow deep, foveate; disc very convex, with a lateral carina at base; propodeum longitudinally striate above, except for a rugulose spot basally above at each side. Propleura irregularly wrinkled near middle, shagreened above and below. Mesopleura irregularly wrinkled above, shagreened on the upper anterior portion, nearly smooth below, with a horizontal row of large, very shallow foveae, its posterior edge with a coarsely punctate line. Metapleura shagreened in front, shagreened behind, with a finely punctate line next to the mesopleura. Abdomen as long as the head and thorax; first and second segments coarsely longitudinally striate or wrinkled, with minute cross-reticulations between; second segment more finely striate at base, the striae weaker beyond and disappearing before the hind margin, sides shagreened; third finely striate at extreme base and very faintly so beyond the disc, its apex and the following segments shining, faintly shagreened. First segment gradually widened behind, apex less than twice as wide as the base; length one and one-half times the apical width; second segment at apex more than twice as broad as long, the suturiform articulation straight, indistinctly impressed; third segment with a shallow curved impression at base, extending from the anterior angles to the basal third of the segment on the median line; second third and fourth segments of about equal length, fifth longer, sixth half as long. Median vein strongly bowed downwards on its apical half, nervulus very slightly postfurcal; upper discoidal cell with its sides and ends parallel; lower discoidal nearly four times as long as high; recurrent nervure interstitial; radial cell ending not far before the wing tip, the third section of the radius as long as the second

and the very short first together; second cubital cell parallel, its upper side less than twice as long as its apex; stigma narrow, emitting the radius beyond its middle; radius of hind wing obsolete, the submedian cell less than one-third as long as the median.

Type from Cape Town (L. Péringuey), 1909.

This is a true *Hormiopterus* as limited by Enderlein (1912), the first one to be described from this region.

#### SUBFAMILY PAMBOLINAE.

#### Gen. PAMBOLUS, Hal.

#### PAMBOLUS ACICULATUS, sp. nov.

♀. Length 2 mm. Uniformly fulvous, the antennae becoming darker beyond the middle and piceous at the tips. Wings entirely absent. Head but little wider than thick; the eyes strongly protuberant, nearly circular, with large ommatidia. Ocelli very small, in an equilateral triangle, the paired ones one-half farther from the eye than from one another; head rounded and narrowed behind the eyes, the occiput and temples strongly margined. Antennae 15-jointed, a little longer than the body; scape short, pedicel rounded; first flagellar joint one-half longer than the scape and distinctly longer than the second; following gradually shorter, none less than three times as long as thick. Surface of head shining, with a faint trace of sculpture. Thorax more than twice as long as wide; very coarsely reticulated; prothorax visible from above as a broad collar; mesonotum much widened behind; tegulae reduced to very minute scales. Scutellum with an acute erect tooth; propodeum obliquely sloped. Pleurae more or less finely aciculate; mesopleura partly smooth. Abdomen regularly oval, more than twice as wide as the thorax and distinctly longer than the head and thorax combined; twice as long as wide; second segment slightly longer than the third and twice as long as the first; first segment with a transverse carina at the base, longitudinally aciculate, the lines extending to the second segment, but becoming finer and nearly obsolete before its apex; both sutures distinct the first deeper and broader; third segment shining, with the faintest trace of some longitudinal aciculations. Legs long and slender.

Type from Cape Town, April, 1886.

This is the first species of the genus to be discovered in the southern part of Africa. It should be recognized by the 15-jointed antennae and the configuration of the abdomen.

## SUBFAMILY BRACONINAE.

## MICROBRACON, ASHM.

There are several species in the present collection which I have referred provisionally to this genus. Some could easily be placed in other genera that have been segregated from the old genus *Bracon* (*sensu auctorum*). One or two others might be made types of new genera, but the time does not seem ripe to attempt any grouping that can be of permanent value, for it is very evident that only a small part of the existing species have been studied. The following key will serve readily to distinguish those here included. *M. howardi* Viereck from Mozambique is different from any of these species. *M. latilineatus* and *M. propinquus* described by Cameron from the collections of the Berlin Zoological Museum, I have not seen and could not be included in the key.

*Key to species.*

1. Hind femur enlarged, with a long tooth below near the middle  
*(Braconella) minor* Szépligeti.
  - Hind femur normal, without tooth . . . . . 2.
2. Mesonotum shagreened, opaque . . . . . 3.  
 Mesonotum shining, more or less punctate . . . . . 7.
3. Propodeum with a longitudinal groove or carina, extending for its entire length . . . . . 4.  
 Propodeum without a median carina or groove, except sometimes toward apex . . . . . 5.
4. Head black, abdomen pale with segments three and four black; antennae entirely black . . . . . *latifasciatus* sp. nov.  
 Head and abdomen pale; antennae black, with a pale annulus  
*annulicornis* sp. nov.
5. Head and thorax black, sharply maculate with pale yellow; abdomen pale at base, with black apex . . . . . *hieroglyphicus* sp. nov.  
 Thorax not clearly maculate . . . . . 6.
6. Second section of radius twice as long as the second transverse cubitus  
*zuluorum* sp. nov.
  - Second section of radius not longer than the second transverse cubitus  
*jonesi* sp. nov.
7. Antennae 14-jointed, scarcely more than half as long as the body  
*curticornis* sp. nov.
  - Antennae many-jointed, of the usual length. . . . . 8.
8. Apex of first discoidal cell not much narrower than the base . . . . . 12.  
 Apex of first discoidal cell only about half as wide as the base; abdomen more distinctly sculptured and usually more or less opaque . . . . . 9.

9. Second segment finely rugose; following shining, sparingly shagreened; abdomen black. . . . . *ceres* sp. nov.  
 Second segment sculptured like the third, abdomen pale . . . . . 10.
10. Second abdominal segment with a small, distinct raised median area 11.  
 Second segment without a raised median area although faintly striate, with the striae divergent at this point; in great part black (cf. also *Bracon celer* Szep.) . . . . . *sesamiae* Cam.
11. Second and third segments minutely rugose-reticulate, shining; following segments smooth . . . . . *monitor* sp. nov.  
 Abdomen minutely rugulose, surface opaque. . . . . 13.
12. Abdomen shining, fulvous, delicately shagreened; wings hyaline; legs pale . . . . . *postfurcalis* sp. nov.  
 Abdomen rugose throughout, light yellow at base, piceous apically; wings infuscated; legs wholly black. . . . . *sectator* sp. nov.
13. Base of second segment with three smooth raised areas at base, a median one and one to each side; mesonotum black, with a large central white area . . . . . *tuckeri* sp. nov.  
 Base of second segment with only the usual median area; mesonotum fulvous . . . . . *praeceptor* sp. nov.

MICROBRACON (*Braconella*) minor SZÉPLIGESI.

Ann. Mus. Nat. Hungarici, vol. 4, p. 587. (1906).

♀. Length 3.5 mm.. Black, varied with yellowish and ferruginous. Head and temples below the level of the antennae pale honey yellow, including the palpi and an orbital stripe, widened above tegulae, and propleurae ferruginous; abdomen to apex of fifth segment ferruginous; front legs entirely, middle ones beyond coxae, and trochanters, tips of femora, basal half of tibiae, calcaria, and four apical joints of tarsi of hind pair, pale ferruginous; wings subhyaline, stigma and veins black. Body, especially the thorax and hind legs, clothed with short white pubescence. Head transverse, almost twice as broad as long, rounded and narrowed behind the eyes; occiput shining, faintly shagreened; front subopaque, more coarsely shagreened; ocelli on a triangular tubercle which is as broad as its distance from the eye; face rugose; eyes scarcely emarginate opposite the antennae; malar space as long as the diameter of the antennal scape; antennae 27-jointed; scape twice as long as thick; first and second joints of flagellum subequal, less than twice as long as thick; joints near middle slightly shorter, apex becoming very slender. Mesonotum with broad shallow furrows that spread out behind to form a flattened triangular area before the sides of the scutellum; surface shining, faintly rugose-punctate; scutellum with a punctate furrow at base, nearly smooth, as long as broad. Propodeum without

furrow or median carina, its posterior slope smooth and polished; base and sides finely rugose punctate. Abdomen rather broad, its surface opaque, very finely rugose; first segment with the apical area finely sculptured, twice as wide as the smooth lateral space; no distinct lateral carinae; second segment as long as broad at base, with no tubercles or distinct grooves; third segment two-thirds as long as the second, separated by an arcuate, feebly crenulated furrow; third segment with faint indications of separated anterior angles; this and following segments not rimmed apically. Mesopleura with trace of a furrow below, shining, with delicate rugoso-punctate sculpture; metapleura separated from propodeum by a deeply impressed furrow below the round spiracle. Four anterior legs as usual; hind pair distinctly thickened, the femora with a long slender, oblique tooth below at the middle, directed toward the knee; femora broad, much compressed; tibiae very strongly compressed as is also the metatarsus in a lesser degree. Radial cell extending almost to wing-tip; radial vein issuing from middle of stigma, its first section two-thirds as long as the second; third as long as the other two combined; second cubital cell not narrowed toward tip, its apex half as long as its upper side; first discoidal cell with a short petiole, its upper and lower sides but weakly convergent; recurrent nervure received nearly its own length before the apex of the first cubital cell.

A specimen from Mfongosi, Zululand (W. E. Jones), April 1917; and a second one from Bulawayo, S. Rhodesia, (H. C. Pead), 1911.

The toothed hind femora are quite an unique character recalling those of *Helcon* or of certain Ichneumonidae. Otherwise the species presents no striking peculiarities which would set it off from many species of the *Microbracon*. In the specimen from Bulawayo the abdomen is dark basally on to the third-segment and the third and following have the apical margin pale. Originally described from Tanganyika Territory.

MICROBRACON ANNULICORNIS, sp. nov.

♀. Length 5 mm. Yellow and ferruginous, varied with black on the thorax and apex of abdomen. Head pale honey yellow, the face and cheeks light testaceous, ocellar space black, antennae black with a pale annulus, with basal two joints ferruginous; thorax ferruginous; propodeum above, a spot on mesonotum behind tegulae and a spot on mesopleura black; legs yellowish, fourth abdominal segment somewhat infuscated. Head twice as wide as thick, sharply narrowed behind the eyes; vertex and front finely shagreened; ocelli on a rounded tubercle that is scarcely as wide as its distance from

the eye. Eyes faintly emarginate next to the antennae, their margins not convergent below; face finely rugulose; malar space as long as the thickness of the antennal scape. Antennae about as long as the body, with more than 29 joints (tips broken) joints 22-28 pale yellow, almost white; scape twice as long as thick; first and second joints of flagellum of equal length, each distinctly more than twice as long as thick; all joints longer than thick; apex of antenna not noticeably thinner than base of flagellum. Mesonotal furrows not very broad nor deeply impressed, their inner edges almost meeting behind, but the outer edges not defined, merging into the flattened surface of the mesonotum. Scutellum with a broad crenate furrow at base, not very convex. Propodeum finely rugulose at base, reticulated apically, with a deep median furrow on basal half; at apex with a median carina and several oblique striae connected with it. Sides of propodeum more noticeably white pubescent than the rest of the body. Abdomen rather short and broad, convex above; first segment reticulate, the median portion nearly an equilateral triangle, defined by an impressed line; side portion more than half as wide as the median lobe, depressed and smooth only along the lateral edge. Second segment much shorter than broad at base, finely striate-reticulate, with a tubercle medially at base, but without distinct basal area; sides without any grooves; suturiform articulation, rather broad and deep, striate, sloping forward toward the middle and also sharply at the lateral angles; third segment shorter than the second, sculptured like it at base, but a smoother apically, its anterior angles indistinctly set off by a curved, faintly impressed groove, without a distinct rim; following segments shagreened, successively smoother. Ovipositor slightly more than half the length of the body. Pleurae rather evenly shagreened, mesopleura without groove; with a small impression near the middle of the slope near the metapleura; metapleura with a groove above just below the small round spiracle. Legs slender. Wings subhyaline; stigma and veins nearly black; radius issuing from the middle of the wing and nearly attaining the wing tip, its first section less than half as long as the second; third as long as the other two together; second cubital cell distinctly narrowed toward apex; second transverse cubitus considerably shorter than half the second section of the radius; first discoidal cell with a short petiole, its upper and lower sides very strongly convergent; recurrent nervure received about two thirds its length before the apex of the first cubital cell.

Type from Mfongosi, Zululand (W. E. Jones), April, 1916. A second

specimen from the same place, April 1917 is considerably smaller (3.2 mm.) and has a noticeable carina at the sides of the lobe of the first abdominal segment. It is otherwise identical, including the pale annulus on the antenna.

MICROBRACON LATIFASCIATUS, sp. nov.

♀. Length 3-3.5 mm. Head and abdomen yellowish, second and third segments black; thorax mostly piceous; legs pale; wing subhyaline. Head brownish yellow, lighter below, infuscated medially above and on the occiput; ocellar spot black; thorax piceous; propleurae, upper part of mesopleura, tegulae and metapleura at base of hind wings yellow or brownish; posterior part of parapsidal grooves obscurely honey-yellow; abdomen pale yellow, the third segment, except the extreme basal angles, and the fourth segment entirely, black; legs brownish yellow, hind coxae black, last tarsal joint black; hind legs with the femora infuscated on apical half, the tibiae at tip and the tarsi beyond the base of the metatarsus. Head distinctly more than twice as broad as thick, very strongly narrowed behind the eyes. Ocellar tubercle as long as its distance from the eye-margin. Head above shagreened, shining; face minutely rugulose, the eyes convergent below and faintly emarginate opposite the antennae; malar space as long as the scape of the antenna. Antennae 26-jointed, brownish at base, black beyond; scape small, about twice as long as thick; first flagellar joint slightly longer than the second, nearly three times as long as thick; second to seventh subequal, twice as long as thick; apical joints gradually narrowed. Mesonotum coarsely shagreened and with well separated punctures intermixed. Parapsidal furrows strongly impressed, widened behind; mesonotum convex throughout. Scutellum convex, separated by a very broad and deep furrow at base. Propodeum shagreened, somewhat shining medially; with a median impression at the base, narrowed behind and giving place to a carina near the apex. Abdomen rugose reticulate, more finely so beyond the base of the third segment; first segment with a flat smooth space in the center, the apex and sides reticulated, with a triangular smooth lateral space where the segment is widened at apex. Second segment with a very poorly defined, small, elongate, posteriorly narrowed, median basal area, also with a distinctly impressed, broad, slightly crenulate groove extending from each basal angle backward and slightly inward to near the posterior margin; second segment two-thirds as long as the second medially, its anterior angles very weakly separated by a slight curved depression; third and following segments narrowly and weakly rimmed at apex. Ovi-



positor as long as the abdomen. . Legs rather slender. Wings subhyaline; radial cell nearly reaching the wing-tip; stigma broad, the radius issuing from its middle, the first section slightly more than half the length of the second; third considerably longer than the other two together; second cubital cell scarcely narrowed apically, the second transverse cubitus nearly two thirds as long as the second section of the radius; first discoidal cell moderately narrowed toward apex; recurrent nervure received its own length before the apex of the first cubital cell.

Type from Mfongosi, Zululand (W. E. Jones), May 1916. Paratypes from the same place, April and May 1916.

MICROBRACON HIEROGLYPHICUS, sp. nov.

♂. Yellow and fulvous, boldly maculate with black; wings lightly infuscated, more distinctly so at base. Head pale yellow, black behind and on the ocellar space, the two black areas often broadly connected and extending to the antennae; posterior orbits always pale; antennae entirely black; mesonotum black, middle lobe broadly behind, and lateral lobes in front and on the sides to the tegulae, pale yellow; parapsidal furrows sometimes fulvous; scutellum yellow, sometimes with a black spot medially at base; propleura black; mesopleura entirely, and metapleura in front, varied with yellow and fulvous; abdomen pale yellow, black beyond the middle of third segment, although the black does not include the sides of the third and fourth nor the extreme base of the fourth segments; legs fulvous; the two or four posterior coxae and hind legs from near apex of the tibiae black. Head twice as broad as thick, very strongly and roundly narrowed behind the eyes; ocellar area very indistinctly raised. Head above and behind sub-shining, shagreened; face shining, very faintly shagreened; malar space distinctly shorter than the scape of antennae, face broad, eyes indistinctly emarginate opposite the antennae. Antennae 23-24 jointed; scape short and thick, but little longer than wide; first flagellar joint barely longer than the second, both about twice as long as thick; following very gradually decreasing in length, the antenna gradually becoming very slender toward tip. Mesonotum with the parapsidal furrows weakly impressed, obsolete behind, convex in front, but with the middle lobe flat behind the middle. Scutellum separated by a very narrow, finely crenulate furrow, almost flat except at sides and apex. Propodeum shining, delicately shagreened, with a median carina on the apical half. Abdomen striate-reticulate on second and base of third segment, coarsely shagreened; first segment with the middle lobe convex, roughened, depressed at sides; between

the lobe and the sides with a rather prominent carina; second segment over half as long as wide at base, without median basal area or lateral grooves; third segment coarsely striate at base, fourth with a crenate furrow at base; edges of segments without distinct rim; posterior margin of second segment weakly emarginate at center, turned sharply forward at sides; lateral angles of third not separated. Legs slender. Wings with very broad stigma; radius issuing from its middle, reaching almost to the wing tip, its second section only one-third longer than the first; third much longer than the others together; second cubital cell short, distinctly narrowed apically, the second transverse cubitus almost as long as the second section of the radius; first discoidal cell not petiolate, basal vein twice as long as the recurrent nervure; recurrent nervure received in its own length before apex of first cubital cell.

Type and four paratypes from Mfongosi, Zululand (W. E. Jones), May 1917. The species is rather striking on account of its bold color pattern and sessile first discoidal cell.

MICROBRACON JONESI, sp. nov.

♀. Length 4.5 mm. Body, wings and antennae much more elongate than usual. Fulvous brown, only the last joint of the tarsi and the flagellum of antennae infuscated; wings hyaline with a yellowish tinge; stigma pale yellow, neuration piceous. Head twice as broad as thick, eyes very prominent, projecting much more than usual; temples full behind the eyes, then suddenly narrowed, occiput strongly concave; head above, and face shining, faintly shagreened; ocellar area convexly raised, farther from the eye-margin than its own width; face nearly twice as broad as high; eyes small, little higher than broad; malar space half the eye-height. Antennae incomplete in the type, with more than 25 joints; scape very broad at tip, no longer than thick; flagellar joints long and slender, increasing in thickness from the base to the 25th joint. First antennal joint distinctly longer than the second, nearly three times as long as thick, following gradually growing shorter. Mesonotum and scutellum rather shining, shagreened; parapsidal furrows broad and very deep in front, narrowed and disappearing behind at the middle of the mesonotum; middle lobe convex and suddenly declivous in front; slightly concave behind; disc of scutellum flat, with an impression in the middle, its base separated by a broad, shallow, crenulate furrow. Propodeum short, rugulose, without median line or furrow, below the spiracle with a groove separating it from the metapleura. First segment of abdomen flat at base, apically convex and roughened, except for the smooth depressed

sides, which are not separated by a distinct carina. Second and third segments very finely reticulate-striate, following ones more still finely reticulate or shagreened. Second segment nearly as long as broad at base, without basal area, but with a sharply defined, delicately crenulate furrow on each side extending from the anterior margin near the lateral angle to the posterior margin just outside the median line; posterior margin defined by an evenly curved, shallow, finely striated, rather broad furrow; third to sixth segments scarcely decreasing in length, with a polished hind margin; anterior angles of the third not separated nor produced forward; the whole abdomen nearly flat above and elongate oval, its greatest width less than half its length from the base of the second to tip of eighth segment. Legs slender. Stigma rather narrow, the radius originating beyond its middle and ending distinctly before the wing tip; second section scarcely shorter than the first; third over twice as long as the other two together; second cubital cell scarcely narrowed toward tip; second transverse cubitus as long as the second section of the radius; first discoidal cell large, scarcely petiolate, distinctly narrowed apically although the recurrent nervure is as long as the first section of the cubitus; the former received less than its own length before the tip of the first cubital cell; nervellus originating just below the middle of the transverse discoidal vein. Ovipositor two-thirds as long as the abdomen.

Type from Mfongosi, Zululand (W. E. Jones), April 1917.

This species is more elongate than usual, with the abdomen less convex above and with very clearly marked grooves on the second segment.

MICROBRACON ZULUORUM, sp. nov.

♂. Length 2.8 mm. Brownish yellow, brighter on the head; ocellar space and antennae, middle lobe of mesonotum in front and the parapsides black; extreme tips of tarsi and abdomen, except at sides, infuscated. Wings nearly hyaline, stigma yellowish, venation fuscous. Head twice as wide as thick, strongly and rapidly narrowed behind the eyes; ocellar area strongly elevated, its diameter less than its distance from the eyes. Head above finely shagreened; face more coarsely so and less shining, somewhat broader than long; eyes scarcely emarginate opposite the antennae, rather large, the malar space nearly as long as the scape. Antennae 28-jointed, gradually becoming very slender toward the tips; scape narrow at base, widened apically, as broad as long; first and second joints of flagellum of equal length, each slightly more than twice as long as thick; those

immediately beyond scarcely shorter. Mesonotum moderately convex above, elevated, although the parapsidal furrows are not strongly impressed in front and disappear at the middle where they widen out to form a large flattened space on each side of the median line. Scutellum only slightly convex, with a rather broad but very shallow and weakly crenulated furrow at the base; entire mesonotum and scutellum shining and coarsely shagreened. Propodeum coarsely shagreened, with a median carina at the extreme apex and with a large curved furrow below the spiracle. First abdominal segment with the median part flat and much depressed, reticulate at apex, otherwise smooth; sides raised, reticulate and with a deeply impressed narrow line very close to the lateral margin. Second segment rugose-reticulate, more coarsely so at middle, coarsely shagreened at apex as is the entire surface of all of the following segments; considerably shorter than wide at base; without median basal area; its posterior margin straight at the middle but curved forward at the sides; its disk with a crenulated groove on each side arising near the anterior angle and sloping inward to end before the posterior margin at a considerable distance from the median line; suture at base of third segment rather deep, crenulated except at the lateral angles which are not distinctly separated by a groove; third segment smooth and with a slight rim on the posterior edge; pleurae uniformly shagreened. Legs slender. Ovipositor nearly as long as the abdomen. Wings with the stigma rather narrow, the radius issuing barely before its middle and extending quite to the extreme tip of the wing; its second section twice as long as the first, third equalling the others together; second cubital cell not narrowed toward apex, the second transverse cubitus nearly hyaline, less than half as long as the second section of the cubitus; first discoidal cell hardly petiolate, strongly narrowed apically, the recurrent nervure being about two thirds as long as the basal vein; recurrent nervure entering the first cubital cell less than its own length before the tip of the cell.

Type from Mfongosi, Zululand (W. E. Jones), March 1917.

MICROBRACON CURTICORNIS, sp. nov.

♀. Length 2.5 m.m. Black, conspicuously clothed with white hairs; the head, parapsidal grooves, large area on mesonotum and pleural spot, yellow; legs infuscated; wings distinctly brown basally, hyaline beyond the stigma; stigma and venation piceous, except basal section of cubitus, and second transverse cubitus, which are pale. Head less than twice as broad as thick, rather full behind the eyes, then suddenly narrowed; posterior surface and ocellar area

black, the latter moderately elevated, separated by its own width from the eye-margin; head shagreened, shining above, less so on the face, which is nearly twice as wide as long. Eyes rather small, the malar space somewhat longer than the scape of the antennae. Antennae 14-jointed, very short and stout, when folded back, barely attaining the apex of the thorax; scape swollen toward apex, but nearly twice as long as thick; first flagellar joint more slender and slightly longer than the second, which is scarcely longer than thick; following nearly quadrate, of equal width except for the more slender apical joint. Mesonotum and scutellum smooth and polished; the mesonotum very convex anteriorly with no impressed parapsidal furrows, although these are indicated by broad yellow stripes connected with a large quadrate yellow spot before the scutellum; mesonotum flat behind; scutellum nearly flat, separated at base by a narrow crenulate groove. Propodeum without median groove or carina, shagreened, shining, with a nearly straight groove below the spiracle. First segment of abdomen with the median lobe convex, shining, bordered on each side by a broad flat yellow space of equal width, separated from the lobe by a fine, impressed line. Second to fourth segments gradually decreasing in length, all the sutures very faintly impressed and smooth; surface shining, sparsely shagreened on the second and third segments; second one third shorter than wide at base, on each side with a short, oblique, smooth groove extending halfway to apex; abdomen only slightly convex and but little widened at the middle. Ovipositor half the length of the abdomen. Mesopleura smooth and polished, except anteriorly above. Legs rather slender, brownish, with the coxae and the trochanters and base of the four hind legs more or less blackish or fuscous. Stigma broad, the radius issuing from its middle and ending a considerable distance before the wing tip, its second section but little longer than the first; third nearly one-half longer than the other two together; second cubital cell slightly narrowed toward apex, its lower side convex; second transverse cubitus nearly as long as the second section of the radius; cubitus extending scarcely beyond the second cubital cell; first discoidal cell with a very short petiole, strongly narrowed toward apex, the recurrent nervure being only slightly more than half as long as the basal vein; recurrent nervure received less than its own length before the apex of the first cubital cell.

Type from Cape Town, 1915 (L. Péringuey).

## MICROBRACON POSTFURCALIS, sp. nov.

♀. Length 3.5 mm. Bright fulvo-ferruginous, the head including antennae, black, except for a short orbital stripe at the top of the eye. Wings rather strongly infuscated, stigma black, venation piceous. Head more than twice as broad as thick, rapidly narrowed behind the eyes, the occiput broadly emarginate; ocellar space strongly elevated, separated from the eye-margin by considerably more than its own width, vertex smooth and polished, viewed from the front its sides are seen to be strongly curved downwards; eyes not emarginate, highly convex, rather large, although the malar space is nearly as long as the antennal scape; face one-half wider than high, its surface subshining, shagreened. Antennae with more than 21 joints (tips broken), stout gradually tapering beyond the middle; scape nearly twice as long as thick; second flagellar joint distinctly longer than the first, about one-half longer than thick, others more nearly quadrate. Mesonotum convex throughout, with complete, smooth, distinctly impressed parapsidal furrows that converge only very slightly behind. Scutellum convex, separated by a smooth, straight furrow at base. Propodeum smooth, polished, without median groove or furrow; laterally with a straight furrow below the spiracle. Pleurae entirely smooth and shining. First segment of abdomen with the median lobe large, pyriform, smooth, only slightly convex; lateral portion depressed, broken by a short oblique carina at the middle. Second and following segments rather shining, but distinctly shagreened, broad and strongly convex; second segment entirely without median basal area or lateral grooves, the suturiform articulation narrow, straight and crenulate for its entire length; second segment only half as long as wide at the base; third segment as long as the second, without rim posteriorly or any groove at the anterior angles. Entire abdomen broad and short. Ovipositor as long as the abdomen. Wings rather long; stigma very narrow, the radius issuing at its middle and extending almost to the wing tip; second section of radius nearly twice as long as the first; third equal to the other two together. Submedian cell longer than the median by about twice the thickness of the basal vein; first discoidal cell with a distinct petiole, but little narrowed toward apex; recurrent nervure entering the first cubital cell near its tip; second cubital cell not narrowed apically, the second transverse cubitus two-thirds as long as the second section of the radius, cubitus extending to the wing tip. Legs stout, especially the hind pair and with very strong tibial spurs.

Type from Mfongosi, Zululand (W. E. Jones), April 1915.

This species will be readily distinguished by the form of the antennae and mesothorax. As in some species of *Iphiaulax*, the submedian cell is quite distinctly longer than the median.

MICROBRACON TUCKERI, sp. nov.

♂. Length 5 mm.. Fulvous, maculate with black, yellow and cream-white. Head yellow, with a broad black stripe above from the antennae to the occiput; mesonotum black, with the middle lobe, except its anterior third, cream-white; marked with pale yellow as follows; stripe below each antennae extending down the inner and lower orbits, streak along lower margin of pronotum, large spot on mesopleura above, and lateral triangles of first abdominal segment. Wings slightly infuscated, especially at base; stigma black, with the base white; veins dark fuscous. Head scarcely broader than thick, the temples full; occiput not excavated; ocellar triangle as long as its distance from the eye-margin; head shining above; face very minutely rugose; eyes small, very nearly round; malar space one-fourth the diameter of the eye, without furrow; antennae 31-jointed; first flagellar joint no longer than the second, each twice as long as thick, following joints growing shorter. Mesonotum smooth and polished, without any indications of parapsidal furrows; propodeum smooth, without median keel or groove. Abdomen finely, longitudinally rugose-reticulate, much more finely so beyond the fourth segment; suturiform articulation striated, broad medially and narrower laterally, where it gives off a faint backward branch which limits the edge of an indistinctly separated corner on the third segment. First segment as broad as long, middle portion convex, rugose, the side-pieces separated by a crenate line, lateral triangles twice as long as wide. Second segment twice as wide as long, the posterior margin suddenly curved forward at the sides; anterior median area distinct, smooth, triangular; on each side of this and contiguous with it on the basal margin, is a similar, larger, smooth, convex triangle of nearly equilateral form which does not attain the anterior corner of the segment, its is bounded outwardly by a broad shallow impression that extends nearly to the posterior suture. Third segment shorter and wider than the second; fourth narrower and shorter; fifth much narrowed, a little longer than the fourth; sixth minute; third to fifth with a slightly raised posterior rim. Radial cell nearly reaching the wing-tip, radius issuing from just before the middle of the stigma; first section of radius half as long as the second; third as long as the two preceding; second cubital cell parallel, the second

transverse cubitus not quite half as long as the second section of the radius; recurrent nervure received half its length before the apex of the first cubital cell; first discoidal cell not strongly narrowed apically, petiolate above; nervulus interstitial.

Type from Nuragas, S. W. Africa (R. W. Tucker), Jan. 1920.

In the cubical head and the three basal triangles on the second abdominal segment, this is a most unusual species. For these characters, it might easily be placed in another genus. I cannot find any other so far described into which it will fit and for obvious reasons, do not wish to propose one for an isolated species. It ought to be sought for here on account of its size, habitus and other characters.

*MICROBRACON PRAECEPTOR*, sp. nov.

♀. Length 4.5 mm. Fulvous, the abdomen more yellowish with iufuscated apex; ocellar area, occiput medially and antennae black; tegulae, last joint of tarsi and part of hind coxae dark brown; apical half of hind tibiae and their tarsi, except fourth joint, piceous. Wings hyaline, stigma and venation piceous. Head less than twice as wide as thick, rather full and less narrowed than usual behind the eyes; occiput narrowly emarginate. Ocellar area large, but little elevated, separated by its width from the eye margin. Vertex smooth, shining, front and face shagreened, the latter one half wider than long. Malar space as long as the antennal scape; head behind the eyes faintly vertically aciculate. Mesonotum strongly convex in front, with deeply impressed, crenulated, parallel parapsidal furrows which fade out behind. Scutellum nearly flat, with a broad, strongly crenulate furrow at the base. Propodeum smooth at the sides, shagreened on the disk, with a broad shallow median impression at base and a short carina at extreme apex in front of which are several v-shaped carinae; below the spiracle with a broad shallow straight furrow. Pleura shining, slightly shagreened. Abdomen short, broad and convex. First segment with the median lobe short and broad, obtusely pointed in front; flat and smooth, except at apex, where it is reticulated; between the lobe and the sides with a carina on each side, the carinae parallel; depressed sides of the segment triangular, not extending to the base. Second to fourth segments reticulated, very finely so on the third and fourth and somewhat more coarsely so on the base of the second; second segment three times as wide at the base as long on the median line, its posterior margin broadly curved forwards toward the middle and sharply so at the sides; medially at the base with a distinct, raised,



although not entirely smooth area, that is continued to the apex of the segment as a narrow ridge; no distinct grooves at the sides although there is an indefinite longitudinal impression on each side. Sutureform articulation broad, striated, more coarsely so near the middle. Third segment as long as the second along the median line; posterior edge of third to fifth segments smooth and forming a rim between the margin and a slightly impressed submarginal line. Third segment with an indistinctly raised area near the anterior angles, the fourth with a quite distinct small tubercle at this point. Ovipositor longer than the abdomen. Legs rather stout and noticeably clothed with white hairs, as is also the rest of the body. Stigma broad, emitting the radial vein just before its middle; second section of radius not quite twice as long as the first; third slightly longer than the other two together; second cubital cell not narrowed toward apex. the second transverse cubitus two-thirds as long as the second section of the radius; first discoidal cell with a rather long petiole, strongly narrowed toward apex; recurrent nervure received nearly its length before the tip of the first cubital cell; submedian cell barely longer than the median; cubital vein weak near the apex.

Type from Mfongosi, Zululand (W. E. Jones), April 1917.

MICROBRACON CERES, sp. nov.

♀. Length 3 mm. Long and slender, strongly pubescent; more or less piceous, with lighter markings on the thorax above. Head and abdomen piceous, the basal two segments more brownish; mesonotum with the middle lobe in front and the lateral lobes, except anteriorly and at the extreme side, black, elsewhere and also the scutellum and sides of the propodeum honey yellow. Head below yellowish, palpi black. Wings subhyaline, stigma pale brownish, venation dark fuscous. Head less than twice as broad as thick, the temples short and rather rapidly narrowed behind the eyes; occiput not excavated; head above smooth and polished, the ocellar area raised, as broad as its distance from the eye-margin. Face but little wider than long, shagreened; malar space as long as the antennal scape. Antennae more than 37-jointed (tips broken) slender and of uniform thickness for most of their length; scape a little longer than broad; first and second flagellar joints of equal length, each more than twice as long as thick; following slightly shorter and thicker. Mesonotum long, shining, with obscure scattered punctures behind on the flat central portion; parapsidal furrows impressed only on the anterior half. Scutellum rather convex, with a strong crenate furrow at the base. Propodeum with the surface shining but un-

even, with a median groove distinct on basal half. Abdomen long and slender; first segment with the median lobe shining, convex, its sides nearly parallel except at base, bordered laterally by a groove, followed by a broad ridge before the depressed side-piece which extends nearly to the base of the segment. Second segment with a minute shining tubercle medially at the base, continued posteriorly to the middle of the segment as a slight ridge; surface minutely reticulate or tuberculate; as long as wide at the base; suturiform articulation broad, crenulate, other sutures not impressed. Third and following segments shining almost smooth, the third to seventh of nearly equal length; second and third with no indications of lateral areas or grooves. Legs very slender. Stigma narrow, emitting the radius from near its middle, the radius nearly attaining the wing-tip; first section less than half as long as the second, third as long as the other two together; second cubital cell narrowed toward apex. the second transverse cubitus half as long as the second section of the radius; first discoidal cell with a rather long petiole, strongly narrowed toward apex; recurrent nervure entering the first cubital cell near the apex; cubital vein extending nearly to the margin of the wing. Ovipositor one-third as long as the abdomen.

Type from Matroosberg, Ceres Division, Cape. 3500 feet. November, 1917. (R. M. Lightfoot).

MICROBRACON MONITOR, sp. nov.

♀. Length 3.2 mm.; ovipositor as long as the abdomen. Bright fulvo-ferruginous; antennae black; ocellar space and posterior portion of occiput, connected by a broad stripe, black; mesonotum on each side with a large spot near the tegula, and postscutellum and lower part of mesopleura, black; four anterior tarsi fuscous with the apical joint black, hind ones entirely black. Wings slightly brownish; stigma black, veins dark brown. Head less than twice as broad as thick, roundly narrowed behind, ocellar triangle removed by more than its diameter from the eye; vertex smooth and shining; front shagreened, subopaque; eyes more distinctly hairy than usual; malar space almost as long as the antennal scape. Antennae 26-jointed; scape less than twice as long as thick; pedicel quadrate, two-thirds as long as the first flagellar joint which is over twice as long as thick; next several joints about as long as the first flagellar, following becoming gradually shorter and more slender. Mesonotum entirely smooth, with broad deeply impressed parapsidal furrows which become less distinct behind where the lateral lobes are flattened. Scutellum as long as broad, with a very coarsely crenulated or striate groove at the base. Propodeum

smooth and shining, without a median groove or line, its surface evenly convex. Propleura shining, with an oblique, coarsely crenulate oblique line in front. Mesopleura smooth and shining, with a curved, nearly vertical groove near the upper anterior corner and a foveate impression behind near the middle. Metapleura faintly sparsely punctate. First segment of abdomen with the middle lobe raised at apex, the sides smooth, flat. Second segment nearly twice as broad as long, the posterior margin sinuous, extending forward distinctly to the median line and more strongly so on each side; with a median raised tubercle at base, which extends narrowly to near the posterior margin, the narrow apical part bordered on each side by a short groove outside of which is a carina; its surface finely reticulate-rugose, shining. Anterior corners of second and third segments not separated; suturiform articulation deeply crenulate medially; third segment nearly as long medially as the second, similarly, but more finely sculptured, its narrow posterior border convex and smooth and shining; following segments faintly shagreened, shining, their posterior margins not reflexed. Legs moderate, noticeably white pilose, as are also the propodeum and metapleurae. Median and submedian cells of equal length; first discoidal cell with a short petiole, strongly narrowed apically, the apex not much more than half as high as the base; radial vein issuing from the middle of the stigma and extending nearly to the tip of the wing; second section slightly more than twice as long as the first, the two together as long as the third; second cubital cell slightly but distinctly narrowed toward tip, its apex nearly half as long as its upper side; recurrent nervure received almost its own length before the apex of the first cubital cell.

Type from Cape Province.

*MICROBRACON SECTATOR* sp. nov.

♀. Length 5.5 mm.; ovipositor as long as the abdomen, exclusive of the petiole. Black, varied with rufous on the head and thorax, and with pale yellowish brown on the abdomen; legs black, calcaria brown; body, especially propodeum and legs, strongly silvery pubescent; wings very noticeably infuscated. Head rufous, with a spot above, larger than the ocellar space, black. Thorax black, with the entire prothorax, humeral spot on mesonotum, mesopleura above and propodeum near hind coxae rufous or brownish. First two segments of abdomen and base of third and fourth testaceous yellow; apex and remainder of third and fourth segments piceous; stigma and venation black. Head nearly twice as wide as long, strongly, roundly narrowed behind the eyes; vertex and occiput shining; ocelli large, in a nearly

equilateral triangle, separated by about their own diameter, posterior ones more than twice as far from the eye as from one another; ocellar space strongly convex, surrounded by a distinct groove above and at sides; front deeply and broadly impressed medially, its surface smooth but opaque; face very irregularly reticulated; malar space as long as the antennal scape. Antennae with 36 joints; scape short, curved, twice as long as thick; pedicel a little shorter than thick; first and second flagellar joints equal, each one-half longer than wide; following very gradually shorter and more slender, those beyond the middle quadrate. Mesonotum smooth and shining, with deep parapsidal furrows which are triangularly widened only at extreme posterior end; scutellum slightly longer than wide, smooth, with a broad crenate groove at base. Propodeum short, rounded, punctulate, except at apex; no median groove or carina; subspiracular groove deep and narrow. Median lobe of first abdominal segment broad, with a median groove, its surface finely longitudinally striate-reticulate, sides nearly smooth; posterior angles depressed and separated. Second segment half as long as wide at apex, its posterior margin only slightly sinuate; surface finely longitudinally rugose-reticulate; its corners and those of the third segment not separated; suturiform articulation narrow, crenulate; third segment considerably wider and a little shorter than the second, with a smooth, faintly raised posterior border; sculptured like the second as are also the fourth to seventh. Pleurae smooth and polished. Legs very stout; femora simple; hind tibiae noticeably flattened, as wide as the eye. Radius emerging from the middle of the stigma and extending almost to the tip of wing, first section half as long as the second, third as long as the other two; second cubital cell slightly widened toward apex, the second transverse cubitus very oblique, irregular, more or less parallel to the first; the apex of the second cubital cell more than half as long as its anterior side; first discoidal cell with a rather short petiole, only slightly narrowed apically; recurrent nervure received near the apex of the first cubital cell.

Type from Durban, Natal (W. Haygarth), April 1913.

EUROBRACON, Ashmead.

EUROBRACON (?) MANDIBULARIS, sp. nov.

♀. Length 12 mm.; ovipositor 52 mm. Rufro-ferruginous, the head lighter and the propodeum darker at apex; propleurae and mesopleurae anteriorly more or less fuscous; antennae, hind tibiae, excepting their spurs, and hind tarsi black; sheaths of ovipositor

black. Wings pale yellow, marked with blackish as follows; a spot in the basal corner of the first discoidal cell extending halfway across the basal cell from the middle of the basal vein and into the upper apical quarter of the lower discoidal cell, a spot toward the base of the second cubital cell extending into the apex of the first cubital cell and well into the base of the radial cell, an apical crescentic band extending around the wing apex from apical third of radial cell to curve forward and nearly meet the second wing spot; this band thickest at the wing apex; hind wing with a band at middle, not quite reaching the fore margin and narrowly connected behind with a dark spot which includes the apical fifth of the wing. Head, seen from above little wider than thick, the temples as deep as the width of the eyes, roundly narrowed on their posterior half; occiput not at all excavated; vertex convex; front feebly excavated above the antennae; ocelli very large, in an equilateral triangle, less than half their diameter from one another; ocellar area separated by a fine depressed line, more than its own width from the eye-margin. Face nearly twice as wide as high, with a median shield-shaped convex area midway between the antennae and the oral margin; the latter weakly arcuately incised from the outer corner of the mandible, making the mouth open very broad and not circular; clypeal foveae small, very deep. Malar space short, one-fourth as long as the eye-width, with a very obscure furrow. Mandibles very large, almost as broad as the eye at base, the outer edge bent nearly at right angles at the middle, apex rather acute; the lateral articulations of the mandibles so far apart that the head appears scarcely narrowed below the eyes. Head shining, with scattered punctures on the clypeus and base of mandibles and with a few short striae between the eyes and the sides of the clypeus. Mesonotum smooth, highly convex, without furrows. Scutellum nearly flat on the disk, raised above the mesonotum, without distinct groove at base. Propodeum smooth and shining, with long sparse pale hairs, with a groove extending from near the base to the tip just below the elongate-oval spiracle. Pleurae smooth and shining. Abdomen long, no wider than the thorax. First segment less than twice as long as wide at tip, median lobe occupying most of its surface, convex, smooth; separated from the lateral flat border by a groove behind the spiracle and by a triangular basal lateral lobe before the spiracle. Second segment slightly longer than broad at base, coarsely but irregularly and closely longitudinally striate; smooth medially at extreme base and on posterior margin; without grooves or tubercles except for a

weakly curved, poorly defined impression between the anterior angles; suturiform articulation smooth, not deep, nearly straight; third segment nearly as long as the first, striate like the second at base, the striae very short at the sides, but extending past the middle on the median portion; its lateral angles not separated; fourth and fifth segments smooth, each two-thirds as long as the third; remaining segments very short. Legs slender, simple; hind coxae elongate, nearly three times as long as thick. Transverse median vein interstitial; first discoidal cell with a short petiole, but little narrowed apically; subdiscoidal vein arising at the lower third of the cell. Radius originating at the middle of the rather narrow stigma and extending nearly to the tip of the wing, its first section one third as long as the second; third as long as the other two; second cubital cell with parallel sides, the second transverse cubitus half as long as the second section of the radius. Stigma and venation honey-yellow.

Type from „Beach” Durban (Natal) (H. W. Marley), 1900.

This species will be easily recognized by the color pattern of the wings and long ovipositor. The peculiar form of the very large mandibles and the consequently greatly modified clypeal excavation are not those of a typical Braconine. Taken by itself, the species might seem entitled to generic rank, but I do not doubt that transitional species will be found. I have placed it provisionally in *Euurobracon* as it appears to be similar in the form of the head to *E. quadriceps* Smith. However, the nervulus is interstitial, whereas in the true *Euurobracon* it is postfurcal although in Ashmead's figure (P. U. S. Nat. Mus. vol. 30, pl. 25 (1906) it is shown to be almost interstitial. On this account the genus has been placed in the *Exothecinae* by Szépligeti and Roman.

#### IPHIAULAX, Förster.

This very extensive and highly polymorphic genus is represented in South Africa, as in most of the warmer portions of the world, by a large number of species. Some of these enjoy a wide range, extending from Equatorial Africa to the Cape, while others appear to have a much more limited distribution, at least in the present state of our knowledge.

Several of the South African species date back to Brullé's "Histoire Naturelle des Insectes Hyménoptères" published 1846 and most of these are recognizable from his descriptions which usually include the salient structural characters. So much cannot be said for the descriptions of some of the later hymenopterists and I have been

unable to place some species. Fortunately many of Cameron's species are represented in the material before me, much of which has been compared with Cameron's types in the South African Museum by Dr. Péringuey. Some of his species I have unfortunately not been able to place as they do not seem to be represented in the present collection and the types are not available for comparison. The same is true of several of Szépligeti's species. Omitting these and a few others, I have compiled a key which will, I think serve for the identification of the remaining species known to occur in South Africa, including a few which are undoubtedly new.

Szépligeti has attempted to divide *Iphiaulax* in a number of genera or subgenera, but these are not taken into account, as I do not believe that they are defined by sufficiently clear-cut characters to assist in the classification of the group. On the other hand, the following table is artificial and makes no attempt to group the species according to their natural affinities.

*Key to species of Iphiaulax (sens lat.).*

1. Anterior wings yellow from their bases to the apex of the stigma; black apically, sometimes with a small hyaline area . . . . . 6.  
Wings not colored thus; at least some dark marking between the base and stigma; often almost, or entirely black . . . . . 2.
2. Wings for a short distance at the base, at least nearly half the length of the submedian cell, clear yellow; beyond uniformly black or banded or spotted with black . . . . . 12.  
Wings of different color; never yellow or conspicuously lighter at the base . . . . . 3.
3. Second abdominal segment with distinct sculpture, either striate, punctate, or rugose, or with these in combination . . . . . 4.  
Second abdominal segment with the surface smooth and polished. . . . . 32.
4. Legs entirely black . . . . . 33.  
Legs rufous, ferruginous or lighter; sometimes the hind tibiae and tarsi black or the legs distinctly bicolored. . . . . 5.
5. Entire stigma blood-red or coccineous, rarely yellowish, always without black at apex; costa often red also . . . . . 42.  
Stigma yellow at base and black apically, or entirely black; costa never red . . . . . 57.
6. At least the basal two segments of abdomen with longitudinal or oblique striae . . . . . 7.  
Abdomen not longitudinally striated . . . . . 10.
7. Ovipositor very long, nearly twice as long as the body; first four abdominal segments and basal middle of fifth segments striated (= *striatus* Szép.)  
*aethiopicus* Cam.  
Ovipositor shorter, not equalling the length of the body . . . . . 8.

8. Four basal segments of abdomen striate . . . . . 11.  
 No striæ on the third and fourth segments; suturiform articulation deeply crenulate . . . . . 9.
9. Basal two-thirds of second abdominal segment longitudinally striated; furrow on fourth and fifth segments crenulated . . . . . *xanthocarpus* Cam.  
 Sides of second segment with oblique coarse striæ; furrows of fourth and fifth segments smooth . . . . . *phryganator* Thunb.
10. Ovipositor very short; second abdominal segment without a median keel beyond the basal area . . . . . *ornaticollis* Cam.  
 Ovipositor longer than abdomen; second segment with a median keel beyond the basal area . . . . . (= *trimeni* Cam.) *xanthopterus* Cam.)
11. Striation of abdomen fine and close . . . . . *odontoscapus* Cam.  
 Striation of abdomen very coarse, striæ far apart . . . . . *lugens* Brullé
12. Stigma entirely red . . . . . *rubrinervis* Cam.  
 Stigma yellow, usually black apically . . . . . 13.
13. Abdomen smooth and shining, neither punctured nor striated  
*trichiosomus* Cam.  
 Basal segments of abdomen strongly sculptured . . . . . 14.
14. Abdomen bicolored, yellow or red at base with one or several or all but the first segment black . . . . . 15.  
 Abdomen red or yellow, sometimes with some infuscated areas before the apex . . . . . 19.
15. Wings with the pale band below the stigma extending entirely across the wing to the hind margin . . . . . 16.  
 Wings with the pale marking below the stigma not reaching the posterior margin of the wing and not forming a distinct band . . . . . 18.
16. Abdomen black beyond the first segment; second segment with a large median basal shining area that extends toward the apex of the segment as a strong carina . . . . . 17.  
 Abdomen black only beyond the fourth segment; second segment without, or with a very small median basal area . . . . . *minyias* sp. nov.
17. Second to fifth abdominal segments stoutly striated . . . . . *basiornatus* Cam.  
 Second to fifth segments without striæ except for a few short ones medially near the base of the third and fourth segments. . . . . *phosphor* sp. nov.
18. Abdomen black beyond the first segment; head and thorax yellow; hind femora black . . . . . *proserpina* sp. nov.  
 Abdomen black beyond the third or fourth segments . . . . . 29.
19. Fifth segment of abdomen distinctly sculptured . . . . . 20.  
 Fifth segment of abdomen smooth and polished, rarely with faint trace of sculpture at center . . . . . 23.
20. Hind tibiæ and their tarsi black entirely or in part; robust or moderately stout species . . . . . 21.  
 Hind tibiæ and their tarsi reddish, concolorous with the body; abdomen long and very slender . . . . . *hesper* sp. nov.
21. A small species, 8 mm. in length, the ovipositor less than half as long as the body; tips of hind tibiæ and tips of their tarsal joints black  
*spilopus* Cam.  
 Larger species, hind tibiæ and tarsi entirely black . . . . . 22.



22. Apical half of wings black, with yellow spots; large species with basal abdominal segments finely regularly striated  
 (= *nobustus* Cam.) *martinii* Gribodo.  
 Apical half of wings yellow with separated black markings; moderate sized species with the basal abdominal segments coarsely and irregularly striated . . . . . *aurora* sp. nov.
23. Ovipositor as long as the body . . . . . 26.  
 Ovipositor less than half as long as the body . . . . . 24.
24. Small species, 8—9 mm. in length . . . . . 25.  
 Large species, 15 mm. in length . . . . . *mimetieus* Cam.
25. Legs entirely yellowish; second abdominal segment strongly striated;  
*rhodesianus* Cam.  
 Legs yellow, the hind tibiae and tarsi black; second abdominal segment smooth and shining . . . . . *inanitus* Cam.
26. Wings black beyond the basal vein, with a broad yellow band of equal width below the stigma and a large oval yellow spot between this and apex; head black . . . . . *minerva* sp. nov.  
 Wings with the markings more diffuse and of different pattern . . . . . 27.
27. Central convex area of first abdominal segment about twice as wide as the lateral smooth flat stripe; hind tibiae and tarsi black . . . *diana* sp. nov.  
 Central convex area of first abdominal segment about four times as wide as the lateral stripe which is not flat nor smooth; legs concolorous with body . . . . . 28.
28. Transverse median nervure interstitial, a rather slender species.  
*minyias* sp. nov.  
 Transverse median nervure distinctly postfurcal, a more robust species  
*iris* sp. nov.
29. Abdomen black beyond the third segment; ovipositor longer than the body 30.  
 Abdomen black beyond the fourth segment; ovipositor much shorter than the body . . . . . 31.
30. Base of wing yellow to near the transverse median vein. *delagoaensis* Cam.  
 Base of wing yellow only half way to the transverse median vein.  
*bicolor* Brullé.
31. Ovipositor half as long as the body . . . . . *xanthostomus* Cam.  
 Ovipositor one-fourth as long as the body . . . . . *litura* Brullé.
32. Raised median area at base of second segment longer than wide, drawn into a long pointed apex; wings with complete pale band below the stigma . . . . . (= *levissimus* Cam.) *rubigator* Thumb.  
 Raised median area as broad as long, not drawn out into a point behind; wings without complete pale band . . . . . *bellona* sp. nov.
33. Fifth segment of abdomen sculptured, usually striate . . . . . 34.  
 Fifth segment smooth and shining, without sculpture . . . . . 35.
34. Abdomen entirely black . . . (= *pretoriaënsis* Cam.) *durbanensis* Cam.  
 Abdomen almost entirely red, with a black discal spot on the second segment. . . . . (= *basimacula* Cam.) *nataliensis* Szép.
35. Ovipositor about the length of the body or very much shorter . . . 36.  
 Ovipositor much longer than the body; second to fourth abdominal segments striated for their entire length, at least medially . . . . . 40.

36. Ovipositor longer than the abdomen . . . . . 37.  
 Ovipositor not half the length of the abdomen; small species, length 7 mm.  
*mediator* Cam.
37. Third and fourth segments of abdomen striate . . . . . 38.  
 Third and fourth segments of abdomen smooth . . . . . 39.
38. Propodeum red, abdomen streaked with red medially; area on second  
 abdominal segment clearly separated . . . . . *rubrilineatus* Cam.  
 Propodeum black; abdomen not streaked with red; area on second segment  
 not clearly separated . . . . . *varicollis* Cam.
39. Apical transverse furrows of third and fourth abdominal segments crenu-  
 lated . . . . . *longicoxis* Cam.  
 Apical transverse furrows of third and fourth segments smooth.  
*meridionalis* Cam.
40. Fifth abdominal segment with a basal and an apical transverse groove 41.  
 Fifth segment without apical and with a very weak basal groove; area on  
 second segment triangular, bordered by oblique, divergent striæ  
*havilandi* Cam.
41. Wings dark fuscous; ovipositor as long as the body; moderately large  
 species, 13 mm. . . . . *hirticeps* Cam.  
 Wings with a yellowish band below the stigma, ovipositor much longer  
 than the body; very large species, 23 mm. . . . . *juno* sp. nov.
42. Only the basal two segments of abdomen sculptured; these striate; third  
 segment smooth, except for the suturiform articulation; body black, spot-  
 ted with red . . . . . (= *coccineomaculatus* Cam.) *plurimacula* Brullé.  
 At least the basal three segments of abdomen strongly sculptured; red  
 species marked with black . . . . . 43.
43. Abdomen wider at the apex of the third segment than at the base of the  
 second . . . . . 44.  
 Abdomen wider at the base of the second segment than at the apex of  
 the third . . . . . *lucina* sp. nov.
44. Abdomen with segments four and five smooth and polished, without trace  
 of sculpture, rarely with a faint sculpture at the middle of the disc. 45.  
 Abdomen with segments four and five, or at least segment four entirely  
 without any smooth and polished surface . . . . . 51.
45. Tegulæ red, concolorous with body . . . . . 46.  
 Tegulæ black . . . . . *tegularis* Szép.
46. Median raised part of first abdominal segment striate . . . . . 47.  
 Median lobe of first segment smooth, without striæ *iphigenia* sp. nov.
47. Face coarsely rugose at the sides . . . . . *vesta* sp. nov.  
 Face nearly smooth, punctured very finely at center, more coarsely below  
 on the sides . . . . . 48.
48. Abdomen at base, with the sculpture forming longitudinal, more or less  
 regular striæ . . . . . 49.  
 Abdomen finely rugose-punctate . . . . . *signatus* Brullé.
49. Third segment of abdomen rugose . . . . . *lanceolatus* Szép.  
 Third segment on basal portion distinctly striate . . . . . 50.
50. Apical transverse furrow on segments four and five strongly foveate or  
 crenulate . . . . . *spilonotus* Cam.

- Apical transverse furrow on segment four and five smooth or with a few faint foveæ . . . . . *varitinctus* Cam.
51. Fifth segment with its posterior angles distinctly produced, forming an acute angle, with the corner rounded; fifth segment in female smooth and polished at the sides between the basal and apical transverse furrows, in male uniformly rugulose . . . . . *pandora* sp. nov.
- Fifth segment with its posterior angles not produced, but forming a right or obtuse angle with the corner rounded; fifth segment very rarely nearly smooth at the sides . . . . . 52.
52. Fourth and fifth segments both similarly sculptured; densely rugose or rugose punctate except on the transverse grooves and sometimes at the sides . . . . . 53.
- Fourth and fifth segments not thus sculptured; the sculpture, more sparse, or else that on the disc of the fifth much more sparse than that on the fourth 55.
53. Ovipositor slightly longer than the body; length of body 20 mm. *ruber* Bingham
- Ovipositor much shorter than the body; smaller species, length 6—8 mm. *decorus* Cam.
54. Lateral raised areas at the base of the second abdominal segment triangular, separated by a V-shaped depression, broader behind, but not forming a large oval shallow impression . . . . . *whitei* Cam.
- Second segment with a large oval, rather shallow depression behind each of the lateral basal raised areas . . . . . 55.
55. Raised area at basal lateral angle of second segment smooth; ovipositor as usual . . . . . 56.
- Raised area at basal lateral angle of second segment roughly sculptured like the rest of the segment; hypopygium large, extruded, the ovipositor directed upwards . . . . . *thisbe* sp. nov.
56. Posterior transverse groove on fourth and fifth segments very deeply impressed, the posterior margin of these segments far below the level of the disc. . . . . *incisus* Br.?
- Posterior transverse groove on fourth and fifth segments only slightly impressed, the posterior margin of the segments but slightly depressed *dodsi* Cam.
57. Stigma always pale, at least in part. . . . . 58.
- Stigma entirely black . . . . . 66.
58. Abdomen with the fifth segment sculptured, at least at the base . . . . . 59.
- Fifth segment entirely smooth and shining . . . . . 65.
59. Posterior tarsi black, annulate with white at the base of the joints; small species (6 mm.) with short ovipositor . . . . . *annulitarsis* Cam.
- Tarsi not annulate; usually larger species . . . . . 60.
60. Sixth abdominal segment more strongly striated than the fifth *tacitus* Cam.
- Sixth segment smooth, or at least much more finely sculptured than the fifth . . . . . 61.
61. Face rugose, at least on the sides below the antennæ, without any small punctures; or abdomen linear. . . . . 63.
- Face smooth, with minute scattered punctures, or closely minutely punctate; radial cell shorter than usual . . . . . 62.

62. Face closely, minutely punctate; wings pale fuscous. . . *resolutus* Cam.  
 Face smooth, with minute, scattered punctures; wings blackish, with irregular paler markings between base and apex . . . *lativentris* Cam.
63. Second segment of abdomen with a median area or one clearly defined by differences in the direction of the striæ . . . . . 64.  
 No trace of a median area on second segment . . . *rhadamanthus* sp. nov.
64. Median area smooth; fifth segment distinctly striate at base *clanes* Cam.  
 Median area striated; fifth segment with very fine rugose-acicular sculpture at base . . . . . *bicostatus* Szép.  
 Second abdominal segment twice as broad as long . . . *cf. excisus* Szép.
65. Fore and hind wings uniformly blackish except for a small pale area below the stigma and sometimes a small spot on the hind wing . . . 67.  
 Fore wings with a large pale area near base, a band below stigma and spot nearer apex; hind pair with three large pale spots 12. *fasciatus* Cam.
66. Vermilion red, with black markings; first abdominal segment with a median keel . . . . . *soleae* Cam.  
 Dull yellow, with black markings; first abdominal segment without median keel . . . . . *nigridorsis* Kriech.  
 Black, with red markings; underside of abdomen yellowish white  
 . . . . . *leucogaster* Cam.
67. Ovipositor shorter than the body . . . . . *appelatrix* Cam.  
 Ovipositor much longer than the body  
 (cf. *I. monteiroae* Cam. ♂) *capensis* Cam.

IPHIAULAX PHOSPHOR, sp. nov.

♂ Length 8 mm. Head, thorax and first abdominal segment rufous-ferruginous, also the basal area of the second segment and the legs, except hind tibiae and tarsi; antennae, and the remainder of the abdomen and hind legs, black. Wings variegated; pale yellow from base to nervulus, blackish beyond, except for a complete hyaline cross band below the basal half of the stigma, a hyaline cloud about the second transverse cubitus and a hyaline spot just above in the radial cell; basal half of stigma fulvous, remainder black; veins ferruginous in the pale areas, black elsewhere; hind wing yellowish on the basal two-fifths. Head scarcely wider than thick; frontal excavation deeper on each side above the antenna. Malar space only one-sixth the eye height, with a rather indistinct furrow; face irregularly rugose. Antennae as long as the body; scape simple, scarcely twice as long as thick; first flagellar joint distinctly longer than the second which is about twice as long as thick; ocelli in a small equilateral triangle, three times as far from the eye as from one another. Parapsidal furrows impressed anteriorly, the middle lobe raised. Abdomen lanceolate, one-third wider than the thorax and about five times as long as broad; first segment less than twice as wide at apex as at base, sides straight; median lobe broad, con-

vex, faintly shagreened; lateral grooves not distinctly cross-ridged; lateral carinae very close to the margin; second segment widened behind, somewhat shorter than broad; median area small, convex, subtriangular, with the apex drawn out into a carina that extends nearly to apex of segment; the whole bordered by a broad lateral groove that has several cross carinae anteriorly next to the median area; outside the groove is a flat, smooth longitudinal band, its outer edge sharply depressed into a large lateral impression; this impression is very narrow anteriorly, but one-third the width of the segment behind, deepest at the middle and cross ridged next to its inner edge; third segment smooth, except for several coarse longitudinal striae medially at base, and a series of irregular foveae that separate the large anterior corners; of nearly equal width, one-third broader than long; suturiform articulation smooth, but the three following coarsely cross-striated; fourth and fifth segments with a trace of a median striated area at base, elsewhere smooth, except for coarse striae in the depressions that separate the anterior corners. Legs clothed with long hairs, especially dense on the tibiae and tarsi. Cubital vein bent at base; radius issuing before the middle of stigma; radial vein extending almost to wing-tip, third section as long as the second; transverse cubiti of equal length, each not quite half as long as the second section of radius; stalk of second cubital cell short, but distinct; nervulus barely postfurcal.

Type from Mfongosi, Zululand (W. E. Jones) April, 1916.

*IPHIAULAX MINYAS*, sp. nov.

♀. Length 13 mm.; ovipositor slightly longer than the body. Rufoferruginous; head lighter; abdomen darker, and blackened from the middle of the third segment, both above and below; antennae black. Wings variegated; ground color yellowish, lighter apically, spotted with brownblack as follows: three coalescent spots forming a band, at the parastigma, below at the base of the cubital cell and below in the center of the discoidal; also one in the radial cell below apical part of stigma and a small weak one below in the cubital cell; apex of wing beyond cubital cell with an infuscated band; stigma and most of venation fulvous; hind wing blackened apically and below. Head a little broader than thick, the temples but little narrowed; occipital margin nearly straight; frontal excavation not distinctly divided by a median elevation; ocelli in an equilateral triangle, twice as far from the eye as from one another; face finely sculptured, shining; malar space one-third the eye-height, with a faint trace of a furrow; antennae longer than the body, very slender

apically; scape simple, swollen, twice as long as thick; first flagellar joint one-half longer than the second, slightly more than twice as long as thick; joints near middle strongly transverse, nearly quadrate toward apex. Prothorax entirely smooth; middle lobe of mesonotum elevated, very broad anteriorly; parapsidal furrows complete. Abdomen closely, coarsely longitudinally striated to the tip of the fourth segment, more irregularly so on the third and fourth segments, each of which bears a smooth area laterally at the base; suturiform articulation broad, deep striated like the nearby surface, narrowed laterally and with more widely separated striae; first segment nearly twice as wide as long, its median space very large, convex, bordered at the sides by a foveate line that is almost at the lateral edge of the segment. Second segment without median area, at each anterior angle with a transverse smooth space from the inner end of which extends a groove leading into a deep lateral basin; segment widened behind where it is one-half broader than long. Third segment with the anterior corners sub-triangular, the grooves leading to the crescentic lateral basins originating near the median line; posterior edge forming a rather broad smooth rim, fourth segment with a well impressed, coarsely striated transverse groove at base, wide medially, narrowed and becoming smooth laterally; anterior corners with the smooth area like that on the third segment; apex with a foveate groove preceding the smooth elevated marginal rim which, like the one on the third segment is much wider at the extreme sides; fifth segment smooth except for a crossstriated groove extending halfway across the base, its apical rim nearly obsolete. Sheaths of ovipositor and the legs with very short hairs. Radial vein ending much before wing-tip, its third section slightly bisinuate and as long as the other two combined; cubitus straight at base; first transverse cubitus very oblique, parallel with the recurrent nervure, the second cubital cell much narrowed above and distinctly wider apically its stalk one-third as long as the recurrent nervure; second transverse cubitus two-thirds as long as the second section of radius; nervulus interstitial.

Type from Mfongosi, Zululand (W. E. Jones), May 1916.

*IPHIAULAX PROSERPINA*, sp. nov.

♀. Length 12 mm.; ovipositor 7 mm. Luteous; the abdomen beyond the first segment, the antennae entirely and the hind legs beyond the trochanters, black; tips of middle tarsi fuscous. Wings black with the base yellow to two-fifths the distance to the nervulus; basal half of stigma fulvous, below it an oblique clear streak in the first cubital cell, a clear spot just outside the upper end of the re-

current nervure and a clear line along the second transverse cubitus; base of hind wing yellow for a distance equalling the yellow of the fore wing. Head slightly wider than thick, temples rounded, occiput strongly concave; frontal basin divided by a weak median line below the ocelli; face coarsely punctate laterally, rugose-reticulate in the middle; malar space one-fourth the eye-height, with an indistinct furrow. Antennal scape broadened apically, simple at tip, twice as long as broad; first flagellar joint half longer than the second, twice as long as thick; joints near middle of flagellum strongly transverse. Ocelli in an equilateral triangle, three times as far from the eye as from one another. Mesonotum convex in front, but very indistinctly trilobed, the parapsidal furrows scarcely impressed; malar lobe behind and disc of scutellum unusually flat. First abdominal segment one-half longer than wide, the median raised area coarsely irregularly longitudinally striate and bordered by a smooth flat lateral band that extends to the edge of the segment although viewed in profile it is seen to be above the true lateral edge and separated from it by a deep, rather broad groove. Second segment very irregularly, coarsely striate-reticulate, the striae regular only at the basal middle which is raised but not in the form of a discrete area; behind this is a large shallow impression reaching nearly to the apex and divided by a median carina; anteriorly at each side of the middle with a smaller oval shallow impression and from the anterior angle to near the posterior edge with a broad impressed groove that slopes slightly toward the median line; in front between this and the oval impression is a smooth space; second segment one half wider than long. Sutureform articulation broad and deep, strongly striate as are also the two following ones. Third, fourth and fifth segments coarsely, rather regularly, longitudinally striate, their hind margins smooth, but not reflexed; their anterior corners separated as large transverse, triangular, smooth tubercles; sixth segment smooth. Legs and sheaths of ovipositor rather densely clothed with short hairs. Radial vein attaining the wing tip, its third section as long as the other two combined; cubitus bent at base; second cubital cell barely widened apically, its upper edge not quite twice as long as the second transverse cubitus; stalk of second cubital cell very short; nervulus interstitial.

Type from Barberton, Transvaal (H. Edwards). November 1911; Salisbury and Umtali, Rhodesia.

*IPHIAULAX HESPER*, sp. nov.

♂. Length 10 mm. Dark rufo-ferruginous, the legs lighter and

the dorsal surface of the propodeum and abdomen, especially the tip of the latter, blackened; antennae black. Wings variegated; basal part yellowish hyaline as far as the basal vein; apical part beyond the second transverse cubitus and bend of nervellus infuscated; marked with blackish between as follows: an incomplete band occupying basal corner of first cubital cell most of first discoidal and upper part of lower discoidal cell, and a round area at base of radial cell; stigma fulvous, except at tip; wing veins mostly fulvous. Head nearly one-half broader than thick, obliquely narrowed behind the eyes, with the occipital margin broadly excavated; frontal impression shallow, faintly divided by a median carina; malar space extremely short, with an obsolete fovea. Eyes nearly round; face smooth and shining, convex on each side; but medially with a deeply impressed line from the clypeus to the antennae. Scape of antenna much narrowed basally, twice as long as broad, the inner edge at apex deeply and broadly emarginate. Ocelli large, in an equilateral triangle; separated by their own diameter. Mesonotum highly convex in front; the parapsidal furrows broad, but not very deeply impressed; scutellum convex. First abdominal segment twice as long as wide at apex, striate longitudinally on the raised portion; sides very narrow, transversely striate or foveate; second to fourth segment coarsely and rather regularly longitudinally striate; fifth with more irregular and very shallow striate sculpture. Second segment slightly longer than broad, without basal median area, smooth lateral corners sub-triangular, of moderate size, bounded medially by an oblique linear impression and behind by a large, elongate oval one that reaches nearly to the apex; suturiform articulation broad, rather shallow, its striae continuous with those of the second and third segments; third segment with the anterior corners small, tuberculate; behind these with a large deep impression, narrowed inwardly and extending nearly to the median line; apical margin smooth, preceded by an impressed line; fourth segment like the third except that its basal furrow is more deeply impressed and the impression behind the anterior angle extends sharply forward to meet the basal one far before the median line, the apical margin smooth, preceded by a foveate line; fifth segment with the anterior corners separated as small tubercles, its apical edge preceded by a smooth impressed line. Abdomen scarcely wider than the thorax. Radial cell narrow, the radial vein falling far short of attaining the wing tip, its third section weakly bisinuate, as long as the other two together; cubitus straight at base; stalk of second cubital cell half as long as the recurrent nervure, the cell very slightly widened apically, its upper



side twice as long as the second transverse cubitus; nervulus slightly prefurcal, straight, none of the veins thickened; radius arising at the middle of the stigma. Legs clothed with glistening hairs, short and dense on the tibiae and tarsi.

Type from Durban, Natal (W. Haygarth), April 1913.

*IPHIAULAX IRIS*, sp. nov.

♀. Length 14 mm.; ovipositor 13 mm. Dull rufo-ferruginous, the first, second and third segments of abdomen irregularly blackened near the middle; antennae and sheaths of the ovipositor black; wings dull yellow from the base to the nervulus, black beyond, except for a yellowish-hyaline band below the basal half of the stigma extending entirely across the wing, and a hyaline streak along the second transverse cubitus; hind wing dark except at the extreme base; stigma fulvous, with the tip black. Body rather stout, the abdomen but little longer than the head and thorax and twice as wide as the latter. Head slightly broader than thick; temples rather full behind the eyes, rounded; the occiput only feebly concave; frontal impression shallow, divided medially; ocelli in a small triangle, nearly three times as far from the eye as from one another, surrounded by an impressed line. Face shining, with a few fine punctures; clypeus high, triangular, the face above it with a median impressed line; malar space one-fourth the eye-height, with a broad shallow furrow. Antennal scape short, expanded toward tip, but not noticeably projecting below at apex. Mesonotum with complete, deeply impressed parapsidal furrows, the median lobe strongly elevated. Scutellum highly convex. First abdominal segment but little longer than broad at apex, with postero-lateral expansions; middle portion very broad, not strongly convex, more or less irregularly, longitudinally aciculate; side pieces very narrow, transversely striate except in front. Second segment distinctly broader than long, the lateral margin deeply notched at the middle; surface finely and irregularly longitudinally striated; basal median area not indicated, except that the striae assume a triangular arrangement at this place; anterior corners separated as large, nearly smooth, subtriangular elevations, one-third the width of the segment; from their inner edge extends an oblique impression that disappears before the posterior corner. Suturiform articulation very deep, but rather narrow, closely and deeply striated; its posterior branches beginning near the median line and reaching the lateral margin at the middle of the third segment, the anterior corners of the third segment therefore very large, surface more finely striate than that of the second segment and obsoletely so near

the sides; fourth segment like the third, each of them with the posterior edge smooth, preceded by a striate, impressed line; fifth segment smooth, except that its basal transverse impression is faintly striated near the middle. Legs rather stout, the tibiae and tarsi densely clothed with short fulvous pubescence. Radial cell narrow, ending far before the wing-tip; third section of radius bisinuate, as long as the two preceding together, the first more than half as long as the second; second cubital cell slightly widened apically, much narrowed above, the apex more than half as long as the upper side; stalk of second cubital cell nearly one-half as long as the recurrent nervure; nervulus perpendicular, quite distinctly post-furcal; stigma unusually narrow.

Type from Mfongosi, Zululand (W. E. Jones), March 1914.

This species is much like *I. minos* sp. nov. both structurally and in color, although the pale areas are much less extensive on the apical part of the wings. The nervulus is, however, inserted distinctly beyond the basal vein and the bifurcation of the basal transverse impressed line of the third segment is close to the median line, not near the side as in *I. minos*.

IPHIAULAX AURORA, sp. nov.

♀. Length 14 mm.; ovipositor 8 mm. Bright rufo-ferruginous, the antennæ, hind legs beyond the knees and sheaths of ovipositor black; wings fulvous yellow, paler apically, with a blackish band around apex extending from the apical third of the radial cell to a point on the hind margin below the middle of the second cubital cell; the band is pointed at the beginning and truncate at the end, about as broad as the second cubital cell; wing also with the following black spots; one below the parastigma extending into the upper angle of the first discoidal cell, a rounded one at the bottom of the lower discoidal cell, a rounded one in the radial cell just below the apex of stigma and another below that in the middle of the second cubital cell; entire stigma and venation fulvous. Head large, slightly wider than thick, the temples large, broadly rounded; occipital line slightly concave; frontal impression very shallow, not divided. Face flat medially, with a groove above between the bases of the antennæ; shagreened, with a few irregular foveæ and reticulations. Malar space only one-fifth the eye-height, with a weak furrow. Scape of antenna stout, but little narrowed at the base, twice as long as thick, simple at tip; flagellar joints longer than usual, the first more than twice as long as thick; the second twice, and the joints near the middle scarcely transverse. Mesonotum weakly convex, not trilobed,

the parapsidal furrows very weakly impressed and extremely narrow. Scutellum weakly convex. First abdominal segment as long as wide at apex, its median space somewhat irregularly longitudinally striated, not very strongly convex, much narrowed in front; the lateral flat space narrowed behind where it bears some faintly raised striæ, its inner edge defined by a finely punctate line; second segment somewhat shorter than its width at apex, irregularly longitudinally striated, as are also the third and fourth; without trace of a basal median area, anterior corners each with a small raised triangular smooth space, behind which is a shallow oval impression; suturiform articulation broad, deep and striated medially, bifurcated into two punctate lines laterally, enclosing the large triangular, weakly elevated smooth areas at the anterior angles of the third segment; the latter three times as wide as long, the apical margin narrowly smooth, preceded by a wider striate impressed groove; fourth segment narrower than the third, similarly sculptured; fifth similar, but the sculpture slightly weaker, especially at the sides. Radial vein almost attaining the tip of wing, its third section straight, hardly as long as the second; cubitus angularly bent near the base; second cubital cell twice as long above as wide at apex, its stalk very short; nervulus interstitial.

Male. Slightly smaller but like the female, except that the spot in the lower discoidal cell is weaker and the one in the second cubital very faint. The hind wing in both sexes has the apical fourth and the posterior margin, except at base, infuscated.

Type ♀ from Barberton, Transvaal (H. Edwards), November 1911. Paratype ♂ from Barberton, the same date. The species is evidently similar to *I. tigrinus* Szép., from Kilimandjaro, but appears to be distinct.

IPHIAULAX DIANA, sp. nov.

♀. Length 9 mm., ovipositor 8 mm. Fulvo-ferruginous, the abdomen darker, rufo-ferruginous; antennæ, sheaths of ovipositor and hind legs beyond the knees, black; wings fulvous, marked with brown black as follows; a quadrate spot, including the extreme tip of basal, extreme base of first cubital and upper third of first discoidal cells; a trapezoidal spot in the lower discoidal cell separated from its margins except below; two large confluent spots, one below apex of stigma and the other below in the second cubital cell, and an apical marginal band from the apical third of radial cell to posterior margin where it almost meets the dark area in the second cubital cell; hind wing with a spot at base of cubital area and the apical fourth,

extending along hind margin as a line nearly to base, blackish; costa and entire stigma fulvous. Head one fourth wider than thick, the temples full, narrowed sharply at the hind corners; occipital line deeply excavated medially; frontal excavation moderately deep, not divided medially; face coarsely shagreened, with a few irregular wrinkles; impression between bases of antennæ not extending to face below; malar space one-fifth the eye-height, with a foveate impression. Antennal scape emarginate on apical margin, not much expanded toward tip, twice as long as thick; first flagellar joint one-third longer than the second which is twice as long as thick; joints near middle of flagellum slightly longer than thick. Mesonotum faintly lobed in front where it is raised, but the parapsidal furrows are shallow and linear; scutellum moderately convex. Abdomen elongate-oval, one-half wider than the thorax; first segment but little longer than wide at apex, its median portion not very strongly raised, with coarse, widely separated striæ; sides flat, shining, not narrowed posteriorly and attaining the lateral margin, defined inwardly by a finely punctate line. Second segment one half wider at apex than long, without distinct basal median area, although there is a slight triangular elevation, with the anterior portion smooth; its surface and that of the third and fourth rather coarsely longitudinally striatereticulate; lateral tubercles small, triangular, well removed from the corners of the segment; behind each are two impressions, a small one inwardly and a large one externally which extends back well toward the posterior margin; suturiform articulation deep, but not very wide striate, the lateral bifurcation but little narrower. Third segment nearly three times as wide as long at the sides; anterior corners large; posterior rim smooth, preceded by a weak groove; fourth segment similar to the third; fifth and following entirely smooth and shining, the fifth a distinct apical rim at the middle. Legs slender, with conspicuous glistening hairs. Radial vein attaining the wing-tip, third section scarcely longer than the second; cubitus angulate at base; upper side of second cubital cell twice as long as the apex, indistinctly widened toward apex, the stalk short; nervulus interstitial.

Type from Salisbury, Southern Rhodesia, January 20, 1915.

*IPHIAULAX MINERVA*, sp. nov.

♀. Length 16 mm., ovipositor 13 mm. Thorax, abdomen and most of the legs bright rufo-ferruginous; head, except mouth and palpi, antennae, hind tibiae and tarsi, and sheaths of ovipositor, black. Wings bright

fulvous, ornamented with black as follows: an elongate spot beyond the middle of the anal cell; a complete transverse band before the stigma, occupying all but the tips of the upper and lower discoidal cells; apex of wing beyond first section of radius, except for a large yellow spot that forms a broad incomplete band in the lower middle of the radial cell, apical third of second and basal third of third cubital cells, and extends halfway across the discoidal area below; stigma fulvous, black at tip; hind wing black apically and behind, this black extended forward as a rounded lobe at the basal third and middle of the wing. Head transverse, nearly twice as wide as thick; frontal excavation deep, with a median groove extending from between the antennae to the median ocellus; temples long, obliquely narrowed; occiput deeply concave; face shining, with scattered, minute punctures; malar space one-third the eye-height. Antennae stout, tapering; scape flattened, much widened apically, punctate on upper side; first flagellar joint one-half longer than thick, second quadrate, all beyond short, transverse. Ocelli very close together, their tubercle bounded at the sides and above, except at the median line, by a grooved line. Mesonotum very convex, parapsidal furrows obsolete; scutellum sub-triangular, weakly convex. Abdomen broad, elongate oval; first segment with the median lobe strongly raised behind, almost smooth anteriorly, coarsely striate behind and with a median groove; sides narrow, wider behind, limited exteriorly by a carinate edge. Second segment closely longitudinally striate, longitudinally convex anteriorly at the middle, but without trace of basal median area, lateral tubercles small, each with an elongate impression behind it and a less pronounced oblique one extending inwards to the anterior margin; suturiform articulation broad, closely striate, narrowed laterally. Third segment a little more finely striate than the second; lateral tubercles large, transverse, smooth, the groove behind them broad and not extending forward inwardly; posterior rim convex, shining; fourth segment with a striate basal impression, extending also behind the lateral smooth areas, finely striate-aciculate medially, but smooth at the sides; posterior rim preceded by a striate groove; fifth segment smooth except for a few striæ and punctures medially at base; anterior and posterior edges like those of the fourth, including the lateral tubercles. Sheaths of ovipositor stout, with very short hairs. Legs stout, fore and middle tibiae and tarsi with short fulvous pubescence, that on hind tibiae and tarsi black. Radial vein ending considerably before the wing tip; third section straight, no longer than the second, the radial cell unusually narrow, second cubital cell much widened apically, its stalk half as long as

the recurrent nervure; cubitus straight at base, nervulus oblique above, slightly, but quite distinctly post-furcal.

Type from Salisbury, Southern Rhodesia, August 8, 1917.

This species is similar to *Iphiaulax (Goniobracon) transitus* Szépliget, but differs in the black head and presence of two yellow wing-bands. The head is much more strongly transverse than is usual.

IPHIAULAX BELLONA, sp. nov.

♀. Length 10–11 mm.; ovipositor half as long as the abdomen. Black; the abdomen dark rufous, the extreme tip black and the base more or less blackened in spots; a spot on each cheek below, orbital streak on head above and most of the propleuræ luteous; second trochanter of hind leg red below; wings black, spot at base of stigma yellow; spot outside the stalk to the second cubital cell and a streak along second transverse cubital vein, hyaline. Head fully as thick as wide, the temples bulging and broadly rounded behind; occipital line straight; frontal excavation small, deep, with a slight groove medially; face convex, shagreened and finely wrinkled; malar space one-third as long as the eye, with a groove. Antennæ very long and slender; scape short, expanded apically, deeply emarginate on the sides so that the lower apical edge projects as a distinct process; first flagellar joint twice as long as thick; second slightly shorter, those near the middle of flagellum strongly transverse; ocelli in a low triangle, the paired ones a little closer to one another than to the eye. Thorax long and slender the mesonotum highly convex anteriorly; parapsidal furrows weakly indicated as broad, shallow impressions. Abdomen smooth and shining throughout, without striæ or punctures; first segment one half longer than broad at apex, the median portion much narrowed anteriorly, strongly convex and with a smooth median ridge; sides narrow, forming two broad grooves which extend backwards on to the second segment where they curve inwards and meet before the apex, thus limiting a large subtriangular median area at the base of the second segment; second segment much widened behind, three times as broad as long; on each side with a crescentic groove, extending inwards from the anterior angle and curving toward the posterior margin to turn again outward and forward; suturiform articulation narrow, smooth; anterior corners of third and fourth segments large, separated by short oblique grooves; these segments with strong transverse basal grooves, but with no distinct posterior rims. Legs short, the hind pair stout, with the femora noticeably flattened. Radial vein ending a short distance before the wing tip, its third section as long as the two

preceding together; cubitus straight at base, stalk of second cubital cell one third as long as the recurrent nervure; first transverse cubitus very oblique, the second more than half as long as the second section of the radius; nervulus interstitial.

Type from Pretoria (H. K. Munro), April 22, 1917; paratype from Durban, Natal (Marley), 1915.

In the cubical head and short legs, this species looks much like a Doryctine. It has none of the venational characters of that group, however.

IPHIAULAX JUNO, sp. nov.

♀. Length 21 mm., ovipositor 36 mm. Black, except the abdomen which is entirely bright rufo-ferruginous, and a faint light streak on the posterior orbits; wings black, with the basal two-thirds of the stigma fulvous; below the basal edge of the stigma is a paler area extending across the first cubital cell and below the stalk of the second cubital cell is a small hyaline spot; hind wings without pale markings. Head as thick as broad, the temples long, but narrowed from the eye to the sharply rounded hind angles; occipital line strongly concave; frontal impression deep, with a broad median groove below; between each antenna and the eye is a broad orbital channel that extends nearly to the ocelli; face subopaque and shagreened, except for a median shining area just above the clypeus; antennal tubercles strongly developed; malar space one-third the eye-height, with a large foveate impression. Antennal scape weakly produced below at apex; first flagellar joint one-half longer than thick and scarcely longer than the second; joints toward the middle of the flagellum only half as long as thick. Thorax long and slender, the mesonotum not strongly elevated anteriorly; parapsidal furrows distinct and rather deep; scutellum nearly flat at base. Abdomen lanceolate, not much broader than the thorax, considerably longer than the rest of the body; first segment not distinctly widened behind, almost twice as long as broad; its median portion strongly elevated deeply striate near apex, smooth basally except for some fine striae near the median line; sides very narrow, deeply grooved and limited externally by a carina. Second segment broadened behind where it is almost as wide as long; striate down the middle except at extreme base; sides not sculptured, median basal area not distinctly defined although the surface is raised medially on the anterior half; anterior corners very small, triangular, bounded inwardly and behind by a small deep rounded impresssion; the sides of the segment with an elongate deep impression that is very much broadened behind.

Suturiform articulation deeply striated, narrowed laterally; anterior corners of third segment very large, triangular, half as long as the segment laterally and nearly meeting one another in front, the oblique groove behind them striated as is also a median stripe and a band preceding the smooth posterior margin, fourth segment like the third except that the disc is shallowly reticulate with a median carina and the basal striae do not extend in front of the lateral anterior areas; fifth segment with lateral areas, smooth, except for a broad, closely striated basal band and a narrower, apical one which bears widely separated cross-striae. Legs rather long and stout. Radial cell narrow, especially toward apex, ending much before the wing tip; third section of radius not sinuate, as long as the other two combined; cubitus straight at base; second cubital cell noticeably widened apically, its apex two-thirds as long as its upper side, its stalk nearly half as long as the recurrent nervure; nervulus slightly, but distinctly post-furcal.

Type from Warm Baths, Transvaal April 21, 1918.

Although very different in structure, this fine large species resembles *I. havilandi*. It may be distinguished from *I. hirticeps* by the longer ovipositor and much larger size.

IPHIAULAX LUCINA, sp. nov.

♀. Length 12 mm.; ovipositor 4 mm. Rufous; antennae, occiput, middle of front and of vertex black; sheaths of ovipositor piceous; wings dark, but not black; the costa, except parastigma, and the stigma, except extreme tip, yellow; first cubital cell with a pale spot above, a hyaline spot below the base of the second cubital cell and a yellowish spot below the bend of the nervellus. Head considerably wider than thick; face strongly retreating below; temples obliquely and very sharply narrowed to the nearly straight occipital line where the head is very much narrower than just behind the eyes. Frontal impression shallow, extending almost to the eyes, with a median grooved line; face shining, with a few microscopic punctures; malar space nearly half as long as the eye, with a distinct furrow. Antennae very long and slender; scape short, simple at tip; first flagellar joint one-third longer than wide; second quadrate; those near middle of flagellum twice as broad as long. Thorax slender; mesonotum strongly convex above near center; parapsidal furrows obsolete; scutellum strongly convex. First abdominal segment widened behind where it is three-fourths as broad as long; its central area subtriangular one third shorter than the segment, longitudinally striate-punctate; side pieces smooth, flat, narrowed behind, their lateral margins cari-



nate behind. Second segment slightly wider than long, but little wider behind, its surface longitudinally rugose, distinctly striate only medially in front and behind the oblique basal grooves; median area absent; anterior lateral areas large, transverse, shining, the oblique grooves behind them deep, each meeting a smooth lateral deep impression that extends to the posterior third of the segment. Suturaiform articulation deep, striate, much widened laterally before the bifurcation that encloses the small tubercular corners of the third segment; the latter sculptured like the second, somewhat narrower, half as long as wide; the posterior edge depressed, with a crenate apical line, fourth segment like the third, but smooth laterally and with the apical crenate line more distinct, fourth segment aciculate at base, sparsely irregularly punctate at center and smooth laterally, with a strong crenate impressed line at apex. Legs long and slender. Radial vein ending well before the wing-tip, its third section as long as the other two; cubitus faintly bent at base, second cubital cell narrow, parallel, without distinct stalk at base, much narrowed above; nervulus interstitial.

Type from Que Que, Southern Rhodesia (Bultitude).

*IPHIAULAX IPHIGENIA*, sp. nov.

♀. Length 9 mm.; ovipositor 3 mm. Bright rufous, the abdomen with dark blotches above, more pronounced apically; antennae, sheaths of ovipositor and large spot on head above, black. Wings deeply infuscated, basal cell paler; central part of first cubital cell and base of lower discoidal area subhyaline and a faint hyaline streak along the second transverse cubitas, costa and entire stigma bright red. Head distinctly wider than thick, the temples obliquely rounded behind from the eyes; occipital line excavated rather deeply at the middle; frontal impression broad, shallow; ocellar triangle bounded by a clearly impressed line, the posterior ocelli half as far from one another as from the eye margin; face smooth and shining, scarcely convex; eyes very large, the malar space one-sixth the eye-height, with a broad shallow impression. Scape of antenna expanded toward tip, the lower apical margin projecting as a short, blunt tooth; first flagellar joint not quite twice as long as thick; second one-half longer than thick; joints toward middle of flagellum not very strongly transverse. Mesonotum strongly elevated medially in front; parapsidal furrows obsolete; scutellum convex behind. First abdominal segment expanded, no longer than wide; median elevation one-third the width of the segment, ovate, side-pieces flat, their lateral edges nearly parallel; outside these is a triangular smooth expansion, the

anterior oblique edge of which is twice as long as the posterior one. Second and third segments longitudinally rugose-striate, the abdomen short and broad. Second segment more than twice as broad as long, without distinct basal area; lateral areas triangular, large, convex; behind each is a Y-shaped impression reaching to the apex of the segment; suturiform articulation very broad, coarsely striated, widest laterally, more than half the length of the segment where it meets the large rounded lateral elevations; posterior edge of third segment with a posterior smooth rim, preceded by a crenate line, the segment over three times as broad as long; fourth segment smooth, except for a few irregular striae medially at base; with a deep, narrow striate groove at base; fifth segment smooth; both the fourth and fifth with the lateral tubercles and posterior edge like those of the third. Legs stout, densely glistening pilose, radial vein ending well before the wing tip, the third section nearly as long as the first and second together; radial cell with a very short stalk, not widened apically, the apex less than half as long as the upper margin; cubitus distinctly bent near the base; nervulus interstitial.

Type from Junction of Crocodile and Marico rivers, Transvaal (R. W. Tucker), February 1918.

IPHIAULAX VESTA, sp. nov.

♀. Length 9 mm.; ovipositor 3 mm. Bright rufous, the abdomen infuscated slightly beyond the middle, especially on the sixth and following segments; head with a large black spot above; sheaths of ovipositor, antennæ, and apical joint of all tarsi, black. Wings black, with the costa and stigma bright red; basal cell lighter in the central part as is also a spot in the first cubital cell below the stigma; a small spot just below the first transverse cubitus hyaline, as is also a very narrow streak along the second transverse cubitus; hind wing with a pale spot in the base of the radial cell. Head slightly wider than thick, the temples sloping, the posterior corner rather sharply rounded; occipital line short, deeply concave; frontal excavation broad, nearly reaching the eye; ocellar tubercle surrounded by a grooved line. Face smooth in the center; coarsely rugose-reticulate on the sides and below, but with the entire surface quite shining; eyes quite large, but set rather high, so that the malar space equals onethird the eye-height; it is broadly concave, but without furrow. Antennal scape expanded apically, simple at tip; first flagellar joint scarcely longer than the second, one-third longer than wide; joints near middle of flagellum nearly as long as broad; mesonotum highly convex anteriorly, without parapsidal furrows;

scutellum convex. Abdomen short and broad, fully twice as wide as the thorax and scarcely as long as the head and thorax together; first segment, excluding the triangular posterior projections, one half longer than broad at apex; median elevated portion elongate-oval, coarsely longitudinally striated or wrinkled; side pieces flat, narrowed behind, inner edge with an impressed line at base which widens out into an impression apically, outer edge weakly carinate; posterior projections forming a nearly equilateral triangle. Second segment twice as broad as long, elevated medially in front, but without basal area; lateral areas large, transverse, divided near the corner by an anterior extension of the striate groove that limits them behind; lateral impressions large and broad, deepest anteriorly; surface coarsely, somewhat irregularly longitudinally striate; suturiform articulation deep, striate, rather narrow medially, widened laterally to the small, weakly elevated tubercles of the third segment; weakly striate medially, nearly smooth laterally; posterior margin with a subapical impressed, weakly crenulate line; fourth segment weakly striate on basal half, the basal groove deeply striate, subapical line deep, nearly smooth; fifth segment like the fourth, but not distinctly striate and with the posterior rim more strongly depressed; apical angles of fourth and fifth not at all produced. Legs rather slender. Radial vein not attaining the wing-tip, its third section not sinuous, slightly longer than the other two combined; cubitus slightly bowed at the base; second cubital cell not widened apically, the apex half as long as the upper side, stalk short; nervulus interstitial.

Type from Maboki, Lydenburg, Transvaal (F. J. Kroeger), 1917.

*IPHIAULAX PANDORA*, sp. nov.

♀. Length 13-14 mm.; ovipositor 5 mm. Brilliant rufous or vermilion, marked with black as follows: broad stripe on head above, anterior half of median lobe of mesonotum, complete stripe on each lateral lobe, antennæ, sheaths of ovipositor and tarsal claws. Wings black, the costa and stigma and base of costa in hind wing, red; lighter cloud in first cubital cell, hyaline spot below it and hyaline streak along second transverse cubitus very clearly marked. Head distinctly wider than thick; temples obliquely narrowed; occipital line arcuately excavated; frontal impression large and deep, distinctly divided medially; impressed line about ocelli incomplete above; face opaque, shagreened, with punctures of many sizes intermixed, the latter larger on the sides below; malar space scarcely one-fourth the eye-height, not distinctly impressed or furrowed. Antennæ very long, stout at base, but finely tapered apically; scape strongly expanded

apically, the outer apical margin deeply emarginate and the lower apical edge strongly produced; first flagellar joint not much longer than thick; second quadrate; joints near middle of flagellum more than twice as thick as long, the smaller ones toward apex becoming again quadrate. Mesonotum not very strongly convex, the parapsidal furrows distinct, anteriorly, though not deep; scutellum flat basally. First abdominal segment, exclusive of the posterior projections, twice as long as broad; middle portion elongate oval, highly convex, longitudinally striate-reticulate; side pieces smooth, their outer edges carinate; anterior edge of the triangular lateral projections longer than the posterior one. Second to fifth segments rugose, the basal impressions deeply and coarsely striate and the sides of the third to fifth smooth; second segment twice as broad as long, without distinct basal median area; lateral areas strongly transverse, nearly smooth; basal oblique impression not extending behind the middle laterally where it sends forward a deep groove that separates the anterior corner. Suturiform articulation much broader laterally, its posterior edge strongly sinuous, separated corners of third segment large, smooth; its posterior edge depressed, margined by a crenulate line. Fourth and fifth segments highly convex behind, their posterior margins very much depressed and with a coarsely crenulate marginal line; posterior angle of fifth segment strongly produced into a blunt thooth. Legs stout, densely pubescent. Radial vein ending not far before the wing-tip, its last section straight, longer than the other two together; cubital vein straight at the base; second cubital cell slightly wider apically, its apex half as long as its upper edge, stalk short; nervulus interstitial.

Type from Salisbury, S. Rhodesia, January 7, 1917; paratype from Mfongosi, Zululand (W. E. Jones), March 1917, and a third female from Otjituo, S. W. Africa, (R. W. Tucker), Jan. 1920. A label attached to the type indicates that the species is parasitic upon "*Gonometra* sp." Two males from Otjituo, S. W. Africa (R. W. Tucker), Jan. 1920 appear to be this species, but have the fifth segment uniformly rugose, as does a third male from Tsumeb, S. W. Africa (R. W. Tucker), Dec. 1919.

*IPHIAULAX THISBE*, sp. nov.

♀. Length 9 mm., ovipositor 3 mm. Bright fulvo-ferruginous; the antennae, ocellar tubercle and tips of the apical tarsal joints black; abdomen irregularly blotched with blackish beyond the second segment. Wings dark fuscous, the costa and stigma red; basal cell and spot below stigma in first cubital cell lighter; spot below first

transverse cubitus and streak along second transverse cubitus hyaline; base of costa in hind wing red. Head fully as long as broad, strongly produced at the base of the antennæ; temples obliquely narrowed, the occipital line excavated near the middle; frontal impression deep centrally, divided on the median line; impressed line about ocelli incomplete above; face shining, smooth centrally; with sparse, coarse punctures on the sides below. Eyes rather small; malar space one-third the eye-height, with an obsolete impression. Antennal scape small, simple at apex; first flagellar joint one-half longer than wide, considerably longer than the second; joints toward middle of flagellum about as long as thick. Parapsidal furrows not indicated; scutellum strongly convex. Abdomen short and broad, twice as wide as the thorax. First segment, exclusive of the posterior projections scarcely longer than wide; central portion reaching nearly to the base, coarsely, irregularly longitudinally wrinkled; side pieces narrowed behind, not distinctly carinate laterally; posterior projections with the anterior edge longer than the posterior one. Second segment slightly more than twice as wide as long; without distinct median basal area; lateral areas transverse, smooth; remainder of segment striated except the posterior corners; lateral discal impressions large and deep. Sutureform articulation broad and deep, striated, broader laterally; anterior corners of third segment small, the groove before and behind them narrow; surface rugose, with slight indication of striae medially, posterior margin without a distinct impressed line before the edge. Fourth and fifth segments weakly rugose near the median line, almost smooth laterally, the anterior corners separated; basal groove deep, striated; apical impressed line distinct, crenulate; the extreme edge forming a smooth rim. Legs stout; tibiae with long fulvous hair. Radial vein ending a short distance before the wing-tip, the third section barely as long as the first and second together: cubitus slightly angled near the base; second cubital cell slightly widened apically, its apex not quite half as long as the upper side, stalk short; nervulus interstitial.

Type from Seymour, Cape Province, (L. Péringuey) 1891.

IPHIAULAX RHADAMANTHUS, sp. nov.

♂. Length 18 mm. Thorax rufous, lighter below and behind; abdomen and legs fulvous, the hind tarsi black; head black, the orbits below rufous and the mouth region fulvous; wings black, with pale markings as follows; basal third of stigma fulvous; first cubital cell, except base and apex, fulvohyaline, discoidal area, beyond the closed discoidal cells with a similar spot of the same size which is

contiguous with the stigmal spot and attains the posterior margin of the wing; apex of second and base of third cubital cell with a quadrate fulvous spot that includes the entire second transverse cubitus; hind wing with a large pale spot in and below the base of the radial cell and several smaller spots near the base of the cubitus. Head strongly transverse, nearly one half wider than thick; vertex much narrowed behind the eyes to the occiput which is very strongly concave; frontal excavation rather shallow, with a median impressed line; impressed line surrounding the ocelli incomplete above, the ocelli large, and the posterior pair not separated by more than their own diameter although nearly twice so far from the eye. Face very finely and sparsely punctate, shining; malar space extremely short, without furrow or impression. Antennal scape excavated on the side at apex, but scarcely toothed below, antennal projections very strongly elevated, making the face very oblique in profile. Mesonotum weakly elevated anteriorly, flat behind, the parapsidal furrows obsolete; scutellum convex. Middle lobe of first abdominal segments and segments two to five entirely, finely, regularly, longitudinally striated. First segment, exclusive of the very narrow posterior lateral projections, twice as long as broad at apex; median lobe reaching near to the base, highly convex medially; lateral portion flat, shining, narrow, of equal width, carinate at the margin. Second segment without trace of median basal area or elevation, anterior corners rather small, triangular, strongly elevated, bordered by a broad, deep, oblique impression that extends almost to the posterior margin of the segment; the striations of the segment curving toward the anterior corner as they cross this impression. Sutureform articulation broad and deep, heavily striated, its lateral branches that define the corner of the third segment unusually deep; these corners small, rounded, strongly elevated; second segment nearly twice as broad as long, narrower in front. Third segment three times as broad as long, its posterior edge smooth, but not preceded by a crenate line; fourth and fifth segments like the third, but more distinctly impressed along the hind margin before the smooth apical band; their anterior corners as large as those of the third. Abdomen lanceolate, over twice as broad as the thorax and one-half longer. Radial cell long and narrow, but not attaining the wing tip which is more produced than usual; third section of radius as long as the second; cubitus not distinctly bent at base; second cubital cell long and parallel, its apex two-fifths as long as its upper side, stalk very short; nervulus interstitial.

Type from Eshowe, Zulu land, December 1916 (H. W. B. Marley).

IPHIAULAX AETHIOPICUS, Cameron.

*Merinotus striatus*, Szépligeti,  
One female from East London, Cape (Lightfoot).

IPHIAULAX LUGENS, Brullé.

One female from Mfongosi, Zululand (W. E. Jones), April 1916.

IPHIAULAX XANTHOPTERUS, Cameron.

*Iphiaulax trimeni*, Cameron.  
One specimen from Kar Kloof, Natal (Morley), December 1914.

IPHIAULAX MARTINII, Gribodo.

*Iphiaulax robustus*, Cameron.  
One specimen from Durban, Natal (Morley), April 1915.

IPHIAULAX BICOLOR, Brullé.

*Iphiaulax strenuus*, Cameron.

Cameron distinguishes his *I. strenuus* by the presence of a distinct area on the second segment, but this is indicated by Brullé for *bicolor*, and I cannot see that the two species are separable. Two specimens from Mfongosi, Zululand, January and May (W. E. Jones) belong here, as well as one from Pretoria (H. K. Munro), April 19, 1920.

IPHIAULAX XANTHOSTOMUS, Cameron.

A specimen from Salisbury, Southern Rhodesia (Melle), 1916.

IPHIAULAX RUBIGINATOR, Thunberg.

*Iphiaulax levissimus*, Cameron.

Two examples, male and female from Matroesberg, Ceres Division, Cape, 3500 ft. (R. M. Lightfoot), November 1917.

IPHIAULAX DURBANENSIS, Cameron.

*Iphiaulax pretoriaënsis*, Cameron.

A female from Mfongosi, Zululand (W. E. Jones), November 1917.

IPHIAULAX NATALIENSIS, Szépligeti.

*Iphiaulax basimacula*, Cameron.

Specimens of both sexes from Salisbury, Southern Rhodesia (Dodds) and Mfongosi, Zululand (W. E. Jones), April 1917; two males from Nuragas, S. W. Africa, (R. W. Tucker), Jan. 1920, and another from Otjituo, S. W. Africa, (R. W. Tucker), Jan. 1920.

## IPHIAULAX HAVILANDI, Cameron.

Numerous specimens from Mfongosi, Zululand (W. E. Jones) belong to this species. It is evidently similar to the variable *I. (Ipobracon) tesmanni* of Szépligeti, but with the basal median area of the second segment not smooth. *I. rosa* Cameron cannot be more than a variety.

The species varies much in size and color.

## IPHIAULAX LONGICOXIS, Cameron.

A female from Windhuk, S. W. Africa (R. W. Tucker), Dec. 1919 agrees perfectly with Cameron's description.

## IPHIAULAX PLURINACULATA, Brullé.

Two specimens (♂, ♀) without definite locality.

## IPHIAULAX TEGULARIS, Szépligeti.

There are several females, from Port Elisabeth (Drege), Grahams-town and Dunbrody (O'Neil). Cape.

## IPHIAULAX SPILONOTUS, Cameron.

A female from Mfongosi, Zululand (W. E. Jones), May, 1916, two others from Sikhoele, Basutoland, May 1919.

## IPHIAULAX SIGNATUS, Brullé.

A male from Port Elisabeth, Cape Province (Drege), 1899.

## IPHIAULAX VARITINCTUS, Cameron.

One female from Ceres, Cape Province (R. M. Lightfoot), 4913.

## IPHIAULAX RUBER, Bingham.

This large species is evidently distinct. The stigma is paler than in most of the related forms which are much smaller, and with the ovipositor shorter. I have not seen any specimens that could possibly belong to this species.

## IPHIAULAX DECORUS, Cameron.

Four females from Mfongosi, Zululand (W. E. Jones), February to May.

## IPHIAULAX WHITEI, Cameron.

One example from Mfongosi, Zululand (W. E. Jones), March 1916.



IPHIAULAX DODSI, Cameron.

A male and a female from Inhambane, Mozambique (K. H. Barnard), December 1912, and East London, Cape Province (R. M. Lightfoot), July 1914.

IPHIAULAX LATIVENTRIS. Cameron.

In general structure, this species is very similar to several of those included in the group with red stigma. The fourth and fifth segments lack the smooth rim along the posterior margin, however, a character present in the otherwise closely similar species. There are two females from Mfongosi, Zululand (W. E. Jones), March 1914 and February 1917, and one from Barberton, Transvaal (H. K. Munro).

IPHIAULAX BICOSTATUS, Szépligeti.

Two males, from Mfongosi, Zululand (W. E. Jones), May 1917, and Maboki, Lydenburg, Transvaal (Kroeger), 1917.

IPHIAULAX 12-FASCIATUS, Cameron.

A female from Dunbrody, Cape Province (O'Neil).

IPHIAULAX NIGRIDORSIS, Kriechbaumer.

A female from Stella Bush Durban, Natal (Marley), April 1915.

IPHIAULAX CAPENSIS, Cameron.

A female from Salisbury, Southern Rhodesia, September 1913.

IPHIAULAX MACULIFRONS, Ritsema.

This species described from the West Coast, near the mouth of the Congo, I have been unable to recognize in the material at hand. It is rather crudely illustrated in color, and falls in the group of species with red body and stigma. Whether either is distinct from the forms here listed, is impossible to say, without an examination of the types.

IPHIAULAX KREBSI, Cameron.

I have not seen this species, and have been unable to include it in the key. It was described from a male and is apparently very close to *I. havilandi* Cameron.

## BRACON INCISUS, Brullé.

This is evidently similar to *I. spilonotus* Cameron and *I. pandora* n. sp., but it differs from both in the sculpture of the abdomen. I cannot be convinced that there is as much variation in sculpture in the species of this group as Cameron has been led to believe (Ann. South African Mus., vol. 5, p. 48 (1906), although there is unquestionably so much variation in the color and maculation of the head and thorax, that these characters cannot be relied upon to distinguish species. I suspect that it is the species I have designated as *I. incisus*. Br. in section 56 of the key to species. but may be incorrect in this interpretation.

## BRACON COCCINEUS, Brullé.

This is evidently an *Iphiaulax*, but I have not been able to recognize it, although Brullé refers to it as abundant and Cameron speaks of it as occurring in South Africa (Ann. South African Mus., vol. 5, pp. 49 and 52 (1905)). Brullé's remarks may have been based upon specimens of more than one species, but at any rate his description of the sculpture of the abdomen cannot refer to any South African species that I have seen.

## IPHIAULAX PECTORALIS, Szépligeti.

I have not seen this species, and the description is too incomplete to enable me to insert it in the key.

IPHIAULAX (*Campyloneurus*) SEMILIS, Szépligeti.

From the very short diagnosis, I cannot place the species, further than to know that it does not appear to be in the material before me.

## PLAXOPSIS, Szépl.

## PLAXOPSIS NITIDULA, sp. nov.

♀. Length 10 mm., ovipositor as long as the body. Entirely rufous, except the antennæ and ocellar triangle. Head above and apices of tarsi more or less blackened. Head transverse, one-half broader than thick, the temples broadly rounded; front impressed above the base of the antennæ, each of which is placed upon a distinct tubercle; face below antennæ with an oblique projection which bears two closely approximated grooves which receive the antennal scapes when they are bent downward; in lateral view the upper surface of this projection is parallel with the longitudinal axis

of the eye; face below and at the sides of the elevation rugose reticulate; malar space half as long as the width of the eye, with a distinct furrow; head above and behind smooth and polished. Antennae slightly longer than the body, gradually tapering to apex; scape evenly widened from base to apex, nearly three times as long as thick at tip; third joint one-half longer than thick; fourth quadrate, following very gradually shorter. Mesonotum scarcely trilobed, the furrows shallow in front and not impressed behind; scutellum subtriangular, smooth, quite strongly convex. Propodeum smooth, polished, without furrow, convex. All pleurae highly polished, propleura with a shallow oblique impression that extends over the pronotum as a deep impressed line; mesopleura with a furrow next to the tegula and another extending from the root of the hind wing toward the coxa, which together marks off a raised space near the tegula; metapleura separated from the propodeum by a very deep groove that bears a prominent fovea in front of the spiracle which is broadly ovate. Entire abdomen smooth and polished, as long as the head and thorax; first segment as long as broad at apex, its middle portion not very convex, lateral concave area of equal width, limited externally by a carina, lateral triangles strongly concave. Second segment with the basal area as broad as long, over half as long as the segment, produced apically as a slender point and margined laterally by short oblique, foveate striae; near the base with a transverse impression on each side that curves back laterally to extend nearly to the posterior corner; hind margin curved forward at the sides, but scarcely emarginate medially; suturiform articulation very broad, coarsely striated except at sides; anterior corners of third segment large and broad, separated by a striate groove; fourth segment with a crenulate line at base, its lateral angles not separated; as long and distinctly wider than the second segment which is more than twice as wide as long; fourth and following segments gradually shorter and rapidly narrower, so that the apex of the abdomen is acute. Legs rather stout and strongly hairy; anterior tarsi one-half longer than their tibiae; tarsal claws simple. Wings black; median and submedian cells each yellowish brown along the anterior border; base of radial cell, nearly all of first cubital cell, spot at base of parallel vein and cloud along second transverse cubitus, yellowish; also a triangular hyaline spot just outside the lower apical corner of the first cubital cell; hind wing with a yellowish spot anteriorly at apical third; costa and edge of stigma rufous; lower part of stigma yellow. First discoidal cell with a short petiole above, cubitus subangulate at base; recurrent nervure entering the

first cubital cell very near its tip; second cubital cell slightly widened apically, the second transverse cubitus half as long as the second section of the radius; third section of the latter scarcely as long as the second; radial cell nearly attaining the wing tip.

Type from Stella Bush, Durban, Natal (Marley), January 1915.

This might easily be mistaken for a member of the polymorphic genus *Iphiaulax* (*sens. lat.*) were it not for the prominent subantennal tubercle. The form of this tubercle, the longer scape and shorter, not carinate, first abdominal segment are quite different from *Plaxopsis sjostedti* Szép. from the Cameroons, and at first I regarded *P. nitudula* as a *Lasiophorus*. From *P. nitens* Szép. the present species differs in having the corners of the third abdominal segment distinctly separated. Both genera are separable from *Chaoilta* by the absence of a spine high up on the face next to the antennae.

#### CHAOILTA, Cam.

##### CHAOILTA AMPLIFICATA, sp. nov.

♀. Length 20 mm., ovipositor 10 mm. Head, thorax, abdominal petiole, spot at base of second segment and legs, except hind tibiae and tarsi, fulvous yellow; antennae, abdomen beyond petiole and hind legs beyond the femora black; wings bright fulvous on basal third; black beyond, except for a triangular fulvous spot which includes the first cubital cell and most of the stigma, and three hyaline spots, one just below the lower apical angle of the first cubital cell, another below the base of the parallel vein and another surrounding the second transverse cubitus; hind wing fulvous on basal half, less strongly so behind. Head scarcely broader than thick, behind the eyes long and broad, then rather sharply narrowed; ocellar triangle small, the ocelli separated by their own diameter; vertex excavated above the antennae, the basin with a median carina and indistinctly margined laterally by an obtuse rim; antennal tubercles well developed; intra-antennal spine as long as the diameter of the flagellum, followed below by a pair of toothlike processes and lower down by an oblique lamella that is concave above; face coarsely transversely striated above, nearly smooth at the sides below; malar furrow one-third as long as the eye; head above and behind smooth; head more strongly hairy than usual, especially on the face. Antennae about as long as the body; scape stout, barely twice as long as thick, obtusely toothed at apex; first joint of flagellum nearly twice as long as the second which is but little longer than thick; following joints rapidly becoming transverse, with the sutures between

them oblique. Mesonotum with weak furrows anteriorly and none behind; middle lobe very weakly convex in front, flat behind; scutellum with a delicate foveate line at base. Propodeum smooth, convex, not furrowed; spiracles oval. Petiole of abdomen slightly more than twice as long as broad at tip, which is twice as wide as the base; median lobe gently raised, ovate-lanceolate, minutely roughened, with a median raised line on apical half and some irregular longitudinal wrinkles at tip; sides of segment narrow, flat, the carina placed at the extreme lateral edge. Second segment one-half wider at base than at apex, two-thirds as long as wide at tip; basal median area rounded, convex, opaque, with some short longitudinal striae at apex and with the tip prolonged to the tip of the segment as a strong median carina; median portion of segment sculptured by broken, coarse longitudinal lines, the sides smooth. concave, the two separated by an oblique line running from the anterior angle somewhat toward the center of the posterior margin; also a small concave area basally at each side of the median area; hind margin of second segment curved forward laterally and emarginate at the extreme center; third and fourth segments of equal length, each considerably shorter than the second and with a median carina; basal corners of third large, triangular smooth, of fourth smaller and more transverse; third coarsely longitudinally striated except at tip; fourth similarly sculptured on basal half; suture at base coarsely striated; sixth and seventh much narrowed, smooth, the entire abdomen lanceolate, but little wider than the thorax and as long as the head and thorax together; sheaths of ovipositor thickly hairy. Pleurae smooth; propleura with an oblique shallow furrow that extends on to the pronotum as a deep groove; mesopleura with two oblique furrows above, metapleura with a fovea anterior to the spiracle. Legs rather strongly hairy; hind tibia one-half longer than the femur; hind coxae compressed. Cubitus rather strongly bent at base, the first discoidal cell with a long petiole above; recurrent nervure entering near apex of first cubital cell; radial cell very nearly attaining the wing tip; second section as long as the third and a little more than twice as long as the second transverse cubitus; second cubital cell faintly widened apically; nervulus interstitial.

Type from Mfongosi, Zululand (W. E. Jones), May 1917.

This is the first species to be described from the African region. Structurally it is quite similar to the type, *C. lamellata* Cam. from India, although differing in the form of the facial tubercles and in the extension of the median abdominal carina on to the third and fourth segments as well as by the longer first abdominal segment.

## PLATYBRACON, Szépligeti.

*Doryctocephalus*. Cameron Arch. Math. Naturvidens. vol. 30,  
No. 10, p. 20 (1909).

Cameron has described three species of *Iphiaulax* (*platynotus*, *calviniae* and *erythrostromus*) that belong here. One of these, *erythrostromus*, is represented by several specimens in the collection and is undoubtedly congeneric with several species of *Platybracon* in my collection. The facial ridge is less pronounced than in some species, but this character varies within considerable limits in forms otherwise extremely similar. *P. platynotus* Cam. described in 1905 from a male is surely the same as *P. erythrostromus* characterized a year later from the opposite sex and the species must be known under the earlier name.

*Doryctocephalus* Cameron, 1909 is evidently a synonym, but the type species, *D. platynotus* appears to be distinct from his *Iphiaulax platynotus*, 1904. The 1909 species may, therefore, receive the name of *P. planinotus* nom. nov.

## SCHIZTOBRACON, Cameron.

Ann. South African Mus., vol. 5, p. 70 (1906).

Roman, Ent. Tidskr., vol. 31, p. 138 (1910) (*Tricoelopyge*).

This genus is quite distinct by the form of the fifth segment (not sixth as stated by Cameron). It resembles *Rhytimorpha* at least in the modification of this segment, but the margin is excised, not toothed; the radial cell is longer than in *Rhytimorpha*, but does not nearly attain the wing tip and is hence shorter than in *Odontogaster*; the second cubital cell is slightly widened apically. *Tricoelopyge* Roman is congeneric, but probably represents a second species.

## SCHIZTOBRACON ORNATIPENNIS, Cameron.

Ann. South African Mus., vol. 5, p. 70 (1906).

*Latilobatus*. Cameron Arch. Math. Naturvidens., vol. 30,  
No. 10, p. 24 (1909).

A specimen is in the collection from Mfongosi, Zululand (W. E. Jones), February 1917.

The submedian cell is very slightly longer than the median, but the genus undoubtedly falls in the *Braconinae*. The specimen before me agrees exactly with the original description except that the mesonotum is entirely black and the propleurae are black below. It also has the middle tibiae and tarsi black as in *S. latilobatus*, which is unquestionably only a slight color variety.

ODONTOGASTER, Szépligeti.

*Caenoprymnus*. Cameron Arch. Math. Naturvidens, vol. 30, No. 10  
p. 22 (1909).

Three species are included in the present collection, two of them previously described, one by Cameron as the type of *Caenoprymnus* which is undoubtedly a synonym. They may be separated as follows:

1. Wings uniformly fuscous . . . . . 2.  
Wings mottled, stigma in part yellow . . . . . *O. spinosus* Cam.
2. Larger, 6 mm. in length; abdomen stout, apex broadly rounded  
*O. uniformis* sp. nov.  
Smaller, 4—5 mm. in length; abdomen slender, acutely rounded at apex  
*O. minor* Szép.

ODONTOGASTER SPINOSA, Cam.

Arch. Math. Naturvidens., vol. 30, No. 10, p. 22 (1909)  
(*Caenoprymnus*).

♀. Length 6–7 mm. Bright rufo-ferruginous, the antennae, ocellar area and sheaths of ovipositor black. Wings fuscous, with paler, yellowish brown markings. From the base nearly to the basal vein pale, then with a fuscous area in the base of the first cubital and all of the discoidal cells, just beyond with a narrow hyaline band, beyond fuscous except for hyaline line on second transverse cubitus; basal two-thirds of stigma yellow, veins piceous. Head shining above, the ocelli in a small triangle, temples rather short, rounded, the head nearly twice as broad as thick; front weakly excavated; face finely punctate, clypeus with its upper margin indicated by a fine raised line. Eyes of moderate size, oval; malar space half as long as the eye, with a shallow, but distinct furrow. Antennae noticeably shorter than the body, many jointed, but with the joints all short; scape simple, oval, less than twice as long as thick; three basal joints of flagellum nearly equal, less than twice as long as thick; joints beyond to the tapering tips of antennae, becoming quadrate. Mesonotum smooth, with deep parapsidal furrows, the middle lobe protuberant; scutellum triangular, convex with a punctate line at base; propodeum convex, smooth. Pleurae shining, smooth, mesonotum with a broad, deep groove below the tegulae; spiracular groove of metapleura absent anteriorly. Abdominal petiole strongly protuberant medially behind, the central portion rugose, bounded laterally behind by a broad groove; spiracular carina strong, entire; lateral groove deep, rugose. Remainder of abdomen rugose; broadly

oval, twice as long as wide; no longitudinal striations; second segment longer than the third, with a small triangular, nearly smooth median area, prolonged as a line behind; laterally with a pair of deep striate grooves that converge behind; suturiform articulation rather narrow, but strongly crenulate; anterior corners of third segment very large, but indistinctly separated; those of fourth and fifth respectively smaller and more distinctly separated, the sutures at the base of these segments deep, striate; fifth segment slightly longer than the fourth, its apical margin rounded, the lateral edge more than half as long as the median line; teeth on margin broad at bases, rather irregular. Nervulus interstitial; radial cell nearly reaching the wing tip; third section of radial vein as long as the others combined, second four times as long as first and more than twice the length of the second transverse cubitus; first discoidal cell but little narrowed basally, with a rather long petiole above; base of cubitus straight; recurrent nervure received at tip of first cubital cell; second cubital cell parallel. Ovipositor two-thirds as long as the abdomen.

A female from Mfongosi, Zululand (W. E. Jones), April 1916, and another from the same locality, May, 1917.

This species is most nearly related to *O. abyssinica* Szépligeti, but is evidently quite distinct.

#### ODONTOGASTER MINOR, Szép.

Two specimens from Mfongosi, Zululand (W. E. Jones), May 1916 and April 1917.

#### ODONTOGASTER UNIFORMIS, sp. nov.

♀. Length 6 mm. Bright rufo-ferruginous; antennae, spot at each side of ocellar space, but not the space between the ocelli, and sheaths of ovipositor black; wings uniformly dark fuscous, with an oblique hyaline streak at the basal angle of the second cubital cell and another along the edges of the second transverse cubital vein; stigma and veins black. Structurally almost identical with *O. spinosa* Cameron and differing only as follows: median lobe of mesonotum more prominent; scutellum strongly convex; separated corners of fourth and fifth abdominal segments of equal size; teeth on margin of fifth segment very slender at bases; ovipositor half as long as the abdomen.

Type from Mfongosi, Zululand (W. E. Jones), April 1916; another from the same locality, May 1917.

This species resembles *O. minor* in color, but the abdomen is



broader, with the middle space of the first segment strongly raised, and with a basal area on the second segment. It is also very much larger.

RHYTIMORPHA, Szépligeti.

Termes. Füzetek, vol. 24, p. 359 (1901).

RHYTIMORPHA COCCINEA, Szépligeti.

Termes. Füzetek, vol. 24, p. 359. (1901).

This species, originally described from the Congo, is represented by a female from Jackal's Water, Bushmanland (R. M. Lightfoot), October 1911.

On account of the dentate apex of the abdomen and general color, this genus resembles *Odontogaster*, but the radial cell is much shorter, the head much thicker, the eyes round, the impressions on the second abdominal segment divergent behind, the second cubital cell is widened apically and with a long petiole at base, the corners of the third segment are deeply separated, and the apical teeth on the abdomen are less acute.

CURRIEA, Ashmead.

"*Curriera*" of Cameron, Szépligeti *et al.*

There are several species of this genus described from Equatorial and South Africa and two are contained in the present collection. The eyes of the female are very large, much as in the males of certain *Iphiaulax* and related genera. The most remarkable feature of *Curriea* is, however, the peculiar disposition of the veins surrounding the brachial or lower discoidal cell, which also sometimes contains a chitinized macula like the spots in the disco-cubital cell of the Ichneumonid *Henicospilus*. Due to the distortion of this cell the submedian cell is sometimes distinctly shorter than the median, and the neuration of this area reminds one of that of the Rhogadine, *Gyro-neuron* and its allies, as already noted by Baker. Just what relation *Curriea* bears to *Aphrastobracon* and *Hewittella*, I cannot tell, as I do not know the latter genera in nature.

CURRIEA FLAVOMACULATA, Cam.

Rec. Albany Mus., vol. 1, p. 157 (1905) (*Megalommum*)

One female from Molopo, Bechuanaland.

## CURRIEA STRIATA, Cam.

Arch. Math. Naturvidens., vol. 30, No. 10, p. 24 (1909).

One female from Mfongosi, Zululand (W. E. Jones).

## BACUMA, Cameron.

*Trachybracon* Szép. Ann. Mus., Nat. Hungarici, vol. 4, p. 549 (1906).

*Key to Species.*

1. Ovipositor short, but little longer than the body; wings smoky with paler markings . . . . . *fumipennis* Cam.  
Ovipositor long, more than twice as long as the body; wings black with pale or orange markings . . . . . 2.
2. Median basal area of second abdominal segment entirely smooth; hind legs partly black . . . . . *maculiventris* Cam.  
Median area striated at least in part; legs entirely red . . . *rufa* Cam.

## BACUMA RUFA, Cameron.

Ann. Transv. Mus., vol. 2, p. 194 (1911).

A female from Umvuna, Kenya Colony, July 10, 1917 is about the size of the type and another from Rooiberg, Waterberg Distr., Transvaal, Dec. 2, 1911 measures fully 24 mm. Structurally both are almost identical although the basal area of the second segment is larger and more finely striate in the large specimen which also has the abdominal sculpture forming more or less longitudinal reticulations. A third female received later from Tsumeb, S. W. Africa. (L. W. Tucker), Dec. 1919, agrees exactly with the Rooiberg specimen in size and sculpture.

This genus appears to be very much like *Rhamnura* Enderlein in many particulars; it does not lack the parapsidal furrows, however. *Trachybracon* appears to be identical.

## CHELONOGASTRA, Ashmead.

In its typical form this genus is easily recognizable by the peculiar form of the abdomen and hairy eyes. It was originally based on two Japanese species and I have another from Formosa which appears to be structurally very similar to the type species. Three South African species are included in the present collection but they differ in having the eyes very sparsely hairy, nearly bare, and in lacking a distinct median area on the second segment of the abdomen as well as in the strongly arcuate, not straight suturiform articula-

tion. I strongly suspect, therefore, that it will be impossible to retain *Chelonogastra* and that it will be found to intergrade with such genera as *Iphiaulax* and some of its segregates. *Monocoila* Roman, I cannot distinguish from the description, and by comparison of East Indian and African species.

The two African forms may be distinguished as follows:

- |   |                            |
|---|----------------------------|
| 1. Malar space about half as long as the width of the rather large eye; third abdominal segment but weakly declivous behind . . . . . | 2.                         |
| Malar space nearly as long as the width of the smaller eye; third abdominal segment declivous behind . . . . .                        | <i>rotundula</i> sp. nov.  |
| 2. Second to fifth abdominal tergites all coarsely rugose-reticulate . . . . .  | <i>elongatula</i> sp. nov. |
| Second and third tergites coarsely rugose-reticulate; fourth and fifth much more finely sculptured . . . . .                          | <i>orbiculata</i> sp. nov. |

CHELONOASTRA ROTUNDULA, sp. nov.

♀. Length 4—5.2 mm.; ovipositor sheaths as long as the second abdominal segment. Bright fulvous; antennae, ocellar spot, last joint of tarsi, and ovipositor black; wings evenly fuscous; stigma and veins black. Head strongly transverse, fully twice as long as thick; ocelli on a small equilateral tubercle; temples rapidly narrowed behind the eyes; head above smooth and polished; face shining, shagreened; clypeal foveae very prominent. Eyes small, oval, distinctly, but sparsely pilose; inner margins weakly emarginate above; malar space as long as the width of the eye, with a poorly impressed furrow; front impressed just above the antennae, with a median impressed line extending nearly to the ocelli; scape of antennae short, oboval, simple at apex; first flagellar joint as long as the second, half longer than thick; antennae tapering, almost as long as the body. Mesonotum smooth, with distinct, but not deep parapsidal furrows; middle lobe not prominent; scutellum moderately convex, with a punctate groove at base. Propodeum smooth, convex. Abdomen broad, apical portion of the third segment very convex and strongly declivous at tip. First segment with the median part coarsely rugose, triangular; lateral area of equal width with a carina along the middle; second and third segments rugose-reticulate, the suturiform articulation strongly curved forward on the disc where it is broad and coarsely striate, laterally it is straight and directed obliquely forward. Second segment with a minute, not very clearly defined basal median area which is extended back on to the third segment as an indistinct median carina; length equal to a little more than half the basal width; on each side of the disk with a shallow,

transversely striate groove extending from the anterior angle to the posterior edge; these grooves scarcely convergent behind. Apex of third segment arcuately rounded, lateral corners large, directed obliquely forward along the sides of the second segment; fourth and fifth segments almost as roughly sculptured as the third, the fourth greatly raised between apex and base, the latter with a crenate line; fifth segment deeply, triangularly incised at apex. Ovipositor, stout, dagger-shaped, its sheaths broad, thinly hairy. Pleurae entirely smooth, the mesopleura with the usual two impressions above. Legs stout, more strongly fulvous pubescent than the remainder of the body. Radial cell ending considerably before the wing-tip, the third section, of radius almost as long as the other two together, first section nearly as long as the first cubital cell; second cubital cell long, slightly widened at the extreme tip; second transverse cubitus less than half as long as the second section of the radius; recurrent nervure almost interstitial; first section of cubitus straight, the first discoidal cell with a long stalk above.

Type from Mfongosi, Zululand (W. E. Jones), February, 1914. Paratype from Komati Poort, East Transvaal (R. W. Tucker), November 1913.

*CHELONOASTRA ELONGATULA*, sp. nov.

♀. Length 6 mm.; ovipositor sheaths as long as the second and third segments of abdomen. Bright fulvous; antennae, ocellar spot, last joint of tarsi, and the ovipositor with its sheaths, black; wings light fuscous, darker at apex. Head strongly contracted behind, about twice as broad as thick; ocellar tubercle rather large, the posterior ocelli twice as far from the eye as from one another; head above smooth and shining; front weakly impressed above the antennae, with a fine median impressed line; face polished and distinctly emarginate next to the antennae; malar space about half the width of the eye, with a rather indistinct furrow. First and second flagellar joints of equal length. Mesonotum, scutellum and propodeum smooth and shining; parapsidal furrows shallow, but distinct and complete; scutellum strongly convex, with a crenate furrow at the base. Entire upper surface of abdomen coarsely rugose-reticulate. First segment with the median convex portion very large, triangular; side portion with a strong carina above the margin, separated from the median area by a series of large deep foveae; second segment almost as long medially as wide at the base, with a minute triangular area basally, prolonged along the median line to the tip of the segment as a weak, indistinct carina; suturiform articulation very slightly bent

forward at the middle, obliquely extended forward at the sides, delicately impressed and only very finely crenulated. Third segment not very convex, although it is very suddenly contracted at the extreme apex medially; anterior corners large, triangular, lying at the sides of the second segment; posterior margin not evenly arcuate, more strongly curved medially than at the sides. Constrictions between third, fourth and fifth segments very deep, the fifth broadly, deeply excised medially behind. Ovipositor stout, but more slender than in the preceding species; its sheaths thinly hairy. Pleurae smooth; subspiracular groove on metathorax very broad. Legs not noticeably stout, more strongly yellowish pilose than the body. Radial cell ending considerably before the tip of wing; third section of radius as long as the other two combined; second cubital cell long, not perceptibly widened at apex; second section of cubitus three times as long as the second section of the radius; cubitus straight at base the first discoidal cell not distinctly petiolate above; recurrent nervure almost interstitial.

Type from Cape Province.

*CHELONOGASTRA ORBICULATA*, sp. nov.

♀. Length 4.3 mm. Yellowish fulvous, the mesonotum and propodeum ferruginous; ocellar spot, antennae, tips of last tarsal joints, ovipositor and its sheaths black; wings evenly and rather strongly infuscated. Head less than twice as broad as thick, sharply narrowed behind the eyes; ocelli and front as in the preceding species. Face shining, very delicately sculptured. Eyes large, broadly oval, not distinctly emarginate next to the antennae; malar space short, half as long as the width of the eye, with a distinct furrow. First and second flagellar joints of equal length. Mesonotum, scutellum and propodeum smooth and shining; parapsidal furrows complete, rather strongly impressed, the median lobe of the mesonotum distinctly raised anteriorly. Scutellum with a row of closely placed foveae at base, convex. Basal three segments of abdomen coarsely rugose-reticulate, the reticulations on the second widely separated; fourth and fifth confluent punctate or shagreened. Middle portion of first segment smooth at base; carina at the side close to the margin anteriorly, separated from the median area by a series of foveae; second segment at the base with a rather small, but well developed median smooth area, prolonged behind as a barely visible carina to the end of the segment; suturiform articulation crenulate or shortly striate, feebly and evenly bent forward medially and obliquely so at the sides; lateral groove rather deep; anterior corners of third segment separated, rather

large, rounded; those of fourth smaller, but similar and distinct; apex of third segment evenly arcuate, not very strongly depressed; constrictions between segments three, four and five not so deep as in the preceding species; apical emargination of fifth broad and rather shallow. Pleurae smooth; subspiracular furrow on metathorax narrow and deep. Legs rather slender, conspicuously yellow-haired as are also the propodeum and abdomen. Radial cell nearly attaining the tip of the wing, third section of radius a little longer than the other two together; first section half as long as the transverse cubitus; second section over twice as long as the second transverse cubitus, the second cubital cell slightly narrowed toward tip; recurrent nerve nearly interstitial; first discoidal cell with a distinct petiole, cubitus not bent at base.

Type from Mfongosi, Zululand (W. E. Jones), March 1917.

#### GASTROTHERCA, Guérin.

There are several species in the collection, but I have been unable to identify any of them definitely. Cameron, Enderlein and others have described several species from South Africa and other parts of the continent, some of which should be represented. *G. furcata* Guérin is, I believe, not represented and probably does not extend so far south.

The form of the abdomen has led to the placing of *Gastrotheca* in the subfamily *Cheloninae*, undoubtedly an incorrect position. From the form of the mouth, with a large semicircular clypeal opening, immargined head and venation it should be placed in the *Braconinae* in spite of its superficial resemblance to *Chelonus* and related genera. The median and submedian cells are of equal length, the radial cell is quite long, although not attaining the wing tip, the second cubital cell is long (twice as long above as it is high) and the submedian cell of the hind wing is very short. Aside from the abdomen, the remainder of the body, head and antennae also show the various more or less indefinable characters of the *Braconinae*. In *Chelonogastra* we find in a way a transition between *Gastrotheca* and typical Braconines, although of course nothing like the extreme abdominal modification of the latter genus.

#### VIPIO, Latreille.

I am unable to distinguish satisfactorily the several similar species of this genus without an examination of all the types.

VIPIO FUMIPENNIS, Cameron.

Ann. South African Mus., vol. 5, p. 64 (1906).

A male labeled "*Vipio fumipennis* Cam., sec. type" is remarkable in having the fourth abdominal segment greatly elongate, and very nearly twice as long as the third, with the following very short. Unfortunately the female is unknown.

ODESIA, Cameron.

Ann. South African Mus., vol. 5, p. 79 (1906).

This genus comes near *Glyptomorpha* and its allies, but the submedian cell is slightly though distinctly shorter than the median. Otherwise it is almost entirely similar. Cameron makes no mention of the fact that the lateral margins of the abdomen are tuberculate or dentate; at the side of the second segment there are three such projections, a small one near the anterior corner, one at the middle and one before the tip; at the base of the third and fourth are similar tubercles. In a male, probably of another species, from Zululand, these tubercles are present, but not very noticeable. The genus *Zalyptogastra* Ashmead from Siam has the abdominal segments modified in a similar way, but in this case the submedian cell is longer than the median.

Quite possibly *Nundinella* may be a synonym

ODESIA LONGICORNIS, Cameron.

Ibid., t. c., p. 80. (1906).

One female from the Junction of the Crocodile and Marico Rivers, Transvaal (R. W. Tucker), February, 1918.

SUBFAMILY EXOTHECINAE.

ARCHIBRACON, Saussure.

*Pseudobracon*, Szépligeti, Gen. Ins. fasc. 22, p. 49 (1904).

Schulz, Zool. Ann., vol. 4, p. 68 (1911).

ARCHIBRACON SERVILLEI, Brullé.

*Bracon servillei* Brullé, Hyst. Nat. Ins. Hymén, vol. 4, p. 418 (1846).

*Pseudobracon africanus* Szép. Gen. Ins. fasc. 22, p. 49 (1904).

*Exothecus tibialis* Cam. Rec. Albany Mus., vol. 1, p. 156 (1905).

*Exothecus canaliculatus* Cam. ibid. t. c. p. 167 (1905).

Specimens of both sexes are in the collection from Mfongosi, Zululand (W. E. Jones) and Umhlali, Natal (K. H. Barnard).

ARCHIBRACON CAMERONI, nom. nov.

*Exothecus flaviceps* Cam. Ann. South African Mus., vol. 5, p. 73 (1906) (*non Archibracon flaviceps* Brullé, 1846).

One female from Eshowe, Zululand (Morley), December 1916.

MESOBRACON, Szépligeti.

MESOBRACON FENESTRATUS, sp. nov.

♀. Length 12 mm. Head and four anterior legs brownish yellow; thorax and base of hind legs ferruginous; abdomen rufo-piceous, pale at extreme tip; antennae, hind tibiae and tarsi and sheaths of ovipositor black. Wings yellow with black bands, the yellow very deep basally and paler apically; basal black band filling the second discoidal cell and extending in even width to the costal margin; apical band curved, extending straight across the wing, then following the posterior, apical and anterior margin where it is narrowed and almost meets the base of the band beyond the stigma; hind wing with a large curved black mark apically behind, which gives off a projection that follows the posterior margin nearly to the base of the wing as a very narrow stripe; stigma yellow, with black tip; veins ferruginous basally, fuscous apically. Head very broad behind the eyes, a little wider than thick; smooth except the face which is finely rugulose above; frontal impression deep, more or less divided by a raised median line; ocelli very close together; eyes rather large, oval, the malar space one-fourth as long as the eye, with a foveate impression. Antennal scape slightly dilated below at apex, twice as long as thick; first joint of flagellum longer and thicker than the second, twice as long as thick. Mesonotum convex medially in front, the parapsidal furrows not distinctly impressed. Scutellum with a very narrow punctate line at the base. Propodeum smooth, slightly convex. Abdomen elongate oval, broadest at the tip of the third segment, as long as the head and thorax; middle of first, all of second, third and fourth, and extreme base of fifth segment longitudinally striate, the striae rather coarse on the first and second segments but becoming much finer beyond; apical rim of segments 1, 3, 4, and 5 smooth, separated by a crenate line except on the first segment. First segment as long as broad, much narrowed basally; middle portion not greatly narrowed basally, sides smooth, concave, both lateral carinae complete, separated by a smooth fur-



row; no median basal area present on second segment although the striae diverge at this point; lateral angles separated, inwardly forming a smooth triangular raised area or wart; thyridial impression broad and deep; suturiform articulation striate; third segment shorter than the second, its lateral angles large, smooth internally; fourth with the angles scarcely separated, but with the smooth spot evident. Ovipositor as long as the abdomen, its sheaths slender. Pleurae smooth and shining; mesopleura above with an impressed furrow. Legs slender, but the posterior tibiae rather stout and densely pubescent. Submedian cell considerably longer than the median; radial cell almost reaching the wing tip; third section of the radius shorter than the second which is three times as long as the first; cubitus angulate at the extreme base; second cubital cell slightly widened apically, the second transverse cubitus nearly half as long as the second section of the radius; first discoidal cell with a short petiole above; recurrent nervure received distinctly before the apex of the first cubital cell; nervellus thick at base, then suddenly obsolete.

Type from Olokomeji, Ibadan, Nigeria.

This species is similar to *M. pulchripennis* Szép to which it approaches more closely than to *M. maculiceps* Cam. or *M. similis* Szép. From *M. capensis* Szép, it differs in the variegated apical portion of the wings, black hind tibiae and darker abdomen.

#### SUBFAMILY DORYCTINAE.

##### ZOMBRUS Marshall.

André, Spec. Hymén. Eur., vol. 5 bis, p. 10 (1897).

*Trimorus*. Kriechbaumer, Berliner Ent. Zeit. vol. 39, p. 60 (1894) (*non* Förster).

*Neotrimorus*. Dalla Torre, Cat. Hymen., vol. 4, p. 250 (1898).

*Acanthobracon*. Szépligeti, Termes, Füzetek, vol. 25, p. 47 (1902) (*non* Kriechbaumer).

*Trichiobracon*. Cameron, Journ. Straits. Br. Roy. Asiatic Soc., vol. 44, p. 104 (1905).

*Trichodoryctes*. Szépligeti, Ann. Mus. Hist. Nat. Hungarici, vol. 4, p. 599 (1906).

Numerous names have been applied to this genus and a number of species have been described from Southern and Equatorial Africa. The species appear to be extremely variable in color and very uniform in structure. There are a series of specimens before me, but I do not feel that they can be satisfactorily determined without the aid of much more extensive material.

## XENOLOBUS, Cameron.

## XENOLOBUS RUFUS, Cam.

Ann. Transv. Mus., vol. 2, p. 200 (1911).

This remarkable insect was described from a male taken at Pretoria. There is another male in the present collection from Salisbury (J. O'Neill Jan. 13, 1914). The large raised coloured lobes on the sides of the upper surface of the propodeum mentioned by Cameron are in reality composed of a dense brush of erect fine hairs; each shows a convex velvety surface, but the surface to which the hairs are attached appears to be depressed below the surrounding parts of the metanotum. Quite probably these peculiar organs represent some sense organ, or they may be exudate organs like the tufts of orange-colored hairs seen in certain myrmecophilous beetles. I know of no similar structure among the parasitic Hymenoptera, unless it be the coxal scopa present in the female of some species of *Amblyteles* (*Ichneumon*). In *Xenolobus* the tufts do not include the spiracle, which lies just below their outer edge. The tips of the tibiae, tips of the first tarsal joint and the second and third tarsal joints of the hind legs are noticeably thickened or swollen.

## SUBFAMILY RHOGADINAE.

## RHOGAS, Nees.

## RHOGAS MELANOCERUS, Cam.

Ann. S. Afric. Mus., vol 5, p. 71 (1906).

A female from Salisbury, Southern Rhodesia. (R. W. Tucker).

## RHOGAS MELANOCEPHALUS, Cam.

Ann. South African Mus., vol. 5, p. 71 (1906).

*Rhogas erythrostromus* Cam. Ann. Transvaal Mus., vol. 2, p. 196 (1910).

A female from Salisbury, Southern Rhodesia (D. Dodds), March 1915.

## RHOGAS MELANOSPILUS, Cam.

Ann. Transv. Mus., vol. 2, p. 197 (1911).

A considerable series from De Aar (Péringuey), October, 1917 probably belong to this species. They vary greatly in color in common with the other testaceous species of the genus.

## RHOGAS PICTIPENNIS, sp. nov.

♀. Length 5.5 mm. Fulvous; the head below, legs and abdomen lighter, testaceous; antennae, ocellar spot and tips of fifth tarsal joints

black; wings hyaline as far as the origin of the cubital vein, blackish beyond, the dark portion enclosing a large rounded hyaline area that extends from the base of the second section of the radius to the middle of its third section and nearly attains the costal margin of the wing although widely separated from the posterior margin; stigma and veins of dark areas piceous; those of the clear areas bright fulvous or honey-yellow. Ovipositor barely half as long as the second segment. Eyes moderately large, three times as long as the malar space, distinctly emarginate next to the antennae and in dorsal view separated by a distance equal to the transverse width of one of the eyes; ocelli large, opal, separated from one another and from the eye margin by their shortest width. Head above smooth, opaque; face finely rugulose or shagreened. First three joints of flagellum of antennae subequal, each twice as long as thick. Mesonotum sub-shining, parapsidal furrows weakly indicated anteriorly; groove at base of scutellum strongly curved, foveate, continued laterally from the middle of the scutellum as a broad striate, barely impressed groove; behind the scutellum is a broad impressed space extending entirely across the thorax, longitudinally striated. Propodeum moderately convex, the upper angles not produced although they form inconspicuous tubercles; medially with a weak carina at each side of which there are a few indistinct short transverse ridges. Abdomen as long as the thorax, the first three segments very weakly longitudinally striate, the median carina scarcely evident and not extending beyond the second segment; first segment as long as the second and twice as broad at apex as at base, its surface more strongly convex than usual; second segment slightly transverse, distinctly longer than the third; following shining, almost smooth. Propleura irregularly obliquely striate-rugose; mesopleura shagreened, more shining near the middle where it bears a few scattered punctures; metapleura shagreened, separated from the propodeum by a complete carina. Spurs of hind tibiae very slightly curved, pubescent; tarsal claws simple, very strongly curved apically. Stigma broad, radius issuing before the middle and almost reaching the wing-tip, the third section twice as long as the second which is in turn double the length of the first; second cubital cell slightly, but distinctly narrowed apically, its apex slightly less than half the length of the upper side; nervulus oblique, entering the discoidal cell just beyond its basal third; recurrent nervure received one-third its length before the apex of the first cubital cell; submedian cell of hind wing half as long as the median; radial cell nearly parallel, slightly constricted at the middle.

Type from Salisbury, Rhodesia (R. W. Tucker), May, 1917.

This species may be readily distinguished from others known from this region, by the pictured wings.

GYRONEURON, Kokujer.

GYRONEURON (*sens. lat.*) AFRICANUM sp. nov.

♀. Length 10–12 mm.; ovipositor very short, scarcely extruded. Brownish testaceous, with the head lighter, the thorax darker, and the abdomen, beyond the second segment, dull ferruginous; antennae, intraocellar space and all tarsi black; wings yellowish hyaline with fuscous markings; basal half of stigma and most of the venation deep yellow, the apex of stigma and the veins where the basal band crosses black; a clear-cut, narrow basal dark band across the wing just before the stigma and another below the apical half of the stigma, this latter one broken up into three spots, the posterior one of which is continuous with a band that circles along the wing tip to the middle of the radial cell; hind wing with the tip and a subapical posterior spot slightly dusky. Eyes large, emarginate in front and narrowed above; the malar space about one-fifth the eye height, without furrow. Ocelli very large and prominent, close together and separated from the eyes by less than their own diameter; temples obliquely, not strongly narrowed to the very strong carina; occiput almost truncate behind, although the carinae turn inward toward the ocelli; head nearly smooth above, the face slightly transversely wrinkled; clypeus elevated in the form of a horse-shoe; antennae fully as long as the body, the flagellum densely clothed with bristly hairs; scape large, twice as long as thick; first joint of flagellum one-half longer than thick; following but little longer than thick, the apical ones growing elongate as they are much more slender, but scarcely shorter than the basal joints; palpi simple, the second joint of the maxillary slightly, but not distinctly swollen. Mesonotum strongly trilobed anteriorly, shagreened, the parapsidal furrows deep and crenulate, but fading out behind where the middle lobe is distinctly concave; reticulate, with several quite evident carinae. Scutellum with a broad foveate groove at base; its sides and a broad impression behind longitudinally wrinkled. Propodeum short, its posterior part sharply declivous; the posterior angles carinate and the elongate spiracle placed on an obtuse tubercle; dorsal surface weakly reticulated with a median carina in the form of an inverted Y; posterior slope deeply reticulate. Propleura obliquely wrinkled; mesopleura rather shining, minutely punctulate, rough

above near the tegula; metapleura punctulate, with a very deep impressed line in front and a carina behind, its lower anterior angle produced into a large blunt tooth. Abdomen sessile; first segment twice as broad at tip as at base, not much longer than broad; second segment as long as the first, one-fourth longer than wide; third transverse, two-thirds as long as the second; first three segments coarsely striate or ribbed, reticulate between the striae on the first and second; striae finer near tip of third; first segment with a broad apical impression on each side; suturiform articulation deep, the abdominal striae crossing it without interruption; apical segments very much shortened, shining. Legs very slender, except the tarsi which are considerably thickened and densely hairy; tibial spurs nearly straight, pubescent externally; tarsal claws very stout, pectinate, with about six long, stout, closely placed teeth. Stigma narrow, lanceolate, radius issuing before the middle; upper two-thirds of basal vein much thickened and slightly sinuous; median vein swollen and angulate beneath near tip; postmedian slightly swollen and bent upward beyond the nervulus; anal vein with a lanceolate swelling just beyond the middle; first section of cubitus strongly sinuous; third section of radius half longer than the other two combined, first two-thirds the length of the second which is one-quarter longer than the second transverse cubitus; second cubital cell slightly narrowed apically; recurrent nervure entering the first cubital cell near its apex; nervulus entering the discoidal cell distinctly before the middle; submedian cell of hind wing fully half as long as the median; radial cell narrow at base, much contracted before middle, then broadly expanded to apex.

Type from M'fongosi, Zululand (W. E. Jones), April, 1916; paratype from same locality, January, 1917.

This species is a *Gyroneuron* only in the wide sense. As I have not seen the several genera like *Gyroneuron*, I cannot place it more definitely. It does not fit well into any of Baker's recent Philippine genera. It is the first of this group to be found in Africa.

#### SUBFAMILY AGATHIDINAE.

##### DISOPHRYS, Förster.

The South African species known to me may be recognized by the following key:

- |   |           |                         |
|---|-----------|-------------------------|
| 1. Wings entirely or in great part hyaline; body pale | . . . . . | 2.                      |
| Wings black or fuscous                                | . . . . . | 4.                      |
| 2. Legs entirely pale                                 | . . . . . | <i>iridipennis</i> Cam. |
| Hind tarsi and tips of their tibiae black             | . . . . . | 3.                      |

3. Wings hyaline, without darker markings . . . . . *lutea* Brullé.  
Wings with an infuscated band before the middle and the apical third  
infuscated . . . . . *picturata* sp. nov.
4. Thorax, abdomen and legs entirely rufous, except for brown tips to the  
joints of the posterior tarsi . . . . . *nataliensis* Szép.  
Thorax in part, abdomen entirely and legs in part black . . . . . 5.
5. Head and hind legs entirely black . . . . . *dichroa* Brullé.  
Head entirely, and hind legs before tibiae, rufous . . . . . *pedalis* sp. nov.

DISOPHRYS PICTURATA, sp. nov.

♂. Length 8 mm. Pale fulvous or luteous; antennae black, tips of hind tibiae, including the spurs, and the hind tarsi black. Wings yellowish hyaline basally as far as the nervulus; blackish fuscous beyond, with a pale band crossing below the basal half of the stigma; basal half of the latter yellow; apical half and the veins on the dark parts of the wing piceous; veins on light parts fulvous; hind wing correspondingly banded. Face shining, coarsely and closely punctate; clypeal foveae large and deep; apical margin of clypeus truncate, its surface with shallow punctures; malar space short, two-thirds as long as the third antennal joint, without furrow; vertex smooth; ocelli large, posterior pair separated from one another by their own diameter and from the eye by only a slightly greater distance; ocellar carina complete. First and second joints of antennal flagellum of equal length. Mesothorax deeply, sparsely punctate; middle lobe without grooves but with a median raised line anteriorly; scutellum with the basal furrow broad, transversely striate. Propodeum with the usual areolation; superomedian area acute anteriorly, the petiolar narrowed behind; spiracle very narrow, almost linear. Propleura smooth; mesopleura finely punctate; metapleura finely reticulate. First segment of abdomen long and narrow, nearly three times as long as wide at the tip, the spiracles just before the basal third; second segment two-thirds as long as the first. Legs slender, longer spur of hind tibiae two-thirds as long as the first tarsal joint; claws of four anterior tarsi bifid at tip. Radial vein extending halfway from the stigma to the wing tip; radial cell half as broad as the stigmal; basal vein bent at base; submedian cell distinctly shorter than the median; second cubital cell more or less pentangular, with a distinct upper side; recurrent nervure received the length of the first transverse cubitus before the tip of the first cubital cell; submedian cell in hind wing considerably less than half the length of the median.

Type from the Junction of the Crocodile and Marico Rivers, Transvaal (R. W. Tucker), February 1918.

This is very different in color from its South African congeners, resembling a *Cremnops* in the color of the wings. The first abdominal segment is unusually long.

DISOPHRYS PEDALIS, sp. nov.

♂. Length 10 mm. Head, most of thorax, and most of legs rufoferruginous; antennae, ocellar area, propodeum, entire abdomen and hind legs beyond the femora black, the hind tibiae more or less rufous below; wings, including stigma, black, with some small irregular spots below the stigma, hyaline; entire body, except abdomen, clothed with short pale pubescence. Head more than twice as wide as thick; vertex above the complete ocellar carinae very sparsely and regularly punctate; face punctate, more coarsely and confluent above, more finely and sparsely below, on the clypeus, and on the malar space; nearly smooth behind the eyes. Eyes small, protuberant; malar space without furrow, as long as the first flagellar joint or the width of the eye; ocelli in an equilateral triangle, separated by their own diameter and from the eye by about four times their diameter. First joint of antennal flagellum almost twice as long as the second. Mesonotum punctate, the middle lobe closely so, the latter highly convex and with two rather indistinct, median, longitudinal grooves very close together. Scutellar groove divided by a single median carina. Propodeum reticulated, the areas not very clearly defined, the superomedian one very broad. First segment of abdomen about three times as long as wide at the tip, with the spiracles at the basal third, nearly half as wide at base as at apex. Propleura smooth and shining, punctate along the upper and posterior edge and at the upper corner. Mesopleura deeply and closely punctate, the oblique and posterior marginal impressions foveately punctate. Metapleura punctate-reticulate behind the vertical impression, finely punctate anteriorly. Legs stout, the posterior coxae, femora and tibiae considerably thickened; hind tarsi long and slender, the first joint three-fourths as long as the tibiae and longer than the following joints together; longer spur of hind tibiae less than half the length of the first tarsal joint; claws of hind tarsi simple, others cleft. Radial cell a little broader than the stigma; second transverse cubitus with a short external branch; basal vein curved; nervulus interstitial; second cubital cell large, four sided; quadrate; submedian cell of hind wing half as long as the median.

Type from Cape Province.

This species is rather like *D. dichroa* Brullé (= *D. bipustulata* Cameron) in color, but the head and base of hind legs are red, not

black and the head above, mesonotum and pleurae are heavily punctured, not smooth as in *dichroa*. The hind legs are much stouter also.

DISOPHRYS DICHROA, Brullé.

Hist. Nat. Ins. Hyménop., vol. 4, p. 485 (1846) (*Agathis*).

Cameron, Rec. Albany Mus., vol. 1, p. 158 (1905) (*Microdus bipustulatus*).

One specimen from Kar Kloof, Natal, 1915 (Bell-Marley); several from M'Fongosi, Zululand (W. E. Jones).

From the description of *Disophrys tarsalis* Szépligeti (Ann. Soc. Ent. Belgique, vol. 58, p. 116 (1914)), I am inclined to believe that it is this species.

DISOPHRYS NATALIENSIS, Szép.

Termes. Füzetek, vol. 25, p. 71 (1902).

Two specimens from Salisbury, Southern Rhodesia (1908). This large, rufo-ferruginous species is easily recognizable.

DISOPHRYS IRIDIPENNIS, Cam.

*Xanthomicrodus iridipennis* Cameron, Rec. Albany Mus., vol. 1, p. 158 (1905).

One male from Inhambane, Mozambique (K. H. Barnard), December 7, 1912 agrees well with Cameron's description. This species is the type of *Xanthomicrodus* (Cameron, *t. c.*, p. 157) which must therefore fall as a synonym of *Disophrys*.

DISOPHRYS LUTEA, Brullé.

Hist. Nat. Ins. Hyménop., vol. 4, p. 306 (1846) (*Agathis*).

Szépligeti, Mitt. Zool. Mus. Berlin, vol. 7, p. 214 (1914).

There are numerous specimens of this widespread species from Durban, Natal (Marley), March, 1915; Acornhoek, Transvaal (R. W. Tucker), November 1918; Komati Poort, Eastern Transvaal (R. W. Tucker), February 1918.

EUAGATHIS, Szépligeti.

EUAGATHIS TEREBRATOR, sp. nov.

♀. Length 10 mm.; ovipositor 7 mm. Black; the abdomen, except a dark blotch beyond the middle, and legs, except front coxae and tips of tarsi, fulvo-ferruginous; propodeum with a rufous



spot above on each side; sheaths of ovipositor black. Wings black, the front ones with a pale streak from the parastigma to the base of the nervellus; hind wings pale at base. Head strongly transverse, two and one-half times as broad as thick; occiput sloping forward on each side from the temples to the median line; seen anteriorly, the head is distinctly shorter than broad; the malar space nearly as long as the eye; ocellar tubercle raised medially as an erect, tooth-like process; each antenna inserted in a deep, immargined impression which extends to the ocelli on each side. Front, vertex and head behind coarsely, confluent punctate; face more finely so; clypeal foveae deep, palpi simple. Antennae 37-jointed, sharply tapered near apex; first flagellar joint as long as the scape, three times as long as thick and one-third longer than the second; following growing shorter, becoming quadrate near the apex. Prothorax without foveate impressions above; although there is an impression which extends from the lower angle of the propleura upwards and across the pronotum; surface punctate-reticulate. Mesonotum irregularly, confluent punctate; median lobe with a broad, deep median impression on the anterior two-thirds; parapsidal furrows deep, meeting at a very acute angle before the scutellum; scutellar impression deep, cross-striated; surface of scutellum closely punctate, with a marginal carinate line. Propodeum nearly twice as broad as long, its spiracles large, elongate-oval; with an impression behind each spiracle outside which the margin is raised and carinate; no areas, although there are three broken and very irregular longitudinal carinae extending down the middle; surface irregularly rugose; posterior angles produced as flattened lobes. Pleurae punctate, the metapleurae more coarsely so; mesopleura with an oblique impressed groove; meso-metapleural suture with a series of foveae both before and behind it; posterior edge of metapleura raised, vertical. Legs very stout; claws of four anterior tarsi each with a long tooth within; hind coxae and femora coarsely punctate; longer spur of hind tibia nearly half as long as the metatarsus. Abdomen short, as long as the thorax and narrower; broadest at the base, where it is as wide as the apex of the propodeum; first segment slightly narrowed behind, its middle portion elevated, narrower at the base, punctate except on the disc and along the posterior margin; side pieces smooth, each more than half as wide as the middle portion at base and narrowed almost to a point apically; second segment with a transverse impressed line at the middle, behind this sparsely covered with large, shallow punctures; remaining segments smooth. Radial cell at middle almost as broad as the stigma, extending one-third the way from the apex

of stigma to wing tip; base of cubitus present as a stump; areolet large, quadrangular; submedian vein much enlarged toward base; basal vein thickened above; nervulus interstitial; submedian cell in hind wing nearly half as long as the median.

Type from Durban, Natal (C. N. Barker) Feb. 23, 1917.

BRAUNSIA, Kriechbaumer.

BRAUNSIA FENESTRATA, Kriechbaumer.

A female of this species bears the label: "Host, *Chardisia* sp." Durban, February 16 (Marley)."

There are also two other species of *Braunsia*, very distinct from the numerous ones already described from Africa and the regions farther east.

BRAUNSIA MIMETICA, sp. nov.

♀. Length 10 mm.; ovipositor 10 mm. Thorax, antennae and four posterior legs entirely black; head above and abdomen piceous, the latter almost black at base and fuscous at tip; face dull ferruginous; cheeks, palpi and front legs pale yellow; wings pale yellowish, the tips blackened beyond the middle of the radial cell, stigma and veins pale yellow, only the apical half of the radial vein dark; hind wings dark at tips. Supra-antennal depressions unusually large, extending upward to the sides of the ocellar triangle; posterior ocelli more than twice as far from one another as from the eye-margin; cheeks as long as the antennal scape, slightly over half the length of the eye. Clypeal foveae deep, but not large, the clypeal area and the lower median part of the face forming a strongly elevated, triangular area. Antennal scape scarcely twice as long as thick; first joint of flagellum fully as long as the scape; second, third and fourth growing distinctly, though not rapidly shorter. Prothorax above with a deep fovea on each side, not meeting on the dorsal surface, but connected there by a short impressed line; behind this the pronotum is only slightly concave before the mesonotum. Middle lobe of mesonotum only moderately convex (for this genus), the median pair of impressed lines deep and well separated; impunctate as are also the lateral lobes. Postscutellum triangular, deeply excavated, with a median raised line. Propodeum with a short median raised line at base, but without other distinct carinae; basal portion, extending to apex medially, irregularly wrinkled; sides behind smooth. Pleurae smooth, impunctate; propleural furrow not punctate or crenate; the three lower mesopleural grooves

irregularly and rather weakly crenate; lower anterior angle of metapleura produced into a small, obtusely rounded lobe. Striae of abdomen extending almost to the apex of the third segment, coarse and clear-cut on all the segments, although they are more widely separated and a trifle more irregular on the first segment; the latter segment with a very prominent carina near the sides, more highly elevated on its basal half; below this with a ridge including the spiracle, separated from the extreme lateral edge by a groove; first, second and third segments of nearly equal length; the second slightly shorter, its transverse impression placed near the posterior third, shallow as is also the impression on the third segment which is placed just behind the middle; apex of third segment transversely aciculate, following smooth. Second cubital cell pentangular, the upper side as long as either of the external ones.

Types from Berea, Durban, Natal (W. W. B. Marley), November, 1907.

*BRAUNSI* *EXCELSA*, sp. nov.

♂. Length 10 mm. Black; head below eyes pale yellow; front legs entirely fulvous; middle legs fulvous with the coxae above, second joint of trochanters, base of femora and tarsi, except extreme base, fuscous; wings yellow at base, black beyond the nervulus except for a transverse yellowish band, narrower behind, which includes the basal half of the stigma; costa and veins of dark portion piceous, remainder and basal half of stigma yellow. Ocelli large, the posterior pair more than twice as far from the eye as from one another; supra-antennal impressions large and deep, extending past the sides of the ocellar area; clypeal foveae large and deep, the clypeus and middle of face below very strongly raised; malar space one-third as long as the eye. Scape of antennae scarcely twice as long as thick; first flagellar joint fully as long as the scape, slender, less than one third as thick as long; second and third growing imperceptibly shorter. Prothorax with the large lateral impressions nearly meeting above where they are connected by a short grooved line; pronotum behind this with some large, irregular punctures, then concave before the mesonotum. Middle lobe of mesonotum very highly convex, its pair of median grooves well separated, unusually large and deep; surface with scattered, small, setigerous punctures, more numerous on the lateral lobes. Postscutellum deeply concave, rimmed, elevated at apex. Propodeum coarsely, irregularly wrinkled above, with a strong median carina on basal third which gives off a pair of short oblique branches at its tip;

sides nearly smooth, with an apical carina extending forward to the middle of the propodeum well above the subspiracular groove. Pleurae with all of the impressions strongly crenulate, the lower angle of the metapleura rounded, scarcely produced. Second and third abdominal segments rather finely striate, the apex of the third finely punctulate; first segment striate like the others near apex, but nearly smooth basally; middle portion bounded by a moderately strong carina basally, outside which it is but little concave; spiracular ridge extending to apex, grooves on second and third segments as deep and sharp as the suturiform articulation, each placed distinctly, but not far behind the middle of the segment. Second cubital cell nearly triangular, acute above and with the outer edge nearly straight.

Type from Stella Bush, Natal (Marley), 1918.

CREMNOPS Förster = BRACON Fabr., non auct.<sup>1</sup>

CREMNOPS (BRACON *sens. nov.*) ZULULANDENSIS, sp. nov.

♀. Length 10-11 mm.; ovipositor 4 mm. Head and thorax ferruginous, the front and vertex black; abdomen black, sometimes rufous at the extreme base; legs ferruginous, the hind tibiae and tarsi black; middle tarsi piceous; wings black, an irregular hyaline blotch below the base of the stigma and another outside the recurrent nervure. Head twice as broad as thick, the temples much narrowed and the occiput deeply concave; frontal impression bounded by a carina that extends to the ocelli; ocellar tubercle acutely elevated between the posterior ocelli; front and vertex smooth and shining; face faintly punctate; head, seen from the front, as long as broad, the malar space as long as the eye; clypeus strongly raised medially; palpi simple. Antennae long, about 47-jointed; first flagellar joint longest, four times as long as thick. Pronotal foveae deep, distinctly separated above. Mesonotum elongate, not strongly convex; middle lobe with scattered punctures anteriorly; lateral ones nearly smooth; median impression double, not very deep; parapsidal furrows sharply impressed, meeting in an impression before the scutellum; posterior corners with a linear impression inside the raised lateral margin. Basal scutellar impression very broad and deep, smooth. Propodeum with a long median area and pleural

<sup>1</sup> Although there is no question of the necessity of applying the name *Bracon* to this genus, I have used the commonly accepted term, *Cremnops*, as the change of names involves many homonyms and other nomenclatorial matters which can be cleared up only in a general monograph or catalogue.

carinae, with more or less distinct transverse carinae between them. Spiracle large, broadly oval. Propleurae smooth, with a crenate line behind and a few fine punctures above; mesopleura with scattered punctures below, nearly smooth above; oblique impression very faint; meso-metapleural suture with a foveate line before and behind it; metapleura slightly punctate behind. Hind coxae with coarse punctures above. Abdomen distinctly petiolate, the first segment twice as wide at apex as at base and more than three times as long as its greatest width; smooth, in lateral view appearing constricted at the middle; second segment nearly as long as the first, without transverse impression; sutures beyond very indistinct. All the tarsal claws with a large tooth externally, larger than the apex of the claw; longer spur of hind tibia half the length of the metatarsus. Stigma narrow; radial cell moderate, a little wider at the middle than the stigma, reaching nearly halfway from the apex of the stigma to the wing-tip; areolet rather large, quadrangular; base of cubitus present as a stump; submedian vein enlarged basally; nervulus distinctly postfurcal; submedian cell in the hind wing less than half as long as the median.

♂. Practically like the female, even in size.

Type from M'fongosi, Zululand (W. E. Jones), December 1911. Three paratypes, one a male, from the same locality, December, March and May.

This species is very similar to the South African *Megagathis*, but the parapsidal furrows are distinct, as well as the median mesonotal impression.

CREMNOPS (BRACON *sens. nov.*) OBSOLESCENS sp. nov.

♀. Length 8 mm.; ovipositor 4 mm. Light ferruginous, the apical part of the abdomen darker; head above, the antennae, tips of hind tibiae, and hind tarsi entirely, black; face infuscated above. Wings black with a hyaline band, narrower toward the posterior margin and limited in front by the bases of the cubital and radial veins; basal and submedian cells also paler basally except along the veins; hind wing with a spot below the stigma and the apical fourth dark; basal half of head almost three times as broad as thick; temples obliquely narrowed, occiput very deeply excavated; frontal impression shallow, its marginal carina extending to the ocelli; tubercle between posterior ocelli not prominent. Head, seen from the front, scarcely longer than broad, the malar space as long as the eye; face shining, faintly punctulate; vertex and head behind, smooth and shining; palpi simple. First joint of flagellum one-fourth

longer than the second; joints beyond gradually decreasing in length, not becoming quadrate till almost at the tip of the antenna. Pronotal pits close together, but not confluent. Mesonotum shining, with a few scattered punctures; median lobe moderately convex in front, its median impression not very clearly marked, double; parapsidal furrows deep; lateral margin of mesonotum carinate, more strongly so near the posterior angles where there is a deep submarginal groove. Basal impression of scutellum smooth, deep, with a faint median carina. Propodeum with a long, narrow median area, a longitudinal carina above the spiracle and one below it, these connected by irregular cross carinae except on the posterior face. Propleura faintly punctate above and behind, its oblique impression broad; mesopleura with a few large, shallow punctures below and in front, its oblique impression indicated as a line, but only near the middle coxa; meso-metapleural suture with a foveate line before and behind it; metapleura almost impunctate; spiracle large, oval. Abdominal petiole less than twice as broad at apex as the base; two and one-half times as long as its greatest width; very faintly constricted before the middle; surface shining as is the whole abdomen; second segment three-fourths as long as the first, its basal lateral impressions weak, the transverse groove at the middle not clearly indicated. Legs stout; hind coxae above and their femora externally and internally, punctate. Tarsal claws bifid on all the legs, the inner brach stouter, especially on the hind leg; longer spur of hind tibia not quite half as long as the metatarsus. Radial cell as broad as the stigma, reaching two-fifths the distance from the latter to the wing-tip; base of cubitus present as a long swollen stump; areolet large, quadrangular; submedian vein swollen basally, but very pale and scarcely chitinized; anal vein enlarged on its basal half; nervulus postfurcal by one-third its length.

Type from Mfongosi, Zululand (W. E. Jones), December 1914.

### SUBFAMILY CARDIOCHILINAE.

#### CARDIOCHILES, Nees.

1. Temples and head above distinctly punctate; middle lobe of mesonotum evenly convex; body entirely black . . . . . 2.
- Temples and head above smooth or transversely striate, not distinctly punctate; middle lobe of mesonotum anteriorly usually with a pair of longitudinal impressions; body partly pale in color. . . . . 3.
2. Face, including clypeus as wide as high; wings and hind tibial spurs black  
*C. latifrons* sp. nov.  
Face, including clypeus much longer than broad; wings hyaline, with

- infuscated apex; hind tibial spurs white in the male, partly white in the female . . . . . *C. angustifrons* sp. nov.
3. Head between ocelli and eyes, and upper part of antennal basin transversely striated; mesonotum and scutellum distinctly punctate, stigma yellow on basal half . . . . . *C. striatus* sp. nov.
- Head and antennal basin above smooth, not or very indistinctly striate 4.
4. Clypeus much broader than high; face broader, its height including clypeus not more than its width . . . . . 5.
- Clypeus narrow, very strongly arched above, as high or higher than wide; face, including clypeus higher than broad . . . . . *C. testaceipes* Cam.
5. Thorax black, at most the propleurae fulvous; wings hyaline at base, infuscated apically . . . . . 8.
- Thorax yellow or fulvous, more or less maculate with black; wings variable . . . . . 6.
6. Wings dark fuscous throughout; grooves on median and lateral lobes of mesonotum obsolete . . . . . *C. nitidus* sp. nov.
- Wings paler at base; mesonotal grooves distinct . . . . . 7.
7. Second section of radius not quite twice as long as the first section or the second transverse cubitus, the second cubital cell therefore short  
*C. fossatus* sp. nov.
- Second section of radius nearly three times as long as the first section or the second transverse cubitus, second cubital cell therefore long  
*C. longipennis* sp. nov.
8. Head and thorax entirely black; abdomen entirely yellow; wing veins normal . . . . . *C. tegularis* sp. nov.
- Head, thorax and abdomen each partly yellow and partly black, wing veins unusually heavy and thick . . . . . *C. fulviventris* Cameron.

CARDIOCHILES LATIFRONS, sp. nov.

♂. Length 5.5 mm. Black, including antennae, coxae, trochanters and mouthparts, except tips of palpi; extreme base of femora darkened; hind tibiae black, except at the knees, and hind tarsi black, except the base of the first joint; remainder of legs fulvous yellow, and a spot on the mesonotum near each tegula obscure rufous; wings uniformly dark fuscous, with a hyaline dot at the insertion of the recurrent nervure, above the base of the nervellus, and along the second transverse cubitus and thickened basal part of the third section of the radius. Head finely and sparsely punctate, slightly rugose behind on the sides, with some weak transverse striae across the front above the antennal impression and a crenate line along the posterior margin of the ocellar space. Head at temples as broad as at eyes, barely twice as broad as thick. Face highly polished, distinctly and sharply raised along the median line; clypeus weakly transversely convex, less than half as high as broad; face, including the clypeus, fully as broad as high, the latter indistinctly bidentate

medially at apex; malar space half as long as the width of the mandible at base, with a fine, but distinct furrow. Antennae strongly tapered toward apex, all joints of the flagellum a little longer than wide, more nearly quadrate near the middle of the flagellum. Mesonotum very sparsely and minutely punctate, evenly and not strongly convex, the parapsidal furrows crenate, clear-cut, but not very deep; middle lobe without any median impressions. Disc of scutellum shining, with a few small punctures; the depressed sides irregularly longitudinally striate. Propodeum with the usual areas, rugose-reticulate between the carinae. Propleura smooth around the edges, the central depression coarsely rugose-punctate; mesopleura with the upper, posterior and oblique discal grooves transversely ribbed; meta-pleura with a vertical, crenate furrow separating an anterior smooth space and a posterior reticulate one. Middle lobe of first abdominal segment more convex than is usual. Second section of radial vein more than twice as long as the first, as long as the first transverse cubitus and one-half longer than the second; cubitus originating at the upper third of the basal vein, recurrent nervure received its own length before the apex of the first cubital cell; first discoidal cell narrowed apically, but more than half as high at apex as at base, the nervulus entering the basal third of the cell. Longer spur of hind tibia half as long as the first tarsal joint.

Type from Kimberley (J. H. Power), May 8, 1912.

CARDIOCHILES ANGUSTIFRONS, sp. nov.

♂. Black, the anterior and middle tarsi pale yellowish; front tibiae brown, pale at base; middle and hind ones pale at extreme base; tibial spurs white; wings hyaline at base, weakly infuscated on apical third; stigma piceous, veins dark brown; body conspicuously white pubescent. Head rather finely and sparsely punctate, the face smooth centrally, obsolete rugose-punctate on the sides. Head fully twice as wide as thick, slightly wider on the temples than at the eyes; front without striae above the antennal impression, with a few short, transverse striae behind the space between the posterior ocelli. Face narrow; including the clypeus, distinctly higher than broad, with an oval raised area on the disc, but without any median raised line; clypeus less than twice as wide as high, its upper margin strongly arcuate, apical margin distinctly bidentate at the center; malar space half as long as the basal width of the mandible, with a deeply impressed linear furrow. First joint of antennal flagellum twice as long as thick, second slightly shorter, the following growing shorter, but considerably longer than thick. Mesonotum rather



densely and coarsely punctate, the parapsidal furrows crenate, clearly impressed; middle lobe without any grooves medially. Disc of scutellum coarsely and closely punctate, the depressed sides reticulate; basal furrow deep, deeply crenate. Carinae of propodeum strong, the areas reticulate, clothed with very long dense hair. Propleurae smooth above, striate anteriorly and rugose-reticulate elsewhere. Mesopleura reticulate above, smooth below, except for the crenate oblique furrow and a reticulate area above the coxa; posterior margin with a row of large foveae, connected at the middle with the oblique furrow by a smooth linear impression. Metapleura reticulate, with an oblique smooth area below the root of the hind wing. Longer spur of hind tibia two-thirds as long as the first tarsal joint. Median portion of first abdominal segment highly convex, the lateral depressed portion with an impressed longitudinal line. Second section of the radius more than twice as long as the first, distinctly longer than the first transverse cubitus and fully twice as long as the second; recurrent nervure received more than its own length before the apex of the first cubital cell; cubitus straight at base, originating at the upper third of the basal vein; first discoidal cell much narrowed apically, the apex scarcely half as high as the base, nervulus originating at basal third of the cell; submedian cell in hind wing distinctly less than half as long as the median.

Type from Stella Bush Durban, Natal (Marley), April, 1915.

A female sent later from Clairmont Natal (Marley), February, 1915, is like the male, except that the shorter spur of the hind tibia is black, and the longer one is black at the base.

CARDIOCHILES STRIATUS, sp. nov.

♂. Length 6 mm. Fulvo-ferruginous; head below antennae yellow, the abdomen more or less darkened along the median line; antennae, ocellar area and hind tarsi black; tibial spurs fulvous. Wings brownish yellow basally and rather strongly infuscated apically; basal half of stigma orange yellow, apex black; veins light fuscous. Head fully twice as wide as thick, not so broad on the temples as at the eyes; sparsely punctate behind the eye; upper part of antennal impression and entire vertex, except a semicircular smooth space around the posterior half of the ocellar area, finely transversely striate, the striae extending down behind the upper part of the eyes. Face longer than wide with a slight rounded median elevation, faintly punctate; clypeus flat, nearly twice as broad as high, with upper margin strongly arcuate, the anterior not distinctly toothed at the center; malar space a little longer than the

width of the mandible at base, with a distinct linear furrow. Antennae stout; first flagellar joint about twice as long as thick, second distinctly shorter, joints near middle, but little longer than thick. Mesonotum rather densely, but not deeply punctate, the parapsidal furrows deep, but very slightly crenulate; middle lobe anteriorly with a pair of approximate shallow furrows enclosing a longitudinal, slightly elevated ridge. Disc of scutellum sparsely punctate, the depressed sides weakly reticulate. Propodeal carinae strong, the areas reticulated between the carinae. Middle lobe of first abdominal segment sharply triangular, the flattened lateral area with a broad shallow longitudinal groove. Propleura striate below, rugose-reticulate above, with a narrow smooth space along the anterior margin above. Mesopleura very irregularly rugose or reticulate, punctate near the upper anterior angle and with a smooth space near the middle behind; hind margin with a series of rather large foveae. Metapleura finely reticulate, the anterior part not entirely smooth. Longer spur of hind tibia two-thirds as long as the metatarsus. Second section of radial vein more than twice as long as the first, one-half longer than the very oblique second transverse cubitus and a little longer than the first which is strongly bent below, the second cubital cell distinctly narrowed apically; base of cubitus straight, arising just above the upper third of the basal vein; apex of first discoidal cell more than half as high as its base; nervulus entering the cell at its basal fourth; recurrent nervure received more than its own length before the apex of the first cubital cell; submedian cell of hind wing less than half as long as the median.

Type from Transvaal; paratype from Fraserburg Road, Cape Province, S. H. Haughton, May 18, 1915.

CARDIOCHILES NITIDUS, sp. nov.

♀. Length 7 mm. Pale yellowish fulvous, marked with black as follows: antennae; head above antennae, extending to occiput and nearly to eyes on the sides; middle and each lateral lobe of mesonotum except the complete margin of each; large spot on mesopleura behind, almost confluent with a smaller one on the metapleura; under surface of thorax; a basal band, narrowed medially, on propodeum; small spot on first abdominal segment; fore coxae and trochanters and base of four posterior coxae; sheaths of ovipositor: hind tibiae and tarsi lost. Wings deeply infuscated, except for the usual pale specks; stigma black, veins piceous, the basal and cubitus lighter brown. An unusually stout species and very shining,

with but little pubescence. Head twice as broad as thick, the temples deep but the head not so broad there as at the eyes, the occiput broadly excavated; head entirely smooth and shining except for some faint punctulation behind the eyes. Ocellar area raised, margined laterally and behind by a shallow, broad depression; face slightly raised along the median line; including the clypeus, as broad as high; clypeus more than twice as broad as high, upper margin not very strongly curved, anterior margin faintly notched at middle, but not bidentate; malar space as long as the basal width of the mandible, with a fine furrow. Antennae stout; scape short, nearly as thick as long; first flagellar joint twice as long as thick, following gradually shorter. Mesonotum smooth and polished; parapsidal furrows deeply impressed and finely crenulate at the bottom; median lobe nearly flat, except at sides, with a pair of widely separated, almost obsolete broad longitudinal impressions; lateral lobes strongly convex. Scutellum broad, convex, smooth; depressed lateral portions smooth with a crenate line along their margins; basal groove coarsely fluted. Propodeum with the carinae strong, the surface of the areas coarsely confluent punctate and shining. Middle lobe of first abdominal segment strongly convex behind, the lateral space without distinct longitudinal groove. Propleura smooth, the depressed central part with shallow reticulations. Mesopleura smooth, except for a confluent punctate band along the anterior edge, a transverse one near the top and a curved one below, connected with the anterior one; hind margin crenulate; the upper oblique and posterior impressions well marked. Metapleura reticulate behind, smooth in front. Second section of radius nearly three times as long as the first, one-third longer than the first transverse cubitus and twice as long as the second transverse cubitus. Cubitus straight at base, arising below the upper third of the basal vein; apex of first discoidal cell slightly more than half as high as the base, the nervulus entering at the basal fourth of the cell; submedian cell in hind wing nearly half as long as the median.

Type from Ookiep, Namaqualand, September, 1890 (R. M. Lightfoot). Paratype from Cape Town, September, 1913. The hind tarsi of the paratype are black.

*CARDIOCHILES FOSSATUS*, sp. nov.

♀. Length 6 mm. Light brownish yellow, tinged with fulvous, marked with black as follows; large spot on head above from antennae to upper margin of head, nearly reaching the eyes above; antennae; large central spot on each of the lobes of the mesonotum,

sheaths of ovipositor; posterior tarsi fuscous; apex of abdomen more or less infuscated above. Wings slightly infuscated at base, more strongly so on apical third; stigma black, veins dark brown, the submedian, basal and cubital veins much lighter. Head fully twice as broad as thick, at the temples not so wide as at the eyes; upper edge of antennal impression and sides of front near eyes faintly transversely striate; head behind the eyes faintly punctate; face nearly smooth, as broad as long including the clypeus; the latter twice as broad as high, upper margin not strongly curved; lower margin not distinctly bidentate at middle; malar space as long as the basal width of the mandible, with a linear furrow; first joint of antennal flagellum twice as long as thick, second considerably shorter; following gradually decreasing in length. Mesonotum smooth, the parapsidal furrows deep, but not very coarsely crenulate at the bottom; the paired longitudinal grooves on the middle lobe widely separated, broad and shallow but very evident; lateral lobes each with a single similar longitudinal impression. Scutellum elevated, smooth; basal groove very wide, coarsely striate; depressed sides of scutellum confluent punctate. Propodeum coarsely reticulate between the very strong carinae. Propleura confluent punctate or reticulate, smooth around the edges. Mesopleura punctate, the upper and the oblique groove reticulate; smooth anteriorly near the top and posteriorly at the middle; posterior edge crenulate. Metapleura smooth in front of the oblique crenulate furrow, finely reticulate behind it. First abdominal segment with the median part rather strongly elevated, the lateral space with a shallow longitudinal furrow. Longer spur of posterior tibia two-thirds as long as the first tarsal joint. Second section of radius not quite twice as long as the first which is equal to the second transverse cubitus; first transverse cubitus two-thirds as long as the second section of the radius; cubitus straight at base, arising above the upper third of the basal vein; recurrent nervure received considerably more than its own length before the apex of the first cubital cell, first discoidal cell half as high at tip as at base, the nervulus entering at the basal third of the cell; sub-median cell of hind wing a little less than half as long as the median.

Type from Durban, Natal (W. Haygarth), 1914.

Similar to *C. nitida* sp. nov. in color, but more slender, and less shining and with the wing veins less thickened.

CARDIOCHILES LONGIPENNIS, sp. nov.

♂. Length 7 mm. Pale brownish yellow, marked with black as

follows; antennae, except scape beneath; a large spot on the head above, narrowed in front, reaching from the base of the antennae to the upper corner of the eye and the posterior edge of the vertex medially; mesonotum entirely, except parapsidal grooves and extreme lateral edges; posterior tarsi; abdomen stained with brown toward apex. Wings slightly yellowish at base, infuscated on apical third; basal half of stigma fulvous, apex black; wing veins light yellowish brown. Head less than twice as broad as thick, as wide at the temples as at the eyes; entirely smooth above, sparsely punctate behind the eyes near the posterior margin; face, including clypeus, nearly smooth, fully as wide as high; malar space scarcely as long as the basal width of the mandible, with a linear furrow. Scape and flagellum of antennae very stout; first flagellar joint scarcely twice as long as thick; third shorter and following gradually decreasing in length. Mesonotum shining, the middle lobe sparsely, strongly punctate, its pair of grooves distinct, widely separated; each lateral lobe with a narrow deep, longitudinal furrow; parapsidal furrows deep, faintly crenulate at the bottom. Scutellum smooth, nearly flat, the basal groove smooth medially, slightly ribbed at the sides; depressed lateral portion reticulate. Propodeum with strong carinae, the surface between them finely reticulate anteriorly, but nearly smooth behind. Propleurae in great part smooth, with an oblique band and a branch extending toward the tegula slightly wrinkled. Mesopleura sparsely punctate in front, smooth elsewhere, except for the oblique and upper furrow; posterior margin not distinctly crenulate or foveate. Metapleura reticulate-punctate, including, but more sparsely, the anterior part. Middle part of first abdominal segment convex, no wider than the flat lateral part which is without a longitudinal groove. Longer spur of hind tibia three-fourths as long as the basal tarsal joint. Wings long and narrow; first section of radius one-third as long as the second and barely shorter than the second transverse cubitus which is half as long as the first transverse cubitus, the second cubital cell being long and distinctly narrowed apically. Cubitus straight at base, originating at the upper third of the basal vein; first discoidal cell much narrowed apically, the apex one-half as high as the base; nervulus entering at the basal third of this cell; recurrent nervure received more than its own length before the apex of the first cubital cell; wing veins all stout, but none especially thickened; submedian cell in hind wing only two-fifths as long as the median.

Type from M'fongosi, Zululand (W. E. Jones), December 1914.

The wings of this species are noticeably longer than usual.

## CARDIOCHILES TEGULARIS, sp. nov.

♀. Length 5 mm. Head, antennae, entire thorax, except tegulae, all coxae and trochanters, extreme tips of hind tibiae and entire hind tarsi and sheaths of ovipositor, black; palpi, remainder of legs, tegulae and abdomen, fulvous yellow. Wings almost hyaline at base, lightly infuscated on apical third; base of costa fulvous; stigma black, veins fuscous, the median, basal and cubital very much paler. Body and legs pale pubescent throughout. Head thin, considerably more than twice as broad as thick, narrower at the temples than at the eyes; entirely shining and smooth, except for small sparse punctures on the clypeus; ocellar space raised, but without a marginal impression; face slightly raised near the median line, as broad as high, the clypeus strongly arched above, less than twice as broad as high, its lower margin with two obsolete tuberculate teeth at the center; malar space as long as the basal width of the mandible, its furrow faintly impressed. Antennal scape short and stout; first flagellar joint less than twice as long as thick, second and following each a little shorter. Mesonotum smooth and shining, each lobe convex, without any furrows or grooves; parapsidal furrows deep and narrow, crenulate. Scutellum rather convex, its basal groove strongly ribbed; depressed lateral portions smooth, with a crenulate line around the margin. Propodeal carinae less strongly elevated than usual, but all the areas complete, surface reticulate; middle lobe of first abdominal segment narrow, not so broad as the lateral area which is longitudinally depressed along the middle. Propleura smooth above and below, coarsely punctate-reticulate between on the concave portion. Mesopleura smooth and shining, the oblique furrow and an area near the top foveate-punctate. Metapleura finely reticulate, the anterior portion entirely smooth. Longer spur of hind tibia two-thirds as long as the first tarsal joint. Second section of radial vein two and one-half times as long as the first and nearly twice as long as the second transverse cubitus, only about one-third longer than the first transverse cubitus; cubitus arising at the upper third of the basal vein, its first section straight; recurrent nervure received more than its own length before the tip of the first cubital cell; first discoidal cell slightly more than half as high at apex as at base, the nervulus entering near the basal fourth of the cell; submedian cell of hind wing distinctly less than half as long as the median.

Type from Kenya Colony, April 27, 1918.

Easily recognizable among the African species by the black head and thorax with fulvous abdomen, tegulae and legs.

SUBFAMILY HELORIMORPHINAE.

HELORIMORPHA, Schmiedeknecht.

*Stictometeorus* Cameron, Soc. Entom., Jahrg. 24, p. 9, (1909) Type: *S. rufus* Cam.).

Two of the most interesting species contained in the present collection are members of this genus. After its discovery in Europe, *Helorimorpha* was soon found in North America, and a few years later in South America. In 1909, Cameron described *Stictometeorus* from South Africa, placing it in the *Meteorinae*. After seeing the two African *Helorimorpha*, I feel quite certain that *Stictometeorus* is properly to be regarded as a synonym. The present locality adds definitely another faunal region, for although the African forms might perhaps be considered as representing a distinct genus or subgenus, they are extremely similar to the other species, showing a closer similarity to the Neotropical *H. brasiliensis* Brues, than to the European or either of the North American species. Thus in *H. brasiliensis* and the African species the course of the cubitus forms an unbroken line, while in the others it is angled at the base of the second cubital cell; on the other hand the veins beyond the cells are not indicated in *africana*, are weakly defined in at least one North American species and quite distinct in *brasiliensis*. All six known forms are otherwise very much alike, and differ only in the intensity of sculpture, in color and in minute details of wing venation.

The two African species may be separated as follows: *H. rufa* Cameron is probably a third as the mesonotum is black and the antennae black above at base, as in *H. bicolor* Szép.

1. Antennae honey-yellow, except at tips; third joint as long as the two preceding together; second transverse cubital vein incomplete

*H. africana* sp. nov.

Antennae black beyond second joint; third joint shorter; second transverse cubitus complete . . . . . *H. coffeae* sp. nov.

HELORIMORPHA AFRICANA, sp. nov.

♂. Length 4.5 mm. Entirely dull fulvous, the apical three or four joints of antennae black; abdomen ferruginous on apical half; wings hyaline, with a slight yellowish tinge, stigma and venation pale brown. Head more strongly transverse than usual, considerably more than twice as wide as thick, very strongly and broadly emar-

ginate behind; above rather coarsely and confluent punctate; ocelli large, in a small equilateral triangle, the ocellar space more or less blackened; front with a fine raised line, bifurcate above between the bases of the antennae and extending halfway to the ocelli; face very finely reticulated, whitish pubescent and not shining; clypeus finely punctate, shining, although pubescent; malar space half as long as the eye, finely reticulate; head behind rather strongly, separately punctate. Antennae 18-jointed; scape nearly as long as the width of the eye; pedicel two-thirds as long; first flagellar joint twice as long as the pedicel, nearly five times as long as thick; following gradually shorter and moniliform, those near apex almost twice as long as thick. Entire thorax coarsely reticulate or areolate as in the other species, the spaces not showing any definite arrangement. Abdominal petiole long, slender, slightly curved, thickened just beyond the middle, then gradually narrowed to apex which is but little thicker than the base; spiracle placed distinctly, but not far behind the middle; surface of petiole without distinct sculpture. Body of abdomen shining and polished, the second tergite extending to its tip and far down on the sides and apparently enclosing the venter; elongate oval, half as wide as the thorax and a little higher than wide. Legs with the tibiae and tarsi clothed with short whitish hairs. Stigma rather angulate below; radial cell on the costa two-thirds as long as the stigma, the costal vein extending halfway from its tip to the wing-tip; first section of radius twice as long as the second, the two together as long as the width of the stigma; third section twice as long as the width of the stigma and parallel with the outer edge of the stigma; recurrent nervure interstitial with the first transverse cubitus; second section of cubitus half as long as the first; submedian cell longer than the median by almost the length of the recurrent nervure; second discoidal cell open below and at apex; all veins obliterated almost entirely beyond the cells. Submedian cell in hind wing more than half the length of the median.

Type from M'fongosi, Zululand (W. E. Jones), April 1916; paratype from same place, May 1916.

The ventral surface of the abdomen is convex and fully chitinized, a character suggesting *Thaumatotypus* and the other genera recently included in the family *Myersiidae* although this is also true of some male Euphorinae to which *Helorimorpha* is without question closely related and next which it was originally placed by Schmiedeknecht.



HELORIMORPHA COFFEAEE, sp. nov.

♂. Length 4.5 mm. Honey yellow or fulvous, the legs lighter; antennae black beyond the second joint; wings hyaline, stigma and veins dilute piceous, except the basal, first section of cubitus, submedian and anal which are pale yellowish. Head more than twice as broad as thick, closely punctured above, confluent so toward the median line; median frontal line distinct, bifurcate below the ocelli; face and clypeus shining, very faintly punctate, scarcely pubescent; malar space half as long as the eye; head behind weakly separately punctate. Antennae 18-jointed; scape twice as long as thick, as long as the width of the eye; first flagellar joint nearly four times as long as thick; following joints growing shorter and becoming moniliform, those near apex twice as long as thick. Thorax areolate as usual. Abdominal petiole long, slender, curved, thickened well beyond the middle, then narrowed at apex; the spiracle placed noticeably behind the middle; petiole smooth. Body of abdomen as in the preceding species, wing venation as in the preceding species, except that the submedian cell does not exceed the median quite so much and the second transverse cubitus is evenly developed not hyaline in the middle as in *H. africana*.

Two specimens from Kalesto, Kenya Colony (February 1918). The label indicates that they were bred from coffee and that the species is probably a fruit-fly parasite. The cocoons, which are mounted with the specimens, are broadly oval, made of very heavy, dense white silk and appear rather more roomy than might be expected from the slender build of the insect.

SUBFAMILY EUPHORINAE.

PERILITUS, Nees.

Cameron has described one South African species of *Perilitus* and there are two additional ones in the material at hand.

These may be distinguished as follows:

1. Head, thorax, abdomen and legs in part red; third joint of antennae nearly as long as the two following together . . . . . *ruficollis* Cam.  
 Body black, legs piceous; third and fourth joints of antennae of approximately equal length . . . . . 2.
2. First abdominal segment suddenly widened at the middle, its spiracles prominent; radial cell considerably shorter than the outer side of the cubito-discoidal cell . . . . . *latus* sp. nov.  
 First abdominal segment gradually widened, its spiracles not prominent; radial cell as long as the outer side of the cubito-discoidal cell  
*angustus* sp. nov.

## PERILITUS LATUS, sp. nov.

♂. Length 4 mm. Black; head just behind the eyes above and on the cheeks rufous; scape of antennae fuscous; tegulae and legs beyond the middle of the femora reddish brown; second segment of abdomen piceous; wings hyaline, stigma fuscous, veins somewhat lighter. Head seen from above twice as broad as long, full just behind the eyes, then suddenly narrowed to the posterior margin; front and vertex shining; ocelli in a low triangle, paired ones further from one another than from the eye; malar space as long as the basal width of the mandible, with a deep furrow. Antennal scape very short, less than half longer than broad; pedicel globular; first flagellar joint as long as the scape and pedicel together, three times as long as thick and no longer than the following joint; those beyond decreasing in length, but not rapidly so till far beyond the middle of the flagellum. Mesonotum convex, polished; parapsidal furrows finely crenulate; middle lobe smooth in front where it bears a median depression, behind rather coarsely reticulate; with a fine median carina; scutellar impression broad and deep, coarsely longitudinally fluted; scutellum strongly convex, shining. Propodeum evenly convex, uniformly closely rugose. Propleura smooth above, irregularly punctate below; mesopleura with a punctate area anteriorly above and a punctate space below; metapleura finely rugose-punctate, more or less smooth above. Abdominal petiole one-third longer than the propodeum, suddenly widened near the spiracles, the post-petiole nearly as wide as long; spiracles forming very distinct, small tubercles; surface longitudinally aciculate, with the base medially and the posterior half of the post-petiole smooth; second segment as long as the petiole. Wings with the stigma less than three times as long as wide, as long as the radial cell which is somewhat shorter than usual; submedian cell longer than the median by about the length of the nervulus.

Type from East London (R. M. Lightfoot), July 1914.

## PERILITUS ANGUSTUS, sp. nov.

♂. Length 3 mm. Black, the legs piceous, with the tibiae tinged with rufous; the head brownish yellow below. Head two and one-half times as wide as thick when seen from above; full behind the eyes and narrowed, although not very strongly so, to the posterior margin; head smooth and polished above, clothed, as is the rest of the body with rather conspicuous pale hairs; ocelli in a low triangle, the posterior pair considerably further from the eye than from one

another; malar space as long as the basal width of the mandible, with an indistinctly impressed furrow; antennae as in the preceding species; mesonotum with the median lobe weakly punctate-striate anteriorly, finely reticulate-punctate behind, but with the posterior margin smooth; lateral lobes smooth, with some small obsolete punctures around the sides; parapsidal furrows finely crenulate; no median impression. Basal scutellar impression deep, arcuate, irregularly fluted; scutellum highly convex, shining. Propodeum convex above and on the sides, the posterior slope broadly excavated medially; dorsal portion separated from the sides by a well-marked longitudinal carina outside of which is a second short carina extending upwards from the base of the hind coxa, surface elsewhere finely rugose reticulate. Pro- and mesopleura punctate-rugose, the former smooth above and the latter medially; metapleura sculptured like the propodeum. Abdominal petiole as long as the metathorax, rapidly, but evenly narrowed from just before the middle; spiracles not dentate nor otherwise prominent; basal half smooth, apical half somewhat irregularly longitudinally striate; second segment forming two-thirds of the remainder of the abdomen. Wings with the stigma about three times as long as wide, as long as the radial cell, the latter rather long; submedian cell only slightly longer than the median.

Type from Gt. Winter Hoek, Tulbagh, Cape Province, 3600 ft. (R. M. Lightfoot), April 1916.

#### SUBFAMILY CHELONINAE.

##### CHELONELLA CURVIMACULATA, Cameron.

Ann. S. Afric. Mus., vol. 5, p. 34 (1906). (*Chelonus*).

A specimen from Salisbury, Southern Rhodesia (R. W. Tucker), May 1917. The antennae are 16-jointed and the species falls in Szépligeti's genus *Chelonella*.

##### CHELONUS, Jurine.

A number of South African species have been described, but I am unable satisfactorily to identify the material before me.

##### ASCOGASTER, Wesmael.

##### ASCOGASTER BIPUSTULATA, sp. nov.

♂. Length 3.6 mm. Black, with a pair of pale lateral spots at the base of the abdomen; basal third of antennae, mandibles, four

anterior legs, including coxae, posterior trochanters, base of femora and base of tibiae broadly, dull brown; wings hyaline at base, with a cloud on the apical half, strongest below the stigma; veins fuscous, stigma black; body clothed with glistening pale hair, especially noticeable on the face, pleurae and legs. Head finely rugose-reticulate, more minutely so on the face, forming indications of striae on the cheeks; clypeus closely punctate. Antennae 31-jointed; first and second flagellar joints equal, each nearly as long as the scape and three times as long as thick, following growing shorter, those before apex becoming but little longer than wide. Eyes oval, as wide as the malar space which bears no groove; face convex, without distinct median carina above; the head nearly twice as wide as long and distinctly wider than the thorax. Mesonotum reticulate behind, very finely so in front, without parapsidal furrows. Scutellum rugose-punctate, its curved basal furrow composed of elongate, foveate impressions. Propodeum regularly reticulate, the upper posterior angles produced into acute spines. Pleurae and sterna punctate reticulate, more coarsely so posteriorly. Abdomen distinctly reticulate near base, very minutely so apically. Radial cell, on the costa distinctly shorter than the stigma; third section of radial vein fully twice as long as the second and meeting it at but little more than a right angle; first section two-thirds as long as the second and equal to the second transverse cubitus; first section of cubitus sinuate, second curved; recurrent nervure entering the second cubital cell near its base; first discoidal cell not petiolate, broad, but nearly parallel, nervulus entering at the basal third; nervellus arising near the lower corner of the cell; radial cell in hind wing broad at base, evenly narrowed to the tip.

Type from M'fongosi, Zululand (W. E. Jones), Dec. 1916.

This is the first member of the genus to be found in this region.

#### MINANGA, Cameron.

Ann. S. Afric. Mus., vol. 5, p. 30. (1906).

I have been able to examine the type of *M. serrata*, and find that it is very different from any other Chelonine that I have seen and distinct I believe from any other known genus. The serrations at the apex of the abdomen are small and quite conspicuous, being really due to raised ridges between the reticulate surface of the abdomen. The peculiarities of *Minanga* lie not here, but in the form of the head, thorax and in wing venation which recall in many respects members of the genus *Cardiochiles*. The front is slightly

excavated, the ocelli very large, in a very flat triangle and occupying most of the space between the frontal excavation and the occiput; the clypeus is strongly raised with very large foveae at the sides above. The radial cell extends halfway from the stigma to the tip of the wing, the second section of the radius parallel to the costa, the third weakly bent inward at the base and sinuate at apex; the submedian cell in the hind wing is large and broad, more than half as long as the median.

PACHYCHELONUS, gen. nov.

Rather large for the subfamily. Head very broad and deeply excavated behind; eyes very small, oval, bare; front scarcely impressed above the antennae, antennae with more than 30 joints, tapering, the scape elongate; clypeus produced medially into an acute lobe; Mesonotum with deep, broad parapsidal furrows, widely separated behind; scutellum elevated into an acute tubercle, with a deep, striate furrow at base. Propodeum short, coarsely reticulated, posterior angles acutely produced, the spiracle small, circular. Mesopleura simple, convex. Abdomen short and broad, with three very indistinctly indicated segments; tip simple, rounded, venter concave. Legs stout, hind femora and tibiae swollen apically; tarsal claws pectinate, with three or four long slender teeth within. Wings with the basal vein thickened toward the costa, passing gradually into the parastigma; all cubital and discoidal cells separated; anal cell with a cross-vein, median and anal veins very much broadened basally; anal area broader than usual, with a vein-like thickening along its edge; radial cell of hind wing contracted at the middle.

Type *P. fulviventris* sp. nov.

This most remarkable insect differs from any of the known *Cheiloninae* in one or more of the following particulars; notably the tuberculate scutellum, thickened veins, anal cross vein, thickened edge to anal area in wing, acutely produced clypeus and pectinate tarsal claws.

PACHYCHELONUS FULVIVENTRIS, sp. nov.

♂. Length 8.5 mm. Deep black, the entire abdomen and hind legs, including coxae, fulvous or light honey yellow; wings black, with a hyaline streak below the base of stigma, a less pronounced light spot near the base of the radial cell and a hyaline dot at the middle of the second transverse cubitus. Head considerably widened behind the eyes, the occiput arcuately emarginate; marginal line on

temples and cheeks strong; malar space as long as the width of the eye; face and clypeus irregularly and closely punctate; head behind the eye, and above, with a few minute punctures, shining; face with a short, median raised line below the antennae; ocelli very close together, the front below them with irregular curved striae. Antennal scape fully twice as long as thick; first flagellar joint nearly three times as long as thick, joints beyond growing gradually shorter and more slender, the tips very thin. Mesonotum smooth and shining with a few minute scattered punctures and with a coarsely reticulated area next to the tegula; parapsidal furrows wide and deep, coarsely foveate. Scutellum with a few large punctures, groove at base coarsely striated, the depressed sides with several deep more or less longitudinal grooves separated by raised lines. Reticulations of propodeum very coarse and irregular. Propleurae coarsely and irregularly striate-reticulate. Mesopleura similarly, but more finely sculptured, and with punctures intermixed; smooth below; along the posterior edge with a coarsely transversely striated furrow. Metapleura reticulate, no subspiracular furrow. Abdomen barely as long as the head and thorax, oval, slightly more than twice as long as wide and as broad as the thorax, divided by faint transverse furrows into three segments of which the first and second are of equal length and the third half longer than the other two combined. First segment not much narrowed basally, one-third wider than long, with a weak carina on each side extending from near the anterior angle straight back to the hind margin; surface slightly concave basally between the carinae; finely and somewhat irregularly longitudinally striate, as are the following segments; second segment widest at tip, half as long as wide; third broadly rounded at apex; lateral and apical margins of abdomen bent under and with a distinct rim. Submedian cell longer than the median by half the length of the oblique nervulus; first discoidal cell with a long petiole above, very long and with the sides nearly parallel; radial cell on the costa as long as the narrow, elongate stigma; second section considerably longer than the first; third half longer than the other two together; first transverse cubital vein very oblique, second distinctly longer than the second section of the radius, the second cubital cell with the upper and lower margins parallel; recurrent nervure entering the extreme tip of the first cubital cell; nervellus arising near the lower third of the second discoidal cell; submedian cell in hind wing half as long as the median.

Type from Pemba, Northern Rhodesia. (Father Casset), 1918.

TRIGASTROTHERCA, Cameron.

Ann. S. Afric. Mus., vol. 5, p. 32 (1906).

From the description it is difficult to believe that this insect belongs to the *Cheloninae* in which it is placed. The long radial cell, distinctly segmented abdomen, interstitial nervulus and long ovipositor seem out of place here and quite likely *Trigastrotheca* may be related to the Braconine genera *Odontogaster*, *Caelodontus*, etc.

GASTROTHERCA, Guérin.

This genus does not belong to the *Cheloninae* where it has been placed. It will be found on a previous page in the subfamily *Braconinae*.

SUBFAMILY SIGALPHINAE.

SIGALPHUS, Latreille.

One South African species has already been described by Szépligeti, parasitic on *Dacus oleae* in the Transvaal. A second species is in the present collection.

The two may be distinguished as follows:

1. Legs, almost entirely, and tegulae reddish yellow; front smooth  
*S. daci* Szép.  
Legs, except knees, and tegulae black or piceous; front sculptured  
*S. simplicifrons* sp. nov.

SIGALPHUS SIMPLICIFRONS, sp. nov.

♀. Length 3 mm. Black; clypeus and mandibles, except tips, rufoferruginous; tips of all femora and basal third of tibiae yellowish brown. Wings hyaline, the stigma black, veins piceous. Head fully twice as wide as thick; temples somewhat bulging behind the eyes, then rapidly narrowed to the carina, as broad as the eye-width; ocellar space not elevated, bounded by a weakly impressed line; the posterior ocelli separated by an impressed line; occiput smooth, vertex with some small punctures at the side of the ocelli; front punctate at the sides, the antennal cavities rugose except near the outer edge; face confluent punctate, with a patch of short vertical striae just outside the large clypeal foveae; clypeus with a few large punctures. Malar space one-third as long as the eye, with a broad,

very shallow, furrow; eyes elongate-oval; cheeks shining and nearly impunctate. Antennae 21-jointed, scape short and slender, as long as the first flagellar joint which is distinctly shorter than the second; third and succeeding rapidly growing shorter, the apical joints submoniliform. Mesonotum as broad as long, strongly trilobed, the lateral lobes very convex; parapsidal furrows deeply impressed, finely crenulate, meeting just before the scutellum; lateral lobes smooth, middle one weakly punctate except in front. Scutellar furrow very broad and deep, coarsely transversely striated or fluted, bounded at the sides by a carina; scutellum highly convex, smooth. Propodeum rugose or minutely reticulate, upper angles produced into blunt teeth. Propleurae smooth above, indistinctly striate below, the posterior margin with a crenate line, the median furrow also coarsely transversely striate. Mesopleura with a highly convex area extending nearly vertically from below to near the upper edge, next which there is a horizontal elevation below the tegula; between these and also at the lower anterior corner is a punctate space; hind margin with a crenate line before which is a foveate impression near the middle; metapleura reticulate, with a crenate line anteriorly. Hind coxae produced below, but not toothed. Abdomen as long as the thorax, oval, broadest behind, the surface with very shallow, minute reticulation which tends to assume a longitudinal direction; sutures between first, second and third segments faintly indicated at the sides; apex flattened and slightly concave just above the ovipositor. Ovipositor as long as the abdomen, its sheaths sparsely hairy. Radial cell short, no longer than the stigma, strongly curved below, closed, the costal vein extending well beyond it; first discoidal cell sessile above; recurrent nervure entering the cubital cell far before its tip, parallel with the transverse cubitus; cubital vein extending a short distance beyond the cell; submedian cell slightly longer than the median; third discoidal cell open at tip; nervellus very short.

Type from Junction of Crocodile and Marico Rivers, Transvaal (R. W. Tucker) February, 1918.

This seems to be a typical *Sigalphus*, although undoubtedly not congeneric with many of the forms that have been placed in this genus. It differs from *Faersteria nitida* Cameron described from the Transvaal by the absence of longitudinal sculpture on the metanotum and abdomen and by the extension of the cubital vein beyond the cell. With *S. daci* it is evidently closely allied.



FAMILY ALYSIIDAE.

IDIASTA, Först.

COELALYSIA, Cam.

COELALYSIA LUSORIAE, (Bridwell).

Proc. Hawaiian Ent. Soc., vol. 4, p. 176. (1919) (*Alysia*).

♀. Length 5.5 mm.; ovipositor as long as the body. Ferruginous, with the apex of the abdomen yellowish; flagellum of antennae piceous, with a pale annulus near apex; hind tibiae and tarsi piceous; wings hyaline, stigma and venation piceous. Head twice as wide as thick, broader behind the eyes; the temples as deep as the eyes, rounded behind; occiput very deeply emarginate; vertex with a fine impressed median line from the ocelli to the posterior foramen; ocelli rather large, very close together, separated by only their own diameter; head, except face, smooth and polished. Face elevated medially, depressed on each side with a rugulose-reticulate area, which however, does not reach the eye margin; at the center with a still further elevated tubercle; antennae on short tubercles; clypeus narrow, obtusely pointed at apex, Mandibles rather suddenly expanded at tips, with only three distinct teeth. Eyes small, round; malar space extremely short. Antennae 32-jointed, joints 18-23 light yellow; scape short oval; second flagellar joint one-third longer than the first; third almost as long as the second; following becoming much shorter, those at the annulus scarcely twice as long as thick. Mesonotum shining, not very convex; middle lobe elevated, especially in front; parapsidal furrows deep, crenulate, closer together than usual, behind the middle fusing to form a deep triangular impression with striate edges, just before the scutellum. Scutellum separated at the base by a wide, striated furrow divided by a median carina; its disc quadrangular, narrowed behind. Propodeum very coarsely reticulated posteriorly, but without distinct areolation; base smooth for a space on each side of the middle. Mesopleura below with a broad, horizontal, cross-striated impression and with another in front above, which cuts off the anterior angle; behind, with a small round impression opposite to a similar one on the metapleura. Abdomen rather narrow, sessile. First segment less than twice as long as broad at apex which is half wider than the base; spiracles slightly prominent, just before the middle; its surface finely longitudinally striate on the somewhat raised median lobe; coarsely striate laterally; following segments smooth and polished, the sutures scarcely distin-

guishable, the second, third and fourth segments of about equal length. Legs as usual. Transverse median vein entering the first discoidal cell at its basal fourth; parallel vein almost interstitial; recurrent nervure entering the second cubital cell near its base; stigma nearly four times as long as wide, emitting the radial vein at its apical third; second section of radius three times as long as the first and less than half as long as the third, about as long as the first transverse cubitus and one half longer than the second; submedian cell in hind wing two-fifths as long as the median.

I had already described this species in manuscript from two specimens, one labelled "bred from *Musca lusoria* Wied., Cape Town." and another from Cape Town, 1915, (Péringuey), when I received Bridwell's paper. The species resembles somewhat *Alysia goniarcha* Cameron, from the Belgian Congo.

Bridwell reared it from the same host near Cape Town.

#### HERATREMIS, Walker.

##### HERATREMIS LONGICORNIS, sp. nov.

♀. Length 4.2 mm.; antennae 8 mm.; hind leg 6 mm. Black, prothorax in front, sides of mesonotum, parapsidal furrows, tegulae and mandibles honey yellow or brownish; legs, including coxae testaceous; all tarsi black; hind tibiae and tips of four posterior femora piceous; antennae brownish yellow to near middle, black beyond, with a subapical white annulus; wings hyaline, stigma and venation fuscous. Head somewhat wider than the thorax, twice as broad as thick; ocelli large, close together on a tubercle; occiput deeply excavated medially; vertex and front smooth and polished; each antenna on a slight projection which is bordered above by a crenate line; face convex, deeply punctate with a slight median ridge above; one-half wider than high; clypeus deeply punctate, sharply separated from the face; nearly as long as broad. Eyes nearly round; malar space extremely short. Mandibles much expanded toward tips, with four teeth. Head behind immargined. Antennae with more than 41 joints (tips broken); joints 28-33 white; scape rather long, obovate; joints one and two of flagellum each about as long as the eye-height, the second a trifle longer than the first; following gradually decreasing in length, but all more than twice as long as thick. Mesonotum smooth, with deep parapsidal furrows which curve toward one another behind and meet before the scutellum; middle lobe strongly elevated. Scutellum with a large depression at base bearing a median carina; its disc convex, no longer, and much narrower

than the basal depression; postscutellum forming a transverse band with a deeply striate or crenulate groove. Propodeum declivous behind, incompletely areolated; with a median carina on basal half, furcate behind and extending to form the slightly dentate propodeal angles, and forming the anterior angle of an elongate pentagonal superomedian area that extends nearly to the tip of the propodeum; a complete large postero-lateral area and an anterior one, open in front; subspiracular sulcus broad. Abdomen petiolate; petiole three times as long as broad at apex; slightly contracted from base to the spiracles which are near basal third and inconspicuous, then gradually expanded to tip; its upper surface closely longitudinally striated; remainder of abdomen elongate-ovate, second segment as long as the first, twice as broad at apex as at base and one half longer than wide at tip; its surface shining, but roughly wrinkled or reticulate; third and fourth segments each about half as long as the second, smooth. Venter pale brown, ovipositor nearly as long as the abdomen. Legs, including hind coxae, excessively long and slender; hind femora extending beyond the apex of abdomen, gradually clavate toward tips, their tibiae one half longer than the femora and very slender, their tarsi nearly as long as the tibiae; claws slender, simple. Mesopleura smooth, with a reticulate impression separating the pectus and extending narrowly upwards near the anterior margin halfway to the tegula; also with two small deep impressions near the hind margin, one near the root of the hind wing and the other midway between it and the hind coxae; metapleura with a similar impression just behind the lower mesopleural one. Wings with the stigma elongate, as broad as the tip of the second cubital cell, emitting the radius before its apical third; first section of the latter very short, not equalling the width of the stigma; second section four times as long as the first; third nearly twice as long as the other two together; transverse median vein received at the basal third of the first discoidal cell, the latter with a short petiole above; recurrent nervure little shorter than the basal vein, interstitial with the first transverse cubitus; second cubital cell slightly narrowed apically, the second transverse cubitus half as long as the second section of the radius; parallel vein nearly interstitial; submedian cell in hind wing one-third as long as the median.

Type from M'fongosi, Zululand (W. E. Jones), April 1916.

This insect has the longest antennae and legs of any parasitic Hymenopteron that I have ever seen, and it is in great part on these peculiarities that I have referred it to Walker's genus *Heratremis* known by the type species from Ceylon. Owing to its imperfect

characterization no attempts have been made to locate it and the present species may of course be a quite different insect, for many *Alysiidae* have the antennae very much elongated.

FAMILY PLUMARIIDAE = (KONOWIELLIDAE).

This family was characterized in 1914 by Bischoff to include a genus of South American Hymenoptera of doubtful affinities. Bischoff described the type *Konowiella andrei* as a new genus and new species. At about the same time I received some peculiar Hymenoptera from Argentina and Peru which I was unable to associate with any known genus, until Mr. S. A. Rohwer called my attention to the genus *Plumarius* of Philippi described in 1873 (*Stettiner Ent. Zeit.*, vol. 34, p. 299) as an Evaniid. An examination of Philippi's description and figure at once revealed the fact that my insects were closely related, although quite probably generically distinct. They are also very evidently to be placed close to *Konowiella*, although I cannot be sure whether one or several genera should be recognized in *Plumarius*, *Konowiella* and my own series. On account of the form of the radial cell Szépligeti (*Gen. Insectorum*, fasc. 22, p. 118 (1904)) has been misled concerning *Plumarius* which he places in the subfamily *Agathidinae* of the *Braconidae*, and regards as probably identical with *Neoneurus* Haliday. Since then Morley, (*Ent. Monthly Mag.*, vol. 25, p. 93 (1914)) has shown that *Neoneurus* is identical with *Elasmosoma* Ruthe, an anomalous Braconid usually classed as one of the *Microgastrinae*. There can be no doubt that *Plumarius*, *Konowiella* and its allies have no close affinities with *Elasmosoma* (at least the American species probably belonging to *Elasmosoma*) or with any other *Braconidae* and it appears that the family *Plumariidae* is a valid one, probably most closely related, as Prof. J. C. Bradley has suggested to me, to the *Thynnidae*. In a later number of the *Entomologische Rundschau* for the same year (unfortunately not received till after the war) Bischoff described the genus *Myrmecopterina*, related to *Plumarius*, from South Africa. Still later, Enderlein proposed the generic name *Archihymen* and the family *Archihymenidae* for the African insect, and this must fall into the synonymy.

With this in mind, I was greatly surprised to find in the present material an undoubted Plumariid from South Africa. This appears to be distinct from the South American forms, and to be identical with *Myrmecopterina*.

MYRMECOPTERINA, Bischoff.

Entom. Rundschau, Jahrg. 31, no. 12, p. 67 (1914).

Enderlein, Fauna Südwest-Afrika, p. 195 (1918). *Archihymen*.

Head not very strongly transverse: including the eyes, twice or less than twice as broad as thick; ocelli large or moderate; eyes not very strongly projecting, oval, extending almost to the base of the mandibles; clypeus short and broad; head not striate nor punctate; antennae inserted not far above the clypeus, 13-jointed, pedicel and flagellum clothed with short, stiff white hairs, about as long as the thickness of the antennal joints. Mesonotum with weakly impressed, fine parapsidal furrows and faintly trilobed in front; at the sides with a fine grooved line extending forward from carinae at the sides of the basal scutellar groove, and fading out anteriorly; scutellum moderately convex, without carinae or grooves laterally, except at extreme base where the broad basal groove is limited at each side by a carina. Propodeum gently declivous behind, not areolate, as long as the mesonotum. Abdomen elongate oval, sessile, with six visible, nearly equal segments, terminated at tip by a short horizontal thin plate with rounded apex; claspers elongate triangular, not conspicuous, as long as the dorsal plate. Wings with the second cubital cell very much reduced in size; first discoidal cell almost as high as long; hind wing with three closed basal cells. Legs slender; tibial spurs rather weak.

Type *M. filicornis* Bisch.

This genus differs most strikingly from the South American members of the family in the form of the head, less prominent, longer eyes, shorter antennal vestiture and small second cubital cell.

The two species may be separated as follows.

Ocelli larger, separated from the eye by their own diameter; second cubital cell larger, half as long as the height of the first cubital cell; upper section of basal vein one-third as long as the lower. . . . *filicornis*, Bischoff.

Ocelli smaller, separated from the eye by twice their own diameter; second cubital cell smaller, one third as long as the height of the first cubital cell; upper section of basal vein one half as long as the lower

*minor*, sp. nov.

MYRMECOPTERINA FILICORNIS, Bischoff.

Entom. Rundschau, Jahrb. 31, p. 68, 1914.

Enderlein, Fauna Südwest-Afrikas p. 195 (1918) (*Archihymen*).

♂. Length 4 mm. Black, varied with piceous and brownish yellow. Head pro- and mesothorax, including pleura, black; antennae at base,

thorax at sides of scutellum and more or less of propodeum, piceous; abdomen black, with piceous apices to the basal segments and with apex dull fuscous; legs beyond the base of coxae, dull yellowish brown, the four anterior femora more or less infuscated; wings hyaline, venation dull yellowish brown, stigma somewhat darker. Head seen from above widest behind the eyes, then very obliquely and sharply narrowed to the margined foramen; its width (exclusive of eyes) distinctly, but not greatly exceeding its length; including the eyes, one-half wider than long; ocelli in an equilateral triangle, the posterior ones distinctly turned toward the side and bounded laterally by a deep groove as long as the ocellus, separated from the eye by their own diameter and from each other by a distance one-half greater; head above and front, smooth and polished; clypeus not sculptured, nearly truncate at apex; malar space practically wanting. First joint of antennae twice as long as thick; second distinctly shorter and nearly three times as long as thick; third to eighth joints subequal, growing more slender, each about as long as the first and second together; following growing shorter and thinner; second and following joints clothed with sparse, stiff, white bristles about as long as the diameter of the joints. Prothorax, including pleurae, dull, alutaceous. Mesonotum and scutellum highly polished, smooth, except for a trace of shagreened sculpture on the outer declivous part of the middle lobe. Parapsidal furrows very finely impressed, but distinctly present, fading out before the scutellum; the latter with a broad, straight impressed groove at base, the surface of the groove minutely roughened. Propodeum smooth, gently convex. First abdominal segment one-half longer than the second, which is slightly shorter than the third; apical plate brown, transparent, sharply rounded at tip. First and second sections of radius about equal, second distinctly longer; section of basal vein above the cubitus but little curved, nearly perpendicular to the subcostal vein; lower part strongly curved, three times as long as the upper; areolet with a short stalk toward the recurrent nervure and a longer one toward the radius, half as long as the apex of the first cubital cell, its lower outer side curved.

Description drawn from a specimen from Jackal's Water, Bushmanland (R. M. Lightfoot), October 1911.

Bischoff's type was from Windhuk, South West Africa.

MYRMECOPTERINA MINOR, sp. nov.

♂. Length 3 mm. Black; base of antennae fusco-piceous; upper part of propleura, spot at sides of scutellum and at extreme sides of base of first segment of abdomen, dark brown; legs dull, dark brown,

the tibiae lighter than the femora. Wings hyaline, venation piceous basally, becoming testaceous on apical half; stigma dilute piceous. Form and sculpture of head as in the previous species, except that viewed from above it is about twice as wide as long when the protuberant eyes are included; ocelli much smaller than in *flicornis*, in a nearly equilateral triangle, the posterior ones removed from the eye by nearly twice their diameter and from one another by nearly three times their diameter. Front with a fine impressed line just below the median ocellus; clypeus broadly arcuate on margin; malar space very short. Antennae as in the previous species. Mesonotum shagreened on the middle lobe anteriorly, with a few shallow punctures intermixed; parapsidal furrows very clearly impressed and extending to the base of the scutellum. Propodeum and abdomen as in the preceding species; apical plate of abdomen transparent, pale yellow. Upper section of basal vein bent into the cubital cell, nearly half as long as the lower section which is curved in an opposite direction; first and second sections of radius about equal, third longer; second cubital cell very small, sub-triangular, with a short stalk at base and a long one, equal to the length of the cell, above toward the radius.

Type from Vryburg, Cape Colony (J. S. Brown), 1917.

Although very similar to *M. flicornis* in color and appearance, this species is undoubtedly distinct. Unfortunately it is represented by only a single specimen.

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Roman, Ent. Tidskr., vol. 31, p. 112 (1910) (*Merinotus striatus*).  
Brues, Ann. South African Mus. vol. 19, p. 61.  
(This species is considered as a synonym of *melanosoma* Brullé by Roman).  
*annulitarsis* Cameron . . . . . Delagoa Bay; East Africa.  
Arch. Math. Naturvidens., vol. 30, No. 10, p. 8 (1909).  
Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 79 (1914).  
*apicalis* Szépligeti . . . . . Erythraea; Cape Province.  
Ann. Mus. Nat. Hungarici, vol. 11, p. 595 (1913).  
Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 178 (1914).  
*appelatrix* Cameron . . . . . Cape Province.  
Arch. Math. Naturvidens., vol. 30, No. 10, p. 13 (1909).  
*areolatus* Szépligeti . . . . . East Africa, from Abyssinia to Delagoa Bay.  
Ann. Mus. Nat. Hungarici, vol. 11, p. 593 (1913).  
Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 167 (1914) (*Goniobracon*).  
*aurora* Brues . . . . . Transvaal.  
Ann. South African Mus., vol. 19, p. 48.  
*basimacula* Cameron = *nataliensis*.  
*basiornatus* Cameron . . . . . Cape Province.  
Arch. Math. Naturvidens., vol. 30, No. 10, p. 17 (1919).  
*bellona* Brues . . . . . Transvaal; Natal.  
Ann. South African Mus., vol. 19, p. 52.

- bicolor* Brullé . . . . . Southern Africa.  
 Hist. Nat. Ins. Hymén., vol. 4, p. 412, pl. 43, fig. 3 (1846) (*Bracon*).  
 Cameron, Rec. Albany Mus., vol. 1, p. 155 (1905).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 14 (1909). (*strenuus*).  
 Brues, Ann. South African Mus., vol. 19, p. 61.
- bicostatus* Szépligeti . . . . . Transvaal; Zululand; Southern Cape Province.  
 Ann. Mus. Nat. Hungarici, vol. 4, p. 554 (1906) (*Merinotus*).  
 Szépligeti, Mitt. Zool. Mus. Berlin, vol. 7, p. 164 (1914).  
 Brues, Ann. South African Mus., vol. 19, p. 63.
- capensis* Cameron . . . . . Senegal and S. Rhodesia to Cape.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 149 (1905).  
 Szépligeti, Mitt. Zool. Mus. Berlin, vol. 7, p. 164 (1914) (*Merinotus*).  
 Brues, Ann. South African Mus., vol. 19, p. 63.
- clanes* Cameron . . . . . Dunbrody, Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 151 (1905).
- coccineomaculatus* Cameron = *plurimacula* Brullé.
- eoccineus* Brullé . . . . . Equatorial to South Africa.  
 Hist. Nat. Ins. Hymén., vol. 4, p. 428 (1846) (*Bracon*).  
 Cameron, Ann. South African Mus., vol. 5, p. 49 & 52 (1905).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 19 (1909).  
 Cameron, Ann. Soc. Entom. Belgique, vol. 56, p. 364 (1912).  
 Szépligeti, Entom. Mitt., vol. 2, p. 384 (1913).  
 Szépligeti, Mitt. Zool. Mus. Berlin, vol. 7, p. 178 & 182 (1914).  
 Brues, Ann. South African Mus., vol. 19, p. 64 (1923).
- corallinus* Ritsema. = *fastidiator* Fabricius.
- decorus* Cameron . . . . . Worcester Dist, Cape Province; Zululand.  
 Ann. South African Mus., vol. 5, p. 50 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 62.
- delagoensis* Cameron . . . . . Delagoa Bay.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 16 (1909).
- diana* Brues . . . . . Southern Rhodesia.  
 Ann. South African Mus., vol. 19, p. 49.
- dodsi* Cameron . . . . . Southern Rhodesia; Portuguese East Africa;  
 Eastern Cape Province.  
 Ann. South African Mus., vol. 5, p. 51 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 63.
- 12-fasciatus* Cameron . . . . . Dunbrody, Cape Province.  
 Rec. Albany Mus., vol. 1, p. 154 (1905).  
 Cameron, Ann. South African Mus., vol. 5, p. 55 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 63.
- durbanensis* Cameron . . . . . Natal; Transvaal.  
 Ann. South African Mus., vol. 5, p. 43 (1906).  
 Cameron, Ann. Transvaal Mus., vol. 2, p. 192 (1911) (*pretoriaensis*).  
 Brues, Ann. South African Mus., vol. 19, p. 61.
- excisus* Szépligeti . . . . . Delagoa Bay.  
 Ann. Soc. Entom. Belgique, vol. 58, p. 112 (1914).
- fastidiator* Fabricius . . . . . North to South Africa.  
 Spec. Insect., p. 428 (1781) (*Ichneumon*).

- Fabricius, Syst. Piez., p. 105 (1804) (*Bracon*).
- Ritsema, Tijdschr. v. Entom. vol. 17, p. 179, Pl. 11, fig. 1 (1874) (*Bracon corallinus*).
- Cameron, Ann. Soc. Entom. Belgique, vol. 56, p. 364 (1912) (*Iphiaulax corallinus*).
- Turner, Ann. Mag. Nat. Hist. (8), vol. 20, p. 242 (1917).
- flagrator* Gerstaeker . . . . . Mozambique; Transvaal; Natal.  
 Mon. Akad. Wiss. Berlin, p. 264 (1858).
- Szépligeti, Termes. Füzetek, vol. 24, p. 395 (1901) (*I. wahlbergi* as a synonym).
- haviglandi* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 42 (1906).  
 Cameron, Ann. Transvaal Mus., vol. 2, p. 192 (1911).  
 Brues, Ann. South African Mus., vol. 19, p. 62.
- haviglandi* Cameron, var. *rosa* Cameron . . . Cape Province; Zululand; Delagoa Bay.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 12 (1909). (*Iphiaulax rosa*).  
 Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 164 (1914).  
 Brues, Ann. South African Mus., vol. 19, p. 62.
- hemixanthopterus* Szépligeti . . . . . Central & South Africa.  
 Ergebn. Z. Afrika Exp., vol. 3, p. 404 (1911).  
 Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 177 (1914).
- hesper* Brues . . . . . Natal.  
 Ann. South African Mus., vol. 19, p. 45.
- hirticeps* Cameron . . . . . Cape Province.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 12 (1909).  
 Brues, Ann. South African Mus., vol. 19, p.
- inanius* Cameron . . . . . Delagoa Bay.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 16 (1909).
- incisus* Brullé . . . . . Rhodesia to Cape.  
 Hist. Nat. Ins. Hymén., vol. 4, p. 427 (*Bracon*).  
 Cameron, Ann. South African Mus., vol. 5, p. 47 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 64.
- iphigenia* Brues . . . . . Transvaal.  
 Ann. South African Mus., vol. 19, p. 55.
- iris* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19, p. 47.
- juno* Brues . . . . . Warm Baths, Transvaal.  
 Ann. South African Mus., vol. 19, p. 53.
- krebsii* Cameron . . . . . Cape Province.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 18 (1909).  
 Brues, Ann. South African Mus., vol. 19, p. 63.
- lanceolatus* Szépligeti . . . . . Cape Province.  
 Mitt. Zool. Mus., Berlin, vol. 7, p. 178 (1914).
- lativentris* Cameron . . . . . Transvaal; Zululand.  
 Ann. South African Mus., vol. 5, p. 51 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 63.
- leucogaster* Cameron . . . . . Delagoa Bay.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 8 (1909).
- levissimus* Cameron = *rubiginator*.

- litura* Brulle . . . . . South Africa.  
Hist. Nat. Ins. Hymen., vol. 4, p. 415 (1846) (*Bracon*).
- longicoxis* Cameron . . . . . Natal; S. W. Africa.  
Ann. South African Mus., vol. 5, p. 42 (1906).
- lucina* Brues . . . . . Southern Rhodesia.  
Ann. South African Mus., vol. 19, p. 54.
- luctuosus* Brullé = *phryganator*.
- lugens* Brulle . . . . . Zululand and Natal to Cape.  
Hist. Nat. Ins. Hymen., vol. 4, p. 414 (1846). (*Bracon*).  
Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 4 (1909).  
Brues, Ann. South African Mus., vol. 19, p. 61.
- maculifrons* Ritsema . . . . . South Africa.  
Tidschr. v. Entom., vol. 17, p. 177 (1874). (*Bracon*).  
Brues, Ann. South African Mus., vol. 19, p. 63.
- martinii* Gribodo . . . . . Central and South Africa.  
Ann. Mus. Civ. Genova, vol. 14, p. 246 (1879). (*Bracon*).  
Cameron, Ann. South African Mus., vol. 5, p. 57 (1906) (*robustus*).  
Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 26 (1909) (*Gonio-  
bracon robustus*).  
Szépligeti, Kilimandjaro-Meru Exped., p. 32 (1910) (*robustus*).  
Schulz, Zool. Ann., vol. 4, p. 71 (1911).  
Brues, Ann. South African Mus., vol. 19, p. 61.
- mediator* Cameron . . . . . Transvaal.  
Ann. South African Mus., vol. 5, p. 46 (1906).
- melanosoma* Brulle, see *aethiopicus* Cameron.
- meridionalis* Cameron . . . . . Worcester Distr., Cape Province.  
Ann. South African Mus., vol. 5, p. 45 (1906).
- mimeticus* Cameron . . . . . Transvaal.  
Ann. South African Mus., vol. 5, p. 58 (1906).
- minerva* Brues . . . . . S. Rhodesia.  
Ann. South African Mus., vol. 19, p. 50.
- minyias* Brues . . . . . Zululand.  
Ann. South African Mus., vol. 19, p. 43.
- monteiroae* Cameron . . . . . Delagoa Bay.  
Arch. Math. Naturvidens., vol. 30, No. 10, p. 16 (1909) (*monteiroii*).
- nataliensis* Szépligeti . . . . . Natal; S. Rhodesia; S. W. Africa.  
Termes. Fuzetek, vol. 24, p. 395 (1901).  
Cameron, Rec. Albany Mus., Grahamstown, vol. 1, p. 150 (1905) (*basimacula*).  
Cameron, Ann. South African Mus., vol. 5, p. 45 (1906) (*basimacula*).  
Szépligeti, Ent. Mitt., vol. 3, p. 384 (1913).  
Brues, Ann. South African Mus., vol. 19, p. 61.
- nigridorsis* Kriechbaumer . . . . . Central and South Africa.  
Berliner Ent. Zeit., vol. 39, p. 571 (1894).  
Brues, Ann. South African Mus., vol. 19, p. 63.
- odontoscapus* Cameron . . . . . Dunbrody, Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 154 (1905).
- ornaticollis* Cameron . . . . . Grahamstown, Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 252 (1905).

- Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 5 (1909).  
*pandora* Brues . . . . . S. W. Africa; Zululand; S. Rhodesia.  
 Ann. South African Mus., vol. 19, p. 57.
- pectoralis* Szépligeti . . . . . Cape Province.  
 Mitt. Zool. Mus. Berlin, vol. 7, p. 181 (1914).
- phosphor* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19, p. 42.
- phryganator* Thunberg . . . . . Central and Southern Africa.  
 Mem. Akad. St. Petersburg, vol. 8, p. 272 (1822) (*Ichneumon*).  
 Thunberg, idem, vol. 9, p. 342 (1824) (*Ichneumon*).  
 Brullé, Hist. Nat. Ins. Hymen., vol. 4, p. 414 (1894) (*Bracon luctuosus*).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 5 (1909) (*luctuosus*).  
 Szépligeti, Kilimandjaro-Meru Exped., p. 31 (1910) (*Ipobracon luctuosus*).  
 Roman, Zool. Bidrag, vol. 1, p. 272 (1912) (*Ipobracon*).  
 Szépligeti, Mitt. Zool. Mus. Berlin, vol. 7, p. 175 (1914) (*Ipobracon luctuosus*).
- pictus* Brullé . . . . . Rhodesia to Cape.  
 Hist. Nat. Ins. Hymen., vol. 4, p. 426 (*Bracon*).  
 Cameron, Ann. South African Mus., vol. 5, p. 47, 50 (1906).  
 Cameron, Ann. Transvaal Mus., vol. 2, p. 192 (1911).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 19 (1909).
- plurimaculata* Brullé . . . . . Central and South Africa.  
 Hist. Nat. Ins. Hymén., vol. 4, p. 429 (1846) (*Bracon*).  
 Cameron, Ann. South African Mus., vol. 5, p. 46 (1906) (*coccineomaculatus*).  
 Turner, Ann. Mag. Nat. Hist. (8), vol. 20, p. 243 (1917).  
 Brues, Ann. South African Mus., vol. 19, p. 62 (1923).
- pretoriaënsis* Cameron = *durbanensis* Cameron.
- proserpina* Brues . . . . . Transvaal; S. Rhodesia.  
 Ann. South African Mus., vol. 19, p. 44.
- resolutus* Cameron . . . . . Cape Province.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 10 (1909).
- rhadamanthus* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19, p. 59.
- rhodesianus* Cameron . . . . . S. Rhodesia.  
 Ann. South African Mus., vol. 5, p. 54 (1906).
- robustus* Cameron = *martinii*.
- rosa* Cameron = var. of *havilandi*.
- ruber* Bingham . . . . . Mashonaland.  
 Trans. Entom. Soc. London, vol. 23, p. 245, Pl. 23, fig. 21 (1902).  
 Brues, Ann. South African Mus., vol. 19, p. 62.
- rubiginator* Thunberg . . . . . Cape Province.  
 Mém. Akad. St. Pétersburg, vol. 8, p. 260 (1822) (*Ichneumon*).  
 Thunberg, idem, vol. 9, p. 309 (1824) (*Ichneumon*).  
 Cameron, Ann. South African Mus., vol. 5, p. 44 (1906) (*levissimus*).  
 Roman, Zool. Bidrag, vol. 1, p. 277 (1912) (*Ipobracon*).  
 Brues, Ann. South African Mus., vol. 19, p. 61.
- rubilineatus* Cameron . . . . . Dunbrody, Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 151 (1905).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 15 (1909).

- rubrinervis* Cameron . . . . . Dunbrody, Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 152 (1905).  
 Cameron, Ann. South African Mus., vol. 5, p. 50 (1906).
- signatus* Brullé . . . . . Rhodesia to Cape.  
 Hist. Nat. Ins. Hymén., vol. 4, p. 430 (1846) (*Bracon*).  
 Cameron, Ann. South African Mus., vol. 5, p. 47 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 62.
- similis* Szépligeti . . . . . Natal.  
 Ent. Mitt., vol. 3, p. 384 (1913) (*Campyloneurus*).  
 Brues, Ann. South African Mus., vol. 19, p. 64.
- soleae* Cameron . . . . . Grahamstown, Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 164 (1905).
- spilonotus* Cameron . . . . . Transvaal; Zululand; Basutoland.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 165 (1905).  
 Brues Ann. South African Mus., vol. 19, p. 62.
- spilopus* Cameron . . . . . Grahamstown, Cape Province.  
 Rec. Albany Mus., vol. 1, p. 241 (1905).
- strenuus* Cameron = *bicolor* Brullé.
- striatus* Szépligeti = *aethiopicus* Cameron.
- tacitus* Cameron . . . . . Delagoa Bay.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 9 (1909).
- tanycerus* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 49 (1906).
- tegularis* Szépligeti . . . . . Southern Cape Province.  
 Ann. Mus. Nat. Hungarici, vol. 4, p. 585 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 62.
- thisbe* Brues . . . . . Seymour, Cape Province.  
 Ann. South African Mus., vol. 19, p. 58.
- trichiosomus* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 55 (1906).
- trimeni* Cameron = *xanthopterus* Cam.
- varicollis* Cameron . . . . . Cape Province.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 7 (1909).
- varipalpis* Cameron . . . . . Transvaal.  
 Ann. South African Mus., vol. 5, p. 48 (1906).  
 Cameron, Ann. Transvaal Mus., vol. 2, p. 193 (1911).
- varitinctus* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 50 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 62.
- vesta* Brues . . . . . Transvaal.  
 Ann. South African Mus., vol. 19, p. 56.
- victorinii* Holmgren = *lugens* Brullé . . . . . Cape Province.  
 Eugen. Resa., vol. 2, p. 426 (1868) (*Bracon*).  
 Roman, Ent. Tidskr., vol. 31, p. 115 (1910).
- wahlbergi* Holmgren . . . . . Central & Southern Africa.  
 Eugénias Resa, Ins., p. 425 (1868) (*Bracon*).  
 Cameron, Ann. South African Mus., vol. 5, p. 47 (1906).  
 Roman, Ent. Tidskr., vol. 31, p. 129 (1910).



- Szépligeti, Ent. Mitt., vol. 3, p. 384 (1913).  
*whitei* Cameron . . . . . Transvaal; Zululand.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 165 (1905).  
 Brues, Ann. South African Mus., vol. 19, p. 62.  
*xanthocarpus* Cameron . . . . . Southern Cape Province.  
 Ann. South African Mus., vol. 5, p. 41 (1906).  
*xanthopterus* Cameron . . . . . Transvaal; Southern Cape Province; Natal.  
 Ann. South African Mus., vol. 5, p. 41 (1906).  
 Cameron, Rec. Albany Mus., Grahamstown, vol. 1, p. 240 (1905) (*trimeni*).  
 Brues, Ann. South African Mus., vol. 19, p. 61.  
*xanthostomus* Cameron . . . . . Cape Province; S. Rhodesia.  
 Ann. South African Mus., vol. 5, p. 56 (1906).

HOLCOBRACON, Cameron.

- Arch. Math. Naturvidens., vol. 30, No. 10, p. 19 (1909).  
*erythraspis* Cameron . . . . . S. W. Africa.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 20 (1909).

PLAXOPSIS, Szépligeti.

- Arkiv for Zool., vol. 2, No. 14, p. 1 (1905).  
 Roman Ent. Tidskr., vol. 31, p. 136 (1910).  
*nitidula* Brues . . . . . Durban, Natal.  
 Ann. South African Mus., vol. 19, p. 64.

CHAOILTA, Cameron.

- Mem. Manchester Philos. Soc., vol. 43, p. 80 (1899).  
*amplificata* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19, p. 66.

PLATYBRACON, Szépligeti.

- Termes. Fuzetek, vol. 23, p. 49 (1900).  
 Camerom, Arch. Math. Naturvidens., vol. 30, No. 10, p. 20 (1909). (*Doryctocephalus*).  
*calviniae* Cameron . . . . . Western Cape Province.  
 Ann. South African Mus., vol. 5, p. 53 (1906) (*Iphiaulax*).  
 Brues, Ann. South African Mus., vol. 19, p. 68.  
*erythrostromus* Cameron. = *platynotus* Cameron (1905).  
 Brues, Ann. South African Mus., vol. 19, p. 68.  
*planinotus* Brues . . . . . Cape Province.  
 Ann. South African Mus., vol. 19, p. 68.  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 21 (1909). (*Doryctocephalus platynotus*) (non *Iphiaulax Platybracon, platynotus* Cameron, 1905),  
*platynotus* Cameron . . . . . Southern Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 241 (1905).  
 Cameron, Ann. South African Mus., vol. 5, p. 53 (1906) (*erythrostromus*).  
 Brues, Ann. South African Mus., vol. 19, p. 68.

## SCHIZTOBRACON, Cameron.

- Ann. South African Mus., vol. 5, p. 70 (1906).  
 Roman, Ent. Tidskr., vol. 31, p. 138 (1910) (*Tricoelopyge*).  
*latilobatus* Cameron = *ornatipennis* Cameron.  
*ornatipennis* Cameron . . . . . S. Rhodesia to Zululand and Cape Province.  
 Ann. South African Mus., vol. 5, p. 70 (1906).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 24 (1909) (*latilobatus*).  
 Brues, Ann. South African Mus., vol. 19, p. 68.  
*pulchra* Roman . . . . . Caffraria.  
 Ent. Tidskr., vol. 31, p. 139 (1910) (*Tricoelopyge*).

## ODONTOGASTER, Szépligeti.

- Ann. Mus. Nat. Hungarici, vol. 4, p. 551 (1906).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 22 (1908) (*Caenoprymnus*).  
*minor* Szépligeti . . . . . Zululand.  
 Brues, Ann. South African Mus., vol. 19, p. 70.  
*spinosa* Cameron . . . . . Delagoa Bay; Zululand.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 22 (1909) (*Caenoprymnus*).  
 Szépligeti, Mitt. Zool. Mus. Berlin, vol. 7, p. 161 (1914).  
 Brues, Ann. South African Mus., vol. 19, p. 69.  
*uniformis* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19, p. 70.

## RHYTIMORPHA, Szépligeti.

- coccinea* Szépligeti . . . . . Congo; Bushmanland.  
 Termes. Füzetek, vol. 24, p. 359 (1901).  
 Brues, Ann. South African Mus., vol. 19, p. 71.

## CURRIEA, Ashmead.

- Proc. U. S. National Mus., vol. 23, p. 50 (1900).  
*flavomaculata* Cameron . . . . . Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 157 (1905) (*Megalomnum*).  
 Cameron, Arch. Math. Naturvidens., vol. 30, No. 10, p. 24 (1909).  
 Brues, Ann. South African Mus., vol. 19, p. 71.  
*striata* Cameron . . . . . Delagoa Bay; Zululand.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 24 (1909).  
 Brues, Ann. South African Mus., vol. 19, p. 72.  
*testacea* Cameron . . . . . Delagoa Bay.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 25 (1909).

## BACUMA, Cameron.

- Ann. South African Mus., vol. 5, p. 68 (1906).  
 ? *Trachybracon* Szépligeti.  
 Ann. Mus. Nat. Hungarici, vol. 4, p. 549 (1906).  
*fumipennis* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 69 (1906).

- maculiventris* Cameron . . . . . S. Rhodesia.  
 Ann. South African Mus., vol. 5, p. 68 (1906).  
*rufa* Cameron . . . . . Kenya Colony; Transvaal, S. W. Africa.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 26 (1909).  
 Cameron, Ann. Transvaal Mus., p. 194 (1911).  
 Brues, Ann. South African Mus., vol. 19, p. 72.

CHELONOGASTRA, Ashmead.

- Proc. U. S. Nat. Mus., vol. 23, p. 139 (1900).  
*elongatula* Brues. . . . . Cape Province.  
 Ann. South African Mus., vol. 19, p. 74.  
*orbiculata* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19 p. 75.  
*rotundula* Brues. . . . . Zululand, Transvaal.  
 Ann. South African Mus., vol. 19, p. 73.  
 ? *holmgreni* D. T. . . . . Cape Province.  
 Holmgren, Eugen. Resa, Juc., vol. 2, p. 424 (1868) (*Bracon pectoralis*, nec.  
 Wesmael).  
 Cat. Hym., vol. 4, p. 272 (1890) (*Bracon*).

GASTROTHECA, Guerin.

- Lefebure, Voy. Abyss., vol. 6, p. 348 (1848).  
 Roman, Ent. Tidskr., vol. 31, p. 123 (1910).  
 Brues, Ann. South African Mus., vol. 19, p. 76.  
*areolata* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., p. 202 (1911).  
*bilobata* Cameron . . . . . Cape Town.  
 Ann. South African Mus., vol. 5, p. 35 (1906)  
*bivittata* Kriechbaumer . . . . . Delagoa Bay.  
 Berliner Ent. Zeit., vol. 39, p. 314 (1894).  
*capensis* Enderlein . . . . . Pondoland.  
 Stettiner Ent. Zeitg., vol. 66, p. 235 (1905).  
*melanocera* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., p. 201 (1911).  
*trimaculata* Cameron . . . . . Cape Province.  
 Ann. Transvaal Mus., p. 201 (1911).

GLYPTOMORPHA, Holmgren.

- Eugenies Res. Ins., p. 427 (1868).  
*apicalis* Szépligeti . . . . . E. Africa; Transvaal.  
 Bull. Mus. Hist. Nat., Paris, 1907, p. 34 (1907).  
 Roman, Ent. Tidskr., vol. 31, p. 125 (1910).  
*algirica* Lucas . . . . . Port Elisabeth.  
 Expl. Sci, Algérie, Zool., vol. 3, p. 336; pl. 19, fig. 8 (1846).  
 Szépligeti, Ann. Mus. Nat. Hungarici, vol. 4, p. 548 (1906).  
*concolor* Szépligeti . . . . . Delagoa Bay.  
 Ann. Soc. Ent. Belgique, vol. 58, p. 109 (1914).  
 Roman, Ent. Tidskr., vol. 31, p. 135 (1910).

- ferruginea* Holmgren . . . . .  
 Eugenes Resa, Ins., p. 427, pl. 8, fig. 4 (1868).  
*tegularis* Szépligeti . . . . . Cape Province.  
 Mitt. Zool. Mus. Berlin, vol. 7, p. 156 (1914).

## VIPIO, Latreille.

- Hist. Crust. et Ins., vol. 13, p. 176 (1805).  
*dorsimacula* Brullé . . . . . Cape Province.  
 Hist. Nat. Ins. Hymen., vol. 4, p. 445 (1846).  
*forticarinatus* Cameron . . . . . Cape Province.  
 Arch. Math. Naturvidens., vol. 30, No. 10, p. 21 (1902).  
*fumipennis* Cameron . . . . . Stellenbosch, Cape Province.  
 Ann. South African Mus., vol. 5, p. 64 (1906).  
 Brues. Ann. South African Mus., vol. 19, p. 77.  
*longicaudis* Cameron . . . . . Stellenbosch, Cape Province.  
 Ann. South African Mus., vol. 5, p. 65 (1906).  
*longicollis* Buysson . . . . . Transvaal.  
 Ann. Soc. Ent. France, p. 353 (1897).  
*maculiceps* Cameron . . . . . Southern Cape Province.  
 Ann. South African Mus., vol. 5, p. 62 (1906).  
*melanopus* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., p. 193 (1911).  
*melanosoma* Brullé (see *Iphiaulax melanosoma*) . . . . . South Africa.  
 Hist. Nat. Ins. Hymén., vol. 4, p. 450 (1846).  
*nataliensis* Cameron . . . . . Natal.  
 Ann. South African Mus., vol. 5, p. 63 (1906).  
*nigripalpis* Cameron . . . . . Cape Town.  
 Ann. South African Mus., vol. 5, p. 63 (1906).  
*nigronotatus* Brullé . . . . . Cape Province.  
 Hist. Nat. Ins. Hymén., vol. 4, p. 442 (1846).  
 Cameron, Ann. South African Mus., vol. 5, p. 60 (1906).  
*pallidinervis* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 61 (1906).  
 ? *pallidiventris* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., p. 194 (1911).  
*5-maculatus* Cameron . . . . . W. Cape Province.  
 Ann. South African Mus., vol. 5, p. 66 (1906).  
*6-foveatus* Cameron . . . . . Cape Town.  
 Ann. South African Mus., vol. 5, p. 67 (1906).  
*spilocephalus* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 66 (1906).  
*stictonotus* Cameron . . . . . S. Rhodesia.  
 Ann. South African Mus., vol. 5, p. 64 (1906).  
*tinctipennis* Cameron . . . . . Stellenbosch, Cape Province.  
 Ann. South African Mus., vol. 5, p. 61 (1906).  
*transvaalensis* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., p. 193 (1911).

*trimaculatus* Cameron . . . . . W. Cape Province.  
Ann. South African Mus., vol. 5, p. 60 (1906).

ODESIA, Cameron.

Ann. South African Mus., vol. 5, p. 79 (1906).  
*10-maculata* Cameron . . . . . Transvaal.  
Zeits. Naturwiss., vol. 81, p. 435 (1909).  
*longicornis* Cameron . . . . . Transvaal; S. Rhodesia.  
Ann. South African Mus., vol. 5, p. 80 (1906).  
Brues, Ann. South African Mus., vol. 19, p. 77.

ARCHIBRACON, Saussure.

Grandidier, Hist. Madagascar, vol. 20, Hyménop. pl. 14, fig. 13 (1892).  
Pseudobracon Szépligeti. Gen. Ins., fasc. 22, p. 48 (1905).  
*cameroni* Brues . . . . . Natal, Zululand.  
Ann. South African Mus., vol. 19, p. 78.  
Cameron, Ann. South African Mus., vol. 5, p. 73 (1906) (*Exotheclus flaviceps*,  
non *Archibracon flaviceps* Sauss.).  
*canaliculatus* Cameron = *servillei*.  
*capensis* Cameron . . . . . Knysna.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 167 (1905) (*Exotheclus*).  
*cognatus* Szépligeti . . . . . Cape Province.  
Mitt. Zool. Mus. Berlin, vol. 7, p. 192 (1914) (*Pseudobracon*).  
*elisabethae* Cameron . . . . . Southern Cape Province.  
Ann. South African Mus., vol. 5, p. 72 (1906) (*Exotheclus*).  
*flavofasciatus* Cameron . . . . . Cape Town.  
Ann. South African Mus., vol. 5, p. 74 (1906) (*Exotheclus*).  
*forticornis* Cameron . . . . . Transvaal.  
Ann. South African Mus., vol. 5, p. 74 (1906) (*Exotheclus*).  
*pulchripennis* Cameron . . . . . Cape Town.  
Ann. South African Mus., vol. 5, p. 73 (1906) (*Exotheclus*).  
*servillei* Brullé . . . . . Equatorial & South Africa.  
Hist. Nat. Ins. Hymén., vol. 4, p. 418 (1846) (*Bracon*).  
Szépligeti, Gen. Ins., fasc. 22, p. 49 (1905) (*Pseudobracon*).  
Cameron, Rec. Albany Mus., Grahamstown, vol. 1, p. 156 (1905) (*Exotheclus*  
*tibialis*).  
Cameron, Rec. Albany Mus., vol. 1, p. 167 (1905) (*Exotheclus canaliculatus*).  
Cameron, Ann. South African Mus., vol. 5, p. 75 (1906) (*Exotheclus canali-*  
*culatus*).  
Cameron, Zeit. Naturwiss., vol. 81, p. 433 (1909) (*Pseudobracon africanus*).  
Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 191 (1914) (*Pseudobracon*  
*africanus*).  
Szépligeti, Ann. Ent. Soc. Belgique, vol. 58, p. 114 (1914) (*Pseudobracon*  
*africanus*).  
Brues, Ann. South African Mus., vol. 19, p. 77.

- spilopterus* Cameron . . . . . Southern Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 166 (1905) (*Exotheclus*).  
*tibialis* Cameron = *servillei*.

## MESOBRACON, Szépligeti.

- Termes. Füzetek, vol. 25, p. 46 (1902).  
 Cameron, Ann. South African Mus., vol. 5, p. 75 (1906) (*Telerda*).  
 Turner, Ann. Mag. Nat. Hist. (8), vol. 20, p. 245 (1917).  
*capensis* Szépligeti . . . . . Cape Province.  
 Mitt. Zool. Mus. Berlin, vol. 7, p. 189 (1914).  
*concolor* Szépligeti = *maculiceps* Cameron.  
*maculiceps* Cameron . . . . . Mombasa to Cape Province.  
 Ann. South African Mus., vol. 5, p. 76 (1906) (*Telerda*).  
 Szépligeti, Ann. Mus. Hist. Nat. Hungarici, vol. 4, p. 579 (1906) (*concolor*).  
 Turner, Ann. Mag. Nat. Hist. (8), vol. 20, p. 245 (1917).  
*nigriceps* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 76 (1906) (*Telerda*).  
*trimaculatus* Szépligeti . . . . . Cape Province.  
 Mitt. Zool. Mus. Berlin, vol. 7, p. 189 (1914).

## ODONTOBRACON, Cameron.

- Biol. Centr. Amer. Hymen., vol. 15, p. 384 (1897).  
 André Spec. Hymen. Eur., vol. 5bis, p. 10 (1897) (*Zombrus*).  
 Kriechbaumer, Berliner Ent. Zeit., vol. 39, p. 60 (1894) (*Trimorus*, non Förster).  
 Dalla Torre, Cat. Hymen., vol. 4, p. 250 (1898) (*Neotrimorus*).  
 Szépligeti, Termes, Füzetek, vol. 25, p. 47 (1902) (*Acanthobracon*).  
 Cameron, Journ. Straits Br. Roy. Asiatic Soc., vol. 44, p. 104 (1905) (*Trichiobracon*).  
*atriceps* nom. nov.  
 Cameron, Zeits. Naturwiss., vol. 81, p. 442 (1909) (*nigriceps*, non Cameron 1887).  
*cameroni* Szépligeti . . . . . Delagoa Bay; Transvaal.  
 Ent. Mitt., vol. 2, p. 385 (1913).  
 Cameron, Zeits. Naturwiss., vol. 81, p. 441 (1909) (*Zombrus*) (*rufus*, non Cameron 1905).  
*duplicatus* nom. nov. . . . . Cape Province.  
 Cameron, Zeits. Naturwiss., vol. 81, p. 444 (*Zombrus luteus*, nec *Neotrimorus* (*Zombrus*) *luteus* Cameron 1905).  
*maculiceps* Cameron . . . . . Mozambique; Delagoa Bay.  
 Ann. South African Mus., vol. 5, p. 78 (1906) (*Acanthobracon*).  
*maculifrons* Cameron.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 169 (1905) (*Trichiobracon*).  
*nigriceps* Cameron . . . . . Cape Province.  
 Zeits. Naturwiss., vol. 81, p. 442 (1909) (*Zombrus*).  
*nigripennis* Kriechbaumer . . . . . Central & South Africa.  
 Berliner Ent. Zeit., vol. 39, p. 60 (1894) (*Trimorus*).  
 Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 196 (1914) (*Zombrus*).

- nigripes* Cameron . . . . . Transvaal.  
 Ann. South African Mus., vol. 5, p. 79 (1906) (*Acanthobracon*).  
*nigripes* Cameron 1909 = *pedalis*.  
*nigromaculata* Cameron . . . . . Dunbrody, Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 155 (1905) (*Zombrus*).  
*pedalis* nom. nov.  
 Cameron, Zeits. Naturwiss., vol. 81, p. 442 (1909); (*Zombrus*) (*nigripes*, non  
*nigripes* Cameron 1806).  
*rufus* Cameron . . . . . Martindale.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 168 (1905) (*Trichiobracon*) (non  
*rufus* Cameron 1909).  
*rufus* Cameron 1909 = *cameroni*.  
*spilopterus* Cameron . . . . . Cape Province.  
 Zeits. Naturwiss., vol. 81, p. 442 (1909) (*Zombrus*).

PHANOMERIS, Förster.

- Verh. Preuss. Rheinlande, vol. 29, p. 235 (1862).  
*dubius* Bingham . . . . . S. Rhodesia.  
 Trans. Ent. Soc. London, 1902, p. 546, pl. 16, fig. 59 (1902).

TELERDA, Cameron.

- Ann. South African Mus., vol. 5, p. 75 (1906).  
*maculiceps* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 76 (1906).  
*nigriceps* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 76 (1906).

XENOLOBUS, Cameron.

- Ann. Transvaal Mus., vol. 2, p. 199 (1911).  
*rufus* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., vol. 2, p. 200 (1911).  
 Brues, Ann. South African Mus., vol. 19, p. 80.

LATANA, Cameron.

- Ann. South African Mus., vol. 5, p. 77 (1905).  
*excavata* Cameron . . . . . Natal.  
 Ann. South African Mus., vol. 5, p. 78 (1906).

RHOGAS, Nees.

- Nov. Act. Nat. Curios., vol. 9, p. 306 (1818).  
*capensis* Cameron . . . . . Cape Province.  
 Rec. Albany Mus., Grahamstown, vol. 1, p. 243 (1905).  
*erythrostromus* Cameron = *melanocephalus*.  
*melanocephalus* Cameron . . . . . Natal; Transvaal; S. Rhodesia.  
 Ann. South African Mus., vol. 5, p. 71 (1906).  
 Cameron, Ann. Transvaal Mus., vol. 2, p. 196 (1911) (*melanocephalus*).  
 Brues, Ann. South African Mus., vol. 19, p. 80.

- melanocerus* Cameron . . . . . Rhodesia; Transvaal.  
Ann. South African Mus., vol. 5, p. 71 (1906).  
Brues, Ann. South African Mus., vol. 19, p. 80.
- melanospilus* Cameron . . . . . Transvaal; Cape Province.  
Ann. Transvaal Mus., vol. 2, p. 197 (1911).  
Brues, Ann. South African Mus., vol. 19, p. 80.
- meridianus* Szépligeti . . . . . Transvaal.  
Mitt. Zool. Mus., Berlin, vol. 7, p. 207 (1914).
- pallidipalpis* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 198 (1911).
- pictipennis* Brues . . . . . S. Rhodesia.  
Ann. South African Mus., vol. 19, p. 80.
- plurilineatus* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 197 (1911).
- striatifrons* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 199 (1911).
- transvaalensis* Cameron . . . . . Central & Southern Africa.  
Ann. Transvaal Mus., vol. 2, p. 199 (1911).  
Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 204 (1914).
- varicarinatus* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 198 (1911).
- varinervis* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 198 (1911).

## GYRONEURON Kokujev.

- Rev. Russe Entom., vol. 1, p. 231 (1901).
- africanum* Brues. . . . . Zululand.  
Ann. South African Mus., vol. 19, p. 82.

## OPIUS, Wesmael.

- Mém. Acad. Sci., Bruxelles, vol. 9, p. 115 (1835).
- africanus* Szépligeti . . . . . Transvaal.  
Boll. Lab. Zool. Gen. Agrar., Portici, vol. 4, p. 346 (1910).  
Silvestri, Boll. Lab. Zool. Gen. Agrar., Portici, vol. 8, p. 111 (1914).
- humilis* Silvestri. . . . . Cape Province.  
Boll. Lab. Zool. Gen. Agrar., Portici, vol. 8, p. 106 (1914).
- lounsburyi* Silvestri . . . . . Transvaal.  
Boll. Lab. Zool. Gen. Agrar., Portici, vol. 8, p. 100 (1914).
- luteus* Kriechbaumer . . . . . Natal.  
Berliner Entom., Zeit., vol. 39, p. 314 (1894).

## SULYDUS, Buysson.

- Ann. Soc. Entom. France, vol. 66, p. 354 (1897).
- marshalli* Buysson . . . . . Transvaal.  
Ann. Soc. Entom. France, vol. 66, p. 354, Pl. 11, figs. 1—1b (1897).



CYCLOCORMUS, Caméron.

Ann. Transvaal Mus., vol. 2, p. 209 (1911).

*luteus* Cameron . . . . . Transvaal.

Ann. Transvaal Mus., vol. 2, p. 209 (1911).

MICRODUS Auct., non Nees.

Nov. Act. Acad. Nat. Curios., vol. 9, p. 304 (1818).

*bipustulatus* Cameron = *Disophrys dichroa* Brullé.

*pallidus* Kriechbaumer = *Disophrys lutea* Brullé.

DISOPHRYS, Förster.

Verh. naturh. Ver. preuss. Rheinlande, vol. 19, p. 246 (1862).

Cameron, Rec. Albany Mus., Grahamstown, vol. 1, p. 157 (1905). (*Xanthomicrodus*).

*bipustulata* Cameron = *dichroa* Brullé.

*capensis* Szépligeti . . . . . Cape Province.

Mitt. Zool. Mus., Berlin, vol. 7, p. 214 (1914).

*dichroa* Brullé . . . . . South Africa.

Hist. Nat. Ins. Hymen., vol. 4, p. 485 (1845) (*Agathis*).

Cameron, Rec. Albany Mus., vol. 1, p. 158 (1905). (*Microdus bipustulatus*).

? Szépligeti, Ann. Soc. Ent. Belgique, vol. 58, p. 116 (1914). (*Disophrys tarsalis*).

Brues, Ann. South African Mus., vol. 19, p. 86.

*erythropus* Cameron . . . . . Transvaal.

Ann. Transvaal Mus., vol. 2, p. 205 (1911).

*iridipennis* Cameron . . . . . Mozambique.

Rec. Albany Mus., Grahamstown, vol. 1, p. 158 (1905) (*Xanthomicrodus*).

Brues, Ann. South African Mus., vol. 19, p. 86.

*lutea* Brullé . . . . . Equatorial & Southern Africa.

Hist. Nat. Ins. Hymen., vol. 4, p. 306 (1846) (*Agathis*).

Szépligeti, Mitt. Zool. Mus. Berlin, vol. 7, p. 214 (1914).

Brues, Ann. South African Mus., vol. 19, p. 86.

*nataliensis* Szépligeti . . . . . Natal; S. Rhodesia.

Termes. Fuzetek, vol. 25, p. 71 (1902).

Brues, Ann. South African Mus., vol. 19, p. 86.

*pedalis* Brues . . . . . Cape Province.

Ann. South African Mus., vol. 19, p. 85.

*picturata* Brues . . . . . Transvaal.

Ann. South African Mus., vol. 19, p. 84.

*rufa* Cameron . . . . . Transvaal.

Ann. South African Mus., vol. 5, p. 38 (1905).

*testacea* Cameron. . . . . Southern Cape Province.

Ann. South African Mus., vol. 5, p. 38 (1905).

SPILOMICRODUS, Cameron.

Timehri, Journ. Roy. Agric. Soc., British Guiana, vol. 1, p. 323 (1911).

Bradley, Psyche, vol. 23, p. 140 (1916).

- curvinervis* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 205 (1911) (*Crassomicrodus*).

## CRASSOMICRODUS, Ashmead.

- Proc. U. S. Nat. Mus., vol. 23, p. 128 (1900).  
*pumilus* Szépligeti . . . . . Transvaal.  
Ent. Mitt., vol. 2, p. 385 (1913) (*Epimicrodus*).

## TROTICUS Brullé.

- Hist. Nat. Ins. Hymén., vol. 4, p. 508 (1846).  
*ovatus* Brullé . . . . . Cape Province.  
Hist. Nat. Ins. Hymén., vol. 4, p. 509 (1846).

## EUAGATHIS, Szépligeti.

- Term. Füzetek, vol. 23, p. 62 (1900).  
*terebrator* Brues . . . . . Natal.  
Ann. South African Mus., vol. 19, p. 86.

## BRAUNSLIA, Kriechbaumer.

- Berliner Ent. Zeit., vol. 39, p. 62 (1894).  
*excelsa* Brues . . . . . Durban, Natal.  
Ann. South African Mus., vol. 19, p. 89.  
*fenestrata* Kriechbaumer . . . . . Natal; Seychelles.  
Berliner Ent. Zeit., vol. 39, p. 310 (1894).  
Cameron, Percy Sladen Tr. Exped., vol. 4, p. 83 (1907) (*melanoptera*).  
Brues, Ann. South African Mus., vol. 19, p. 88.  
*mimetica* Brues . . . . . Durban, Natal.  
Ann. South African Mus., vol. 19, p. 88.

## CREMNOPS, Auct.

- See note on p. 90 regarding this name.  
*obsolescens* Brues . . . . . Zululand.  
Ann. South African Mus., vol. 19, p. 91.  
*zululandensis* Brues . . . . . Zululand.  
Ann. South African Mus., vol. 19, p. 90.

## MEGAGATHIS Kriechbaumer.

- Berliner Ent. Zeit., vol. 39, p. 311 (1894).  
*nataliensis* Kriechbaumer . . . . . Natal; Zululand.  
Berliner Ent. Zeit., vol. 39, p. 312 (1894).

## AGATHIS, Latreille.

- Hist. Crust. et Ins., vol. 13, p. 175 (1805).  
*? capensis* Cameron . . . . . Cape Town.  
Ann. South African Mus., vol. 5, p. 37 (1906).  
*dichroa* Brullé = *Disophrys dichroa*.

MESOAGATHIS, Cameron.

Rec. Albany Mus., vol. 1, p. 172 (1905).

*fuscipennis* Cameron . . . . . Southern Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 172 (1905).

APANTELES, Foerster.

Verh. naturh. Ver. Preuss. Rheinlande, vol. 19, p. 245 (1862).

*africanus* Cameron = *cameroni*.

*africanus* Viereck (*Protapanteles*) . . . . . Transvaal.  
Proc. U. S. Nat. Mus., vol. 40, p. 174 (April 1911).

*basimacula* Cameron . . . . . Southern Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 173 (1905).  
Cameron, Ann. South African Mus., vol. 5, p. 204 (1907).

*cameroni* nom. nov.

*africanus* Cameron, non Viereck.

Cameron Ann. Transvaal Mus., vol. 2, p. 207 (January, 1911<sup>1</sup>).

*capensis* Cameron . . . . . Cape Town.  
Ann. South African Mus., vol. 5, p. 203 (1907).

*eurygaster* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 207 (1911).

*fuscinervis* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 207 (1911).

*maculitarsis* Cameron . . . . . Southern Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 173 (1905).

*testaceiventris* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 208 (1911) (*testaceioventris*).

*transvaalensis* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 208 (1911).

STENOPLEURA, Viereck.

Proc. U. S. Nat. Mus., vol. 40, p. 187 (1911).

*sesamiae* Cameron . . . . . Southern Africa.  
Trans. South African Philos. Soc., vol. 16, p. 335 (1906) (*Apanteles*).  
Viereck, Proc. U. S. Nat. Mus., vol. 40, p. 188 (1911).

UROGASTER, Ashmead.

Proc. U. S. Nat. Mus., vol. 23, p. 132 (1900).

*fuscicornis* Cameron . . . . . Cape Province.  
Zeits. Naturwiss., vol. 81, p. 449 (1909).

CARDIOCHILES, Nees.

Hymen. Ichneum. Affin., vol. 1, p. 224 (1834).

Cameron, Rec. Albany Mus., Grahamstown, vol. 1, p. 169 (1905) (*Schönlandella*).

<sup>1</sup>) Although the date is given as January, it was undoubtedly later than the paper by Viereck, who used the same name for another species, since this number of the Annals of the Transvaal Museum was not received in Boston till August 1911.

- angustifrons* Brues . . . . . Natal.  
Ann. South African Mus., vol. 19, p. 94.
- forticarinatus* Cameron . . . . . E. Cape Province.  
Zeits. Naturwiss., vol. 81, p. 445 (1909).
- fossatus* Brues . . . . . Natal.  
Ann. South African Mus., vol. 19, p. 97.
- fulviventris* Cameron . . . . . Cape Province.  
Ann. South African Mus., vol. 5, p. 40 (1906) (*Schönlandella*).  
Cameron, Trans. South African Philos. Soc., vol. 16, p. 331 (1906).  
Brues, Ann. South African Mus., vol. 19, p.
- latifrons* Brues . . . . . Kimberley.  
Ann. South African Mus., vol. 19, p. 93.
- longipennis* Brues . . . . . Zululand.  
Ann. South African Mus., vol. 19, p. 98.
- nigricollis* Cameron . . . . . Southern Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 171 (1905) (*Schönlandella*).  
Cameron, Trans. South African Philos. Soc., vol. 16, p. 331 (1906).
- nigromaculatus* Cameron . . . . . Southern Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 170 (1905) (*Schönlandella*).  
Cameron, Trans. South African Philos. Soc., vol. 16, p. 331 (1906).
- nitidus* Brues . . . . . Namaqualand.  
Ann. South African Mus., vol. 19, p. 96.
- rufomaculatus* Cameron . . . . . E. Cape Province.  
Zeits. Naturwiss., vol. 81, p. 446 (1909).
- striatus* Brues . . . . . Transvaal; Cape Province.  
Ann. South African Mus., vol. 19, p. 95.
- testaceus* Cameron = *testaceipes*.
- testaceipes* Cameron . . . . . S. Rhodesia.  
Ann. South African Mus., vol. 5, p. 39 (1906) (*Schönlandella testacea*).  
Cameron, Trans. South African Philos. Soc., vol. 16, p. 331 (1906).
- trimaculatus* Cameron . . . . . Southern Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 171 (*Schönlandella*).  
Cameron, Trans. South African Philos. Soc., vol. 16, p. 331 (1906).  
Szépligeti, Mitt. Zool. Mus., Berlin, vol. 7, p. 221 (1914).

## MACROCENTRUS, Curtis.

- Entom. Mag., vol. 1, p. 187 (1833).
- annulicornis* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 211 (1911).
- capensis* Cameron . . . . . Cape Province.  
Ann. South African Mus., vol. 5, p. 30 (1906).  
Brues, Ann. South African Mus., vol. 19, p. 63.
- latisulcatus* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 210 (1911).
- luteus* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 210 (1911).

- nigroornatus* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 211 (1911).  
*pallidistigma* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 210 (1911) (*pallidistigmas*).

METEORUS, Holiday.

- Entom. Mag., vol. 3, p. 24 (1835).  
*trilineatus* Cameron . . . . . Southern Cape Province.  
Rec. Albany Mus., Grahamstown, vol. 1, p. 242 (1905).

HELORIMORPHA, Schmiedeknecht.

- Hymen. Mitteleuropas, p. 523 (1907).  
Cameron, Soc. Entom., Jahrg. 24, p. 9 (1909) (*Stictometeorus*).  
*africana* Brues . . . . . Zululand.  
Ann. South African Mus., vol. 19, p. 101.  
*rufa* Cameron . . . . . Cape Province.  
Soc. Entom., Jahrg. 24, p. 9 (1909) (*Stictometeorus*).  
Brues, Ann. South African Mus., vol. 19, p. 101.

PERILITUS, Nees.

- Nov. Act. Acad. Nat. Curios., vol. 9, p. 302 (1818).  
*angustatus* Brues . . . . . Southern Cape Province.  
Ann. South African Mus., vol. 19, p. 104.  
*latus* Brues . . . . . Southern Eastern Cape Province.  
Ann. South African Mus., vol. 19, p. 104.  
*ruficollis* Cameron . . . . . Southern Cape Province.  
Ann. South African Mus., vol. 5, p. 29 (1906).

FÖRSTERIA, Szépligeti.

- Wiener Ent. Zeit., vol. 15, p. 148 (1896).  
*nitida* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 204 (1911).

PHANEROTOMA, Wesmael.

- Nov. Mem. Acad. Sci. Belgique, vol. 11, p. 165 (1838).  
*curvicarinata* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 204 (1911).  
*curvimaculata* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 203 (1911).  
*dubia* Bingham . . . . . Mashonaland.  
Trans. Ent. Soc. London, p. 546, pl. 18, fig. 69 (1902).  
*pallidipes* Cameron . . . . . Transvaal.  
Ann. Transvaal Mus., vol. 2, p. 203 (1911).

CHELONELLA, Szépligeti.

- Ann. Mus. Nat. Hungarici, vol. 6, p. 403 (1908).

- curvimaculata* Cameron . . . . . Cape Town; S. Rhodesia.  
 Ann. South African Mus., vol. 5, p. 34 (1906) (*Chelonus*).  
 Brues, Ann. South African Mus., vol. 19, p. 105.

## CHELONUS, Panzer.

- Krit. Rev., vol. 2, p. 99 (1806).  
*capensis* Cameron . . . . . Cape Province.  
 Zeits. Naturwiss., vol. 81, p. 440 (1909).  
*erythropus* Cameron . . . . . Cape Town.  
 Ann. South African Mus., vol. 5, p. 33 (1906).  
*robertianus* Cameron . . . . . Southern Cape Province.  
 Rec. Albany Mus., vol. 1, p. 110 (1904).  
*rufoscapus* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., vol. 2, p. 200 (1911).  
*vaalensis* Cameron . . . . . Transvaal.  
 Ann. South African Mus., vol. 5, p. 34 (1906).

## ASCOGASTER, Wesmael.

- Nov. Mem. Acad. Sci. Bruxelles, vol. 9, p. 226 (1835).  
*bipustulata* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19, p. 105.

## MINANGA, Cameron.

- Ann. South African Mus., vol. 5, p. 30 (1906).  
 Brues, Ann. South African Mus., vol. 19, p. 106.  
*bimaculata* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., vol. 2, p. 202 (1911).  
*flavipes* Cameron . . . . . Cape Province.  
 Zeits. Naturwiss., vol. 81, p. 437 (1909).  
*serrata* Cameron . . . . . Southern Cape Province.  
 Ann. South African Mus., vol. 5, p. 31 (1906).

## ESENGA, Cameron.

- Ann. South African Mus., vol. 5, p. 36 (1906).  
*ovata* Cameron . . . . . Cape Province.  
 Ann. South African Mus., vol. 5, p. 36 (1906).

## PACHYCHELONUS Brues.

- fulviventris* Brues . . . . . N. Rhodesia.  
 Ann. South African Mus., vol. 19, p. 107.

## ODONTOSPAEROPYX, Cameron.

- Zeits. Naturwiss., vol. 81, p. 436 (1908).  
*ruficeps* Cameron . . . . . Cape Province.  
 Zeits. Naturwiss., vol. 81, p. 346 (1909).

TRIGASTROTHERCA, Cameron.

- Ann. South African Mus., vol. 5, p. 32 (1906).  
 Brues, Ann. South Mus., vol. 19, p. 109.  
*nigricornis* Cameron . . . . . Cape Province.  
 Zeits. Naturwiss., vol. 81, p. 439 (1909).  
*trilobata* Cameron . . . . . S. Rhodesia.  
 Ann. South African Mus., vol. 5, p. 32 (1906).

SIGALPHUS, Latreille.

- Hist. Nat. Crust. Ins., vol. 3, p. 327 (1802).  
*daci* Szépligeti . . . . . Transvaal.  
 Boll. Lab. Zool. Gen. Agrar., Portici, vol. 5, p. 223 (1911).  
 Silvestri, Boll. Lab. Zool. Gen. Agrar., Portici, vol. 8, p. 121 (1914).  
*simplicifrons* Brues . . . . . Transvaal.  
 Ann. South African Mus., vol. 19, p. 109.

FAMILY ALYSIIDAE,

HERATREMIS, Walker.

- Ann. Mag. Nat. Hist., ser. 3, vol. 5, p. 310 (1860).  
*longicornis* Brues . . . . . Zululand.  
 Ann. South African Mus., vol. 19, p. 112.

APHAERETA.

- Verh. naturh. Ver. preuss. Rheinlande, vol. 19, p. 264 (1862).  
*sarcophagae* Bridwell . . . . . Cape Town.  
 Proc. Hawaiian Ent. Soc., vol. 4, p. 177 (1919).

PHAENOCARPA, Förster.

- Verh. naturf. Ver. preuss. Rheinlande, vol. 19, p. 267 (1862).  
*? testaceipes* Cameron . . . . . Cape Province.  
 Zeits. Hym. Dipt. 1903, p. 343.

COELALYSIA, Cameron.

- Ann. Transvaal Mus., vol. 2, p. 212 (1911).  
 Turner, Bull. Entom. Res., vol. 8, p. 177 (1917).  
*lusoriae* Bridwell . . . . . Southern Cape Province.  
 Proc. Hawaiian Ent. Soc., vol. 4, p. 175 (1919).  
 Brues, Ann. South African Mus., vol. 19, p. 111.  
*lutea* Cameron . . . . . Transvaal.  
 Ann. Transvaal Mus., vol. 2, p. 212 (1911).

ALITHA, Cameron.

- Ann. South African Mus., vol. 5, p. 28 (1906).  
*longipennis* Cameron . . . . . Southern Cape Province.  
 Ann. South African Mus., vol. 5, p. 28 (1906).

## HOLCALYSIA Cameron.

- Entom., vol. 38, p. 268 (1905).  
*testaceipes* Cameron . . . . . Cape Province.  
 Entom., vol. 38, p. 269 (1905).

## FAMILY PLUMARIIDAE.

## MYRMECOPTERINA, Bischoff.

- flicornis* Bischoff . . . . . Bushmanland; S. W. Africa.  
 Entom. Rundschau Jahrb. 31, p. 68 (1914).  
 Brues, Ann. South African Mus. vol. 19, p. 115.  
*minor* Brues. . . . . Vryburg, Cape Province.  
 Ann. South African Mus., vol. 19, p. 116.
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2. — *South African Megaloptera.* — By P. EBSSEN—PETERSEN.

By the kindness of Dr. L. Péringuey, South African Museum, I have been enabled to examine some material of Megaloptera from South Africa, and in the following pages I give the result of my investigations. Only little is known about the Megalopterous fauna of Africa, and only few species are known from that part of the world. In 1867 Mac Lachlan described *Chauliodes pusillus* (loc. inc.), in 1869 the same author described *Chauliodes tenuis* from Knysna district, and in 1920 I described *Leptosialis africana* from the Winterhoek Mountains.

At present the following species are known:

FAM. SIALIDAE.

SUB-FAM. CORYDALINAE.

TRIBE NEUROMINI.

CHLORONIELLA PÉRINGUEYI, n. g. & n. sp.

TRIBE CHAULIODINI.

TÆNIOCHAULIODES OCHRACEOPENNIS, n. g. & n. sp.

PLATYCHAULIODES PUSILLUS (Mac Lachlan).

LEPTOCHAULIODES TENUIS (Mac Lachlan).

SUB-FAM. SIALIDINI.

LEPTOSIALIS AFRICANA Esb.—Peters.

I have here followed Weele as to the systematical arrangement and with regard to the terminology of the anal appendages of the male.

CHLORONIELLA, n. g.

Head oblong, eyes prominent, sides of head behind the eyes with a triangular, tooth-shaped dilatation. Antennae as long as three fourths of the length of forewing, serrate (only the male sex is known).

Wings rather elongate and with rounded apices. Between *R* and *Rs* three crossveins. *Rs* with four branches. Most of the crossveins in the disc of forewings thickened in their middle part. Anal appendages of the male consist of a pair of upper appendages, of a pair of lower appendages and of a broad genital valve.

Genotype: *CHLORONIELLA PÉRINGUEYI*, n. sp.

As to the venation of the wings this genus is nearly allied to the American genus *Chloronia* Banks; but with regard to the form of

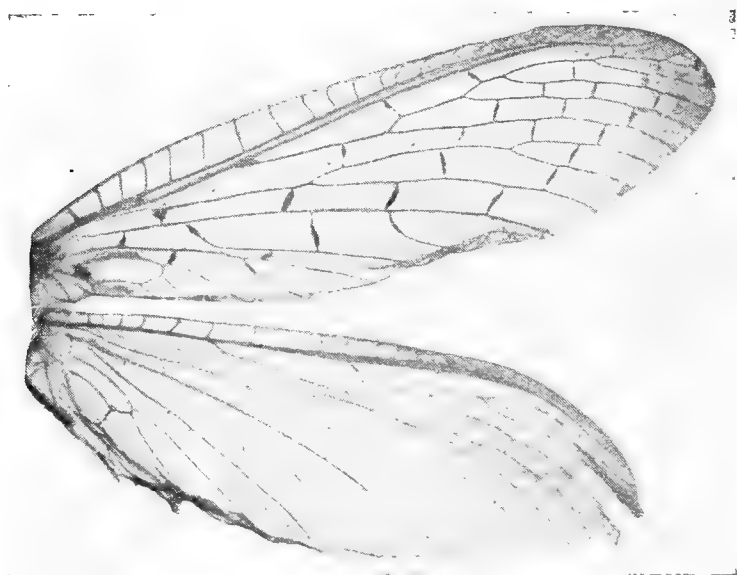


Fig. 1. *Chloroniella péringueyi* ♂.

anal appendages in the male the genus has more likeness to the East-Asiatic genus *Protohermes* Weele.

The small number of branches from *Rs* and the peculiar shape of the dilatation on the side of the head give the genus an outstanding position among the *Neuromini*.

*CHLORONIELLA PÉRINGUEYI*, n. sp.

Head pale brownish yellow. A blackish brown spot between the insertion of the antennae; ocelli blackish brown. On the vertex a somewhat impressed longitudinal median line. At each side of the vertex a longitudinal jet black streak. Antennae pale greyish brown becoming darker towards apex; basal joint brown, shining. Prothorax one and a half times longer than broad, pale yellowish brown, with a jet black longitudinal streak at each side near the lateral margin. Meso- and metathorax pale yellowish brown with a darker spot at

the base of each wing. Abdomen pale brown; underside of thorax and abdomen yellowish brown. Legs—yellowish brown. Anal appendages pale brown with short whitish hairs. Upper appendages, seen from above, obtuse conical, seen from below, cup-shaped; the lower appendages claw-shaped; the genital valve very broad with a prolongation at each angle and with a semicircular rounded hind margin, which is incised in its middle. Wings hyaline. Venation pale brown.

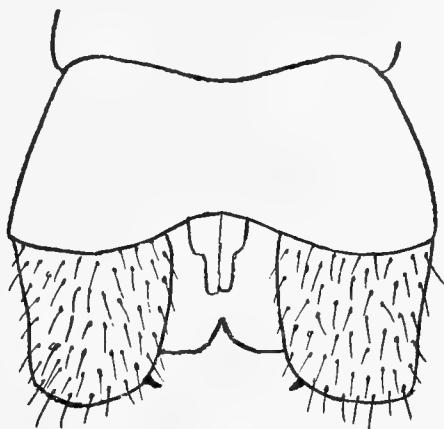


Fig. 2. *Chloroniella péringueyi*.  
Dorsal view of anal appendages of ♂.

Some crossveins in the disc of the forewing either totally or partly black. At the origin of *Rs* in the forewing a blackish spot.

Forewing 33 mm.; hindwing 30 mm.

1 ♂ Stellenbosch, 9 XI 1920, Ch. K. Brain leg. Witte River, Wellington, Cape, XII, 1922, R. F. Lawrence. (South African Museum).

I have much pleasure in dedicating this very interesting species to Dr. L. Péringuey, who has done so much for our present knowledge of the South African insect fauna.

#### TÆNIOCHAULIODES, n. g.

Head elongate, narrowed behind; the ocelli placed rather close together. Antennae setaceous. Wings broadened towards apex, which is rather acute. Membrane of forewing with strongly yellowish brown tinge and rather indistinct greyish brown spots arranged somewhat in transverse bands. Costal area rather broad; most of costal crossveins curved in a peculiar manner. *Rs* with four branches. *M*<sub>2</sub> in the forewing forked. *2A* forked, and its first branch coalesces with *1A* for some distance. The upper appendages of male pale brown, short and stout, their tips strongly ob-

tuse, blackish and provided with short blackish hairs, curved downwards and inwards. The genital valve rather broad and with rounded angles.

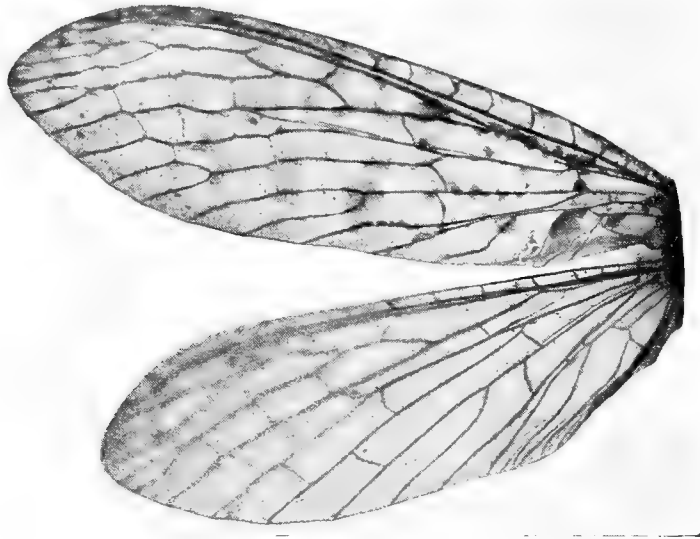


Fig. 3. *Tæniochauliodes ochraceopennis* ♂.

Genotype: *TÆNIOCHAULIODES OCHRACEOPENNIS*.

As to the shape of anal appendages of the male this genus seems to be nearest to the South American genus *Protochauliodes*. An interesting feature is the forking of  $M_2$  in the forewing.

*TÆNIOCHAULIODES OCHRACEOPENNIS*, n. sp.

Head brown; the ocelli placed in a somewhat darker spot; the ocelli brownish, each of them surrounded by a circle of short

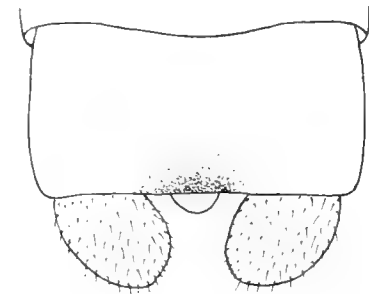


Fig. 4. *Tæniochaulioaes ochraceopvnnis*.  
Dorsal view of anal appendages of ♂. n. g. & n. sp.

whitish hairs. Hind part of head with a longitudinal impressed median line and with several somewhat elevated figures. Antennae

48-jointed, as long as three fourths of the length of forewing, brown, with short pubescence; second joint with narrow black ring at its apex. Prothorax brown, somewhat darker towards the sides, one and a half times as long as broad; the posterior half with a longitudinal impressed median line, the front half with a longitudinal median keel. Meso- and metathorax and abdomen brown with very short pubescence. Legs and underside of thorax and abdomen pale brown, tips of tibiae and of tarsal joints blackish. Membrane of forewings yellowish brown; venation yellowish brown with dark brown streaks, which are broadly shaded with brownish. Some of these shadows form rather distinct spots. Several of the crossveins in the apical part very pale. Costal area rather broad; 20–22 costal crossveins. Membrane of hindwings hyaline and with faint yellowish tinge. Venation pale brownish yellow. Costal area narrow and with 17–19 cross veins. In the forewing three chitinous dots are found in the area between *Rs* and *M*, in the hindwing two dots are found in the same area.

Forewing 23 mm.; hindwing 21 mm.; body 21 mm.

One male, Oudebosch, Caledon Division, Cape. Jan. 1919, K. H. Barnard leg. (South African Museum).

PLATYCHAULIODES, n. g.

Head elongate. Ocelli rather small and placed far apart from

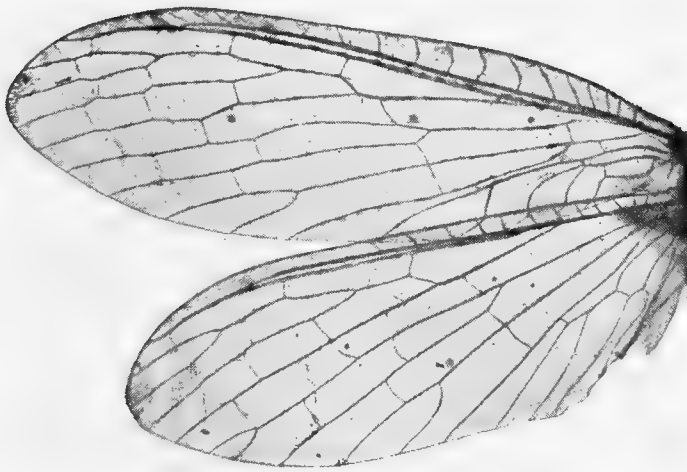


Fig. 5. *Platychauliodes pusillus* ♂.

each other. Antennae strongly serrate (only the male sex is known). Wings rather broad and with acute apex. Costal area in the

forewing rather broad.  $M_2$  unforked.  $2A$  in the forewing forked and connected with  $1A$  by a crossvein. Upper appendages rather short; genital valve of a peculiar shape and with two strongly raised and curved ridges.

Genotype: *CHAULIODES PUSILLUS*, Mac Lachlan.

I have at hand a male specimen from Paarl Cape Div., Octbr. 1919, Rev. G. Hawke leg. (South African Museum) and a specimen without abdomen, but with serate antennae, from the same locality and collected at the same time and by the same collector (presented to me by Dr. L. Péringuey).

The hitherto only known specimen of *Chauliodes pusillus* Mac Lachlan (Journ. Linn. Soc. Lond., 231, 1867; Ann. and Mag. Nat. Hist., 39, 1869) is the type-specimen, which is kept in the collection of the late Mac Lachlan. The locality was unknown, and Mac Lachlan supposed it to be from India. Later on Weele (Collections Selys. Megaloptera, 48, 1910) regarded the species to be

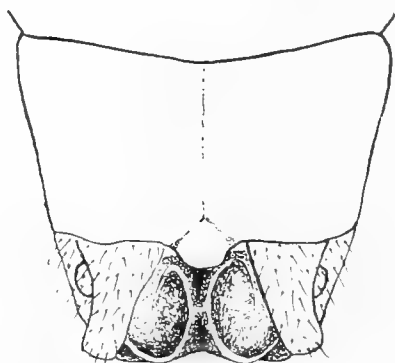


Fig. 6. *Platychauliodes pusillus*, Mac Lachlan.  
Dorsal view of anal appendages of ♂.

from South Africa, and he also placed *Chauliodes tenuis* Mac Lachlan (Ann. and Mag. Nat. Hist., 38, 1869) from Knysna district as a synonym of it.

I have compared the two above named specimens with the description of Mac Lachlan and with a photograph of the type-specimen, reproduced in Collect. Selys. Megaloptera, pl. IV, fig. 36, and I am inclined to consider the supposition of Weele as to the locality of that species to be correct. The two specimens agree exactly with the description and with the figure. There are, however, some differences as to the anal appendages, and I may say, that I am not able to understand the description of them given by Mac Lachlan. The type-specimen has lost its antennae. Weele placed *Chauliodes*

*pusillus* in the genus *Archichauliodes*, which genus besides *pusillus* contains *dubitans* Walker from New Zealand and *guttiferus* Walker from Australia. Especially on account of the serrate antennae and the different form of the anal appendages of the male the species has to be placed in its own genus. Costal crossveins in the forewing 21—22; in the hindwing 19—20.

LEPTOCHAULIODES, n. g.

Head oblong. Ocelli rather large. Antennae setaceous (sex undeterminable). Wings slender and with narrow costal area. In the forewing 2 *A* is forked, and its first branch coalesces with 1 *A* for some distance.

Genotype: *CHAULIODES TENUIS*, Mac Lachlan.

Ann. and Mag. Nat. Hist., 38, 1869; Weele, Collect. Selys.  
Megaloptera, 48, pl. III, fig. 28, 1910.

The type-specimen of this species is kept in the British Museum, and Mac Lachlan described it as a male. Weele, however, has seen

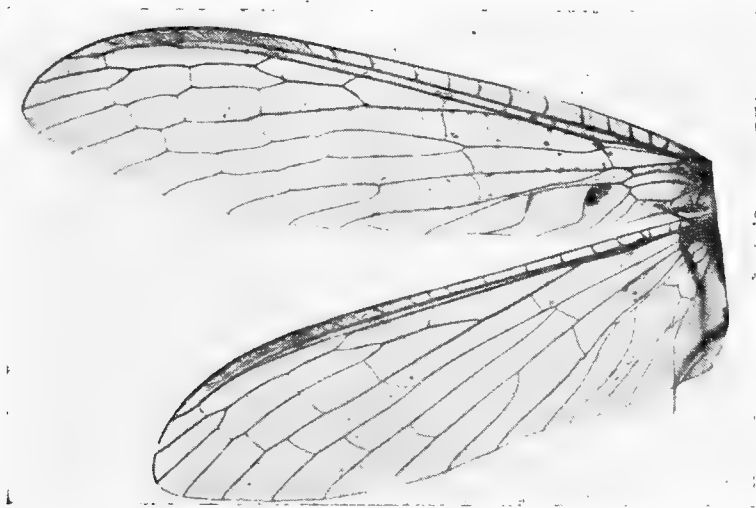


Fig. 7. *Leptochauliodes tenuis* ♂.

the type-specimen, and he considers it to be a female specimen. Amongst the material from South African Museum is a specimen of that species from Hottentot Hollands, Mts. 4000 ft. Caledon Div., Cape. Jan. 1916, K. H. Barnard leg. Its body is damaged by attack of insects, and therefore its sex is undeterminable.

The wings of the species are lanceolate and with rather acute apex. The membrane is hyaline, and the venation is brownish yellow with very short brown streaks, which are narrowly and faintly shaded with brownish. Near the base of the forewing a large brownish spot. The membrane of the wings is provided with numerous short dark bristles. Costal crossveins in the forewing 23—26; in the hindwing 22. With some hesitation Weele has placed the species in his genus *Archichauliodes*.



3. — *Some Mosquitos from Ovamboland, S. W. Africa, and from the Cape Province.* — By F. W. EDWARDS, F. E. S.

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The small collection of mosquitos here noted was sent to me for determination by Dr. L. Péringuey. The Ovamboland material was obtained during a trip made on behalf of the South African Museum by Mr. K. H. Barnard, assistant-director, in the early part of 1920. This material contained the following ten species, which were obtained at the localities mentioned: —

- Anopheles mauritanus, Grp. Sandup; Otjiverongo.
- A. squamosus, Theo. Namutoni.
- A. costalis, Theo. Otjiverongo; Namutoni.
- A. funestus, Giles. Namutoni.
- Mucidus scatophagoides, Theo. Nomtele; Ondongua.
- Aedes (Ochlerotatus) chelli, Edw. Nomtele; Namutoni; Andoni; Otjiverongo.
- A. (Ecculex) ochraceus, Theo. Ondongua; Nomtele; Otjiverongo.
- A. (E.) nigeriensis, Theo. Sandup.
- A. (Banksinella) lineatopennis, Ludlow. Otjiverongo.
- A. (Stegomyia) pseudonigeria, Theo. Otjiverongo.

AEDES CHELLI, Edw.

1915. Bull. Ent. Res. vol. 5, p. 277.

This is the most interesting species in the list and was present in the collection in some numbers. There was a slight difference from the type (described from British East Africa), the wings having more numerous pale scales, and the fourth hind tarsal segment being entirely dark. Most fortunately a male was collected, and this proves that the species belongs to the subgenus *Ochlerotatus*, and not to *Ecculex*, as might have been expected; the only other Ethiopian *Ochlerotatus* is the somewhat similar *A. fryeri*, Theo.

The male of *A. chelli* shows the following characters: — Palpi longer than the proboscis by nearly the length of the last segment, mostly black, with some scattered pale scales. Median pale stripe of abdomen confined to the last two segments (recalling the similar sexual difference to be found in *A. rusticus*, Rossi). Pale rings at the bases of the first two hind tarsal segments narrower than in the female, that on the third segment absent altogether. Hypopygium: Sidepieces with basal and apical lobes both very small, the former with a small and dense patch of hair but no spine, the latter practically bare. Clasper somewhat strap-like, broader before the middle, with long terminal spine (thus differing from *A. fryeri*). Claspette with short cylindrical stem, and long, slender, curved, slightly flattened and pale appendage. Lobes of ninth tergite prominent, each with three or four short bristles.

AEDES PSEUDONIGERIA, Theo.

1910. Monogr. Culicid, vol. 5, p. 166.

The two females of this species differ from the type in having the fifth hind tarsal segment black instead of white, but there are no other differences. Important diagnostic characters of this species are the absence of a white spot in the middle of the anterior surface of the mid femora, and the presence of small white spots on the under surface of the mid and hind tibiae, near but not reaching the base.

In addition to the Ovamboland material, a few specimens from the Cape Province were included. These proved of considerable scientific interest, there being no fewer than three new species represented, besides others which had not previously been recorded from the Cape. The species represented were the following: —

*Anopheles* (*Myzomyia*) *cinereus*, Theo. Montagu (Barnard).

*Aedes* (*Finlaya*) *barnardi*, sp. n. Oudebosch.

„ (*Ecculex*) *capensis*, sp. n. „

*Theobaldia* (*Allotheobaldia*) *longiareolata* (Macq.). Kimberley (Lightfoot).

*Culex* (*Culex*) *pipiens*, L. Stellenbosch (Péringuey).

„ „ *trifilatus*, Edw. Cape Town (Péringuey).

„ „ *tipuliformis*, Theo. Uitenhage (Barnard).

„ (*Neoculex*) *salisburyensis*, Theo. Oudebosch.

„ „ *péringueyi*, sp. n. Cape Town (Dawson).

This list includes two species which have been previously recorded from the Cape Province (*An. cinereus* and *T. longiareolata*). Apart from these nine, *Culex fatigans* has been recorded, but I am not aware of any other species which as yet are known to exist in the province. The mosquito fauna of this region is indeed less known than that of any other part of Africa, with the possible exception of Abyssinia.

ANOPHELES CINEREUS, Theo.

1901. Monogr. Culicid. vol. 1, p. 161.

The Cape specimens of this species differ slightly from the Rhodesian (type) form, and when more and better material is available they may possibly prove to be distinct. I think there can be scarcely a doubt that this is the species originally described by Loew from Caffraria as *A. costalis*, and that Theobald's interpretation of Loew's species, which is now widely known as *A. costalis*, is incorrect. Since, however, Loew's type appears to be lost, the confusion which a change in nomenclature would produce may perhaps be legitimately avoided. *A. costalis*, Theo, is not yet definitely known to occur in the Cape Province, though it quite probably does so.

AEDES (FINLAYA) BARNARDI, sp. n.

♀. *Head* clothed mostly with rather broad, pointed, close lying pale ochreous scales. Proboscis blue-black, slender, slightly longer than the front femora. Palpi blue-black, one-fifth as long as the proboscis, second segment one-third longer than the first. Tori ochreous. Eyes practically touching. *Thorax* with blackish integument, except for the scutellum, which is ochreous. Mesonotum clothed mostly with black scales, with five straight and rather sharply marked longitudinal lines of pale ochreous; median line forked a short distance in front of the scutellum; lateral lines occupying the margins, and composed of broader scales than the others, expanding into a rather large patch in front of each wing-base. Scutellum nearly bare; a few mixed light and dark scales on the mid lobe. Prothoracic lobes with flat whitish scales; pro-epimera with flat white scales below, narrow ones above; sternopleura and mesepimera rather densely clothed with flat white scales. *Abdomen* blue-black; tergites with rather small basal lateral white spots; sternites with broad white basal bands, narrowed in the middle. Eighth sternite rather small for the sub-genus, densely clothed with dark scales; cerci scarcely distinguishable. *Legs* blue black; front and mid femora

white beneath on the basal third; hind femora white all round on the basal half; mid and hind femora with a narrow white ring close to the tip, some dark scales actually at the tip; tibiae uniformly dark; front tarsi with a few white scales beneath at the bases of the first two segments; mid and hind tarsi with a narrow white ring at the base of the first segment, and a broader one, occupying rather more than half the segment, at the base of the second. *Wing-scales* uniformly blackish, outstanding ones ligulate; venation normal. Wing-length 4.5 mm.

Caledon division: Oudebosch, 1500 ft. Jan. 1919. 5 ♀♀ (cotypes).

The only other Ethiopian species of the subgenus *Finlaya* are *A. longipalpis*, Grünberg, *A. fulgens*, Edw., *A. wellmani*, Theo., and perhaps *A. fuscipalpis*, Edw. The new species is very distinct from all of those in its thoracic ornamentation, but agrees in leg-markings with *A. wellmani*, to which it is obviously not distantly related.

#### AEDES (ECCULEX) CAPENSIS, sp. n.

Close to *A. (E.) marshalli*, Theo., differing as follows: — Silvery scales on anterior lateral margins of mesonotum forming a narrow line extending from almost the middle line in front to the scutal angle (in *A. marshalli* these scales form a shorter and broader patch); no white pre-apical spots on any of the femora.

Caledon Division: Oudebosch, 1500 ft. Jan. 1919. 3 ♀♀ (cotypes).

The specimens are in bad condition, and a full description cannot be given, but the above diagnosis will be sufficient to distinguish the species. From the nearly allied *R. apicoannulatus*, Edw., and *A. simulans*, N. & C., the new species differs in having (like *A. marshalli*) a pair of small round spots in the middle of the mesonotum composed of flat silvery scales.

#### CULEX (NEOCULEX) PÉRINGUEYI, sp. n.

♂. *Head* somewhat damaged; apparently covered mainly with narrow curved white scales. Proboscis black-scaled, unusually long for a *Culex*, nearly one-third longer than the front femora. Palpi slender, black scaled, about one-fourth shorter than the proboscis, almost devoid of hairs, penultimate segment rather longer than the terminal. Flagellar joints (except the last two) each with a basal white ring, *Thorax* with uniformly dark brown integument; mesonotum covered with rather large light ochreous curved scales. Prothoracic lobes and proepimera with flat white scales; a small patch of flat white postspiracular scales; larger patches of similar scales

on the sternopleura and mesepimera; one lower mesepimeral bristle. *Abdomen* blackish scaled, the segments with narrow apical white bands. Hypopygium: Side-pieces much swollen at the base, with a patch of hair beneath; lobe rather deeply divided, proximal division with three long stout rods, two with slightly hooked tips, the third more flattened and rounded; distal division with three flattened plates, one longer and broader than the other two; no accessory bristles. Clasper nearly straight, but irregularly shaped, with a rounded postmedian prominence on the flexor surface, apical spine broad and blunt. Ninth tergite not lobed, with four short hairs in widely-separated pairs. Tenth tergite unusually well developed, proximal part broad and hairy, distal part narrower and bare. Tenth sternite without basal arm, and with only a few terminal spines, two or three of them longer than the rest, flattened and round-tipped. Mesosome of two simple, pointed, strongly chitinised lobes. *Legs* black; femora white beneath, hind femora also white laterally for four-fifths of their length; tips of femora narrowly but conspicuously white, those of all the tibiae black. First hind tarsal segment slightly longer than the tibia. *Wings* with dark brown scales, outstanding ones linear, rather long and dense. Upper fork-cell fully three times as long as its stem, its base considerably nearer the base of the wing than that of the lower. Wing-length 4.2 mm.

Cape Town, (*Dawson*). ♂,

This species is very distinct from the other known Ethiopian species of the group (*C. rima*, Theo., *C. rubinotus*, Theo., *C. kingianus*, Edw., and *C. salisburyensis*, Theo.) by the characters of the proboscis, palpi and hypopygium.

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4. — *The South African Nemestrinidae (Diptera) as represented in the South African Museum.* — By M. BEZZI.

Through the kindness of Dr. L. Péringuey, Director of the S. African Museum I have been able to study an interesting Collection of South African Nemestrinids on which this paper is based.

The Nemestrinidae form a small family of Diptera, easily distinguished by their very peculiar venation, the most striking feature of which is the so-called "diagonal vein".

There are about 160 species described from the whole World, and distributed among about 20 well established genera, mostly restricted to various zoological Regions. Only *Hermoneura*, *Rhynchocephalus* and *Atriadops* are seemingly represented in several regions of the Old and of the New World. To these living species must be added 6 fossil ones, 3 belonging to *Hermoncura*, while the other 3 are ascribed to peculiar extinct genera; of these last, only one, *Prohirmoneura* Handlirsch (1906), has been found in Europe, while the other, *Palembolus* Scudder (1878), and *Hirmoneurites* Cockerell (1910) are both from Florissant, Colorado, U. S. America.

Very little is known of the metamorphosis and the bionomics of these flies. No doubt they are parasitic upon other insects of various orders, as proved in the case of the European species *Hermoneura obscura* which attacks in an extraordinary manner the *Scarabaeid* beetle, *Rhizotrogus solstitialis*, and of the South American *Hermoneura exotica* which is said to lay its eggs in the nests of Bees of the gen. *Xylocopa*.

The adults are flower haunting flies, at least those with well developed mouth parts; and some of them are very like in their habits the *Bombyliidae* with which they may be confounded on superficial examination. The long or very long proboscis of some species is a proof of their adaptation for visiting some flowers with long, tubular perianth. Thus Westermann\*) has, as far back as 1821, described\*)

\* Ueber die Lebensweise der Insecten in Ostindien und am Cap. *German. Mag. Entom.*, IV, 1821, p. 411—427. Quoted also by Macquart (1840, pl. 13) and by Lichtwardt. (1910, p. 613).

the behaviour of *Megistorrhynchus longirostris* at the Cape, towards the flowers of a *Gladiolus*.

Professor Arias in his Monograph of the Spanish species (1913, p. 9-10) has given some details on the behaviour of *Nemestrinus aniassi*, which visits the flower-heads of the Composite plant *Onopordon acanthium* L., and on that of *Rhynchocephalus tauscheri* hovering near the flowers of the labiate plant *Marrubiana vulgare*, L. I have observed myself in 1895 in Calabria, South Italy, *Tallenia fasciata* on flower-heads of a species of *Carduus*; it was very common in June, and when sitting on the flowers, it was easily captured even by the hand; it very much resembles Bees of the gen. *Podalirius*. Other species seem likewise to mimic Aculeate *Hymenoptera* of the family *Apidae*, or related forms. The habits of the species with atrophied mouth parts are not known; and the same must be said of the widely spread Genus *Hermoneura*.

Most of the species are very rare; but this is probably due to the ignorance of their mode of life; thus *Hermoneura obscura*, an insect which is very rare in Europe (in more than 30 years I have never captured one), was once found by Prof. Handlirsch to be abundant in its natural habitat

The geographical distribution of the family is very interesting as was long ago pointed out by Osten-Sacken. Its members are denizens of warm, dry, almost rainless climates. South Africa is one of the regions in which they have found their home. It is curious to note that, while numerous species are known from Northern as well as from Southern Africa, almost none have been found to occur in the central parts of the Continent.

The South African forms are peculiar to the Region, and of 6 genera represented there, 4 are endemic including the very abundant genus *Prosoeca*. But the South African fauna is perhaps not well known as yet in this respect.

Wiedemann, (1818-1830) enumerates only 5 species, and Macquart (1840-1846) only 4. Loew, in 1860, catalogued and partly described as new 11 species. Schiner, in 1868, recorded 20 species, from the whole of Africa, but only the same number from the South; the main merit of this record is the important progress made in the inclusion of the South African species of *Nemestrinus* having no reticulate wings into a special genus *Prosoeca*.

The Catalogues of Bezzi (1906) and of Kertész (1909) both include 13 species; but a serious fault of both these Catalogues is that of not having recognised in its true sense the value of the Schinerian genus *Prosoeca*.

Finally, in 1910 Lichtwardt in his Monograph enumerates 23 species, + 2 not named, + one recorded by Miss Ricardo, but not determined, + the overlooked *macularis*, Wiedemann, and in 1920 he added five species to the S. African fauna.

The absence of the gen. *Hermoneura*, which is recorded from all parts of the World is very noteworthy. Very characteristic also is the absence of the gen. *Nemestrinus*, which is plentiful in North Africa and in the Mediterranean region.

For the recent literature on the family, the following works and papers may be consulted with profit.

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FAM. NEMESTRINIDAE.

*Key to the Genera.*

The *Nemestrinid* genera of the South African fauna are distinguished as follows:

- (6) 1. Proboscis and palpi not distinct; third antennal joint very short and with a simple style; wings with the ambient vein absent, with the auxilliary vein closely approximate to the first longitudinal vein, and with only 3 or 4 longitudinal veins present at apex below the first.
- (3) 2. No ocelli, at the apex of the wing; below the first vein, there are 4 other longitudinal veins (the 2nd, the 3rd and the two-branched 4th) all separated to the end and thus forming 5 posterior cells; 6th longitudinal vein two-branched, the lower branch dividing the exillary cell into two cells . . . . . *Atriadops*, Wand.
- (2) 3. Ocelli present; at the apex of the wing are 3 longitudinal veins only (the 2nd, the 3rd, and the simple 4th) below the first, thus forming only 3 or 4 posterior cells; 6th longitudinal vein simple, the axillary cell not being divided.
- (5) 4. Diagonal vein extended to the hind border of the wing; 4 posterior cells present; 2nd longitudinal vein united by a cross vein to the first, but wholly separated from the third; discoidal cell very narrow; anal cell open; hind border of the wings sinuous . . . . . *Nycterimyia*, Lichtw.
- (4) 5. Diagonal vein not extended to the hind border; 3 posterior cells only; second longitudinal vein not united by a cross vein with the first, but united with the 3rd before reaching the costa; discoidal cell broad; anal cell closed; hind border of the wings entire . . . . . *Symmictus*, Loew.
- (1) 6. Proboscis and palpi well developed, the former often long or very long; antennal style triarticulate and sharply separated at base from the rather elongate third antennal joint; wings with the ambient vein complete, with the auxiliary vein distant from the first and diverging from it at end, and with 5 longitudinal veins (the 2nd, the two-branched 3rd, and the two-branched 4th) present at apex below the first and thus always with 5 posterior developed cells; diagonal vein always extended to the hind border of the wing.
- (8) 7. No distinct alula; 6th longitudinal vein straight; 4th posterior cell provided with a long stalk at the base; wings of the male of a peculiar shape; eyes in the same sex closely approximate in front of the ocelli; ovipositor long. . . . . *Stenobasipteron*, Lichtw.
- (7) 8. Alula well developed; 6th longitudinal vein undulate; 4th posterior cell sessile at base; wings of male not specially shaped and eyes not so much approximate; ovipositor short.
- (10) 9. 6th longitudinal vein simple; apex of wings not reticulate; second longitudinal vein usually not united with the 3rd by a cross vein  
*Prosoeca*, Schin.

- (9) 10. 6th longitudinal vein forked, its lower branch dividing the axillary cell into 2 cells, apex of wings reticulate; 2nd longitudinal vein united by a cross vein to the upper branch of the third vein as in the gen. *Nemestrinus* . . . . . *Megistorrhynchus*, Macq.

### I. ATRIADOPS, Wandolleck, 1897.

Colax, Wiedemann.

Of this very interesting genus there is at present but a single african species known, recorded from various localities of the Ethiopian Region, from Abyssinia to the Cape and from the East to the West Coast.

ATRIADOPS VESPERTILIO, Loew 1858 (*africana*, Wandolleck 1897).

A very strange fly with inflated body and with a proportionally small head, distinguished by the chocolate colour of the abdomen, and by the fuscous, white and black spotted wings.

A single male specimen from Stella Bush, Durban, Natal, January 1915; Mfongosi, Zululand, May 1917; East London. Cape.

### II. NYCTERIMYIA, Lichtwardt, 1909.

This genus has a very peculiar venation, having 2 marginal and 2 submarginal cells; the 3rd longitudinal vein is forked, but there are 3 veins only at apex below the first one, because the upper branch of the cubital fork ends in the second longitudinal vein, being shaped as a cross vein, which divides the submarginal cell into 2. The basal one of these 2 cells is much broader than the very small discoidal cell; the 2 marginal cells are formed by the cross vein uniting the 2nd with the first longitudinal vein, and the apical one is half as long as the basal one. There are only 4 posterior cells, disposed on 2 lines.

The new species here recorded is a very important addition to the Ethiopian fauna, all the other species of the genus being known only from the Oriental said Australasian Regions. This new african species is not very different from the typical ones, the shape of the wings and the wing-pattern being very like those of *N. dohrni*, Wandolleck, (from Sumatra, Mafar and the Andaman Islands) and of *N. harni*, Lichtwardt (from Kuranda, N. Queensland).

NYCTERIMYIA CAPENSIS, sp. nov.

An elegant species, at once distinguished by the striking shape and pattern of the wings.

Type ♂, Stella Bush, Durban, Natal, January 1915. (H. W. Bell-Marley), already named as above by Dr. Villeneuve.

♂. Length of body 9 mm.; of a wing 11 mm.; of wing spread 26 mm.

Head flat, a little concave behind, about as broad as the thorax; it is reddish-brown, only the great ocellar tubercle being blackish. Eyes bare, very approximate in front of the ocelli, with the upper areolets much larger than the lower ones, which occupy only the inferior third of the eye and are sharply separated from the others. Frons elongate-triangular, gradually broadening forwards, entirely reddish-brown and clothed with reddish hairs; ocellar tubercle with darker hairs, while those of the occipital border are reddish. Face very deeply excavated in the middle with a rounded convexity of reddish colour, clothed with rather scarce and not very long, reddish hairs. Antennae very short, with the third joint rounded and smaller than the preceding one; they are pale yellowish like the rather thick style, which is twice as long as the antenna. Thorax short and broad, distinctly broader than long; it is opaque, reddish-brown, grey-dusted, with a brown longitudinal patch on each side from the humeri to beyond the middle, and in addition with a brown spot on the postalar calli; it is clothed with rather long, soft, reddish hairs which are denser on the pleurae and scarcer in front of the scutellum; above the root of the wings there are some dark coloured and bristle-like hairs. Scutellum swollen, rounded, dark reddish brown, clothed with long, erect, reddish hairs. Squamae rudimentary; halteres whitish, with a dark reddish tuft of hairs before them. Abdomen as broad, but twice as long as the thorax; it is reddish brown, opaque, but each segment has 2 rather shining, greyish, rounded spots in the middle, one on each side; the reddish hairs are more scattered and shorter than those of the thorax; venter reddish-grey, scarcely pilose; genitalia prominent, reddish brown, with a shining lower terminal lamella. Legs very short and entirely of a pale yellowish colour; front femora thicker than the others, and more densely pilose, their hairs being moreover darker than those on the remainder of the legs. Wings narrow and long, cuneate at base, the alulae being very narrow, almost linear; they have the fore border quite straight, while at the hind border there are 3 distinct, rounded projections; one just below the tip, which is therefore curved downwards, one at the end of the diagonal vein, and one at the end of the anal cell. The costa is bare, and ends at the tip of the 3rd longitudinal vein; the disposition of the veins is the same as in Wandolleek's fig. 8. The whole wing

is of an opaque reddish-brown colour, which becomes less intense towards the hind border; the fine, sharply defined, whitish-hyaline spots are shining with pearly sheen; the disposition of these spots is more like that of *dohrni* (Wandolleek's fig. 7), than that of *harni* (Lichtwardt's fig. 1). They are as follows: (1) a spot near the base of the axillary lobe, with the upper border rounded and the outer border concave, as in *horni*; but while in *horni* it is the upper corner of the spot which is more prolonged, in *capensis* we have the opposite case, the lower corner being the more prolonged one; (2) an ovate spot into the middle of the second basal cell, less developed than in *dohrni*, but much more developed than in *horni*; (3) a broad, double spot, which fill up broadly the middle of the first submarginal cell and is continued above and in front by a smaller spot, near the end of the first marginal cell; the shape of this spot is about the same as in *dohrni* and in *horni*, but the spot in *capensis* is less transverse; (4) a broad, perpendicular streak near the base of the 3rd and 4th posterior cells, extended about to the hind border of the wing; this spot is eminently characteristic of the present species, being in *dohrni* and in *horni* indicated only by the small rounded spot near the base of the 3rd posterior cell; (5) a transverse streak near the tip of the first posterior cell in contact with the 3rd longitudinal vein; this is the second or apical one of the two corresponding streaks of *dohrni* and of *horni*, the first or basal one being quite wanting or only indicated by a small subhyaline dot which is surrounded by darker parts.

### III. SYMMICTUS, Loew, 1858.

According to Lichtwardt and in opposition to Arias, I assume here the present genus to be distinct from the Mediterranean *Dicrotrypana*, Bigot.

#### SYMMICTUS COSTATUS, Loew, 1858.

A very distinct species on account of its peculiar venation.  
Originally described from Caffraria, but never found subsequently.

### IV. STENOBASIPTERON, Lichtwardt, 1910.

This peculiar South African genus is very distinct in the male sex; but the long and cuneate wings, which are destitute of alulae, and

chiefly the stalked 4th posterior cell will help very well to recognise even the female.

The known species may be distinguished as follows.

- (4) 1. Wings much longer than the body, with the axillary vein hardly distinguishable not chitinised, straight; antennae entirely yellowish; frons of the female much narrower than one eye.
- (3) 2. Proboscis longer than the body; first basal cell with a "bulla" near the base of the 2nd longitudinal vein; large size (17 mm.)  
*wiedemanni*, Lichtw.
- (2) 3. Proboscis shorter than the body; no such "bulla" at base of the 2nd vein; middle size (13 mm.) . . . . .  
*gracile*, Lichtw.
- (1) 4. Wings only a little longer than the body, with a short but chitinised axillary vein which is moreover bent at an angle in the middle; 3rd antennal joint black; frons of the female only a little narrower than one eye; proboscis shorter than the body; no "bulla" at base of the 2nd vein; small size (7 mm.) . . . . .  
*minimum*, sp. nov.

STENOBASIPTERON WIEDEMANNI, Lichtwardt, 1910.

Originally described from the Cape, and from Natal. Seymour, Cape, November 1885 (W. C. Scully); M'fongosi, Zululand, March 1917 (W. E. Jones); Port Alfred, Cape.

STENOBASIPTERON GRACILE, Lichtwardt, 1910.

Originally described from Mashonaland, S. Rhodesia, and not captured subsequently.

STENOBASIPTERON MINIMUM, sp. nov.

A small species, being even the smallest South African Nemestrinid at present known; easily distinguished on account of the peculiar axillary vein, of the short proboscis and of the black third antennal joint.

Type ♀, a single specimen from Cape Town, Table Mountain, February 1919 (R. W. E. Tucker).

♀. Length of the body 7 mm.; of the proboscis 4.5 mm.; of a wing 7.5 mm.

Head entirely blackish-brown, only the middle of the face being narrowly reddish. The frons is much broader and much shorter than in the two preceding species; it is parallel-sided and only a little longer than broad, being only a little narrower than one eye; it is divided in the middle by a transverse furrow, which is bare, while the ocellar half is clothed with erect, dense and long hairs of a red-

dish colour with a dark end, and the supra-antennal half is clothed with shorter and more yellowish hairs. The ocelli are very small and much apart from each other, disposed on an equilateral triangle, the anterior one being of a not larger size. Face more shining than the frons, clothed with yellowish hairs, like those of the beard. Antennae with the two basal joints red, clothed with yellowish hairs; first joint about twice as long as the second; third joint of a deep black colour, regularly conical, about as long as the two first joints together; arista of a deep black colour, as long as the whole antenna, with the basal joints well developed. Palpi reddish, narrowly black at end; proboscis intensely black, a little longer than the half of the body. Thorax and scutellum blackish-brown, grey-dusted, rather opaque; the back has two less distinct, dark reddish, longitudinal stripes; they are clothed with erect, rather dense, reddish yellow hairs; pleurae more densely grey-dusted, with more yellowish hairs, chiefly those of the meso-pleural tuft. Squamulae and halteres pale yellowish. Abdomen reddish brown towards the sides and the hind border of the segments, brownish on the middle, with a shining black longitudinal stripe which is however less marked; it is clothed with rather short yellow hairs, which on the sides are of a golden colour; venter reddish-yellow; ovipositor blackish brown, with black terminal lamellae. Legs entirely reddish, rather shining, with scarce, pale yellowish hairs. Wings about as long as the body and thus much shorter than those of the two preceding species; they are therefore less distinctly stalked at base, the alulae being however exceedingly narrow; they are uniformly and faintly infuscated, being yellowish along the fore border from the base to the end of the costal cell. The veins are reddish basally, and infuscated apically. The venation is normal for the genus; the basal stalk of the 4th posterior cell is as long as the apical cross vein of the 2nd basal cell; the axillary vein is very short but strong, bent at an angle in the middle and directed towards the hind border of the wing.

#### V. PROSOECA, Schin. 1867.

This is the most characteristic genus of the fauna, being essentially South African and comprising 75% of all the known Neme-strinids of the Region. The species are in some cases very difficult to distinguish; but there are among them some very peculiar and very distinct forms as shown in the Key.

*Key to Species.*

1. (2) Upper branch of the cubital fork united by a cross vein with the second longitudinal vein; all the longitudinal veins upturned at end; proboscis more than twice as long as the body; wings with a conspicuous pattern  
*péringueyi*, Lichtw.
2. (1) Upper branch of the cubital fork not united with the second vein.
3. (14) Proboscis slender and longer than the body, usually twice as long and even longer; all the longitudinal veins at apex of wing with upturned ends.
4. (7) Wings with the median part of the cells infuscated, the veins appearing thus somewhat edged with yellowish borders.
5. (6) Abdomen uniformly black, with the hind borders of the segments clothed with yellow hairs . . . . . *longirostris*, Macq.
6. (5) Abdomen greyish with a peculiar brown pattern . *ganglbaueri*, Lichtw.
7. (4) Wing-veins not bordered with yellowish.
8. (9) A mostly reddish species, with slightly infuscated wings, which have a reddish costal stripe; back of thorax with three black longitudinal stripes  
*rubicunda*, n. sp.
9. (8) A mostly blackish or dark grey species; thorax not so striped.
10. (11) Abdomen black, rather shining, with the hind borders of the segments reddish-brown and whitish-tomentose; species of smaller size  
*nitidula*, n. sp.
11. (10) Abdomen greyish, opaque, with the hind half of the middle segments deeper black; species of larger size.
12. (13) Wings infuscated along the fore border; abdomen with a distinct pattern; femora entirely reddish; proboscis twice as long as the body  
*longipennis*, Loew.
13. (12) Wings not infuscated at fore border; abdomen without distinct pattern; femora blackish; proboscis less elongated . . . . . *robusta*, n. sp.
14. (3) Proboscis thicker, sometimes very robust, and shorter than the body, or at most as long.
15. (54) The two terminal branches of the fourth vein are not united together with cross veins; the tuft at the root of the wings is typically white.
16. (41) All the longitudinal veins at apex of wing are turned up at end.
17. (26) Robust species of greater size; proboscis only a little shorter than the body, or as long, only in one case not longer than the pectus.
18. (25) Proboscis longer than the pectus, usually about as long as the body.
19. (24) Hind legs usually entirely red, with not specially thickened and not intensively black tibiae.
20. (21) Wings greyish hyaline, with a faint yellowish tint at base and along the fore border; femora broadly black; scutellum black . . . *major*, n. sp.
21. (20) Wings brownish or yellowish, with a distinct coloration; femora entirely red; scutellum reddish.
22. (23) Abdomen reddish brown, with a row of rounded black spots along the middle . . . . . *willowmorensis*, Lichtw.
23. (22) Abdomen black, concolorous, not spotted . . . . . *flavipennis*, Lichtw.
24. (19) Hind legs entirely of a deep black colour, with the tibiae distinctly thickened, chiefly in the male, owing to the dense and short black ciliation

- a (b)* Proboscis rather slender and longer than the thorax: *lata*, Lichtw.  
*b (a)* Proboscis thick, as long as the thorax or nearly so:  
*c (d)* Hairs of the underside of head and thorax white *beckeri*, Lichtw.  
*d (c)* Hairs of the underside of head and thorax a of right fulvous colour  
*ignita*, n. sp.
26. (17) Less robust species and of smaller size; proboscis much shorter than the body.
27. (34) Abdomen quite opaque.
28. (29) Wings with infuscated fore border and with a hyaline spot into the sub-marginal cell, the veins being partly margined with fuscous; frons hairy, with silvery pubescence below the hairs; abdomen with four dark spots on each segment . . . . . *macularis*, Wied.
29. (28) Wings not so variegated at fore border and with the veins not edged with fuscous; frons rather bare, or at any rate devoid of silvery pubescence; thorax with black pubescence on the back; abdomen not spotted.
30. (33) Wings distinctly darkened at fore border and with black veins.
31. A darker species; abdomen mostly black-haired (*zuluensis*) *caffraria*, Lichtw.
33. (30) Wings not darkened at fore border and with yellowish veins  
*umbrosa*, Lichtw.
34. (27) Abdomen shining; frons always pilose; wings more or less variegated at fore border.
35. (36) Legs and antennae entirely black . . . . . *handlirschi*, Lichtw.
36. (35) Legs reddish brown.
37. (40) Frons with silvery or white hairs in front; antennae with third joint black.
38. (39) Abdomen broadly shining, as in the preceding species and with a similar pattern . . . . . *lichtwardti*, n. sp.
39. (38) Abdomen less shining and destitute of grey transverse bands  
*westermanni*, Wied.
40. (37) Frons with no silvery hairs; antennae entirely reddish  
*circumdata*, Lichtw.
41. (16) Apical veins all or in part quite straight at end.
42. (49) Second longitudinal vein, and one or both branches of the cubital fork curved up at end.
43. (46) Both branches of the cubital fork curved up at end; thorax and abdomen with a conspicuous pattern.
44. (45) Antennae with the third joint infuscated . . . . . *variegata*, Loew.
45. (44) Antennae quite yellow . . . . . *quinque*, Lichtw.
46. (43) Only the upper branch of the cubital fork curved up at end.
47. (48) Thorax and abdomen with a distinct pattern, like that of the two preceding species . . . . . *ornata*, Lichtw.
48. (47) Thorax and abdomen uniformly black . . . . . *atra*, Macq.
49. (42) All the longitudinal veins straight at end.
50. (53) Abdomen without transverse band of yellowish hairs at base; wings darkened at fore border, but without fuscous spots at end of second basal cell and at base of cubital fork.
51. (52) Abdomen clothed with short hairs of pale colour . . . . . *variabilis*, Loew.
52. (51) Abdomen clothed with longer hairs of darker colour . . . . . *fusca*, Loew.



53. (50) Abdomen with distinct basal transverse band of yellowish hairs; wings with fuscous spots at end of the second basal cell and at base of the second sub-marginal cell . . . . . *accinota*, Wied.
54. (15) The two branches of media are united towards the middle with two cross veins, which forms a small cell; the tuft at the root of the wing is black . . . . . *connexa*, n. sp.

PROSOECA PÉRINGUEYI, Lichtw. 1920.

A characteristic species of great size, and with a very long proboscis; at once distinguished from all the other here recorded on account of the cross vein uniting the upper branch of the cubital fork with the second longitudinal vein, as in the gen. *Nemestrinus*.

Type ♀, from Namaqualand, Klipfontein, Cape Colony, August 1890. R. M. Lightfoot. The connection between the 2nd and the 3rd longitudinal vein in the present species, is in opposition to the main distinguishing character of the two genera *Nemestrinus* and *Prosoeca*; but the present species is undoubtedly to be referred to the latter genus, owing to its general appearance, etc.; the cross vein is besides very short and perpendicular (much shorter than the basal part of the upper branch of the cubital fork), not long and oblique as in *Nemestrinus*, in which it is always longer than the basal segment of the upper branch of the cubital fork.

♀. Length of body 16 mm.; of a wing 20 mm.; of the proboscis 34 mm.; of the wing spread 46 mm.

Wholly of a dark reddish-brown colour, but blackish on the back of the mesonotum, and with a dense grey dust on the abdomen. Frons with parallel sides, but a little broadening forwardly; it is less than half of the width of one eye, and is distinctly longer than broad; it has on the fore half a broad, prominent, rounded tubercle, which is blackish in colour while the rest of the frons is reddish; the frons is thus deeply depressed between this tubercle and the large ocellar one; the long and erect hairs of the ocellar tubercle are dark, like the short ones of the occipital border; the short and scarce hairs of the frons are whitish. Antennae with the two basal joints of the same length and reddish, the second with long black hairs which are more numerous beneath; third joint regularly conical, as long as the first two joints together, blackish in colour; style three-jointed, blackish, once and a half as long at the whole antenna. Face very convex along the middle line, separated from the frons by a furrow which extends between the antennae; it is about as long as the frons, reddish, with the upper part blackish; it is clothed with short white hairs, which are denser on the sides, turning to a

fine white beard; the hairs of the lower part of the occiput are white, but there is a complete crown of black ciliae along the border even underneath. Palpi black, obtuse and black-haired at end; proboscis thin and very long, acute at end, black, with reddish base beneath. Back of mesonotum grey-dusted, adorned with two rather narrow but sharply defined deep black stripes which are slightly converging backwards and end acutely at the transverse suture; beyond the suture there is a less defined and short, broader brown stripe in continuation; the sides, humeri and postalar calli are reddish, and inward of the red sides there is a less defined dark stripe on each side. Pleurae reddish, grey-dusted and black-spotted below. The erect hairs of the back are black, but below them there is a shorter whitish pubescence; on the sides and on the pleurae the whitish hairs prevail, with some scattered and longer black ones intermingled; along the notopleural line, there is a dense fringe of whitish hairs. Scutellum reddish, with black erect hairs; its hind border is black, and bears longer and more rigid black hairs; the hairs of the underside are whitish. Squamulae brown, with dense, long, soft, white fringe, like the metapleural tuft; halteres with reddish stalk and with a dark knob. Abdomen with a middle row of three well defined, oblong, blackish-brown spots; each segment bears moreover on each side an irregular reticulate dark pattern; the venter is paler and unspotted; the scattered, erect hairs are black like the short pubescence of the back; on the sides and the venter the white hairs are prevalent. The three basal segments of the tail bear also the blackish middle spot; the terminal lamellae are black and black-haired. Legs reddish brown, with darker tibiae and tarsi, those of the hind pair being even black and rather thickened; the long hairs of the femora and tibiae are black, while the soft hairs below the femora are white; the dense and short pubescence of the tibiae and tarsi is black; breast and coxae with dense white hairs; claws red, with black tip; pulvilli yellowish. Wings narrow and long, with narrow but well developed alulae; the extreme base of the wing is blackish brown, the white basal tuft being therefore very conspicuous; the veins are reddish-brown, blackened towards the end; the second longitudinal vein and the upper branch of the cubital fork are strongly curved up at end and are parallel, while the end of the other veins are less upturned, even if distinctly so; first posterior cell considerably narrowed at end; fourth posterior cell with a sessile but punctiform base. The right wing of the type is anomalous, showing a second cross vein uniting the upper branch of the cubital fork with the second longitudinal vein, and having

moreover a supernumerary cell of oval shape before the middle of the upper branch of the cubital fork. The brown pattern is very marked, consisting in a broad fore border extending about to the middle of the wing, the end of the first submarginal cell being however hyaline and fenestra-like; there is moreover a broad, isolated, brown spot below the discoidal cell filling up the apex of the second basal and the base of the fourth and of the fifth posterior cells; and another spot before the end of the diagonal vein, filling up the base of the second and the apex of the fourth posterior cell, extending a little above and below them. The alula has the hind border hyaline near the end; the discoidal cell is almost entirely hyaline, while the first basal cell is quite infuscated to the end; the second basal cell is broadly hyaline at end; the second submarginal cell is entirely infuscated, while the third is almost entirely hyaline in the middle; the first posterior cell, and the second, more narrowly, are infuscated at end forming the apical limit of the fuscous fore border of the wing.

PROSOECA RUBICUNDA, sp. nov.

A proportionally small species, very distinct on account of its prevalent reddish colour, of its black striped thorax and of the narrow fringe of white hairs at the hind border of the middle abdominal segments.

Type ♀, a single specimen from Oudebosch, Caledon Div., Cape Colony, 1500 ft., January 1919 (K. H. Barnard).

♀. Length of body 14 mm., of the ovipositor 5 mm.; of the proboscis 22 mm.; of a wing 15 mm.

Occiput black, densely grey-dusted, clothed with dense and soft whitish hairs; on the upper side it has a reddish-yellow triangle correspondingly to the broad ocellar tubercle which is rounded, entirely reddish and clothed with long and dense reddish hairs. Frons broad, reddish, with whitish dust and with whitish hairs; the impressed line between the antennae is darker; the face is in the middle more reddish than the frons, with a less developed dust and with whitish hairs on the sides. Basal joints of the antennae reddish-yellow, the first joint a little longer than the second, which bears long reddish hairs; third joint wanting in the type. Proboscis much longer than the body, reddish above and black below, with entirely black end; palpi reddish-yellow. Beard long and dense, of a pure white colour. Back of thorax reddish-yellow, with three broad, black, longitudinal stripes, the median attenuated behind, ending in a point near the base of the scutellum; it is clothed with dense and long, dark reddish

hairs, which are paler near the sides. The pleurae are reddish on the upper half, blackish on the lower one, with dense tufts of pale yellowish hairs, and with paler ones on the pectus. Scutellum reddish, with a small, triangular, blackish spot in the middle at the base; it is clothed with long, pale yellowish hairs. Squamulae brownish, with a white fringe; halteres yellowish. Abdomen reddish; first segment black; second segment with a black middle stripe and with a dark hind border; third and fourth segments with dark hind border but without middle stripe; the base of the second and of the third segment is moreover narrowly black; the short hairs are yellowish but at the hind border of the second and of the third segment there are dense white hairs which form two narrow white stripes interrupted in the middle; the last segment is likewise fringed with dense white hairs on the sides. Ovipositor reddish at the base with a black median stripe, black at end. Venter entirely reddish-yellow, with short pale hairs. Legs quite red, with pale hairs; but only one of the hind pair is present, in the type. Wings with a faint but equal infuscation; along the costal cells there is a reddish stripe between the red costa and the red first longitudinal vein; the other veins are black, only the diagonal and the fifth being red. Venation normal; all the longitudinal veins are upturned at end. Extreme base of wing blackish-brown, with a white tuft.

PROSOECA LONGIROSTRIS, Macquart, 1846.

Described from the Cape as a *Hermoneura*, but not found subsequently.

PROSOECA GANGLBAUERI, Lichtwardt, 1910.

A species with a very long proboscis, easily distinguishable on account of its peculiar, but not strikingly marked, wing pattern. Originally described from a female from Algoa Bay, Cape Colony, type at Vienna. Grahamstown Cape (Bowker). Cookfontein, Cape (S. Viljoen). Transvaal, Shilouvane (Junod). The measurements of this species are as follows: length of body 14 mm.; of a wing 17 mm.; of the proboscis 28 mm.; of the wing spread 41 mm.; the proboscis is distinctly longer than in the type.

PROSOECA NITIDULA, sp. nov.

A species with a long proboscis, distinguished by the black, moderately shining abdomen, and the infuscated anterior half of the wings.

Type ♀, a single specimen from Cape Town, January 1913 (R. M. LIGHTFOOT).

♀. Length of body 14 mm.; of a wing 17 mm.; of the proboscis 22 mm.; of the wing spread 40 mm.

Frons reddish, but densely grey-dusted, gradually broadening forwardly, being twice as broad as at vertex above the root of the antennae; it is completely convex in the middle, being separated from the ocellar tubercle by a less deep furrow; it is clothed near the vertex with whitish, and on the ocellar tubercle with blackish hairs like those of the middle of the basal part, while those of the sides of the front part are white. Face considerably shorter than the frons, regularly convex, separated from the frons by a blackish transverse stripe, placed into the furrow between the antennae; it is red, shining and almost bare in the middle, with dense white hairs on the sides. Antennae with the first joint elongate, reddish-yellow; white-haired; second joint only one half as long as the first of a darker reddish colour, with the ciliae black above and white below; third joint conical, shorter than the first two together and quite black like the tri-articulate style which is only a little longer than the whole antenna; the two basal joints of the style are long and equal being together about as long as the terminal joint. Palpi upturned, acute, reddish-yellow, pale-haired, with black ciliae at end; proboscis black, with the basal part red above. Occipital border destitute of black ciliae; beard dense, soft, white. Thorax blackish, opaque, dark grey-dusted on the back and light grey-dusted on the pleurae; on the back, when denuded, are traces of three longitudinal deep black stripes, the two lateral ones being more distinct; the hairs are pale yellowish on the back, with longer and erect black ones intermingled, and are whitish on the pleurae. Scutellum reddish brown, with black erect hairs and with whitish ones below; halteres and squamulae hidden between the long pleural tufts. Abdomen as long as the thorax and a little broader in the middle; it is black, rather shining on the middle of the segments, reddish-brown on the sides; each segment has at the hind border a broad, reddish and pale-dusted band; the hairs are black on the black parts, whitish at the base and at the hind border of the segments; venter reddish, grey-dusted and white-haired; tail blackish, with the terminal lamellae black and black-haired. Legs entirely reddish-yellow and almost bare; the soft hairs of the femora are white, while the dense short pubescence of the tibiae and tarsi is reddish; claws red, with black tip; pulvilli dirty brown. Wings narrow and long; extreme base black, with white tuft; fore border infuscated to the second longitudinal vein and to the upper branch of the cubital fork, the long first basal cell being entirely infuscated in

the shape of a projecting tooth directed forwards; the discoidal and the second basal cell are hyaline, like the well developed alulae and the hind part of the wing. The veins are red, the auxiliary and first longitudinal costa, completely, the others broadly blackened at end like the black ambient vein. All the longitudinal veins are turned up at end, at the apex, the second and the third more strongly than the others; first posterior cell not narrowed at end; base of the fourth posterior cell punctiform but sessile; anal cell very narrowed at end.

PROSOECA LONGIPENNIS, Loew. 1858.

A species of great size, described from the Cape, and captured several times in South Africa.

One ♀ example from the Cape; also identified as such by Lichtwardt (1920).

PROSOECA ROBUSTA, sp. nov.

A stout species of large size, closely allied to longipennis, but distinct owing to the shorter proboscis, the unicolorous dark body and the whitish hyaline wings.

Type ♂, a single, rather old example from Grahamstown.

♂. Length of body 20 mm.; of a wing 21 mm.; of the proboscis 25 mm.; of the wing spread 52 mm.; breadth of abdomen at the second segment 11 mm.

Head entirely black, dark grey-dusted, only the middle of the face being reddish-brown. Eyes rather contiguous, the frons at the narrowest point being a little narrower than the distance between the two basal ocelli, but at root of antennae it is more than three times as broad; hairs of ocellar tubercle blackish, while on frons they are dense, yellowish whitish on the sides on the basal half, and erect on the whole apical half. The face is separated from the frons by a narrow furrow; it is convex and bare in the middle, prominent in profile, clothed with dense, pale yellowish hairs on the sides; beard dense and long, soft, of a pale yellowish colour; occipital border devoid of black hairs. First antennal joint longer than the globular second, both dark reddish in colour, infuscated above, with pale yellowish hairs, those of the under side being more rigid and longer; third joint more lightly reddish, of conical shape, about as long as the two first joints together; style blackish, a little longer than the whole antenna, with the two basal joints equally long, the third yellowish at end and longer than the other two together. Palpi reddish, with long pale yellowish hairs below;

proboscis not very thin, black above, reddish below. Thorax very broad, subquadrate, entirely black, opaque, dark grey-dusted, without any pattern at all; on the back it is clothed with an erect, equal, greyish pubescence with scattered and longer black hairs intermingled; on the sides there is a stripe of dense yellowish hairs; the pleurae are clothed with pale yellowish hairs. Scutellum broad and short, with a very prominent hem at the hind border, coloured and clothed like the thorax. Metapleural tuft long and dense, yellowish, halteres reddish-yellow. Abdomen broad and flat, as long as the thorax but a little broader; it is coloured like the thorax, the last segments only being narrowly reddish towards the sides; it is clothed above with short, black hairs, and has longer pale-yellowish hairs at the base and at the hind border of the segments; the hairs of the sides are denser and entirely yellowish, without any dark ones. Venter grey-dusted, whitish haired, with the apical segments more broadly reddish. Legs stout and rather bare; the long hairs of the femora are whitish, while the short and dense pubescence of the tibiae is yellowish; the four anterior femora are black with narrow reddish tip, the posterior ones are of a reddish colour with a blackish stripe below; tibiae and tarsi entirely reddish-yellow; claws of great size, red with black apical half; pulvilli and empodium dirty whitish; coxae black. Wings whitish hyaline, slightly yellowish at base and along the fore border; costa reddish, the other veins pale yellowish, more reddish at end; all the apical veins are strongly upturned at end; the stalk of the cubital fork is shorter than the portion of the diagonal vein below it; first posterior cell not narrowed at end, but distinctly narrower than the others; the sessile fourth posterior cell has a rather broad, not punctiform, contact with the second basal cell; anal cell much narrowed at end. Alulae broad and short, less than twice as long as broad at end. The extreme base of the wing is reddish brown, with a white tuft.

PROSOECA MAJOR, sp. nov.

Closely allied to the preceding species of which it may possibly be the female but distinct owing to the much stouter and shorter proboscis, and the darker pubescence of the thorax.

Type ♀, Gt. Winterhoek, Tulbagh, Cape. 5000 ft., April 1916 (R. M. LIGHTFOOT). Willowmore, Cape (H. Brauns).

♀. Length of body 20 mm.; of a wing 22 mm.; of proboscis 16 mm.; of the wing spread 54 mm.; breadth of the abdomen 11 mm.

Head as in the preceding, but with less prominent and shining

black face; the frons is reddish-brown on the anterior convexity; the hairs of the ocellar tubercle are of a deeper black colour. The frons is only a little broader than in the preceding species. The antennae have the third joint black on the apical half; the style is entirely black, with the first joint shorter than the second, and with the last joint more than twice as long as the first two joints together. Beard of a gold yellow colour, like the hairs of the underside of the palpi; proboscis black and very stout. Thorax as in the preceding species, but on the back it is clothed with a dense, erect pubescence of a deep black colour; there is no distinct lateral stripe, the black hairs being abundant even on the sides, as they are dominant on the pleurae also, only the metapleural tuft being gold yellow, Scutellum with long black hairs; halteres yellowish, with blackish knob. Abdomen as in the preceding species, but entirely black even at end and on the venter; the pubescence at the middle of the segments is deep black, but at the hind border of each segment there are dense hairs of a gold-yellow colour, forming transverse bands; terminal lamellae of the ovipositor black and black-haired. Legs as in the preceding species, but with tibiae and tarsi darker reddish or reddish-brown; hind femora darker; claws black, with a narrowly red base. Wings more greyish-hyaline, with the base and the fore half darker yellowish; venation exactly the same as in the preceding species.

*PROSOECA WILLOWMORENSIS*, Lichtwardt 1910.

Originally described from 2 males in the Museum at Budapest, and not found subsequently; typical locality Willowmore. Cape Colony, November 1904 (Kobrow).

*PROSOECA FLAVIPENNIS*, Lichtwardt 1910.

Described from a single male specimen in the British Museum, without a precise locality.

*PROSOECA LATA*, Lichtwardt 1910.

This species was known only by the type in the British Museum, from Natal, Port Shepstone, May 1897 (G. A. K. Marshall). Cape? Kookfontein (J. V. Goer).

One ♀ example from Natal, identified as such by Lichtwardt.

*PROSOECA BECKERI*, Lichtw. 1920.

Montagu Pass (N. Brauns); Saldanha Bay (R. N. Lightfoot); Cape Town "Table mountain" November 1914 (K. H. Barnard); Cogman's



Kloof, Montagu Distr. October 1922 (R. F. Lawrence) Cape. Woodbush Ville, Transvaal, April. C. J. Swierstra). A robust species of larger size, with a thick black proboscis as long as the thorax and showing broad terminal flaps. Upper side of body blackish-grey, with darker stripes on thorax and a row of dark spots along the middle line of the abdomen. Underside of body white clothed with long white hairs. In the present specimen the legs are not entirely black, the underside of the femora and of the tibiae being dark red. The hitherto undescribed female is very like the male, but distinct by the frons being a little broader, and the wings more narrowly infuscated, the infuscation not extending beyond the second longitudinal vein.

PROSOECA IGNITA, n. sp. ♂.

A very distinct and robust species near *beckeri*, at once distinguishable by the bright fulvous hairs of the pleurae and of the chin and breast. Woodbush Ville, April, (C. J. Swierstra) New Agatha, Transvaal, March.

♂ Length of body 16–18 mm.; breadth of abdomen 9–10 mm.; length of wing 22–28 mm.; wing expanse 54–60 mm.; length of proboscis 9–10 mm.

Head black, dark reddish and white dusted on the frons, shining reddish on the face. The hairs of the vertex and of the ocellar plate are black; frons bare; face with a few dark hairs on the sides; occiput grey with pale yellowish hairs; mentum with long and dense bright fulvous hairs. Antennae and arista black, the first antennal joint dark reddish, the second with long black hairs. Palpi black or very dark reddish; proboscis black, with dark reddish base; it is thick and only a little longer than the breast. Thorax and scutellum opaque, black, dark greydusted, with black erect hairs; pleurae and breast with dense tufts of bright fulvous hairs; mesopleurae with black hairs in the middle, but above there is a stripe of fulvous hairs along the notopleural line; metapleural tufts very long, bright fulvous, visible from above. Halteres blackish. Abdomen broad, dark reddish, the segments with blackish hind border; it is clothed with black erect hairs, denser near the base and along the sides; outer border light reddish, clothed with bright fulvous omentum at the sides. Legs stout, black, black haired, the femora dark reddish below. Wings greyish hyaline, infuscated along the fore border as far as the first basal cell; veins reddish brown, upturned at end; basal tuft white.

## PROSOECA WESTERMANNI, Wied. 1821.

A well-known species. Montagu, 2000 ft., 1919 (R. W. Tucker). Seven Weeks Poort, (E. P. Phillips) Cape Colony; Howick Natal. (J. Cregoe).

In the present specimen the abdomen is almost entirely black and very shiny, being a little brownish only towards the middle and being moreover quite unspotted; the elegant pattern on the back of the mesonotum is well marked. The wings are variegated in a characteristic manner, as described by Wiedemann and by Lichtwardt.

Wiedemann in his original description has already noticed that there are specimens with nearly entirely black abdomen.

## PROSOECA MACULARIS, Wiedemann 1828.

Originally described from the Cape, and not recorded subsequently, being even overlooked in Lichtwardt's Monograph of 1910.

## PROSOECA ZULUENSIS, Lichtwardt 1920.

A dark species of middle size, distinct by the blackish, but not sharply defined, fore border of the wings. Specimens from M'fongosi, Zululand. May 1917 (W. E. Jones); Transvaal (Woodbush Ville); Leydenburg, Barberton. Originally described from the Transvaal. (The male only being known, some additional descriptive notes are given here.)

Frons of the female only a little broader than that of the male, nearly bare in both sexes. Second antennal joint with long black cilia above and below; third joint conical, about as long as the two first joints together; style with the two basal joints of equal length and the terminal joint twice as long as the two other together. Face with scarce hairs on the sides; palpi with white hairs below; beard white; proboscis thick, red above, black at end and below. Scutellum like the back of the thorax. Halteres with blackish knob. Venter reddish; terminal lamellae of the ovipositor black and black-haired. Tibiae and tarsi darker than the femora, the tarsi being almost blackish; claws black, with red base; pulvilli and empodium dirty brownish. Stalk of cubital fork proportionally long, being longer than the portion of the diagonal vein below it; first posterior cell not narrowed at end; fourth posterior cell sessile at base, but there not punctiform; anal cell narrowed; alulae narrow, about three times as long as broad at end. Extreme base of wing black, with white tuft. Veins mainly black.

PROSOECA CAFFRARIA, Lichtwardt 1910.

The true *caffraria* has not been seen by me. It is described as coming from the Transvaal. Recorded also from Barberton, New Agatha, Lemana, Woodbush Ville.

(*P. zuluensis* is a close ally of, if not identical with *caffraria*, Editor).

PROSOECA UMBROSA, Lichtwardt 1910.

Closely allied to the preceding species, but distinct by the more lightly coloured body and wings.

Originally described from Natal, East London, Cape, (E. Borchers) Howick, (Cregose) Durban, Karkloof, Natal, May 1915 (H. W. Bell-Marley).

Frons and face entirely reddish, like the antennae and the legs, which have not infuscated tarsi; the ciliae of the second antennal joint are yellowish. Scutellum reddish brown. Abdomen distinctly reddish above on the sides of the segments. Wing-veins entirely reddish-yellow; wing-base reddish-brown; base of fourth posterior cell punctiform.

PROSOECA ATRA, Macquart 1846.

Originally described from the Cape as a *Hermonoeura* and placed in the present genus by Lichtwardt in 1910; it seems to be closely allied to the species described here for the first time under the name of *connexa*. I have examined the example named by Lichtwardt.

PROSOECA LICHTWARDTI, n. sp.

Closely allied to *handlirschi* Lichtw., but at once distinguished by the entirely red legs.

Type ♀, a single specimen from Paarl, Cape. October 1888 (R. M. Lightfoot).

This is the same specimen recorded by Lichtwardt without a name (1920, p. 100, No. 127), as being intermediate between *handlirschi* and *westermanni*.

It is now described as new, and named in honour of the Monographer of the Nemestrinidae, whose studies have greatly contributed to the progress of our knowledge of these interesting flies.

♀. Length of body 12 mm.; of wing 15 mm.; of wing spread 36 mm. Frons black, grey-dusted, a little narrowed towards the middle; it is clothed with long dark erect hairs on the ocellar tubercle, and with more short but dense and bent forwards, whitish ones on the frontal half. Occiput grey-dusted, with thin whitish

hairs at border. Face convex, densely clothed with whitish hairs, like those of the anterior part of the frons; beard whitish. Antennae entirely black, the second basal joint grey-dusted and clothed with long pale yellowish hairs; third joint elongate, conical, as long as the two first joints together; arista deep black as long as the whole antenna, with the two basal joints of equal length. Palpi reddish, with long yellow hairs; proboscis black, short and stout, as long as the vertical diameter of the head. Thorax entirely clothed with pale yellowish hairs, which are short on back and longer on the pleurae; on the back it is black, with two narrow but complete whitish longitudinal stripes in the middle; on the sides, in contact with the notopleural bare line, there is a broader whitish stripe, on which are several black hairs. Pleurae densely grey-dusted. Scutellum black, grey-dusted, with long yellow hairs at hind border. Squamulae and halteres blackish. Abdomen shining black, the hind border of each segment with an opaquadark grey transverse band, which is broader in the middle, chiefly on the last segments, moreover there is in the middle of each segment a triangular opaque spot, with the base at hind border; the hairs are black on the back of the tergites, yellowish on the side and on a transverse band a base; venter densely grey-dusted, with pale hairs. Legs entirely reddish with very short reddish pubescence. Wings greyish-hyaline, a little infuscated along the fore border and with the first basal cell; vein reddish-yellow, those of apex curved up at end; tuft at root white. Stalk of cubital fork rather long; base of fourth posterior cell not punctiform; anal cell narrowed at end; alulae rather broad.

PROSOECA CIRCUMDATA, Lichtwardt 1910.

This species is at once distinguished from the two preceding ones by its hairy frons and its moderately shining abdomen.

Originally described from Natal. Durban, Natal, February 1914 (W. Haygarth); Transvaal, Woodbush (Leigh). Frons clothed with long, erect, whitish hairs; ocellar tubercle black and black-haired. Basal joints of the antennae with whitish ciliae; the two basal joints of the style are short, measuring together a third only of the length of the terminal joint. Proboscis black above. Thorax with greyish pubescence on the back; scutellum with gold-yellow hairs. Halteres with a dark knob. Hairs of abdomen rather long and entirely yellowish. Stalk of the cubital fork long; base of the fourth posterior cell not punctiform; alulae narrow; veins reddish brown, blackened at end; basal tuft white.

PROSOECA HANDLIRSCHI, Lichtwardt 1910.

A robust species with a very short and stout proboscis, eminently characterised by the shining black, grey-banded abdomen, and by the entirely black legs. Originally described from Robinson's Pass; there is a female specimen, likewise from a mountainous district, Gt. Winterhoek, 5000 ft., Tulbagh, April 1916 (R. M. Lightfoot); Hottentots Holland Mountains, 4000 ft. (K. H. Barnard); Caledon, Cape (L. Péringuey).

Proboscis entirely black, even above at base; second joint of the style longer than the first, both measuring together more than one half of the rest. Scutellum with gold-yellow hairs like the metapleural tufts. Claws black, with a red base; pulvilli and empodium yellowish. Stalk of the cubital fork long; base of the fourth posterior cell not punctiform.

PROSOECA QUINQUE, Lichtwardt 1920.

I have seen the type of Lichtwardt; the species seems to be not easily distinguishable from *variegata* Loew.

PROSOECA VARIEGATA, Loew 1858.

Described from the Cape and recorded from South Africa by Lichtwardt.

PROSOECA ORNATA, Lichtwardt 1910.

Originally described from Simon's Town, Cape. I refer with doubt to it a not well preserved male example from Grahamstown Cape, in my collection. This specimen shows the venation characters of the species, but has a less developed general pattern of the body.

PROSOECA VARIABILIS, Loew 1858.

Distinct by the non spotted wings, which have moreover quite straight veins at apex.

Originally described from Caffraria; is possibly the female of *fusca*, Loew.

There is a female specimen from Durban, Natal, February 1914 (W. Haygarth), answering very well to Loew's description. The stalk of the cubital fork is long; the fourth posterior cell is punctiform at base; the alula is very narrow; the basal tuft is white.

PROSOECA FUSCA, Loew, 1860.

Known from various localities in Natal, and described originally from "Caffraria". A doubtful miniature female example from Cape Town, is referred to this species.

## PROSOECA ACCINCTA, Wiedemann 1830.

Originally described from the Cape, and recorded subsequently from Natal. I have seen one male from Barberton, Transvaal, determined by Lichtwardt.

## PROSOECA CONNEXA, sp. nov.

A black and black-haired species with spotted wings, easily distinguishable from all the others on account of the black basal tuft of the wings, and of the united branches of the fourth longitudinal vein.

Type ♂, a single specimen from Durban, Natal, February 1914 (W. HAYGARTH). Occurs also in the Transvaal. Woodbush.

It is very near *accincta*, being possibly only a variety of it; but it is much blacker and black-haired, thus answering probably to *atra*.

♂. Length of body 12 mm.; of proboscis 10 mm.; of a wing 13 mm.; of wing-spread 32 mm. Frons black, grey-dusted, rather narrowed before the front ocellus; it is clothed with long, dense and erect black hairs, those of the anterior part being developed like those of the ocellar tubercle. Occiput hollowed, black, grey-dusted below, with short black hairs at the border. Face convex, reddish, with long black hairs on the sides; beard yellowish. The two basal joints of the antennae are reddish-yellow, the first being longer than the second, which has very long black cilia above and below; third joint deep black, narrowly conical, as long as the first two joints together; style black, a little longer than the whole antenna, with the basal two joints of equal length. Palpi reddish, with black tip and with black cilia at end; proboscis a little shorter than the body, red above at base, black on the apical half and below. Thorax and scutellum of a deep, velvety black colour and opaque; they are clothed with long and dense black hairs; the pleurae are grey-dusted and black-haired, even the subalar and metapleural tufts being black. Halteres black. The abdomen in the middle is coloured like the thorax, while on the sides it is rather broadly reddish brown; the hairs are black, pale yellowish on the sides of the first segment, but not forming the yellowish band of *accincta*. Venter more lightly reddish, grey-dusted, with yellowish pubescence; genitalia reddish brown behind and below, dark-haired. Legs entirely reddish on the femora, more pale yellowish on the tibiae and on the tarsi, the last tarsal joint only being darkened; the long hairs of the femora are black, while the short pubescence of the tibiae is yellowish; claws black, with red base; pulvilli and empodium dirty yellowish. Wings infuscated on the fore half, greyish hyaline on the hind one, but

the limit is not sharply defined; there are besides some diffuse fuscous spots at the end of the second basal cell and at the base of the fourth posterior cell (round its punctiform base), at the end of the first basal cell and at the base of the cubital fork. The veins are black, only the axillary one and the first being dark reddish; the extreme base is black, with a black tuft. All the longitudinal veins are quite straight at end; the stalk of the cubital fork is long; first posterior cell irregularly shaped; second posterior cell divided into three cells by two supernumerary cross veins placed near its middle and forming thus a small trapezoidal cell between them; base of the fourth posterior cell punctiform; anal cell narrowed at end. Alula very narrow.

Possibly an aberrant example of *atra* Macq.

MEGISTORRHYNCHUS, Macquart, 1840.

In the present genus are comprised the more highly specialised species of the South African *Nemestrinidae*, with a remarkable network on the apical half of the wings, and with an often exceedingly long proboscis. The two known species may be distinguished as follows:

- (2) 1. Proboscis as long as the body or nearly so; lower branch of the anal vein not appendiculated in the middle, or with a very short appendage outwardly . . . . . *brevirostris*, Wied.
- (1) 2. Proboscis many times longer than the body; lower anal branch with a long appendage in the middle, placed inwardly . . . . . *longirostris*, Wied.

MEGISTORRHYNCHUS BREVIROSTRIS, Wiedemann, 1821.

A very interesting fly closely allied to the following one, but distinct owing to the above quoted characters. Originally described from the Cape. There is a male specimen from Gt. Winterhoek, Tulbagh, Cape, 4500 ft., November 1911. (R. M. Lightfoot).

The grey spots of the abdomen are isolated as in *longirostris*. The stalk of the cubital fork is short; the fourth posterior cell is broadly sessile at base; the anal cell is nearly closed at the wing border; the alula is rather broad, being a little more than twice longer than broad at end; the basal tuft at root of wing is white.

MEGISTORRHYNCHUS LONGIROSTRIS, Wiedemann, 1819.

One of the most typical South-African insects; frequently recorded from the Cape. Montagu, Cape (F. W. Purcell); another example, without locality.

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5. — *The South African Mydaiidae (Diptera) as represented in the South African Museum.* — By Prof. M. BEZZI.

The species of the family *Mydaiidae* can at once be distinguished by the shape of the antennae, and the peculiar venation of the wings.

They cannot be confounded with any other South African Diptera; their greatest affinity is with the *Nemestrinidae* and with the *Apio-ceridae*. But the species of the former are very different in the short, broad and villose body, in the short antennae, and in the more numerous veins free at end in the apical part of the wings. And those of the latter, of which only one South African species, *Ripidosyrma alastor*, Walker 1849 = *braunsi*, Melander 1907 discovered at Willowmore (Cape) by Dr. H. Brauns is hitherto known, are at once distinguishable by the strong macrochaetae on the sides of the back of the mesonotum, and by the very different antennae. A superficial resemblance in the shape of the head and of the elongate body with the *Asilidae* is no doubt deceptive to an inexperienced eye; but even in this case the shape of the antennae, the absence of macrochaetae and the neuration of the wings are sufficient for an easy identification.

A peculiar and very conspicuous feature of the *Mydaiidae*, is the presence of two prominent callosities or *bullae* at the sides of the hind border of the second abdominal segment; these bullae are equally developed in both sexes and have a different colouration from that of the surrounding parts; they are often described by the authors as an interruption of yellowish or whitish hind border of the second segment of the abdomen.

The family of the *Mydaiidae* is not a numerous one, only 140 species distributed among 16 genera, are at present known.

Moreover the species are of the greatest rarity among the Diptera, being but poorly represented in collections, and usually only by single specimens; no long series have been obtained, and therefore we have no idea of the variability of the species. They are represented chiefly in South America and Australia, being very scarce in the Oriental Region. In Africa they seem to occur chiefly along the

Mediterranean region and in the South, and are almost entirely absent from Central Africa. But the number of African species is quite small, in the old Monographs of Wiedemann and Westwood only a few are included. Loew in his work on South African Diptera describes only 1 species of *Cephalocera*; Gerstaecker in his Monograph has added a few. The total number of the known Ethiopian species is at present 17. In recent times no new species have been described from South Africa, except those published by Gerstaecker in 1868.

Very little is known of the habits of the adults. Old writers have stated that they are predaceous, and this was stated afresh recently by Prof. Arias; but it seems that they are flower-visitors. It must be remembered that some species have the mouth parts atrophied, while others have them elongated and slender. The known larvae live in wood and live probably on wood-boring larvae of Coleoptera. Some South American species are the largest of all the living Diptera; but the South African ones are only of medium size, and have as a rule an elongate body of Asilid appearance.

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#### FAM. MYDAIDAE.

The South African genera of *Mydaiidae*, with the addition of four new ones, can be distinguished as follows. All have the circlet of spines at the end of the female abdomen, and in all the palpi are hardly visible. It is not at all improbable that species of the gen. *Mydas* will be found in Africa, as they are present in the Oriental Region; they can be recognised by the non spinose ovipositor, by the well developed palps and by the presence of the hind marginal cross-vein on the wings. In all the genera here enumerated both branches of the cubital fork (R 4 & R 5) end into the first longitudinal vein (R 1); the North African genera *Rhopalia* and *Perissocerus*, which have the lower branch of the cubital fork (R 5) ending into the costa, may perhaps be found to occur in South Africa.

#### *Key to the Genera.*

- (2) 1. Hind margin of the wings in the middle with a cross vein, which is the end of the upper branch of the fifth longitudinal vein ( $M_3 + M_4$ ); \* both branches of the cubital fork ( $R_4$  and  $R_5$ ) ending into the first vein ( $R_1$ ), but the fourth vein ( $M_{1-2}$ ) ending free in the costa; terminal cross-vein of the third posterior cell \*\* about as long as that of the

\* This  $M_4$  is the  $Cu_1$  of the Comstock-Needham System; but according to the recent investigations of Dr. Tillyard, the Cubitus is a strong straight unbranched vein in the Diptera, as it is also in their ancestral forms, the Mecoptera. Thus  $Cu_2$  becomes  $Cu_{11}$  and  $Cu_1$  becomes  $M_4$ .

\*\* Under the name of third posterior cell I have always called the cell placed immediately below the discoidal cell; it is considered as the fourth posterior cell by authors, and is really the fourth in some non African genera, like *Diachlistus*, *Trichonus* or *Mitrodetus*.

- discoidal cell; proboscis rudimentary or very short; metapleurae bare; 2—3 last abdominal segments of the female quite bare; hind tibiae with strong terminal spine, at least in the male. . . . *Ectyphus*, Gerst.
- (1) 2. No hind-marginal cross-vein, the upper branch of the fifth vein ending into the fourth vein; terminal cross-vein of the third posterior cell usually much shorter than that of the discoidal cell; 2—3 terminal segments of the female abdomen with a peculiar pubescence directed forwards; hind tibiae without terminal spine, or with a very small one.
- (6) 3. Fourth long vein ( $M_1-2$ ) ending free into the costa, at some distance from the terminal stalk of the second submarginal cell, the first posterior cell being therefore broadly open at end.
- (5) 4. Cubital fork not appendiculated; proboscis shorter than the mouth, not projecting; hind femora, even in the female, much thickened and with 4 rows of strong spines below; hind tibiae with a small but distinct terminal spine, body nearly bare . . . . *Haplomydas*, gen. nov.
- (4) 5. Cubital fork appendiculate; proboscis well developed, usually rather long and always projecting; hind femora less thickened, those of the female almost simple, with 2 rows of spines below; hind tibiae without terminal spine; body more or less villose . . . . *Leptomydas*, Gerst.
- (3) 6. Fourth longitudinal vein ending into the first vein or in contact with it; the second submarginal cell never stalked at end, and the first posterior cell always closed at end and sometimes stalked.
- (10) 7. Fourth longitudinal vein meeting at costa with the first, no stalk of the first posterior cell being therefore present; proboscis short or even rudimentary.
- (9) 8. Hind femora not thickened, never spinose beneath; proboscis rudimentary; third antennal joint very short; body smooth *Halterorchis*, gen. nov.
- (8) 9. Hind femora thickened and armed with strong spines placed on prominent tubercles; proboscis short, but well developed; third antennal joint long; abdomen pedunculate; body deeply punctulate *Mydaselpis*, gen. nov.
- (7) 10. Fourth longitudinal vein ending into the first, the first posterior cell being thus provided with a well developed stalk; proboscis well developed and long; abdomen not pedunculate, never deeply punctulate; hind femora spinose beneath.
- (12) 11. Upper branch of the fifth longitudinal vein ( $M_4$  or  $Cu_1$ ) originating from the second basal cell, as in all the preceding genera, the third posterior cell being thus as broad at base as at end; proboscis thick, and usually, with broad terminal flaps; body and legs nearly bare  
*Nomoneura*, gen. nov.
- (11) 12. The above named vein issuing from the anal cell, the third posterior cell being thus very broad at base; proboscis thin and sharp, with very small terminal labella; body and legs rather villose . . . *Cephalocera*, Latr.

GEN. ECTYPHUS, Gerstaecker. 1868.

This is a typical South-African genus, very distinct from all the other on account of the presence of a hind-marginal cross-vein in the wings, and of the strong spine at the end of the posterior tibiae.

These characters are those of a neotropical true *Mydas*; but it differs clearly from that genus in the presence of the circlet of spines at end of the ovipositor.

The body is shorter and thicker than in all the other South-African genera, *Haplomydas* excepted; it is bare or nearly so, and the teguments are smooth; the callosity before the halteres is always bare; the legs are bare. The anterior ocellus is well developed. The proboscis is rudimentary or very short, not projecting. The third antennal joint is long, being longer or as long as the terminal club. The hind femora are thickened and spinose beneath, at least in the male; the spines are placed in 2-4 rows. The male genitalia are small and not free.

The wings are as long as the abdomen or nearly so, and have a rather thick ambient vein. The upper branch of the cubital fork (R 4) is appendiculed at the base. The discoidal cell is always acute outwardly, its contact with the second posterior cell being always punctiform. Third posterior cell broader at end than at base, its terminal cross-vein being about as long as that of the discoidal cell. Third posterior cell not placed on the same line as the first.

The genus *Ectyphus* may be considered up to the present as monotypic. The two North American specimens described by Williston belong in all probability to a peculiar genus, as indicated by the different male genitalia; *limbatus* 1886 has a terminal spur of the hind tibiae in the male but not in the female, and likewise *towsendi* 1897 as stated by Cresson in 1907.

In the collection of the South African Museum there are 3 species, which may be distinguished as follows:

- (2) 1. Halteres pale yellowish; face golden yellow; abdomen with rather broad yellow bands; male with thickened hind femora and spurred hind tibiae; female with slender hind femora and not spurred hind tibiae, which bear 3 equally distinct bristles on the posterior side . . . . . *pinguis*, Gerst.
- (1) 2. Halteres black; face black or reddish; abdomen without yellow bands or the segments, only with narrow yellow hind borders.
- (4) 3. Both sexes with thickened hind femora and spurred hind tibiae; hind tibiae of the female destitute of bristles at the posterior side; face black in the male, reddish in the female; abdomen with narrow yellow hind borders. . . . . *armipes*, sp. nov.
- (3) 4. Female with reddish face, and with thickened hind femora but unarmed hind tibiae, which bear 3 strong bristles at the posterior side; abdomen black, red in the middle, without clear hind borders on the segments . . . . . *abdominalis*, sp. nov.

## ECTYPHUS PINGUIS, Gerstaecker, 1868.

Easily recognisable on account of the golden yellow face, the entirely red antennae, and the rudimentary proboscis.

A couple of specimens from Dunbrody, Cape 1897. (Father J. O. Neil). One female in my collection from Kleinmond, Grahamstown, (Cape) January 1897. (Miss White).

The female is much larger than the male; the yellow bands of the abdomen may be interrupted in the middle, like those of the male. The bullae of the second abdominal segment are narrow, nearly linear, and blackish.

## ECTYPHUS ARMIPES, sp. nov.

A robust species, allied to the preceding one, but distinct by the darker colour of the body, antennae and legs, and by the strong terminal spur of the hind tibiae in both sexes.

Type ♂ and type ♀; Stellabush, Durban (Natal), H. W. Bell-Marley, January 1915.

♂ ♀. Length of the body 15–16 mm.; of the wing 13–14 mm. The male is much darker than the female and has black femora.

Head entirely black in the male, with grey dust near the border of the eyes on the occiput, clothed with whitish hairs on frons and face, those of the latter being longer. Head of the female reddish, with a black median stripe on the frons, and clothed with yellowish hairs. Antennae of the male black, with the third joint reddish; those of the female reddish, with infuscated basal joint and terminal club; in both the first joint is twice as long as the very short second, and the third is more than twice longer than the two basal joints together; the club is a little shorter than the third joint, broad, swollen, ovate. Proboscis not longer than the mouth opening, but well developed, with broad terminal flaps. Thorax of the male entirely black, opaque, with reddish humeri and with a reddish stripe above the notopleural line extended to the postalar calluses; pleurae entirely black; rather shining, bare, with some white hairs on the pteropleura alone; on the back there is a sparse whitish pubescence, arranged in two broad longitudinal stripes; scutellum entirely black, with sparse whitish hairs. Thorax of the female reddish on the back, with three broad longitudinal black stripes, the middle one abbreviated behind, the lateral ones abbreviated in front and attenuated behind, but not prolonged to the scutellum; pleurae and scutellum as in the male, but the ptero-pleural hairs

are yellowish, like the short pubescence of the back of the mesonotum. Mesophragma entirely black in the male and with two reddish spots in the female. Squamae blackish, with bare, narrowly yellowish border; halteres black in both sexes. Abdomen of the male entirely black, even on venter, the segments 2-5 with a narrow whitish-yellow hind border interrupted in the middle, 6th segment with a less distinct one, 7th without, but reddish on the sides; the hairs are short and whitish, only at sides of the first segment are several longer ones, genitalia in part reddish, clothed with longer white hairs, with three lamellae above and only two below. Abdomen of the female black, but all the segments with a yellowish hind border, except the last one which is entirely reddish; it is quite bare, even on the sides of the base and on the terminal segments; venter black, except the terminal segments, which are dark reddish; spines of the ovipositor reddish. Bullae of the second segment rather broad in both sexes and shiny black. Legs of the male with black coxae, trochanters and femora, but the latter on the hind pair dark reddish at end; tibiae and tarsi entirely reddish, those of the last pair distinctly darkened. Legs of the female entirely reddish, with black coxae and trochanters. The short pubescence of the legs is whitish and more developed in the male, yellowish in the female; claws black with red tips; pulvilli yellowish, equally developed in both sexes. Hind femora thickened in both sexes, but more in the male than in the female, in both armed below with numerous and strong spines, which are disposed on four rows, the two external rows consisting of 1-3 spines only, and in the male the single external spine is much longer; all these spines are placed on small but distinct tubercles. Hind tibiae curved in both sexes, and armed in both with a developed and strong terminal spur; but they have no distinct strong bristles on the outer side. Wings in both sexes broad, more intensively infuscated in the female than in the male; the second submarginal and all the posterior and basal cells with clear patches in the middle, more developed in the female. Second longitudinal vein straight; cubital fork appendiculated and rather irregular, the lower branch being deeply sinuous; first posterior cell narrowed at end; discoidal cell acute but sessile at end, while in *pinguis* it is stalked; axillary lobe long and broad; alula rounded, without fringe.

ECTYPHUS ARMIPES PRETORIENSIS, n. sub. sp.

A couple of specimens from Pretoria. September. (H. K. MUNRO).  
♂ ♀. Very like the type species, but distinct: 1. the halteres are

yellowish in both sexes; 2. the wings are less infuscated, the veins being not edged with fuscous; 3. the spur of the hind tibiae is less developed, chiefly in the female; 4. the abdomen of the female is broadly reddish in the middle. In the female example the upper branch of the cubital fork is broadly interrupted at the base, its basal portion with the appendix being altogether wanting.

ECTYPHUS ABDOMINALIS, sp. nov. ♀.

Easily recognisable in the female sex by the darker legs, the non spurred hind tibiae and the black abdomen, which has a red longitudinal stripe along the middle. From both the preceding, species it is distinguished in the more regular shape of the lower branch of the cubital fork, running parallel with the fourth vein along its whole course.

Type ♀ a single specimen from Montagu, Cape Col., January 1876. (R. Trimen).

♀. Length of the body 15 mm., of the wing 12 mm. Head black, clothed with dark grey dust, but the face is reddish with whitish dust. Occiput with sparse reddish hairs near the middle and above near the eyes, which are edged with a grey stripe. Frons densely grey-dusted, with dark reddish hairs; face with pale yellowish hairs, which are whitish near the mouth. Antennae black, with the third joint dark reddish on its basal half and twice as long as the first two joints together; terminal club blackened, a little shorter than the third joint. Proboscis shorter than the mouth, black, with broad terminal flaps. Thorax entirely black, only the humeri and the postalar cells being dark reddish; on the back it is opaque, dark grey-dusted, with short dark pubescence; pleurae shining, reddish-brown along the sutures, bare, except a few short hairs on the pteropleura. Scutellum black, pubescent and dusted like the back; mesophragma black, reddish-brown on sides; squamae dark yellowish, with short whitish fringe; halteres blackish. Abdomen shining black, bare, even at base, with sparse, short dark hairs; the broad dorsal red stripe is extended from the 2nd to the 5th segment and is continuous; there are no light hind borders of the segments, and the bullae are dull black. Venter glittering black, reddish brown at base; spines of the ovipositor reddish. Legs with black coxae and trochanters; the 4 anterior femora are dark reddish, the posterior ones blackish-brown, tibiae and tarsi light reddish; all the hairs and bristles reddish; hind femora rather thick, armed below with strong reddish spines disposed in four rows, but without distinct basal tubercles; hind tibiae unarmed at end, with four



distinct bristles at hind border; claws red, with black tips. Wings greyish-hyaline with the veins edged with fuscous, only the costal and basal cells and base of the marginal cell being entirely infuscated, but with clear stripes in the middle. The second submarginal cell is of a regular shape, being about as broad in the middle as at end, the lower branch of the cubital fork being regularly and gently curved and quite parallel with the fourth vein; the first posterior cell is as broad in the middle as at end; the discoidal cell is stalked at end. Axillary lobe and alula edged with fuscous, the latter more broadly, and with a short but distinct dark fringe. Third posterior cell with punctiform base.

#### HAPLOMYDAS, gen. nov.

Nervuration of the wings as in *Leptomydas*, lacking a hind-marginal crossvein and with free end of the fourth longitudinal vein; but the upper branch of the cubital fork not appendiculated at base. Moreover the anal vein is straight, being suddenly curved below near the end; the ambient vein is very thin, almost iridescent. The lower veins of the first and of the third posterior cells are not placed on the same line. The terminal cross-vein of the first basal cell is separated from the terminal cross-vein of the discoidal cell, meeting with it and with the third longitudinal vein nearly at the same point; in other words the discal cross vein is reduced to a short stripe or only a simple dot, but this may be due to some anomaly of the unique type specimen.

Head as in *Leptomydas*, but with the frons less hollowed at vertex; anterior ocellus well developed; eyes bare. Third antennal joint shorter than in *Leptomydas*; proboscis very short, not projecting beyond the mouth opening, but well formed, with broad terminal flaps. Palpi not distinct. Body nearly bare, the metapleurae with a few scattered short hairs; the teguments are smooth, with no sculpture on thorax, and with a few scattered, impressed points on the abdomen, this last is broad at base, not pedunculate. Legs bare, proportionally short and stout; hind coxae greatly swollen; hind femora very much thickened, club-shaped, and armed below with four rows of strong spines; hind tibiae much arched at base, and with a small, acute spur internally at end.

The segment of the ovipositor bearing the circlet of spines is exerted, not concealed as in *Leptomydas*,

Type: The following new species.

From *Rhopalia* and *Perissocerus*, which have a non appendiculated second submarginal cell, the present genus is distinguished, also from

*Syllegomydas*, by the very different neuration of the tip of the wing. From *Eremomydas*, with which it agrees in the veins of the tip of the wing and in the shortness of the proboscis, it is distinguished by the non appendiculated second submarginal cell, and by the second longitudinal vein ending into the first far from the end of the upper branch of the cubital fork.

HAPLOMYDAS CRASSIPES, sp. nov.

A small, bare species, at once distinguished by its generic characters.

Type ♀; a unique specimen from S. Rhodesia, Bulawayo, May 1917, (R. W. Tucker.)

♀. Length of body 12 mm.; with the antennae 13.8 mm.; of wing 9 mm. Head black, but yellowish on the face, very shiny along the middle line, densely clothed with whitish dust on sides of frons. It is clothed with rather short, not bushy, white hairs; the dark postvertical bristles are short but strong. Antennae proportionately short, about as long as the transverse diameter of the head; they are dull reddish-brown, with the terminal club brighter reddish; the first joint is twice as long as the short second joint; the third joint is less than twice longer than the two basal joints together, its terminal portion being nearly as long as the first joint\*); terminal club swollen, ovate, as long as the third joint, with a distinct, rather long, truncate protuberance at end. Proboscis reddish-brown, with black flaps. Back of thorax dull black, with reddish-yellow humeri and postalar calli; it is almost bare, and has four longitudinal stripes of whitish dust, placed at equal distance, the exterior ones in contact with the notopleural line, and these beset with short scattered hairs. Pleurae shining black, bare, the pteropleurae reddish-yellow, the metapleurae with very short pale hairs. Scutellum and mesophragma black, dark grey-dusted, bare; squamae and halteres pale yellowish. Abdomen shining black, even on venter, only the terminal segment dark reddish-brown; all the segments have a broad yellowish hind border, which is even broader on the venter; bullae minute & whitish, rather iridescent. The abdomen is bare, even the whitish hairs of the sides at base being very sparse and short; but the two terminal segments are clothed with a rather long and dense yellowish pubescence, directed forwardly. The exerted terminal segment of the ovipositor is rounded, reddish, with dark reddish spines. The surface of the abdominal tergites shows scattered im-

\* This terminal portion of the third antennal joint is in reality a fourth joint, followed as a fifth joint by the so-called club, considered as the clubbed style.

pressed points. Legs with the coxae entirely yellowish, clothed with very scarce yellowish hairs; the spines of the hind femora are black or dark brownish; the hind tibiae are bare, and destitute of bristles on hind side; claws with yellowish base and black tips; pulvilli yellowish; hind coxae with a broad, soft, opaque area in front. Wings greyish-hyaline, but they appear a little infuscated on account of the wrinkled membrane. The veins are reddish; second longitudinal vein straight; second submarginal cell regular, its terminal stalk about as long as the basal one; first posterior cell broadly open; terminal cross vein of the discoidal cell as long as the basal one and perfectly parallel with it; third posterior cell much broader than the discoidal cell, both with a punctiform end; the lower veins of the first and of the third posterior cells are rather distant from the hind border of the wing. Anal cell of peculiar form; its extreme end being suddenly bent downwards, its point being short and provided with a long stalk; the axillary lobe is therefore of trapezoidal shape; alula rounded, rather small, not fringed.

GEN. LEPTOMYDAS, Gerstaecker, 1868.

This genus includes the greater number of species belonging to the South African fauna; but it is not peculiar to South Africa, having a very wide distribution in Mediterranean countries, the Oriental region and even North America. But it contains evidently heterogenous elements. Thus *L. indianus*, Brunetti, 1912, is described as having a short proboscis.

The nearctic species, judging from one example of *pantherinus* Gerst. in my collection, are not congeneric with the Old World kinds; the above named species has indeed a short proboscis, not thickened, and almost unarmed hind femora, and the fourth longitudinal vein ending into the first, as already noted by Osten-Sacken, and shown in the magnificent figure given by Cole, *Proc. Calif. Acad. Sci.* (4), IX, 1919, pl. 15, fig. 10; but it cannot be a *Syllegomydas* on account of the long antennae and of the well developed, even if short proboscis. The other species show more differentiated characters, having long or short proboscis, open or closed first posterior cell, and appendiculated or not appendiculated upper branch of the cubital fork.

All the South African species here enumerated are typical, and agree in the following characters. They have all a narrow and elongate body, which is sometimes rather villose, and have a non-stalked abdomen, which is broader at base than in the middle; the

teguments are smooth, not sculptured. The metapleurae are hairy. The anterior ocellus is sometimes distinct, chiefly in the female. The third joint of the antennae is long; it is obviously divided in two parts, which however are not always easily seen; the terminal club is broad and long. Wings proportionately short, always shorter than the elongate abdomen. The ambient vein is thinner than in *Ectyphus*, sometimes hardly visible, and there is no hind-marginal cross vein. Both branches of the cubital fork end into the first longitudinal vein, the upper one always appendiculated at base; second submarginal cell always stalked at end; discoidal cell always acute at end and as a rule stalked. Fourth longitudinal vein ending free into the costa, at some distance from the end of the first; first posterior cell therefore always broadly open as in *Ectyphus*. First and third posterior cells placed at equal distance from the hind border of the wing, their lower veins running on the same line, parallel with the hind border self; the third posterior cell, in opposition to what is observed in *Ectyphus*, is narrowed at end, being there as narrow as at base; its terminal cross vein is therefore much shorter than that of the discoidal cell, and sometimes even punctiform. The type of the genus was established by Coquillett in 1910: *Mydas lusitanicus*, Meigen. 1820.

The two South-African species, *westermanni* and *rufithorax*, placed in the genus *Cephalccera* by the authors, are to be referred to the present genus, the numerous species of which can be distinguished as follows: —

- (2) 1. Thorax and base of abdomen with short and sparse hairs in both sexes, the metapleurae being almost bare; antennae as long as the proboscis, with the third joint not longer than the terminal club; back of mesonotum with four broad white longitudinal stripes; legs not pilose . . . . .  
♂ ♀. *luctuosus*, sp. nov.
- (1) 2. Thorax and base of abdomen clothed with long and dense hairs, the metapleurae hairy; antennae longer than the proboscis, with the third joint longer than the club; back of mesonotum not so conspicuously striped; legs pilose.
- (8) 3. The long and dense hairs of the thorax and of the base of the abdomen are reddish or yellowish; back of mesonotum not distinctly striped; abdomen proportionately short and broad, in the male even the terminal sternites clothed with long hairs.
- (5) 4. Abdomen clothed with black hairs, except on the two basal segments, and with less developed yellow hind borders . . . . . ♂ *westermanni*, Wied.
- (4) 5. Abdomen entirely clothed with pale hairs, and with more developed yellowish hind borders to the segments.
- (7) 6. Hind tibiae shortly pilose . . . . . ♂ ♀ *rufithorax*, Wied.
- (6) 7. Hind tibiae with long and dense hairs . . . . . ♂ *lanipes*, sp. nov.

- (3) 8. Hairs of thorax and of base of abdomen less developed and a whitish colour; back of thorax often with stripes of pubescence; abdomen longer and thinner, with only the basal sternites with long hairs in the male.
- (32) 9. First posterior cell broadly open at end as usual, the fourth longitudinal vein ending into the costa at a considerable distance from the end of the first, this distance being always longer than the stalk of the second sub-marginal cell; proboscis long as usual.
- (31) 10. Antennae and proboscis quite black or only in part reddish; wing veins rather thick and of a brownish or dark yellowish colour.
- (22) 11. Males.
- (13) 12. Back of mesonotum distinctly shining under the vestiture, not at all striped . . . . . *nitidus*, sp. nov.
- (12) 13. Back of mesonotum not shining.
- (19) 14. Abdomen shining even on the middle segments.
- (16) 15. Face black; back of mesonotum less distinctly striped . . . *nivosus*, Gerst.
- (15) 16. Face yellow; back more distinctly striped.
- (18) 17. Hind tibiae internally with short villosity, the hairs being shorter than the breadth of the tibiae . . . . . *humeralis*, Gerst.
- (17) 18. Hind tibiae on the inner side with long villosity, the hairs being longer than the width of the tibia . . . . . *braunsi*, sp. nov.
- (14) 19. Abdomen opaque, except sometimes on the two basal segments, which are shining.
- (21) 20. Abdomen with shining basal segments, the other opaque, with broad grey bands on posterior half, and with the yellowish hind borders narrow and present only on the middle segments; hind tibiae villose; wings faintly but distinctly infusate on apical half, and with black veins  
*opacus*, sp. nov.
- (20) 21. Abdomen entirely opaque, all the segments with broad and prominent yellow rings at the hind border; hind tibiae nearly bare; wings hyaline, with all the veins yellowish . . . . . *paganus*, Gerst.
- (11) 22. Females.
- (24) 23. Back of mesonotum shining and quite unstriped . . . . . *nitidus*, sp. nov
- (23) 24. Back of mesonotum opaque and often striped.
- (30) 25. Abdomen shining black or shining brown, with yellowish rings at hind border of the segments.
- (29) 26. The yellowish abdominal rings are narrow, and moreover they are not distinct on the three terminal segments.
- (28) 27. Face entirely yellow . . . . . *humeralis*, Gerst.
- (27) 28. Face black, or only yellow at the sides . . . . . *nivosus*, Gerst.
- (26) 29. The yellowish abdominal rings are very broad and equally developed on all the segments, even on the terminal ones . . . . . *paganus*, Gerst.
- (25) 30. Abdomen reddish-yellow, except at base and end, and with black spots on the sides of the middle segments. . . . . *braunsi*, sp. nov.
- (10) 31. Antennae and proboscis entirely reddish-yellow; abdomen of the female shiny reddish-brown, with broad yellowish rings at the hind border of all the segments; wing veins slender and pale yellowish or whitish . . .  
*flavirostris*, sp. nov.
- (9) 32. First posterior cell very narrow at end, the fourth vein ending almost

in contact with the first, the distance being about as long as the stalk of the second submarginal cell; proboscis short; abdomen of the female reddish-brown, with broad yellowish rings at the hind border of all the segments . . . . . *subclausus*, sp. nov.

#### Group I: LUCTUOSUS.

The present group, consisting now of only one species, is very distinct from all the others chiefly on account of the shortness of the antennae and of the nakedness of the body.

#### LEPTOMYDAS LUCTUOSUS, sp. nov.

A very distinct, proportionately small species, of a deep black colour with white ornamentations in both sexes, and with quite hyaline wings with black veins.

Type ♂ and type ♀, a couple of specimens from Matroosberg, 4000 ft., Ceres Div., (Cape) Jan. 1917, (R. M. Lightfoot).

♂ length of body 13 mm., of wing 7 mm.;

♀ length of body 16 mm., of wing 8,5 mm. Head black, very shiny in the middle of frons and face, but the sides of the face are rather broadly ferruginous. Face and frons narrower than in all the other species. Occiput densely grey-dusted, with scattered white hairs, denser in the male, chiefly on the upper middle part; in the female there is a small row of distinct but short dark reddish post-vertical bristles, which however are not extended laterally beyond the eyes. Frons of male as broad as one eye, in the female distinctly broader; ocellar tubercle very glistening, the anterior ocellus well developed, chiefly in the female; sides of frons densely clothed with white dust and with long and dense white hairs in the male, but with scarce ones, almost wanting towards the middle in the female. Face shining black in the middle, densely white-dusted on the sides, clothed in the male with dense and long white hairs, which are shorter and less abundant in the female. Antennae black and proportionately short, being shorter than the transverse diameter of the head; first joint twice as long as the very short second and nearly bare; third joint rather thick, scarcely twice the length of the basal joints; terminal club ovate swollen, reddish-brown, about as long as the third joint, with a short but distinct truncate protuberance above at the end. Proboscis entirely shining black, 1.5–2 mm. long, with rather broad terminal flaps. Thorax of a dull black colour on the back, the humeri and the postalar calli reddish, but densely grey-dusted; there are four broad, complete, longitudinal

stripes of white dust, the lateral broader than the inner ones, in contact with the notopleural line, and extending from the humeri to the postalar calli; pleurae likewise dull black, with reddish-brown pteropleurae; the hairs of the back are very short and dark, but in the male the lateral white stripes are clothed with rather long but sparse white hairs; the pleurae are bare, with severed short whitish hairs on the pteropleura only. Scutellum black, bare, with a small reddish stripe on each side of the posterior edge. Mesophragma greatly developed, convex, black, grey-dusted, whitish on the sides and there with scattered whitish hairs in the male. Squamae and halteres blackish. Abdomen dull black in both sexes, but the three terminal segments are rather shining in the female, and the sides are distinctly reddish-brown in the male; is is proportionately short and broad, being in the female much thicker than in the male; the segments 2-6 have in both sexes a well developed whitish wing at the hind border, that of the second being in both interrupted by the dull black bullae; the venter is reddish-brown, darker in the male than in the female, and is very shining on the apical half in the female. The hairs are white, and rather long but not dense at the sides of the two basal segments in the male, and very short on the remainder; in the female the abdomen is practically bare, the first segment only having very short white hairs on the sides, the two terminal segments are in the female completely clothed with equal, rather long blackish hairs directed forwards. Male genitalia reddish-brown, pale-haired, with the middle upper lamella deeply emarginate at end, the upper lateral lamellae acute and triangular, and with the lateral horn-like appendages flat, shining black on the apical half; the lower lamella is rounded. Spines of the ovipositor reddish-yellow. Legs very dark in both sexes, with black coxae and black trochanters, blackish or reddish-brown femora, reddish tibiae and tarsi; the latter however almost blackish in the female. Hind femora equally but not much thickened in both sexes, armed below with strong black or reddish spines disposed in two irregular rows extending from the base to the end, and placed on small, less distinct tubercles; hind tibiae without apical spur, both with 2-3 strong bristles. All the legs are nearly bare, the four anterior tibiae on the inner side with a row of bristly hairs, are more robust in the female, the female has moreover very strong bristles on the underside of the tarsi; claws reddish, with black tips; pulvilli reddish. Wings proportionately short, purely hyaline in the male, with a faint darkish shade in the middle in the female; all the veins are of a deep black colour in both. Second submarginal cell rather narrow

and regular, appendiculated at base and with well developed terminal stalk; praefurca exceedingly short; first posterior cell broadly open at end; discoidal cell with a long stalk at the end; third posterior cell as broad at end as at base, its terminal cross-vein being about half as long as the terminal vein of the discoidal cell; anal vein rather wavy; alula rounded, not fringed, hyaline.

#### Group II: WESTERMANNI.

This is evidently a group characteristic of the South African fauna, but not easy to define in a few words if one has before him numerous examples of the genus. Those of the present group are at once recognisable by the proportionately broader, shorter and more hairy body; an examination of Pl. 4 IV. of Wiedemann's *Monograph*, comparing figs. 15 and 16 with the others, is sufficient to give a good idea of the group.

The two species *westermanni* and *rufithorax* have been placed in the genus *Cephalocera* by Guérin-Meneville, Westwood and subsequent writers; but erroneously, as even Wiedemann's figures show clearly the neuration of *Leptomydas*; Gerstaecker had no specimen for examination.

#### LEPTOMYDAS WESTERMANNI, Wiedemann 1819.

At once distinguished in the male from all the other species on account of its black and black-haired abdomen, except at base.

One ♂ specimen from the Cape, without precise locality, labelled by Bigot *Cephalocera longiventris*, a name which has never been published.

The species was described in a recognisable manner and subsequently figured by Wiedeman, more than a century ago. Antennae long, with the third joint three times as long as the first two joints together, and much longer than the terminal club. Proboscis entirely shining black, with broad terminal labella, 2.5 mm. long. Face entirely black. Meso- and sternopleurae bare, pteropleurae villose, meta-pleurae with a tuft of dense long hairs. Squamae brownish. bare; halteres dark yellowish. Abdomen reddish-brown on sides and at end; male genitalia reddish, with the upper lamella slightly emarginate at end, and the horn-like appendages shining reddish, curved above. Venter entirely reddish, clothed with long pale hairs on its whole length, those of the two terminal segments being blackish. Legs villose, chiefly the coxae, and femora and those of the hind pair; hind femora thickened, with two rows of strong reddish spines,



below, placed on small tubercles; hind tibiae simple at end and villose in the inner part, the villosity about as long as the width of the tibia, but not very dense; claws red with black tips. Wings with the second submarginal cell of regular shape, provided with a short stalk, and with the lower branch of the cubital fork gently curved and parallel with the last portion of the fourth longitudinal vein; first posterior cell broadly open at end; third posterior cell as broad at base as at end, its terminal cross vein being equal to that of the first basal cell; first and third posterior cells with their lower veins at equal distance from the hind border of the wing.

LEPTOMYDAS RUFITHORAX, Wiedemann, 1821.

Allied to the preceding species, but distinct in the less thick body and in the different clothing of the abdomen.

Three specimens from Cape Town: one male, February 1915 (R. M. Lightfoot); another ♂ (J. C. BRIDWELL); one female without data.

The male is very like that of *westermanni*, but the hind tibiae are less villose internally, the villosity being scattered and shorter than the width of the tibiae. The female has the abdomen longer, and is less villose than the male. Occiput with some bristly hairs above between the fur. Face yellow, proboscis reddish below; antennal club reddish, with a blackish oval spot underneath at end. Abdomen shining black, the two basal segments with long pale hairs; the segments 2-5 with broad yellow hind border, that of the second with shining black bullae; 7-8 segment reddish, with the peculiar pale hairs directed forwards; spines of the ovipositor reddish; venter reddish-yellow, with scattered pale hairs even on the terminal sternites. Hind femora less thickened than in the male but equally spinose below; hind tibiae with two irregular rows of strong reddish bristles on the outer side. In the specimen at hand the legs are entirely reddish, only the four anterior coxae being black; the femora lacks the dark markings mentioned by Wiedemann.

LEPTOMYDAS LANIPES, sp. nov.

Closely allied to the preceding, but differing in the male by the much more villose hind legs.

Type ♂, a single specimen from Triangle (Cape), January 1885 (L. Péringuey).

♂. Length of body 13 mm.; of wing 9 mm. Head entirely black even on the face; occiput densely grey-dusted and clothed with

dense white hairs; frons shining, above with dense tufts of pale yellowish hairs, whiter in the anterior part and on the face. Antennae wholly black, with the terminal club greyish at end and much shorter than the third joint. Proboscis black, 2.5 mm. long. Thorax shining black on the back, clothed with dense reddish-yellow hairs, but posteriorly before the scutellum with a tuft of white ones divided in the middle and bent forward on the sides. Pleurae shining black, with densely villose pteropleurae and metapleurae. The small scutellum is shining black and bare. Squamae darkish; halteres dark yellowish with darker knob. Mesophragma shining black, bare on the middle but villose on the sides. Abdomen shining black; the first segment and the basal half of the second are clothed with long, reddish-yellow hairs, while all the other segments have pale yellowish hairs; segments 2-6 with yellowish borders; venter entirely reddish yellow, with long yellowish hairs on all the sternites. Genitalia reddish-brown, yellowish pilose, shaped as in the preceding species, with the lateral horn-like appendages shining reddish. Legs entirely dark reddish with black coxae and with the hind femora and hind tibiae darkened outwardly; they are clothed with yellowish hairs, and those of the hind pair are very villose, chiefly on the tibiae, where the villosity is longer than the width of the tibia; hind femora not much thickened, with two rows of strong spines below; hind tibiae with 3-4 strong bristles at end; claws almost entirely reddish. Wings hyaline, with a faint but distinct diffused yellowish patch in the middle. Veins entirely reddish; second submarginal cell regular, with a short stalk; first posterior cell broadly open; third posterior cell as broad at base as at end; the two lower veins of the first and of the third posterior cell at equal distance from the hind border of the wing,

### Group III: HUMERALIS.

This group is the more numerous in South Africa, and the species are more difficult to distinguish. They are recognisable by their thin and elongate body, the abdomen of the male being attenuated and less hairy in the apical half; the abdomen of the female is thicker but always elongate and nearly bare. The hind femora are less thickened in both sexes, but are always spinose beneath.

Besides the species recorded in the table, it is probable that *dispar*, Loew belongs to the present group; it is described from Mozambique as being in both sexes of a yellowish colour, with black stripes on thorax and black transverse bands on abdomen.

*Mydas rufipes*, Westwood, from an unknown locality or from Sicily, is in all probability a species of the genus *Syllegomydas*. on account of its short antennae.

LEPTOMYDAS NITIDUS, sp. nov.

Easily distinguished from all the other species of the present group in having in both sexes the back of the mesonotum distinctly shining like the abdomen. Type ♂ and type ♀, a couple of specimens from Matroosberg, 4000 ft., Ceres Div., (Cape) January 1917. (R. M. Lightfoot).

♂ ♀ Length of body 15–16 mm.; of wing 9–10 mm. Head entirely shining black, even on the facial tubercle, but densely clothed with whitish dust on the sides of occiput, frons and face; it is moreover clothed with long white hairs, those of the female being only a little shorter than those of the male, and they are of the same colour above and below the antennae; in the female there are three darkish postvertical bristles on each side, well distinguishable between the fur. Antennae long, quite black in both sexes; proportion of the length of the joints as in the species of the preceding group. Anterior ocellus well developed in the female. Proboscis shining black, as long as the antennae, with broad terminal flaps. Thorax on the back shining black, not striped, entirely clothed with equal white hairs which are tuft-like on the sides and are not much longer in the male. Pleurae shining black, bare in the middle and below, with dense white tufts on ptero- and metapleurae; the rounded prominence above the front coxae is whitish-dusted and is clothed with a tuft of long white hairs. Scutellum and mesophragma shining black, the former bare, the latter with long white hairs on the sides; squamae dirty brownish; halteres blackish. Abdomen elongate cylindrical, attenuated behind, that of the female being not much thicker than in that of the male; it is in both sexes entirely shining black, but the venter is reddish in the female and has red spots in the middle segments in the male; the tergites 2–6 have yellowish rings at the hind border, broader in the female, and that of the second segment broadly interrupted in both sexes by the large, shining black bullae. All the hairs of the abdomen are white, being dense and long on the two basal segments chiefly in the male; the 4–5 terminal segments have in the female the peculiar pubescence directed forwards; the venter of the male on the terminal half has not the tufts of hairs which are to be seen in the species of the *westermanni* group. Male genitalia reddish brown, white pilose, shaped as usually, with the upper middle lamella not deeply emarginate, and with the two horn-like lateral appendages shining reddish and curved upwards.

Spines of the ovipositor black. Legs entirely reddish-yellow, with black coxae and with the hind femora distinctly infuscated above; the hairs are white and rather long, chiefly those of the hind pair; hind tibiae of the male with scattered but long inner villosity; hind femora less thickened, not much more robust in the male, with two rows of strong reddish spines placed on small tubercles; hind tibiae at end with 2-3 bristles, and moreover in the female with several strong reddish bristles on both sides; tarsi bristly on the underside; claws red with black tips; pulvilli yellowish. Wings hyaline in both sexes, but in the female with a faint yellowish tint towards the middle. Veins dark reddish, blackened in the terminal half; second submarginal cell regular and with a short terminal stalk; first posterior cell broadly open; third posterior cell only a little narrower at end than at base; the lower veins of the first and of the third posterior cell are at the same distance from the hind border of the wing; anal vein wavy. Axillary lobe broad; alula rounded, glassy, without fringe.

LEPTOMYDAS NIVOSUS, Gerstaecker 1868.

A normal species with the back of thorax dullish and less distinctly striped in both sexes, and with a shining black abdomen, which has rather narrow yellowish rings.

A couple of specimens from Matjesfontein (Cape) November 1910 (R. M. Lightfoot), one male from Cape Town, and another from Hex River. (L. Péringuey).

For description of the male see Gerstaecker; the terminal club of the antennae is sometimes dark reddish. The hitherto unknown female is of about the same size as the male, its abdomen being not much thicker. The face is ferruginous on the sides; the hairs of head and base of abdomen are shorter; there are 4-5 postvertical bristles on each side. Abdomen shining black, with rather broad yellowish hind borders on the segments 2-5; bullae small and shining black; the hairs are white, short and scattered, except at base, those of the four terminal segments being directed forwards; venter shining reddish, but blackened at end; spines dark reddish or blackish. Legs as in the male, but less villose and with thinner, almost not thickened hind femora; hind tibiae with less developed bristles. Wings as in the male, but with a little more darkish tint in the middle. Nervuration regular in both sexes; the terminal crossvein of the third posterior cell rather short, shorter than the basal one.

LEPTOMYDAS HUMERALIS, Gerstaecker 1868.

Closely allied to the preceding species, but distinguished by the more distinctly striped back of the thorax and by the broadly yellow face in both sexes. But as these are characters of lesser value, it is possible that both species may be united as a unique one under the present name.

A couple of specimens from Bushmanland, Jackals Water (Cape), October 1911 (R. M. Lightfoot); an additional female specimen from Triangle, (Cape), January 1895. Postvertical bristles less distinct; anterior ocellus well developed.

The male not hitherto described, is almost the same as that of the preceding species, but has an entirely yellow face. The neuuration of the wings is the same, but there is a tendency for the terminal stalk of the discoidal cell to be lost, the third posterior cell becoming thus punctiform at end, as represented in Gerstaecker's figure.

LEPTOMYDAS BRAUNSI, spec. nov.

Closely allied to *humeralis*, but distinct in the longer villosity of the hind tibiae in the male, and in the rufous abdomen of the female.

Type ♂ and type ♀, a couple of specimens in the writer's collection, from Willowmore, (Cape), 15th November 1920, taken *in copulâ* by Dr. E. Brauns. in whose honour the species is named.

From the European *lusitanicus*, which presents the same sexual dichroism, the present species is distinguished by the longer antennae and by the spinose hind femora. It is possibly allied to *fulviventris*, Bigot, from the Sudan, the name of which must however be changed, as there is an earlier *L. fulviventris*, Leon Dufour 1850, which is the female of *lusitanicus*.

♂ ♀. Length of the body 18–19 mm.; with the antennae 21–22 mm.; of the wing 12–13 mm. Head entirely shining black, except the face, which is yellowish in the male; near the eyes there is whitish dust; it is clothed with long and bushy white hairs of about equal length in both sexes; postvertical bristles of the female distinct. Antennae quite black and of equal shape in both sexes; first joint twice as long as the second; third joint with a less distinct division, three times as long as the first two joints together; the terminal club is shorter than the third joint, broad, greyish at end. Proboscis of the same length as the antennae, 3 mm. long, extending beyond the end of the third joint, shining black, with

broad terminal flaps. Thorax entirely dull black, with the humeri dark reddish; on the back it is distinctly striped, the white hairs being disposed in five longitudinal rows, the median being the narrowest of all, while the exterior ones, those in contact with the notopleural line are the broadest and provided with longer hairs; pleurae likewise black, greyish-dusted above, shining below, with long white tufts on the ptero- and metapleurae. Scutellum shining black; bare; mesophragma black, less shining, with long white hairs on the sides. Squamae blackish, with a dirty whitish border; halteres blackish, with pale yellowish stalk. Abdomen of the male entirely shining black, but with the terminal segments a little grey-dusted; the three basal segments are clothed with long white hairs, the other segments with short ones which are black in the middle and white on the sides and behind; 2nd, 3rd and 4th segment with broad, 5th with narrower whitish yellow hind border, that of the second being interrupted by the shining black bullae; venter yellowish, with the three terminal sternites blackish, and with only the 3 basal sternites clothed with long white hairs; genitalia dark reddish, blackish at base, white-haired, with the horn-like appendages proportionately short and broad. Abdomen of the female shining rufous, with the first segment shining black and with the three terminal ones dull black, but the sixth with a triangular rufous spot at hind border; the segments 2-5 with a broad black spot on each side and with a distinct, narrow whitish hind border, that of the second, interrupted by the shining black bullae; all the hairs are white, long on the two basal segments, short on the rest, directed forwards on the five terminal segments; venter reddish, the 3rd and 4th segment with broad black band at hind border, the four terminal segments dull black, and with all the hairs white and short; spines dark reddish, with black tips.

Legs dark reddish, with black coxae and darkened femora; the hairs are white, scarce and short in the female, long and abundant in the male chiefly on all the femora and on the whole hind pair, the tibiae having inwards a very long villosity; hind femora less thickened in both sexes, but always more distinctly in *lusitanicus*, and armed underneath with strong reddish spines; hind tibiae of the female with only 4-5 strong bristles internally near the end; bristles of tarsi whitish; claws reddish with black tips; pulvilli yellowish. Wings whitish hyaline in both sexes, with a faint yellowish tint on the terminal half, chiefly in the female and along the veins; veins reddish on the basal and blackish on the terminal half. Second submarginal cell regular, with a short stark; first posterior cell

broadly open; third posterior cell almost as broad at end as at base; lower veins of the first and of the third posterior cells at the same distance from the hind border of the wing.

Axillary lobe broad; alula rounded.

LEPTOMYDAS OPACUS, sp. nov.

Nearly allied to the three preceding species, but easily distinguishable in the male sex by the opaque abdomen which is shining at the base only; from the following species it differs in the much less developed and almost wanting yellowish hind border of the abdominal segments.

Type ♂, a unique specimen from Dunbrody, Cape Colony, 1901 (Father J. O. Neil).

♂. Length of the body 18 mm.; of the wing 12 mm. Head entirely black, shining on middle of frons and face, densely clothed with whitish dust on sides of both and on the occiput; it is clothed with long and dense white hairs; there are also some dark yellowish postvertical bristles. Antennae long, quite black, with the usual proportion in the length of the joints as in the preceding species. Anterior ocellus distinct. Proboscis black, of the usual length and shape. Back of thorax dullish black, grey-dusted and distinctly striped, clothed with whitish hairs, which are longer on sides and in front of the scutellum. Pleurae in great part reddish or reddish-brown, grey-dusted, with long whitish tufts on ptero- and metapleurae.

Scutellum shining black, bare; mesophragma black, grey-dusted, with white hairs on the sides. Squamae dirty whitish, with short whitish fringe; halteres blackish. Abdomen black, shining on the two basal segments alone, on the remainder it is dull, being clothed by a dark dust; the second segment has a narrow yellowish hind border interrupted by the shining reddish-brown bullae; the segments 3-5 have a narrow whitish hind border, and in addition on the 6th have a broad band of grey dust at end, the 7th being entirely grey; the hairs are long and white at base, short beyond it and white on sides and black in the middle. Venter reddish-brown at base, and with long whitish hairs there, blackish grey-dusted and with short darkish hairs on terminal half. Genitalia black, whitish pilose, the horn-like appendages shining brown. Legs reddish-yellow, with black coxae and darkened femora; they are whitish tomentose and whitish pilose, the hind tibiae with short villosity; hind femora less thickened, with two rows of strong reddish spines below; claws almost entirely black; pulvilli yellowish. Wings hyaline at base, faintly but distinctly infuscated on more than the apical half; veins

black, in part reddish-brown near the base; second submarginal cell regular, with short terminal stalk; first posterior cell broadly open; third posterior cell with the terminal cross vein as long as the basal one, the lower veins of the first and of the third posterior cells being at equal distance from the hind border of the wing. Axillary lobe broad; alula rounded, hyaline, not fringed.

LEPTOMYDAS PAGANUS, Gerstaecker 1868.

A very distinct species, on account of the entirely opaque abdomen of the male, and of the more numerous and broader yellowish wings of the abdomen in both sexes.

Male from Cape Town; female from Stellenbosch (Cape). (L. Péringuey). The male is as described by Gerstaecker, but has the face entirely black and the terminal club of the antennae reddish in the middle; pleurae black; hind tibiae nearly bare; wings hyaline, with the veins not bordered by fuscous; second abdominal segment shining at the base only. A ♂ example from O'Kiep, Cape, agrees better with Gerstaecker's description, the face being yellowish and the antennae wholly black.

The female not described hitherto is more briefly hairy and thicker; the face is ferruginous at sides; the front ocellus is well developed; the antennae are entirely black; the thorax is rather shining on the back, chiefly on the posterior half, and is more broadly reddish on sides and on pleurae; Abdomen shining black, with reddish-brown terminal segments and reddish-yellow venter; the segments 2—7 with broad yellowish hind borders, that of the second interrupted by the shining black bullae; the three terminal segments with the usual pubescence directed forwards; spines of the ovipositor blackish or reddish brown. Legs as in the male, but with thinner hind femora; claws red with black tips. Wings hyaline, with reddish veins.

LEPTOMYDAS FLAVIROSTRIS, sp. nov.

Allied to the preceding, but distinct by the almost entirely yellowish colour of the antennae and proboscis, by the more lightly coloured body and legs, and by the almost whitish wing veins.

Type ♀ and an additional example of same sex, from Hex River, (Cape) December 1883. (L. Péringuey).

The present species is probably allied to *L. dispar*, Loew, from Mozambique.

♀ Length of body 18–20 mm.; of wing 12–13 mm. Head entirely



reddish-yellow, shining black in the middle of the frons, blackish near the eyes and there densely clothed with greyish or yellowish dust; hairs rather long and dense, yellowish above, white below; four or five yellowish postvertical bristles on each side. Anterior ocellus less developed. Antennae entirely yellowish, only the terminal club darkened at end; third joint three times as long as the two basal joints together, and longer than the club. Proboscis as long as the antennae, entirely yellowish above and under, the terminal flaps blackish. Thorax entirely reddish, but blackish and grey-dusted in the middle of the back, clothed with yellowish hairs, but the pteropleural and notopleural tufts are whitish. Scutellum and mesophragma shining reddish, the latter with long whitish hairs on the sides. Squamae and halteres dirty whitish or yellowish. Abdomen shining reddish-brown; with more or less darkened basal tergites; it is clothed with long white hairs on the second basal segments, and with short ones on the remainder, those of the terminal four segments being yellowish and directed forwards. The yellow hind borders of the segments are broad and present from the 2nd to the 7th; the bullae are shining black, large and very striking. Spines of the ovipositor reddish. Legs entirely yellowish, with reddish coxae, and with short whitish or pale yellowish pubescence; hind femora very little thickened, with strong yellowish spines below; hind tibiae with strong yellowish bristles; claws yellowish, with black tips. Wings whitish hyaline, with entirely pale yellowish or whitish veins. Second submarginal cell rather dilated below before the end (but regular in the second example), with short terminal stalk; first posterior cell broadly open; terminal stalk of the discoidal cell very short or even absent, the third posterior cell being punctiform at its outer end; the two lower veins of the first and third posterior cells are at equal distance from the hind border of the wing.

*Note.* A small male specimen without label, may be considered as that of the present species. It measures only 15 mm. in length and the wing 10 mm. The head is as in the female, with longer and entirely whitish hairs; proboscis and antennae as in the female and of the same colour. Thorax dull black on the back, reddish on the sides and on the pleurae; the hairs are longer and quite white, even on the back which is striped. Scutellum shining black; mesophragma reddish-brown. Abdomen dark reddish brown, with the two basal segments shining and clothed with long white hairs; the other segments are opaque, with short hairs, 3-5 with narrow whitish hind border and with a broad grey band before it, becoming

broader on segments 6-7 hind border of the second segment yellowish, with broad shining black bullae. Genitalia reddish, white haired, of usual shape. Legs entirely yellowish, whitish-haired; hind tibiae with short villosity; hind femora only a little thickened, with less developed spines below; they appear therefore almost simple and unarmed. Wings hyaline, with dark yellowish veins and with regular nervuration, the first posterior cell only being more narrowed at end.

LEPTOMYDAS SUBCLAUSUS, sp. nov.

Closely allied to the preceding species, but distinct by the short proboscis and by the much more narrowed first posterior cell which is almost closed at end. The short proboscis of the present new species is like that of *lusitanicus*.

Type ♀ and an additional specimen of the same sex from Spectakel, Namaqualand (Cape) October 1890 (R. M. Lightfoot), but the latter specimen is doubtful having shorter and broader wings, and having a differently coloured abdomen, with black lateral spots.

♂. Length of body 17 mm.; of wing 13 mm. Head entirely shining black, with dark grey dust on the sides of frons and of face, and on upper part of occiput; it is clothed with long whitish hairs. Anterior ocellus not distinct. Basal joint of the antennae black; the rest is wanting in case of the type. Proboscis very short, but well developed; it is 1.5 mm. long, projecting from the mouth opening only by the broad terminal flaps; it is black above and at end, and reddish below. Thorax dull black on the back, with reddish humeri and reddish sides; it is clothed with short yellowish hairs; pleurae dull blackish with reddish patches, and with whitish tufts on ptero- and metapleurae. Scutellum and mesophragma reddish-brown, the latter blackish behind. Squamae and halteres yellowish, the latter with darker knob. Abdomen shining reddish brown, with the basal tergites blackened; it is clothed with long whitish hairs at base, and with very short ones on the remainder, those of the four terminal segments being directed forwards; all the segments, except the first and the last, have broad yellowish hind borders; the bullae are shining black but small; the venter is entirely reddish, and, likewise with broad yellowish hind border on the segments; spines of the ovipositor reddish. Legs yellowish, with reddish coxae; hind femora very little thickened, almost simple, with pale yellowish spines below. Wings hyaline, but with a faint yellowish tint and with reddish veins. Second submarginal cell puffed up at base, with the terminal vein ending very near the stalk of the second submar-

ginal cell, the first posterior cell being thus almost closed at border; discoidal cell sessile at end, the outer end of the third posterior cell being punctiform; the lower veins of the first and of the third posterior cell are placed at the same distance from the hind border of the wing.

HALTERORCHIS, gen. nov.

A peculiar genus, distinct by the very short antennae and by the rudimentary proboscis.

Body smooth, almost bare. Head with the vertex not hollowed. No ocelli.

Mouth opening almost closed, proboscis rudimentary. Antennae shorter than the transverse diameter of the head; third joint equal in length to the two first joints together; terminal club greatly swollen, rounded, as long as the whole antennae. Eyes bare. Thorax with nearly bare metapleurae. Abdomen with a peculiar pattern; terminal segment of the ovipositor exerted, and with a circlet of thin and long spines; bullae very minute. Legs slender; hind femora not thickened and unarmed below, only with scattered bristles; hind tibiae straight, without spur at end. Wings with appendiculated second submarginal cell; fourth longitudinal vein meeting at end with the stalk of the second submarginal cell, the first posterior cell being thus clothed at the border. Lower vein of the third posterior cell placed much nearer the hind border of the wing than that of the first, in the same position as in *Ectyphus*. Anal vein less wavy; ambient vein almost indistinct; no hind-marginal cross-vein.

Type: the following new species.

HALTERORCHIS INERMIS, sp. nov.

A small species, very distinct, besides the generic characters, by the peculiar abdominal pattern.

Type ♀, a unique specimen from O'Okiep, Namaqualand, (Cape).

♀. Length, of body 9 mm., with the antennae 10 mm.; of the wing 8 mm. Head black, but densely grey-dusted even on the middle of the frons, only the distal end of the ocellar tubercle being shining black; it is clothed with rather long white hairs; postvertical bristles less developed. Frons and face with parallel sides, very broad, broader than one eye. Antennae reddish-brown, with the terminal club bright reddish but infuscated outwardly; first joint only a little longer than the second, with long white hairs; third joint as long as the two first joints together, its terminal portion

(or fourth joint) very short; the terminal club is as long as the whole antenna, and almost sphaeroidal in front view. The inferior part of the head is shining black; the very small rudiment of the proboscis is yellowish. Thorax black, dark grey-dusted, quite opaque even on the pleurae, with reddish humeri; with short, scarce, whitish hairs disposed on four longitudinal stripes on the back; the pleurae are practically bare, with short hairs on the pteropleurae, and with less distinct ones on the metapleurae. Scutellum grey-dusted on the basal half, shining black on the apical half, bare, but concealed below the long whitish hairs of the hind part of the mesonotum; mesophragma grey-dusted, bare. Squamae and halteres whitish. Abdomen rather short and broad, of a dull blackish colour, dark reddish-brown on middle of the tergites and rather shining black on sides; it is clothed with scarce whitish hairs at base, and with yellowish pubescence, directed forward on the two terminal segments. The peculiar pattern consists in a yellowish band at the base of the segments 2-5, but more developed on 2 and 3. This band is broadly interrupted in the middle, and does not reach the sides laterally; it is thus reduced to two transverse spots, one on each side of the segments, with the external ends bent behind at right angles; moreover there are narrow yellowish rings at the hind border of the segments 2-6; the venter is entirely reddish, unspotted. The last segment of the ovipositor is reddish, with dark spines. Legs slender, entirely yellowish, with blackish coxae and darkened femora; they are nearly bare, but all the tibiae and chiefly those of the hind pair are beset with yellowish long bristles; hind femora simple, with some scattered yellowish bristles below; claws and pulvilli yellowish, the former with black tip. Wings greyish-hyaline, with reddish veins. The first basal, the discoidal and the third posterior cell have parallel sides and are all of about the same width; the third posterior cell is punctiform at end. The second longitudinal vein ends into the first at equal distance as both branch of the cubital fork, the three terminal segments of the first vein being thus all of the same length. Alula very small and transverse, without fringe.

MYDASELPIS, gen. nov.

A very characteristic genus, distinguished from all the others on account of its pedunculate abdomen and of its deeply punctulate and brightly coloured body. The neuration of wings shows also some peculiarities.

Head with little hollowed vertex; in front view it is narrowed

below, the eyes having no parallel sides, but being convergent inferiorly. Anterior ocellus distinct, at least in the female; and placed in the middle of the frons. Eyes bare. Antennae long, longer than the transverse diameter of the head; third joint more than three times as long as the two first joints together; terminal club elongate, as long as the third joint. Proboscis thick, with broad terminal flaps, projecting, but proportionately short being no longer than the half of the length of the antennae or nearly so. Palpi not distinct. Thorax bare, even on the ptero- and meta-pleurae; it is rugulose and deeply punctulate on the back. Squamae without fringe. Abdomen distinctly pedunculate, at least in the male, its narrowest point being on the third segment; it is almost bare and strongly sculptured with impressed points on the tergites, and with less marked ones on the sternites. Male genitalia of usual shape; ovipositor of the female with the cirlet of spines, but with the terminal segment not exerted. Legs rather stout and nearly bare; hind femora more thickened in the male, in both sexes armed underneath with two rows on very prominent tubercles. Hind tibiae straight, without terminal spur, and not bristly except at end. Wings broad. Second longitudinal vein straight and ending into the first at some distance from the end of the upper branch of the cubital fork. Second submarginal cell appendiculated at base, rather narrow, puffed up below towards the middle with a long terminal stalk. Fourth vein at end meeting at costa with the first, the first posterior cell being thus closed but not stalked. Discoidal cell of trapezoidal shape, shortly stalked at end, its apical cross vein being nearly parallel with the basal one and more or less shorter; there are only three posterior cells, the second (or third) being fused with the fourth (or fifth); third posterior cell as broad or broader than the discoidal cell, and about as broad at base as at end; the lower veins of the first and of the third posterior cells are placed on the same line, at equal distance from the hind border of the wing; anal vein rather straight, the terminal part of the anal cell being thus less curved below, and its terminal stalk being rather short. Praefurca very short, or nearly absent; in the type species the base of the third longitudinal vein is prolonged backwards into a long stump, which is much longer than the praefurca itself and has a free end. Alula transverse, not fringed. No hind-marginal cross vein; ambient vein thin, sometimes less visible in the female.

Type: MYDASELPIS PÉRINGUEYI, sp. nov.

The two species before me can be distinguished as follows: —

- (2) 1. Thorax black with red markings; abdomen red with black base and middle segments (4th & 5th); submarginal cell at end much narrower than the first posterior cell at end . . . . . *péringueyi*, sp. nov.  
 (1) 2. Thorax red with black markings; abdomen entirely black, except at end; submarginal cell at end as broad as the first posterior cell at end  
*variolosus*, sp. nov.

MYDASELPIS PÉRINGUEYI, sp. nov.

A very distinct, handsome fly, looking like a species of *Systropus* or *Cosiops*.

Type ♂, a single specimen without the antennae from Hex River, (Cape) 27th December 1882, labelled by Bigot as *Cephalocera péringueyi*; the specific name been maintained here, in honour of Dr. L. Péringuey.

♂. Length of body 17 mm.; of wing 13 mm. Head black, but the face reddish with a narrow black median stripe; only the middle of the frons is shining, the rest being clothed with a dark grey-dust. Anterior ocellus rudimentary. The golden yellow hairs are bushy at the vertex, on the sides of the frons anteriorly, and on the face. Basal joints of the antennae red, the first less than twice the second in length; the remainder wanting in the type. Proboscis red, even on the terminal flaps, only the median line of the upper side being black, it is short measuring only 1.5 mm. in length. Thorax peculiarly regulose-punctulate on the back; it is dull black, but the neck, the humeri and a spot above them, and the postular cells are red. The pleurae are dull black, with the callosities above the front coxae, the upper part of the pteropleurae and the root of wings red. On the back there is a very scarce and short golden pubescence, disposed on two longitudinal stripes; the pleurae are bare. Scutellum dull black and bare, a narrow hind border on the back of the mesonotum being red; mesophragma deep black, narrowly red anteriorly at the sides, bare, Squamae yellowish; halteres reddish. Abdomen with the first segment black, with short golden hairs at the sides and on a complete transverse band of the hind border; the rest of the abdomen is bare. Second and third segments entirely red, but the former with a narrow black base and with small black bullae; segments 4-5 entirely dull black with a less distinct yellowish hind border like the 2nd, 3rd and 6th; 6th and 7th red with black sides;

8th segment and genitalia entirely red, clothed with short golden hairs; horn-like appendages shining, yellowish, and below them in the middle a short process bifurcate at end. Venter black, with the 2nd, 3rd and 6th sternites red, but all the sternites with narrow yellowish hind borders; it is bare and rather shining. The tergites are also a little shining at sides, but they are opaque on the whole median part chiefly on account of the deep and strong sculpture which is distinct but less developed on the venter. Legs entirely yellowish, with reddish coxae; they are almost bare; the prominent tubercles and the strong spines of the underside of the not much thickened hind femora are reddish-yellow; claws and pulvilli yellowish, the former with black tips. Wings yellowish along the costal and subcostal cells, broadly infuscated in the middle to the end, greyish-hyaline along the hind border except in the middle where a faint infuscation is noticeable, apically the fuscous is extended to the end of the first posterior cell, which is narrowly infuscated along its fore border and broadly infuscated at its base, but hyaline on the remaining part; the fuscous patch has a prominent tooth towards the outer end of the discoidal cell. The costa, the subcosta and the base of the other veins are yellowish; the remainder of the veins is reddish and then blackish towards the end. Anal cell, axillary lobe and alula hyaline. Second submarginal cell narrowed at end, terminal stalk of the discoidal cell very short; terminal stalk of the anal cell likewise short; base of the third longitudinal vein much prolonged beyond the praefurca and ending free into the first basal cell.

MYDASELPIS VARIOLOSUS, sp. nov.

Closely allied to the preceding species, but distinguished by the coloration of the body and wings, and by some minor details of the nervuration.

Type ♀, a single specimen in the writer's collection, from South Africa, collected by Junod, (? Shilowane, Transvaal) and given me many years ago by Dr. Escher-Kunddy, of Zurich; this specimen has stood for many years in my collection under the erroneous name of *Cephalocera fasciata*, Wied.

♀ Length of body 15 mm., with the antennae 18 mm., of the wing 9 mm. Head shining black, the face being only a little dark ferruginous in the middle; occiput dull grey-dusted, with a whitish pallinose stripe near the eyes. Postvertical bristles dark reddish, short. Anterior ocellus well developed. Hairs of frons and face not numerous, never long, of a golden-yellow colour, Antennae very

long, reddish with darkened or blackish end of the third joint and of the terminal club; first joint only a little longer than the second; third joint 4-5 times longer than the two first joints together, with the terminal portion (4th joint) long and broader; terminal club elongate, about as long as the third joint, tip rounded and without distinct prominence. Proboscis not quite 2 mm. long, black above and red below, even on the terminal flaps. Thorax entirely red, with a broad black median stripe on the back beginning at the neck, becoming attenuated behind and ending at some distance from the scutellum; it is almost bare and opaque, being strongly rugulose; the pleurae are smooth and rather shining red, with only the anterior and posterior stigmata black; they are bare. Scutellum shining red, with a small black spot on the lateral depression; mesophragma red, whitish-pallinose, with a narrow black border above. Squamae brownish, halteres blackish. Abdomen entirely shining black, even dark reddish, short. Anterior ocellus well developed. Hairs of frons and face not numerous, never long, of a golden-yellow colour. Antennae very long, reddish with end of the third joint and of the terminal club darkened or blackish; first joint only a little longer than the second; third joint 4-5 times longer than the two first joints together, with the terminal portion (4th joint) long and broader; terminal club elongate, about as long as the third joint, tip rounded and without distinct prominence. Proboscis not quite 2 mm. long, black above and red below, even on the terminal flaps. Thorax entirely red, with a broad black median stripe on the back beginning at the neck, becoming attenuated behind and ending at some distance from the scutellum; it is almost bare and opaque, being strongly rugulose; the pleurae are smooth and rather shining, red, with only the anterior and posterior stigmata black; they are bare. Scutellum shining red, with a small black spot on the lateral depression; mesophragma red, whitish-pollinose, with a narrow black border above. Squamae brownish; halteres blackish. Abdomen entirely shining black, even on the venter, only the terminal segments being reddish; hind border of the 2nd and 3rd segment narrowly yellowish, that of the former with small and reddish bullae; it is quite bare, with scarce whitish hairs at the base below, and there whitish-pollinose; only the 8th segment has the short pubescence directed forward; spines of the ovipositor reddish. The surface is deeply punctulate, more superficially on the venter; the hind borders of the tergites are narrowly smooth. Legs yellowish, with reddish coxae, and with scarce and short pale yellowish pubescence; hind femora less thickened, but with strong spines placed on prominent tubercles



on the terminal half; claws with black tips. Wings entirely infuscated, with only some stripes in the middle of the cells and a narrow hind border greyish hyaline; veins entirely black, even at the base. Second submarginal cell as broad at end as the first posterior cell; the terminal stalks of the discoidal and of the anal cells are longer than in the preceding species; praefurca almost absent, the third longitudinal vein with only a short prolongation beyond it.

#### NOMONEURA, gen. nov.

I have founded here the present new genus for some species which are much like those of *Leptomydas*, being distinguished chiefly on account of the stalked first posterior cell, all the veins of the wing-tip uniting with the first. Owing to this character they were formerly placed in the following genus *Cephalocera*; but as this last genus shows very extraordinary features in the neuration of the wings, while in the present new genus the neuration is quite normal (whence the proposed name), it is necessary to separate them. The genus seems to be represented also in the Oriental Region, the Indian species *Cephalocera annulata*, Brunetti 1917, with short proboscis and neuration of wings as in *nigra*, Macq., being possibly referable to it. The main characters of the new genus are as follows. Head not much hollowed at vertex, less pilose, in the female nearly bare. Eyes bare; anterior ocellus well developed. Antennae very long, more than twice as long as the transverse diameter of the head; the fourth joint appears as a part of the club, which is elongate and not much swollen. Proboscis thick, with broad terminal flaps, rather long, projecting as far as the middle of the third antennal joint or even further. No distinct palpi. Thorax bare, even the metapleurae with only a few hairs or quite bare. Abdomen not pedunculate, more or less elongate, with the surface smooth and nearly bare, or only a little hairy at the base. Male genitalia of the usual shape; ovipositor with the circle of spines, but with the segment bearing them not exerted. Legs slender; hind femora less thickened even in the males, armed inferiorly with two rows of not very long spines which are placed on non-developed tubercles; hind tibiae straight or only faintly curved, with no terminal spur, but with well developed bristles. Wings with all the terminal veins uniting with the first, the first posterior cell being thus closed at end and stalked; the end of the second vein into the first is distant from that of the upper branch of the cubital fork; second submarginal cell appendiculated at base, of regular

shape or swollen at the base inferiorly; terminal stalk of the discoidal cell very short or even absent, at any rate the terminal cross-vein of the third posterior cell is much shorter than the basal one; the lower veins of the first and third posterior cell are rounded, placed at the same distance from the hind border of the wing, but with a re-entering angle at their junction; lower vein of the third posterior cells, that is the upper branch of the fifth longitudinal vein, issuing from the second basal cell, as in all the preceding genera; anal vein wavy; anal cell with a more or less elongate point, and with a more or less short stalk. Alula rounded, not fringed; ambient vein very thin; no hind-marginal cross vein, thus there are only three posterior cells, the second being fused with the fourth.

Type: MYDAS FASCIATUS, Wiedemann 1828.

The known species may be distinguished as follows: —

- A. Proboscis short, not projecting beyond the mouth; fourth longitudinal vein meeting at costa with the first posterior cell being thus sessile at end
- paradoxa*, n. sp.
- B. Proboscis long and projecting; first posterior cell stalked.
- (2) 1. Abdomen elongate, with pale yellowish hind border of the segments; third antennal joint thickened; hind tibiae of the male straight; thorax more or less reddish on the sides; posterior veins of the wing close to the hind border . . . . . *fasciata*, Wied.
- (1) 2. Abdomen less elongate, without yellowish transverse bands; third antennal joint not thickened; hind tibiae of the male little, but distinctly curved; thorax quite black; posterior veins more distant from the hind border.
- (6) 3. Legs reddish or yellowish, with only a little infuscated femora.
- (5) 4. Abdomen of the male in greater part reddish-yellow; wings yellowish
- partita*, Gerst.
- (4) 5. Abdomen of the male blackish or brownish, that of the female broadly red in the middle; wings infuscated. . . . . *callosa*, Wied.
- (3) 6. Legs blackish, with quite black hind femora; abdomen of the male black, more or less broadly red in the centre; wings more intensively infuscated
- nigra*, Macq.

#### NOMONEURA PARADOXA, n. sp.

Type female from Pretoria, 19th. September 1915.. (H. K. MUNRO),

The present species is a true *Nomoneura*, but in the characters of the proboscis and of the first posterior part of the wings, it agrees with *Halterorchis*, which has however very different antennae, and with *Mydaselphis*, in which the abdomen is stalked and deeply punctate. ♀ Length of body 16 mm.; of wings 11 mm.; of antennae 3-6 mm.

Head shining black, the face dark reddish; the short scattered hairs are darkish near the antennae, longer and whitish at vertex and below. Anterior ocellus well developed. Antennae very long, black; first joint twice as long as the second; third joint cylindrical, long, not thickened; terminal club elongate a little shorter than the third joint, dark reddish in the middle. Proboscis very short, not projecting beyond the mouth, with narrow terminal flaps. Thorax shining black and nearly bare; there is a short pale pubescence on the sides of the back, and on the propleurae and metapleurae there are very sparse white hairs; the humeral calli, a stripe above the notopleural line, the postalar cells and a stripe before the scutellum are reddish; the pleurae are dark reddish above and below. Scutellum and mesephragma reddish. Halteres blackish. Abdomen shining black, bare, with very scarce and short pale hairs near the base and with a few impressed points; the two terminal segments are reddish, with dark short hairs directed forward; venter shining black, with the two terminal segments reddish; spines of the ovipositor reddish. Legs simple, entirely pale yellowish, even to the end of the tarsi; coxae and trochanters dark reddish; claws reddish with black tip; hind femora less thickened, elongated, but with strong yellowish spines below. Wings with a faint grey-yellowish tint and with yellowish veins; second submarginal cell appendiculed and ventricose below; first posterior cell sessile at end; third posterior cell with regular base and with punctiform eud.

*NOMONEURA FASCIATA*, Wiedemann, 1828.

Easily distinguished from all the other species on account of its greater size and of its banded abdomen. One male from Zululand, M'fongosi, December 1911, (W. E. Jones).

The present species seems to be one of the most common and most widely spread in South Africa. It has been many times described and figured, being also the unique species included in Loew's work. It is rather variable in the coloration of the body, chiefly of the thorax, but the abdominal bands are always distinct.

*Cephalocera bellardii*, described and figured in 1862 by Prof. Bertoloni from Mozambique, is not distinguishable from the present species.

This species shows some peculiarities in the neuration of wing. The lower veins of the first and third posterior cells are nearer to the hind border of the wing, and have a less pronounced angle at their junction; the stalks of the first posterior cell and of the anal cell are much shorter than in the other species.

## NOMONEURA PARTITA, Gerstaecker, 1868.

Probably only a form of the following species.

Described from South Africa in the Museum at Berlin, but not found subsequently, and not represented in the collection before me.

## NOMONEURA CALLOSA, Wiedemann 1828.

An easily recognisable species of smaller size but of rather stout body, very well figured in both sexes by Wiedemann.

A couple of specimens from Namaqualand, the male from Springbok, November 1890, the female from O'Okiep (Cape) September 1890 (R. M. Lightfoot).

In these examples the hairs of the head are dark brownish, not whitish as described by Wiedemann; the wings of the male are very faintly infuscated. The posterior veins of the wing are more distant from the hind border, and the stalks of the closed cells are longer than in *fasciata*.

## NOMONEURA NIGRA, Macquart 1838.

The darker and smaller species of the genus, with practically black legs and wings. Macquart has described this species from South Afrika, but it was never recorded subsequently. I refer to it two male examples, pinned on the same pin, from Jackals Water, Bushmanland, (Cape), October 1911. (R. M. Lightfoot); they seem to correspond to the variety from Port Natal, recorded by Walker, List, VI, Suppl. 11, p. 374.

Length of body 11-12 mm.; of wing 8-9 mm. Head shining black, clothed with pale yellowish, not dense and never bushy hairs, occiput with narrow grey stripe near the eyes. Antennae very long, black, with dark reddish terminal club; third joint 4-5 times longer than the first two joints together; the club is elongate but is shorter than the third joint. Proboscis black, long, projecting to about the end of the third joint of the antennae. Thorax entirely black, even on the humeri and pleurae; on the back it is opaque, almost bare, with four longitudinal stripes of whitish pubescence. Pleurae rather shining, bare, with scarce, whitish hairs on the ptero- and metapleurae. Scutellum and mesophragma black, a little shining, rugulose, bare.

Squamae and halteres black. Abdomen black, even on the venter and at end, rather shining; 2-3 and 4th segments more or less broadly red, and also the 5th, but  $\frac{1}{2}$  more narrowly; it has whitish

hairs at the base, but is almost bare on the remainder. Even the horn-like appendages of the male genitalia are black. Legs black, with dark reddish tibiae, tarsi and underside of the four anterior femora; hind tibiae curved, with short and scarce inner villosity; spines of the hind femora dark yellowish and thin; claws and pulvilli reddish, the former with black tips. Wings blackish, with only a narrow hind border and narrow stripes of the same cells clear. Veins blackish. The stalk of the first posterior cell is well developed; the posterior veins are rather distant from the hind border; terminal stalk of discoidal cell very short or even wanting.

#### CEPHALOCERA, Latreille, 1829.

With *Ectyphus* the present genus is the most characteristic one of the South African fauna; because in its true sense, as here restricted, it is exclusively South African. The genus was founded by Latreille chiefly on the characters of the thin and acute proboscis and of the long capitate antennae, for the type *Mydas longirostris*, Wied.; but the insect figured in Cuvier's *Règne animal, nouv. édit.* (Masson), *Insectes*, pl. 172, fig. 1, seems to belong to another species. The genus was subsequently treated by Macquart, 1834 and 1838, by Westwood, 1841, and by Walker, 1854, who has tabulated the known species on p. 372-376 of the 2nd Supplement of the "List". 17 species have been recorded as belonging to it; but the Australian *gracilis*, Macq. is a *Triclonus*, and *maculipennis*, Westw. a *Miltinus*; *dentipes*, Macq. and the two other American species described by Philippi belong to *Mitradetus*. Thus Gerstaecker in 1868 listed only 11 African species, which, with the addition of *bellardii*, Bertol., make 12, as reported in my Catalogue of 1906 and in that of Kertész of 1909. No African species has been described subsequently.

But of these 12 South African species, *Westermanni* and *rufithorax* are to be placed in *Leptomydas*; *botta*, Macq., from Arabia is in all probability a *Syllegomydas*, Macquart's figure of it showing no projecting proboscis; *bellardii* is a synonym of *fasciata*; and *fasciata*, *partita*, *callosa* and *nigra* belong to *Nomoneura* as shown above.

There remain thus in the genus *Cephalocera* only 4 species, all of which correspond in one important venational character, which is unique in the whole of the family. It is very curious that no Dipterologist has mentioned this character, which is recognisable even in Wiedermann's figures of *longirostris* ♂ and ♀ pl. 4 IV, fig. 21, and is well shown in Gerstaecker figure of *catulus*, pl. 1, fig. 2.

This peculiar character is derived from the branching of the

postical or 5th longitudinal vein beginning much beyond the lower cross-vein and much nearer the hind border of the wing; the upper branch of the postical fork originating thus near the end of the anal cell, and not from the second basal cell as is the rule. The posterior veins become therefore completely parallel with the hind border of the wing, as is the case with the *Nemestrinidae*. It therefore shows that the lower vein of the third (or fourth) posterior cell is not Cu 1, as interpreted by Prof. Arias, but is M 4, in accordance to the new conception of Dr. Tillyard.

It may be noted that the genus *Cephalocera* is distinguished from the genus *Syllegomydas*, besides the venational characters, by the very different form of the proboscis and of the antennae.

The characters of the genus *Cephalocera* as here restricted, are as follows: — Head hollowed at vertex. Eyes bare, converging below in front view; anterior ocellus rudimentary. Antennae very long (but in one case short), with the fourth joint forming a complex with the third (and not with the club); terminal club elongate and less swollen (but in one case rounded and swollen). Proboscis very characteristic, long, thin, acute at end, with very small terminal flaps; palpi very short, with rounded end and long-haired. Thorax with long hairs, chiefly in the middle; ptero- and metapleurae hairy; surface smooth, like that of the abdomen. Abdomen elongate, but not pedunculate; male genitalia of peculiar form, with the horn-like appendages or style converging interiorly with their ends in contact; ovipositor with terminal circlet of spines. Hind femora of the male more, of the female less thickened, armed in both underneath with two rows of spines placed on distinct tubercles; hind tibiae straight or only a little curved, without terminal spur, or only with a short obtuse apophyse. Venation of the wing like that of *Leptomidas*, but with the fourth longitudinal vein ending into the first, and therefore the first posterior cell is closed and stalked; discoidal cell very narrow at end, its terminal cross vein being much shorter than the terminal cross vein of the third posterior cell (but sometimes the opposite takes place; lower vein of the third posterior cell originating from the anal cell near its end; anal vein rather straight, bent below at end; ambient thin; no hind marginal cross vein.

Type: MYDAS LONGIROSTRIS, Wied. 1829.

The species, with the addition of a new one, can be distinguished as follows: —

- (8) 1. Antennae very long, as long as or even a little more than the proboscis; antennal club less swollen and elongate, but shorter than the third antennal

- joint; hind tibiae quite simple at end; back of thorax with whitish or reddish hairs; wings more or less infuscated, with a well developed alula.
- (7) 2. Antennae for the greatest part black; wings more or less infuscated.
- (4) 3. Legs entirely yellowish, even on the less thickened hind femora; second submarginal cell and third posterior cell with broad end . . . . .  
*longirostris*, Wied.
- (3) 4. Hind legs with more thickened, and black or blackish, hind femora; third posterior cell with narrow end.
- (6) 5. Head and thorax with whitish hairs; size smaller . . . . . *fascipennis*, Macq.
- (5) 6. Head and thorax with reddish hairs; size greater . . . . . *umbrina*, Gerst.
- (2) 7. Antennae in greatest part reddish; hind femora thickened and blackish; wings nearly hyaline . . . . . *catulus*, Gerst.
- (1) 8. Antennae short, only half as long as the proboscis, with a rounded and greatly swollen terminal club, which is equal in length to the third joint of the antenna; hind femora greatly thickened and black; hind tibiae with the internal terminal angle produced into a short rather obtuse process; back of thorax with blackish hairs; wings quite hyaline, with rudimentary alula . . . . . *brachycera*, sp. nov.

CEPHALOCERA LONGIROSTRIS, Wiedemann, 1829.

The type species of the genus, at once distinguishable by its slender and entirely yellowish legs, though the hind femora may be infuscated on the apical half (Wiedemann's original figure).

1 ♂ and 2 ♀ from O'Okiep Namaqualand, (Cape) September-October 1890 (R. M. Lightfoot); another ♂ without data.

This species has been many times described and figured. The abdominal tergites are entirely shining, black above in both sexes and reddish on sides, like all the sternites. Only the two terminal segments of the female abdomen show the peculiar pubescence directed forward. Legs clothed with very long white hairs, which are less developed in the female; coxae blackish-brown; claws reddish, with black tips. Discoidal cell narrower than the third posterior cell, its terminal cross vein very short, sometimes punctiform, at any rate much shorter than the terminal cross vein of the third posterior cell, and even shorter than the discal cross-vein. Second submarginal cell with broad end, the three terminal portions of the first longitudinal vein being about the same length.

CEPHALOCERA FASCIPENNIS, Macquart, 1838.

Distinguished from the preceding species in the more thickened and more blackened hind legs, and in same peculiarities of the venation.

One male specimen, without the abdomen, from Knysna, Cape

Colony, October 1916, (L. Péringuey), may be considered to be this very imperfectly described species.

Head shining black, with ferruginous face, clothed with bushy white hairs. Antennae and proboscis entirely black, the latter as long as the former, measuring 2.5 mm. Back of thorax black, with reddish humeri and sides; it is clothed with long white hairs, disposed on four broad longitudinal stripes with a median much narrower one. Pleurae shining black, grey-dusted above the front coxae, bare, but with long white tufts on the ptero- and metapleurae. Squamae whitish; halteres pale yellowish. Scutellum shining black; mesophragma dull reddish brown and rugulose. Only the two basal segments of the abdomen are present in the unique specimen at hand; they are clothed with long white hairs, are shining black above, reddish-yellow on sides and reddish-brown on venter; hind border of second segment yellowish, with broad, shining reddish-bullae. Legs with shining black, white-haired coxae; those of the two front pairs are entirely reddish, with long white hairs; hind legs with thickened femora, which are shining black above and reddish below, clothed with long white hairs, and are armed underneath with strong black spines placed on reddish tubercles; hind tibiae straight, almost bare, simple at end, reddish at base and blackened on the remainder, as are also the tarsi. Wings broadly infuscated, with hyaline stripes on the discoidal and second submarginal cell, and with hyaline apex and posterior border, though the latter is faintly shaded towards the middle. The veins are blackish, but reddish at base in the anterior part of the wing. Second submarginal cell much narrowed at end, the middle one of the three terminal segments of the first longitudinal vein being thus much shorter than the other two; discoidal cell broad at end, while the third posterior cell is almost punctiform there; the discoidal cell is as broad in the middle as the third posterior cell. Alula well developed and rounded.

CEPHALOCERA UMBRINA, Gerstaecker, 1868.

This species, the distinction of which from the preceding one is not an easy matter, was described from the Cape and has not been recorded subsequently. It is not in the collection before me; the type is in the Museum at Berlin.

CEPHALOCERA CATULUS, Gerstaecker, 1868.

Even of this species I have not seen any example; it was described from the Cape and the type is in Berlin. The original figure



shows perfectly the characteristic shape of the base of the third posterior cell.

CEPHALOCERA BRACHYCERA, sp. nov.

A species typical in other respects, but very different from all the others at present known on account of its very short antennae.

Type ♂, a unique specimen from O'Okiep, Namaqualand, (Cape), September 1890, (R. M. Lightfoot).

The species shows a superficial resemblance to *Leptomydas paganus*, Gerst., from which it is at once distinguished, besides the generic characters, by the much shorter antennae, and by the entirely shining abdomen of the male.

♂. Length of body 13.5 mm., with the antennae 15 mm., of wing, 10 mm.

Head entirely shining black; occiput densely whitish-dusted at sides, clothed with dense and short whitish hairs; frons with long white hairs which are bushy at vertex, and having a stripe of snow-white tomentum near the eyes, continued on the sides of the face which is clothed with dense and long white hairs. Anterior ocellus rudimentary. Antennae shorter than the transverse diameter of the head, and only half as long as the proboscis; they are black, with the terminal club bright reddish; first segment rather swollen, with long white hairs, once and a half as long as the short second joint, third segment cylindrical, twice as long as the two first segments together, its terminal part (fourth joint) as long as the first joint and distinctly thickened; terminal club very swollen, pyriform, about as long as the third joint, with a short and obtuse apical protuberance. Proboscis shining black, 3 mm. long, of the thin and acute shape typical of the genus. Thorax entirely black, with reddish humeri; on the back it is opaque with the beginning of two broad stripes of grey dust in front and between them a much narrower middle line; it is clothed with blackish or dark reddish hairs, only on the sides along the notopleural line there is a stripe of white hairs; pleurae shining black, grey-dusted above the fore coxae, the metapleurae with a dense tuft of whitish hairs. Scutellum shining black, with reddish hairs; mesophragma black, bare, dark grey-dusted. Squamae pale yellowish; halteres with yellowish stalk and blackish knob. Abdomen entirely shining black from the base to the end; the segments 2-7 with rather broad yellowish hind borders, white and shining on the sides, that of the second segment interrupted by the broad, ovate, shining black bullae; at the base there are long white hairs, on the rest the hairs are short, scattered,

whitish, a little more abundant on the sides and at end; venter shining reddish, with the 3-4 terminal segments blackened, clothed with rather long and abundant whitish hairs. Genitalia short, shining black, reddish at end, clothed with whitish hairs, with the horn-like appendages convergent and with their tips in contact. Legs with shining black, white-haired coxae; those of the two anterior pairs reddish-brown, clothed with long yellowish or darkish hairs; hind femora greatly thickened, shining black above, dark reddish below, with a long whitish villosity, armed below with strong black spines placed on reddish much prominent tubercles. Hind tibiae rather thick, a little curved on the terminal half, with long rather rigid darkish or yellowish hairs, and provided at end, on the internal angle with a rather stout, obtuse process, which bears 4-5 strong reddish bristles. Tarsi reddish-brown; claws reddish, with black tips. Wings quite hyaline and iridescent, with black veins. Second submarginal cell regular, with long appendix at base, not much narrowed at end; stalk of the first posterior cell well developed; discoidal cell much narrower than the third posterior cell, and much narrowed at end, its terminal cross-vein being about as long as the discal cross-vein, and much shorter than the terminal cross-vein of the third posterior cell; this latter is exceedingly broad at base, its lower vein (M 4 or Cu 1) ending (or originating) very near the end of the anal cell; axillary lobe long and proportionately narrow; alula very narrow, rudimentary.

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6.—*South African Crustacea (Part XII of S. A. Crustacea, for the Marine Investigations in South Africa)*. — By the Rev. THOMAS R. R. STEBBING, M.A., F.R.S., F.L.S., F.Z.S., Fellow of King's College, London, Hon. Memb. of New Zealand Inst., Hon. Fellow of Worcester College, Oxford.

(Plates I—VII of vol. XIX. Plates CXVI—CXXII of Crustacea).

Of the eleven species with which the present contribution is concerned five are offered as new to science. About one of the species there is an element of mystery worthy to be solved by some one among the many skilled carcinologists of our day. That publication of this treatise has been considerably delayed is due to causes with which writers on systematic zoology are only too familiar. But with regard to the comparative meagreness of results as here exhibited, it may be explained that numerous specimens have been carefully examined, yielding results necessary for museum purposes, while supplying no addition, or none under present circumstances applicable, to scientific nomenclature.

## BRACHYURA.

### TRIBE OXYRRHYNCHA.

#### FAMILY INACHIDAE.

GENUS ACHAEOPSIS, Stimpson, 1857.

ACHAEOPSIS THOMSONI (Norman).

See these Annals, vol. XVII, p. 24, pl. 90.

A specimen was obtained at a depth of 166 fathoms at Vasco de Gama peak, S 75 E, 13 miles; Cape Peninsula. S.A.M. No. A 1414.

### TRIBE CYCLOMETOPA.

#### FAMILY XANTHIDAE.

GENUS TETRALIA, Dana, 1851.

TETRALIA GLABERRIMUS (Herbst).

See these Annals, vol. VI, p. 305; 1910.

A specimen in close correspondence with Dana's figures was obtained by J. de Souza at Mozambique S.A.M. No. A 1415.

GENUS ACTAEA, de Haan; 1833.

ACTAEA PARVULUS (Krauss); 1843.

See these Annals, vol. VI, pp. 298, 299; 1910.

Specimens obtained by Mr. K. H. Barnard at Mozambique (Nov. 1912) are referable to this species. One specimen seemed near to *Pilodius martensii* (Krauss), but the ambulatory peraeopods are not biuncinate. S.A.M. No. A 2221.

GENUS HYPOCOLPUS, Rathbun.

1834. *Cancer* (part), Milne Edwards, Hist. Nat. Crust., vol. I, p. 376.

1861. *Hypocoelus*, Heller, Sb. Ak. Wien, vol. XLIII, p. 319.

1893. „ „ Henderson, Tr. Linn. Soc., Zool., vol. V, pt. 10, p. 358.

1897. *Hypocolpus*, Rathbun, Pr. Biol. Soc. Washington, vol. XI, p. 164.

1898. *Hypocoelus*, Alcock, J. Asiat. Soc. Bengal, vol. LXVII, pp. 71, 111.

Milne Edwards, while like Herbst and Audouin (in Savigny) leaving the species in *Cancer*, practically defines a new genus by the statement, "A great oval cavity on each pterygostomian region (disposition of which we know no other example in the Crustacea)". For the typical species he curiously misquotes Herbst (1790) and Audouin (1825) as authorities for *C. esculptus* and then gives the species as *C. sculptus* instead of the correct *exsculptus*. Heller's *Hypocoelus* being preoccupied was changed by Miss Rathbun into *Hypocolpus*.

HYPOCOLPUS EXSCULPTUS (Herbst).

1790. *Cancer exsculptus*, Herbst, Krabben und Krebse, vol. I, p. 265, pl. 21, fig. 121.

1825. „ „ Audouin, Expl. pl. d'Égypte (Savigny), pl. 6, fig. 3.

1834. „ *sculptus*, Milne Edwards, Hist. Nat. Crust., vol. I, p. 376.

1861. *Hypocoelus sculptus*, Heller, SB. Ak. Wien, vol. XLIII, p. 322.

Savigny's plate contains 5 figures of this species, important, but obscurely numbered. Heller by mistake refers to Savigny's fig. 2 instead of fig. 3. The specimen brought by Mr. Barnard from Mozambique (Nov. 1912) has greatest breadth 29 mm., median length 21 mm., subpterygostomian hollows just as figured in Savigny's plate and male pleon also in agreement. The one remaining cheliped has dark fingers with lighter tips, both palm and fingers longitudinally tuberculate. S.A.M. No. A 1211.

## TRIBE CATOMETOPA.

## FAMILY OCYPODIDAE.

## GENUS CLEISTOSTOMA, de Haan; 1835.

See these Annals, vol. VI, pt. 4, p. 328; 1910.

In 1888, J. Linn. Soc., vol. XXII. p. 137, Dr. J. G. de Man restricted de Haan's genus by the institution of a new genus *Dioxippe* for de Haan's *C. pusilla* and a new species *D. orientalis*. He has also instituted two other genera *Paraclistostoma* and *Tylodiplax*, which Alcock thinks unnecessary. (See J. Asiat. Soc. Bengal, vol. LXIX, p. 374; 1900).

## CLEISTOSTOMA BLEPHARISKIOS, n. sp.

## Plate CXVI.

The specific name from *βλεφαρίς*, eye-lash, and *σνιά*, shade, alludes to the striking mass of setae surrounding the eyestalk. This organ is of moderate length, curved, slender except at the base, and furnished with a very small cornea. Another important feature which appears to distinguish this from the allied species in the shape of the extensive fourth joint of the third maxilliped, largely excavate at the inner angle, while the three following joints are insignificant in size, the first folded against the fourth joint and each furnished with long setae. The first and second maxillipeds are in fair agreement with the figures in Savigny's Egyptian Crustacea, pl. 2, figs. 1*b*, 1*c*, for the species named *Macrophthalmus leachii* by Audouin and *Cleistotoma leachii* by Milne Edwards, except that the exopod of the second maxilliped is here relatively longer. Savigny's plate shows a very dilated vibratory lamina for the second maxilla, yet not so dilated as it is in our species. The palp of the mandible as figured on Savigny's plate must, I think, be much exaggerated in size compared with the trunk. At any rate in our species it folds against the trunk, the third joint closely adjoining the incisor edge.

The first and second antennae are very small. The figures are more magnified than the other details in order to show the characters of the two little flagella in the first pair, the few-jointed flagellum in the second pair and its setose peduncle. The first paraeopods or chelipeds like the other limbs are setose; the fingers are slender, meeting at the tips and at one point of the inner margins by help of the single tooth of the movable finger. In all the

remaining peraeopods the pointed finger is perfectly straight, shortest in the fifth pair. The third and fourth pairs are remarkably alike, with the fifth joint widening distally and the sixth with considerable proximal breadth distally narrowed. The outer sides of these setose joints show oblique stripes. In the pleon the first segment is the widest and shortest, the second less wide but slightly longer, the rest gradually narrowing to the rounded setose telson. The carapace is about 9.5 mm. in breadth by about 6 mm. in length.

Collected in Delagoa Bay by Mr. K. H. Barnard. (Oct. 1912). S.A.M. No. 2131.

## BRACHYURA ANOMALA.

### FAMILY HOMOLIDAE.

GENUS LATREILLOPSIS, Henderson; 1888.

See these Annals, vol. XVII, p. 255; 1920.

LATREILLOPSIS BISPINOSUS, Henderson.

1888. *Latreillopsis bispinosa*, Henderson, Rep. Voy. Challenger, vol. XXVII, pt. 69, p. 22, pl. 2, figs. 3, 3a—c.  
 1913. „ „ Ihle, Siboga-Exp., Dromiacea, p. 77, with synonymy.

A female specimen with eggs has a carapace 10 mm. long. All the peraeopods are wanting except one each of the second and fifth pairs. Also the central spine of the rostrum is broken and the supra-ocular spines are absent, probably by accidental fracture. But attention may be called to the slender long joint of the eye-stalk and that of the first antenna, both of which though quite stiff have the appearance of being composed of many little short joints. The thick following joint of the eye-stalk carries three short setae.

Locality, Cape Natal W.  $\frac{3}{4}$  N. 13 miles; depth 35 fathoms. S.A.M. No. A 1353.

It may here be remarked that *L. alcocki*, described in these Annals in 1920 is evidently nearly related to *L. multispinosus*, Ihle, 1912, 1913, though less richly endowed in regard to its spines.



## MACRURA ANOMALA.

## TRIBE PAGURIDEA.

## FAMILY PAGURIDEA.

## GENUS CALCINUS, Dana.

1852. *Calcinus*, Dana, U. S. Expl. Exp., vol. XIII, pp. 435, 456.  
 1914. „ Stebbing, Tr. R. Soc. Edin., vol. 1, pp. 255, 278  
 (with part synonymy).  
 1913. „ Balss, Abhandl. K. Bayer. Ak. Wien Suppl., vol.  
 IX, p. 41.

Among the specimens of Malacostraca entrusted to me by Dr. W. S. Bruce leader of the "Scotia" expedition (the Scottish National Antarctic Expedition) were two which I referred to *Calcinus talismani*, A. Milne-Edwards and Bouvier. Supposing that identification to have been correct, the species now to be described may with some confidence be referred to the same genus. For both species show the unusual feature to which in 1914 I directed attention, namely, that in the second and third maxillipeds the trunk of the exopod greatly exceeds in breadth the endopod. In the figures and descriptions of the species of this genus to which I have had access I have not found any record of this character. It may be noticed in passing that Milne Edwards in his illustration of the second maxilliped of *Birgus latro* shows a very broad exopod. It is a perplexing circumstance that the specimens now to be dealt with have the right cheliped larger than the left.

## CALCINUS ASTATHES, n. sp.

## Plate CXVII.

The group of specimens to which I have given a name from the Greek word *ἀσταθής*, unsteady, agree however, as above noted, in having the right cheliped larger than the left, which is contrary to the accepted definition of the genus. The specimen from which the figures are drawn is in another respect abnormal, in that the larger uropod is on the right. But in another specimen of approximately equal size this abnormality does not occur, nor in the three smaller specimens. In one of these latter the inferior length of the right eye-stalk is much accentuated. In the specimen figured this character is very slightly indicated. In the present species the telson is

longer than broad with a smoothly rounded end, not as in *C. tali-*  
*mani* broader than long and apically notched. The chelipeds are  
similar in structure and armature of tubercles and setae on the last  
three joints, the movable finger rather longer than the palm, a little  
more so in the smaller cheliped; both have black spooned apices.  
The fingers of the ambulatory limbs, with black ungues, are longer  
than the preceding joint. The stout little fourth pereopod is sub-  
chelate; the slender fifth is minutely chelate, with long curved setae  
over the chela and the several joints carrying various groups of  
setae set at different angles.

The carapace of the specimen figured had a length of 17 mm.,  
with greatest breadth 9 mm., the left eye being 6.5 mm. in length,  
the long terminal joint of the peduncle of the first antenna 3.5 mm.,  
finger of smaller cheliped 5 mm., of the larger 5.5 mm.

Locality Delagoa Bay. Procured by Mr. K. H. Barnard, Oct. 1912.  
S.A.M. No. A 2121.

Genus CANCELLUS, Milne Edwards.

1836. *Cancellus*, Milne Edwards, Ann. Sci. Nat., zoöl. vol. VI, pp.  
262, 286.  
1837. „ Hist. Nat. Crust., vol. 11, p. 242 (Cancelle, p. 212).  
1895. „ „ „ „ Faxon, Mem. Mus. Comp. Zoöl.  
vol. XVIII, p. 52.  
1900. „ „ „ „ A. M.-Edw. & Bouvier, Exp. Tra-  
vailleur & Talisman, p. 183.  
1905. „ „ „ „ Alcock, Catal. Indian Decap. Crust.,  
Fasc. 1, pp. 24, 76.

It is true that a leading character in the original definition of  
this genus is the perfect symmetry of the pleon. But Faxon in  
describing his *Cancellus tanneri* writes, "The abdomen as a whole is  
not quite bilaterally symmetrical the right side being more swollen  
than the left, a condition which gives the abdomen a slight twist  
to the left." Alcock also, while describing the uropods as quite  
symmetrical, adds "as also or nearly so is the telson."

CANCELLUS MAKROTHRIX, n. sp.

Plate CXVIII.

The specific name, from the Greek μακροθήριξ, long-haired, refers  
to the remarkably setose character displayed in almost all parts,  
including the carapace, pleopods and telson, and reaching an extreme

in the cheliform fourth peraeopods, while even the eye-stalks are hairy. The broad hand and short finger of the equal first peraeopods carry many rows of stiff setae. The spooned apices of thumb and finger are black. The fourth to the sixth joints of the ambulatory limbs are broad, the much narrower seventh joint is very slightly longer than the sixth, with an upturned black apex. The slender finger of the fourth peraeopods does not reach beyond the broad dark rasp of the preceding joint. The whole of the cheliform fifth peraeopod is slender. The telson, broader than long, with slightly excavate hind margin is a little unsymmetrical. It has a feature difficult clearly to represent, a deep hollow across the middle which resisted flattening out. The median length of the carapace is 21 mm. its breadth to the rear 22 mm.

The mouth-organs offer some points of interest, though, as these parts in the Paguridae are rather seldom figured, their use for comparison is diminished. In the second maxilla it will be noticed that the apex of the vibratory plate is unusually narrow. In the first maxilliped opportunity has been afforded for showing that the terminal part of the exopod is not as in the other maxillipeds subdivided into numerous jointlets. In the second maxillipeds the principal joint of the exopod is very long and broader than the joints of the endopod. In the third maxilliped it is less important as compared with the endopod, but the endopod itself has a feature probably of specific importance, namely, in the straight row of fourteen little tubercles near the inner margin of its third joint. The specimen is a female, with the sexual openings conspicuous at the bases of the third peraeopods.

Locality, Algoa Bay, depth 10 fathoms S.A.M. No. A 1541.

#### GENUS EUPAGURUS, Brandt, 1851.

See these Annals, vol. XVII, p. 259; 1920.

#### EUPAGURUS PLACENS, n. sp.

#### Plate CXIX.

Among the numerous species assigned to this genus I have failed to recognise one which combines the characters displayed by the specimen here to be described. It makes some approach to *E. spinulentus*, Henderson, which I have noticed on p. 260 of the reference given above for the genus, but a comparison of the details prevents any union between the two forms.

The carapace is 16 mm. long, the fifth pleon segment 2.5 mm., the sixth 2 mm. and the round-ended telson 3 mm., the eyes 6.5 mm. in length. The likeness to the *Pylochelidae* is dissipated by the obvious twist of the pleon and the asymmetry of the uropods, that on the left being much the larger. In both uropods the exceptional smallness of the inner branch should be noticed.

The front of the carapace is obscurely produced between the ophthalmic scales, below each of which is produced backward a faint ridge of the carapace, its front margin forming a small denticle on the outer side of each scale. These scales are wide apart, bilobed, not denticulate, but the larger inner lobe produced into an acute apex. The eye-stalks widen to the black corneae, which outreach the acicles. Of these the longer inner setulose branch is not calcified, the outer branch is denticulate. As in the first antennae so in the second the terminal joint of the peduncle is the longest, and in the second the flagellum is devoid of setae and more than four times as long as the peduncle.

The small mandibles have a sharp molar ridge on the inner side, the third joint of the palp the longest and very setose. The first maxillipeds are small and very delicate. In the second pair the sixth joint of the endopod is notably broader than the fifth or seventh and very setose, the exopod elongate. In the third pair the stem of the exopod narrows a little abruptly distally, this narrowing accentuated by the prominence of a group of setae, the stem not reaching the apex of the fifth joint of the endopod. The latter is elongate, its last four joints subequal in length, attached end on, fringed with setae.

The right cheliped is considerably the larger, its hand armed with two conspicuous rows of denticles on the palm, one continued irregularly along the broad-ended finger, the other on the inner side of the thumb. Between thumb and finger a gap is concealed by long setae; the outer margin of the thumb is dentate following an inconspicuous row of denticles on margin of the palm. The wrist is strongly dentate on the inner margin. The smaller left cheliped has a hand not unlike its companion, but with the fingers longer in comparison with the palm. The second and third peraeopods have fingers longer than the preceding joint, curved, fringed with setae. The fourth peraeopod has a short, curved finger, with sharp apex. The fifth has a diminutive finger, with setules on the blunt end.

Locality Mossel Bay, depth 19 fathoms. S.A.M. No. A 1537.

## EUPAGURUS DEPROFUNDIS, n. sp.

## Plate CXX.

The present species agrees with *E. placens* in the numerous rows of teeth or sharpened tubercles with which the hands and wrists of the large chelipeds are furnished. But in many details the two species differ not a little. Here the telson has a curiously produced lobe with calcified rim at the right extremity, and the right uropod instead of the left is the larger. The long flagellum of the second antenna here has the fringing setae which are wanting in the other species. In the delicate structure of the first maxillipeds the figures show slight but decided differences and in the third maxillipeds the sixth joint of the endopod is notably longer than either the fifth or seventh instead of being subequal to each. Note also apical tooth of its fourth joint. The fourth peraeopods are alike in the two species, but the fifth differ in that the little unfingerlike finger is here facing a produced blunt apex of the preceding joint making an apology for a chela.

In regard to the second and third peraeopods it may be noticed that the fourth joint of the third is shorter than that of the second pair, but as to the third joint the comparative length is reversed. The carapace of the specimen, a female, measures 14 mm. in median length, with a breadth to the rear of 10 mm. The eyes are 5 mm. long.

Locality Cape Morgan N.  $\frac{3}{4}$  W. 13 miles; depth 250—320 fathoms. S.A.M. No. A 1540.

Henderson's *E. rubricatus* is reported from 700 fathoms.

## MACRURA GENUINA.

## TRIBE CARIDEA.

## FAMILY ?

## GENUS PROBLEMACARIS, Stebb.

1921. Stebbing. Ann. Mag. Nat. Hist. (9) VIII. p. 626.

Mandibles without palp; cutting edge, spine-row, and representative of molar in a continuous line. First and second maxillae with all normal parts well developed. Long flagellate exopods on all three maxillipeds and the peraeopods. End-joint of second maxillipeds not strip-like in attachment. Third maxillipeds slenderly pediform. First and second peraeopods similar, each forming a small chela, the wrist

undivided. The three following limbs simple. All parts except eyes, peraeopods and pleopods, strongly spined.

Generic name from *πρόβλημα*, a problem, and *κάρις*, a shrimp, in allusion to the difficulty of allotting the described form to any of the very numerous divisions of the *Caridea*.

PROBLEMACARIS SPINETUM, Stebb.

1921. Stebbing. l. c. p. 626.

Plates CXXI & CXXII.

Two specimens were obtained by Dr. Gilchrist in the year 1900 when dredging with shrimp trawl from the "Pieter Faure" at a depth "about 300 fathoms" "Table Mountain E. by S. 40 miles". S.A.M. No. A 109.

The specific name is the Latin word signifying "a thicket of thorns". The size, number, and arrangement of the spines in this species, though they may not exclude the possibility of its not being fully adult, at least mark it off as distinct from all other forms that I can find hitherto described. A superficial resemblance to the *Thalassocaris stimpsoni* figured by Bate in his "Challenger" Report, pl. 117, may partially account for its undeserved neglect. In number of spines it may have a competitor in *Ceratomyxis spinosus*, Faxon, but there the arrangement of them is quite different. The telson is reminiscent of that figured by Faxon for his *Calastacus stilirostris*, in which however the uropods are very distinctive.

The pointed rostrum with no ventral teeth is surmounted by a succession of four large spines, succeeded by two much larger on the median line of the carapace with a little tooth close behind the second. The antero-lateral angle of the carapace is produced into a spine much outstripping the eye and followed by a curved margin fringed with short equal spinules. The margin is then continued in a straight line to a small distal tooth, with the hind margin at right angles to the laterals, strongly excavate in the middle but convex for a space adjoining the distal tooth above-mentioned.

On the pleon the spines are present in rather baffling numbers. As shown in the plates the lower part of one segment carried 18 large spines, the full complement in another is 25; the sides and broad apex of the long quadrangular telson muster 18 which are plumose; to these must be added 2 small lateral spines or setae, and on the lower half some dorsal spicules are discernible. The first five segments of the pleon are rather short, the sixth nearly as long as the telson. The uropods are longer than the telson, with

dense fringes of long plumose setae except on most of the outer margin of the exopod. Low down this has a small tooth such as often marks the "diaeresis" or oblique dividing line, which however could not here be perceived. A faint longitudinal dorsal ridge carries minute spines.

The eyes have the cornea broader than the eye-stalk, colour dark. In the first antennae the first joint is very long, carrying an elongate spine near the base; this has an upturned point; of the flagella one is slender, obscurely six-jointed, the other stout, about as long as first joint of the peduncle. Second antennae carrying many long spines, the scale with two conspicuous but smaller divergent spines near the rounded setose apex. Mandibles with four- (or five-) toothed cutting edge, followed by a long row of setules and spinules to a slightly projecting dark mass of denticles, the trunk gradually narrowing from this broad front. First maxillae with outer plate narrow, apically carrying four spines. Second maxillae with narrow apical portion of endopod many-spined. First maxillipeds having two basal joints broad, the rest short and narrow. Second maxillipeds having on one side the sixth and seventh joints distinct but on the other in one piece, probably a malformation. Third maxillipeds with last four joints very narrow, seventh very short, sixth very long, twice as long as the fifth, fourth curved, two-thirds the length of the sixth, third as broad as long. Finger of first peraeopods with two spines on narrowly truncate apex. In second pair finger and thumb each tipped with a spinule, wrist here longer than hand instead of rather shorter as in preceding pair. The three following peraeopods have a short curved finger, hand much longer than wrist. Fifth peraeopod more slender than third or fourth. First pleopod with endopod not half as long as exopod and carrying a small coupling process with hooks at the apex. Length of specimen measured round the dorsal curve about 15 mm.

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## EXPLANATION OF PLATES.

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### Plate I. (Crustacea Plate CXVI).

#### *Cleistostoma blephariskios*, n. sp.

- n. s. Lines indicating natural size of the specimen.  
car., Pl. Dorsal view of carapace, and of pleon flattened out, less magnified than the following parts.  
a. s., a. i. First and second antennae, more magnified than the preceding or following details.  
m., mx. 1, mx. 2, mxp. 2, mxp. 3. Mandible, first and second maxillae, second and third maxillipeds, to a uniform scale.  
oc., prp. 1, prp. 3, prp. 5. Eye, first, third, and fifth peraeopods, to a uniform scale, less than that of the mouth-organs.

### Plate II. (Crustacea Plate CXVII).

#### *Calcinus astathes*, n. sp.

- car. Front of carapace, with eyes in position.  
T., urp. Telson, and sixth segment of pleon carrying the uropods. The following parts more highly magnified.  
a. s., m., mx. 1, mx. 2. First antenna, mandible, first and second maxillae (incomplete).  
mxp. 1, 2, 3. First, second, and third maxillipeds.  
prp. 1, 4, 5. First peraeopod (left cheliped), fourth and fifth peraeopods, much less magnified than the preceding details.

### Plate III. (Crustacea Plate CXVIII).

#### *Cancellus makrothrix*, n. sp.

- car. Front of carapace, with the eyes attached.  
T. Dorsal view of telson, and left uropod attached to the preceding segment.  
a. s. First antenna.  
m., mx. 1, mx. 2, mxp. 1, 2, 3. Mandible, first and second maxillae, first maxilliped (with further enlargement of the flagellum), second and third maxillipeds.  
prps. 1, 3, 4, 5. First peraeopod (left), third, fourth, and fifth, all less magnified than the preceding details, except the separate chela of the fifth peraeopod.

### Plate IV. (Crustacea Plate CXIX).

#### *Eupagurus placens*, n. sp.

- car. Front of carapace, with eyes, first antennae, and acicles of second, magnified to the same scale with the other figures, except those next following.

- ac., m., mxp. 1., gill of mxp. 3. Acicle, mandible, part of first maxilliped, gill of third, more magnified than the rest on account of their small size.
- T. Telson with fifth and sixth segments of the pleon and the right uropod.
- a. s., mxp. 2, mxp. 3. First antenna, second and third maxillipeds.
- prp. 1, prp. 1. On the right: finger, hand, and wrist of the right cheliped; on the left: finger, hand, and part of wrist of the left cheliped.
- prp. 4, prp. 5. Fourth and fifth peraeopods.
- urp. Left uropod.

## Plate V. (Crustacea Plate CXX).

*Eupagurus deprofundis*, n. sp.

- car. Front of carapace, with eyes and the first and second antennae of the right side in position.
- T. Telson and two preceding segments of the pleon, with indication of the right uropod.
- m., mx. 1, mx. 2, mxp. 1, mxp. 2. Mandible, first and second maxillae, first and second maxillipeds.
- mxp. 3. Third maxilliped, less highly magnified than the preceding parts.
- prp. 1. First peraeopod (right cheliped) on a lower scale of magnification than the third maxilliped.
- prp. 4, prp. 5. Fourth and fifth peraeopods on the same scale as the maxillae.

## Plate VI. (Crustacea Plate CXXI).

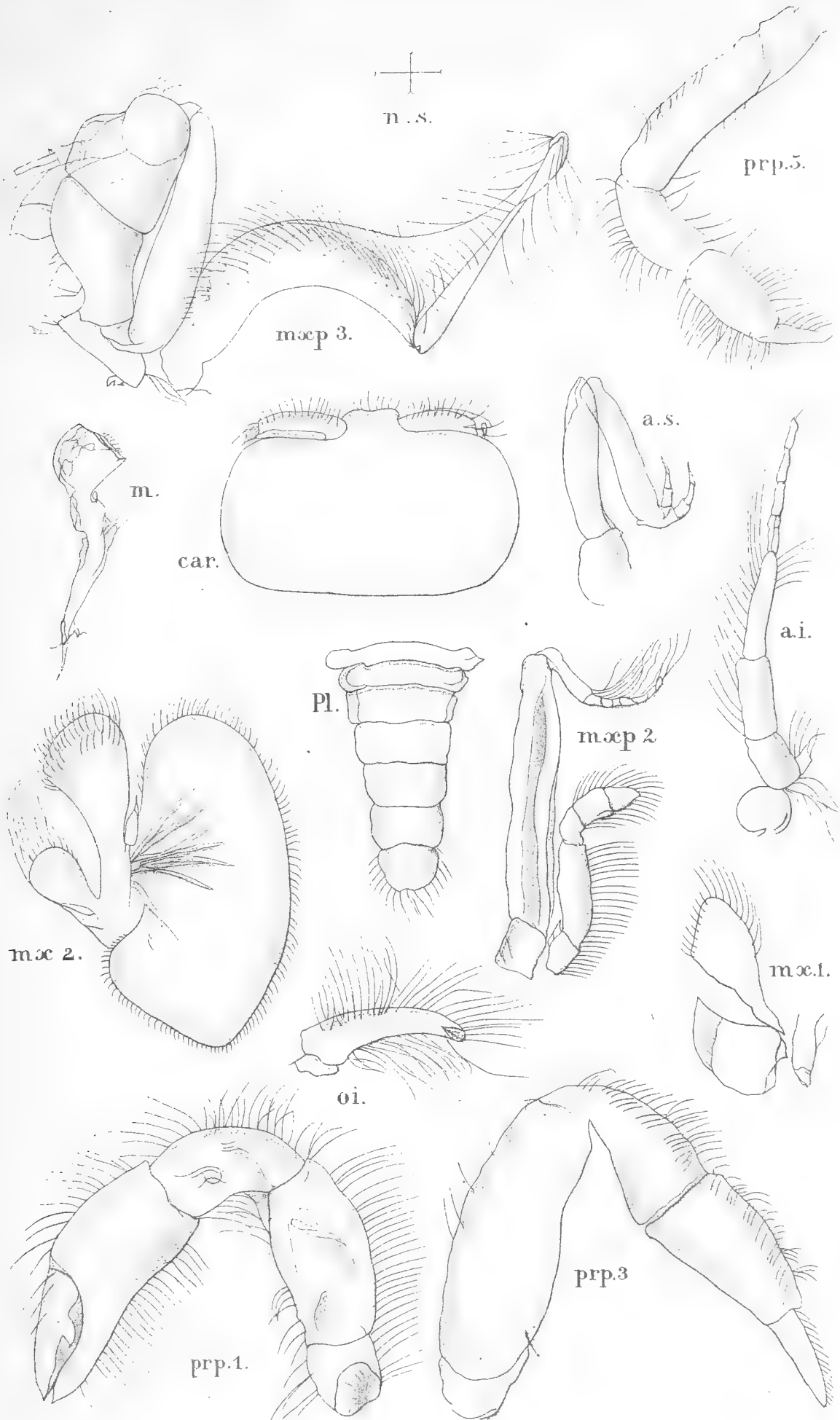
*Problemacaris spinetum*, Stebb.

- n. s. Line roughly indicating length of contour of the specimen.
- car. 1, car. d. Carapace in lateral view and (incomplete) in dorsal view.
- r. Lateral view of the rostrum.
- T., urp. Dorsal aspect of telson in connexion with sixth pleon-segment and left uropod.
- m., mx. 1, mx. 2, mxp. 1, 2, 3. Mandible, first and second maxillae first, second, and third maxillipeds to uniform scale, distal portion of mandible and second maxilla in further magnification.

## Plate VII. (Crustacea Plate CXXII).

*Problemacaris spinetum*, Stebb.

- Pl. s., Pl. s. Two segments of the pleon detached, to show the armature, the upper figure showing only the ventral half of the segment.
- a. s., a. i. The first and second antennae, with further magnification of the apex of the scale as seen when flattened out.
- mxp. 2. Endopod of second maxilliped, apically differing from its companion figured on the preceding plate.
- prp. 1, prp. 1, prp. 2, prp. 3. First peraeopod (with further enlargement of its chela), second and third peraeopods.
- plps. First pleopod with short endopod, and one of the other pleopods, with small retinaculum.
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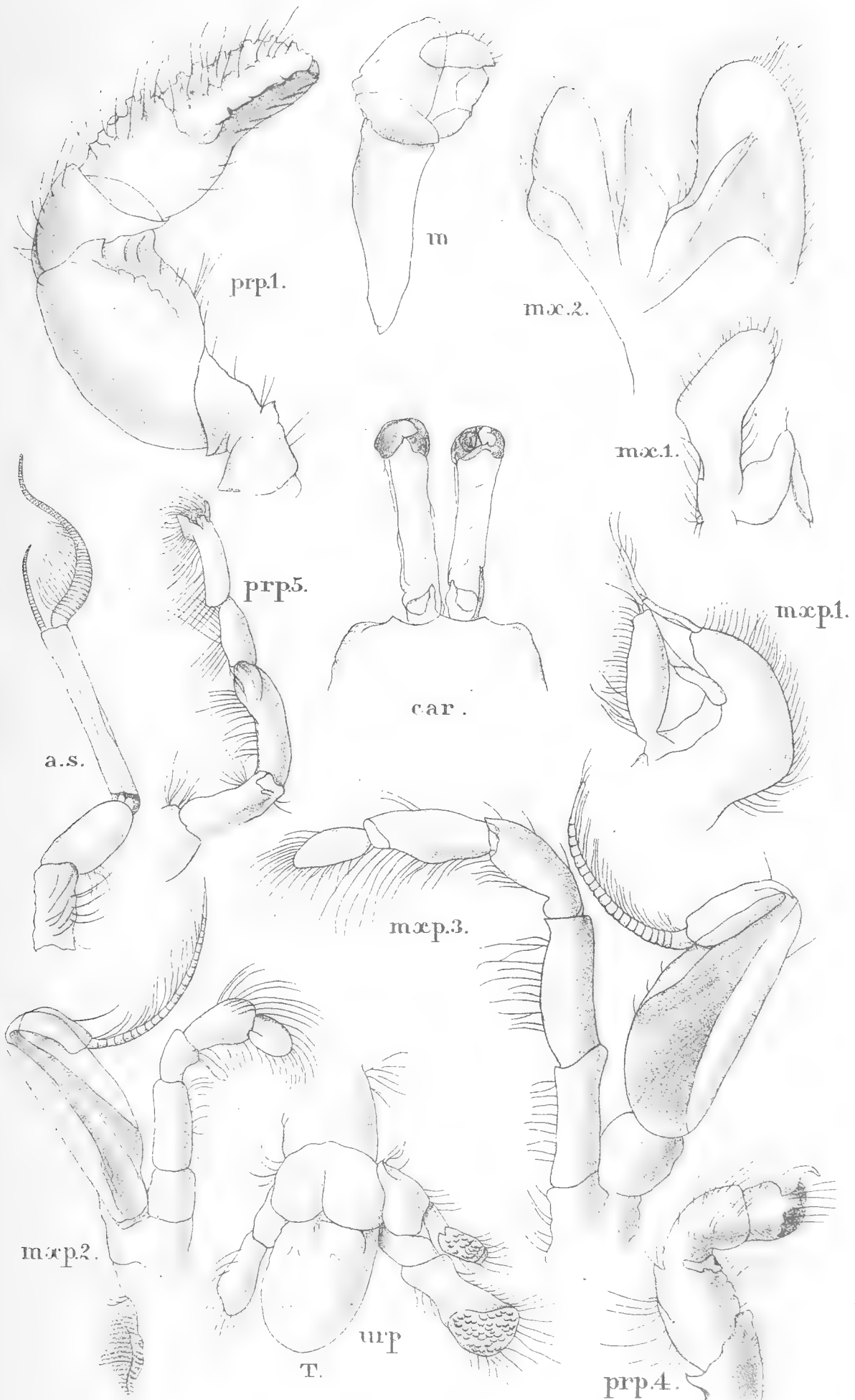


Stebbing del.

Fa. P. W. M. Tr. imp.

CLEISTOSTOMA BLEPHARISKIOS, n. sp.



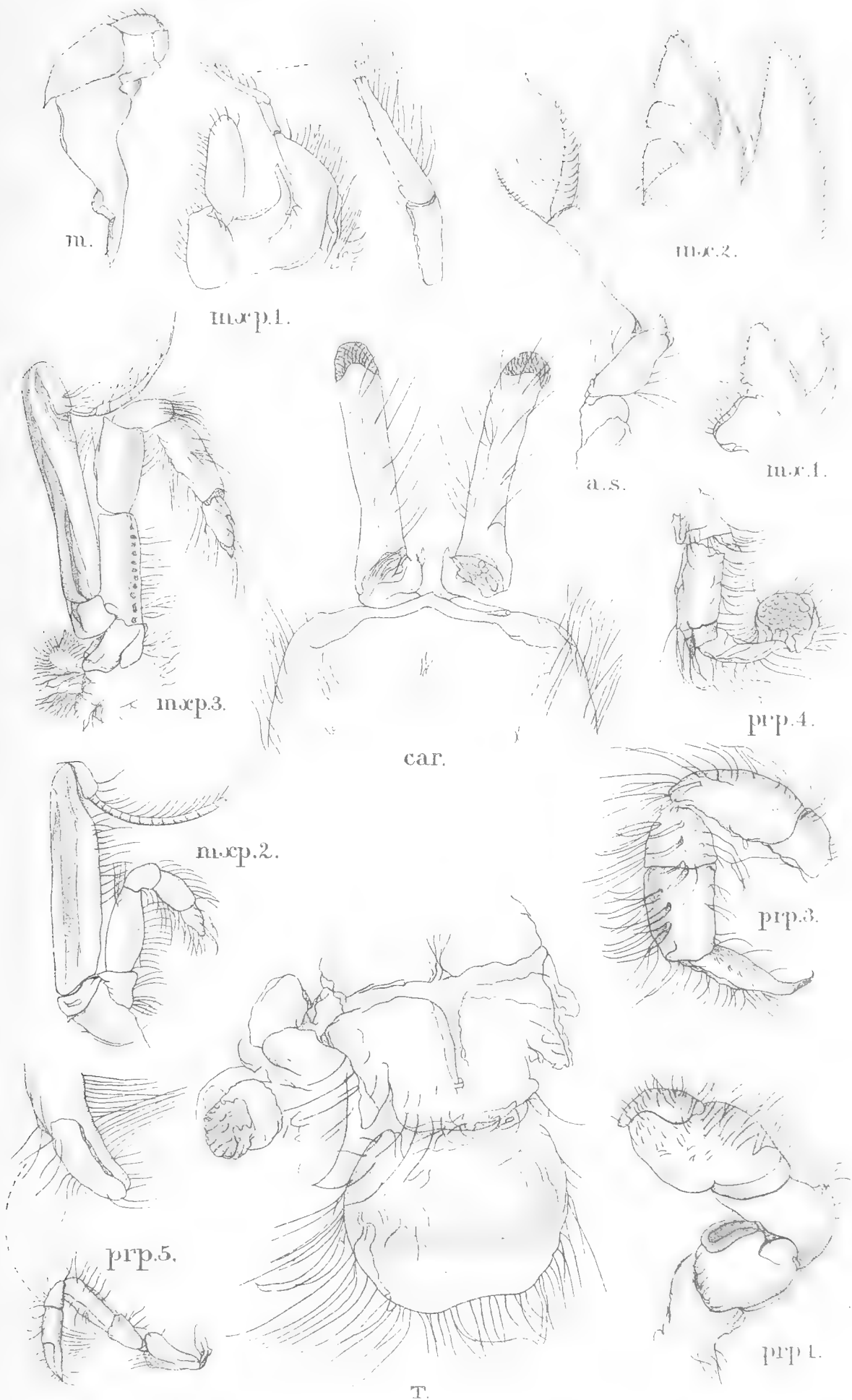


Stebbing del.

Fa. P. W. M. Tr. imp.

*CALCINUS ASTATHES*, n. sp.





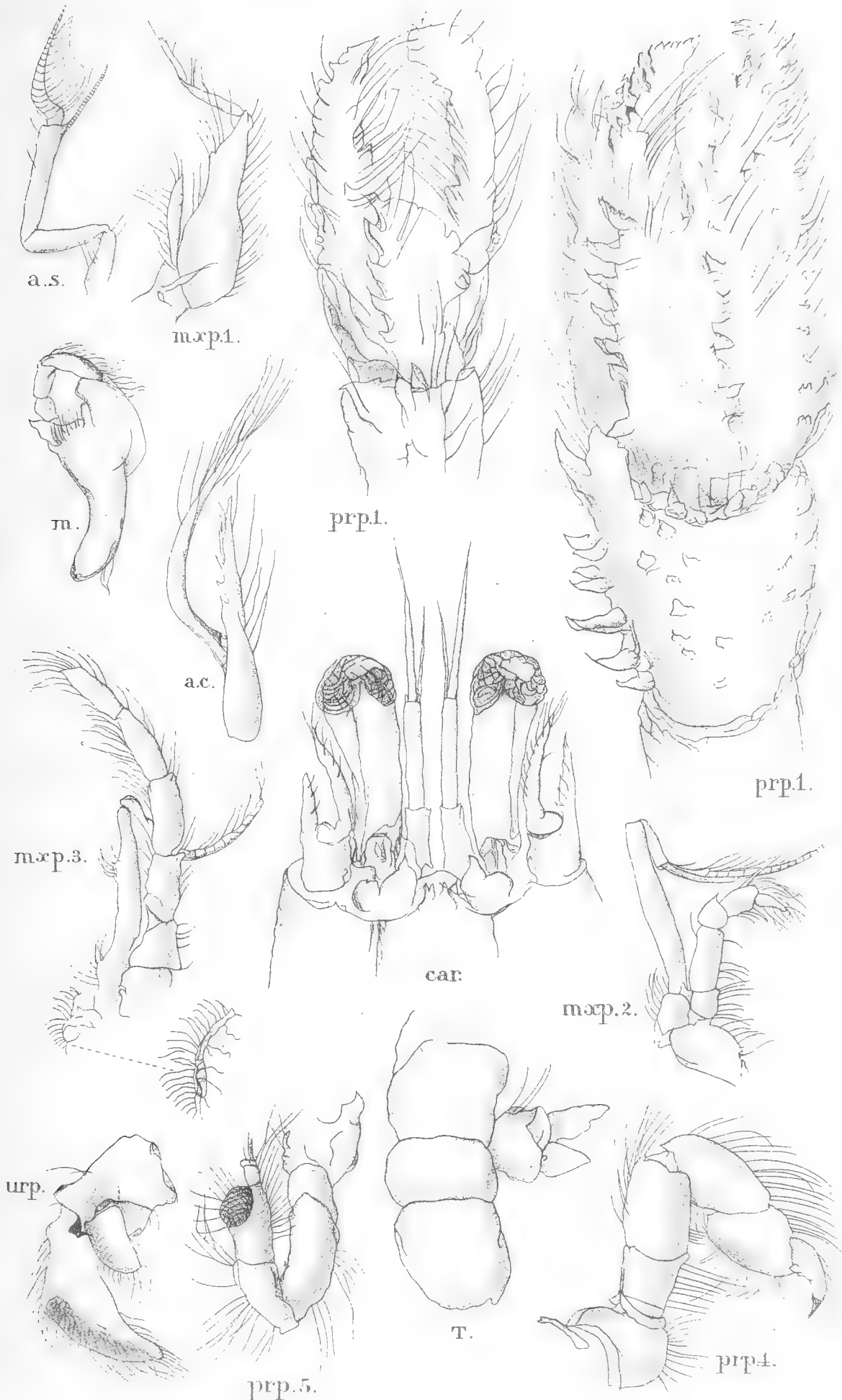
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Fa. P. W. M. Tr. imp.

*CANCELLUS MAKROTHRIX*, n. sp.





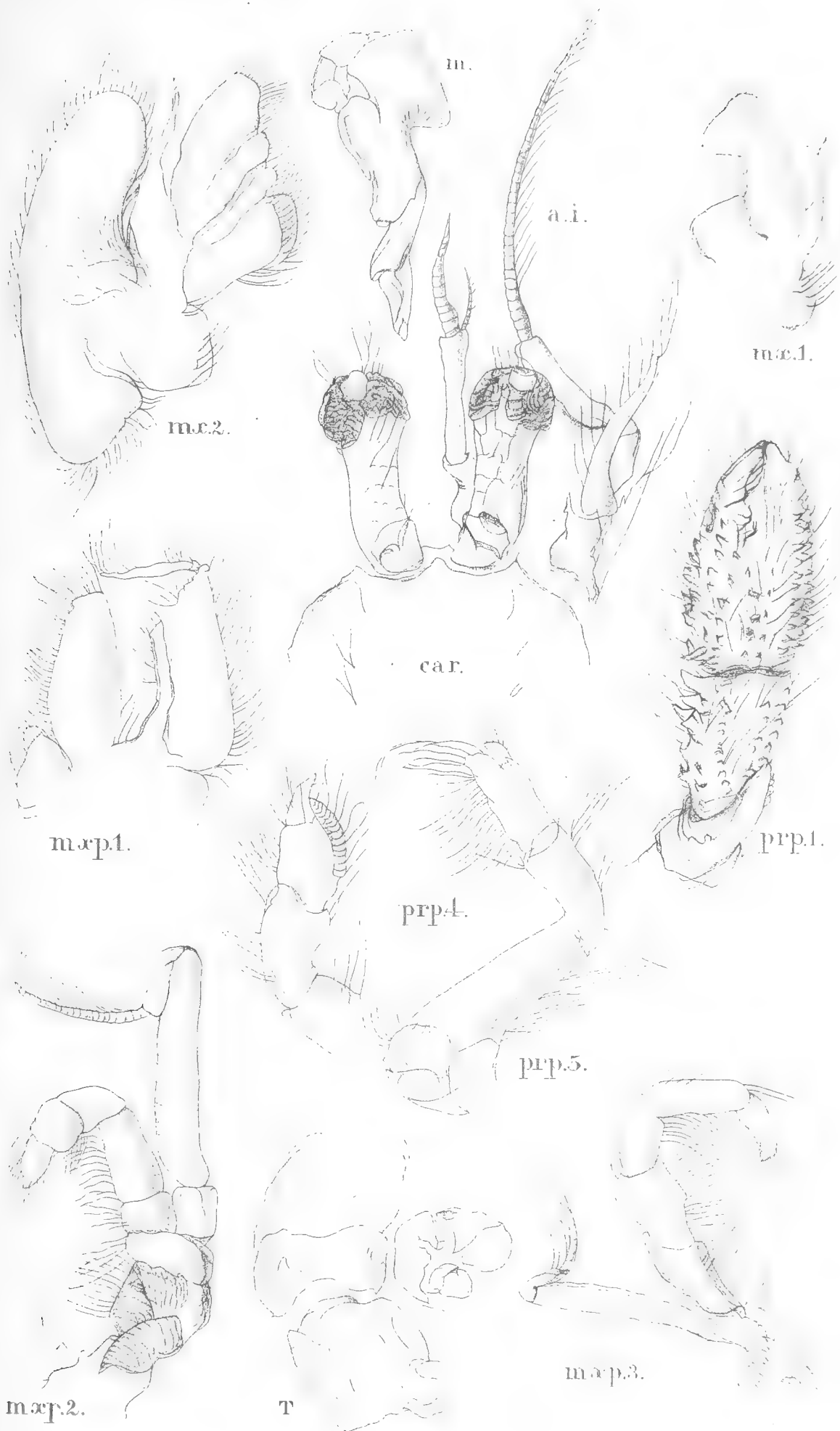


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Fa. P. W. M. Tr. imp.

*EUPAGURUS PLACENS*, n. sp.



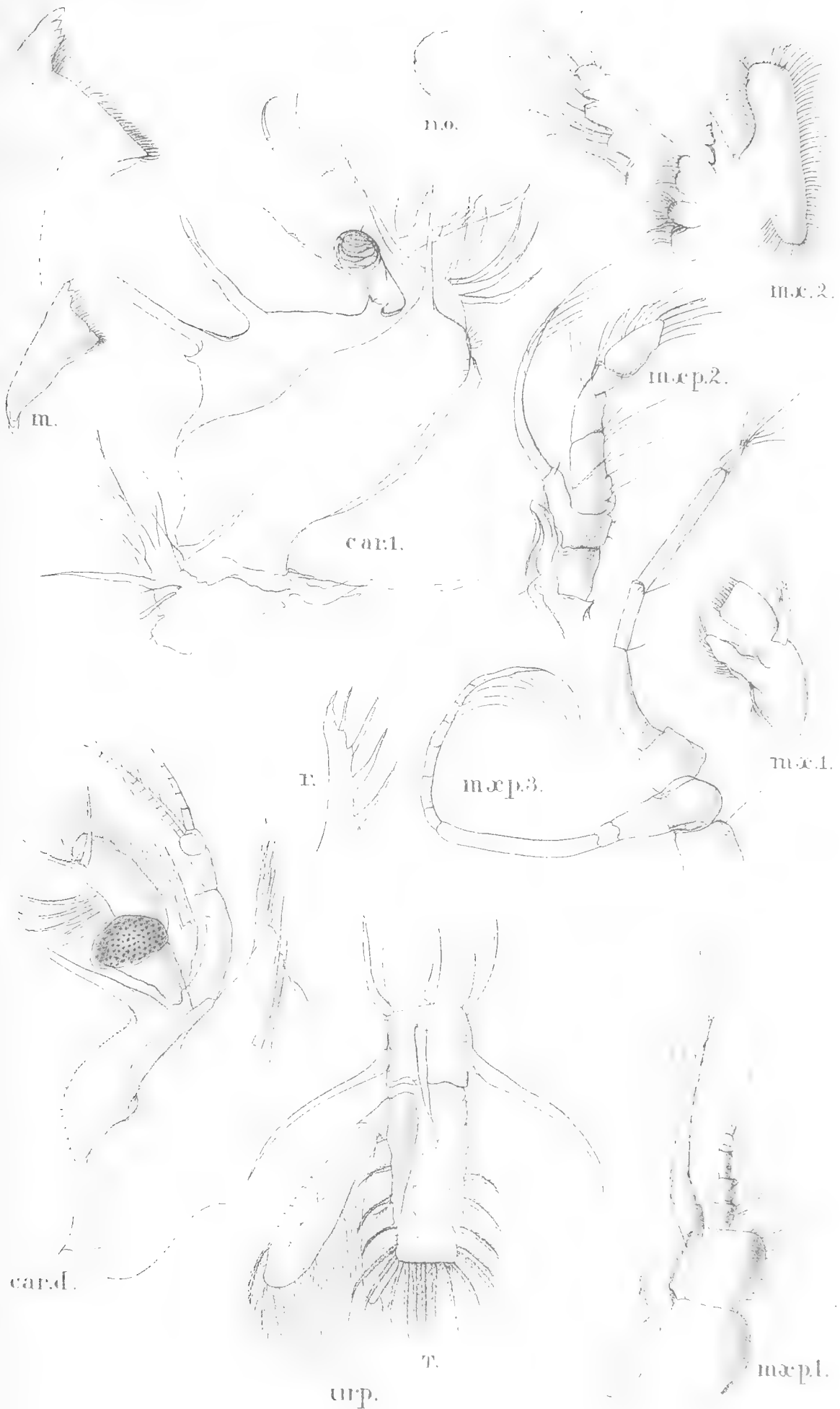


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Fa. P. W. M. Tr. imp.

EUPAGURUS DEPROFUNDIS, n. sp.



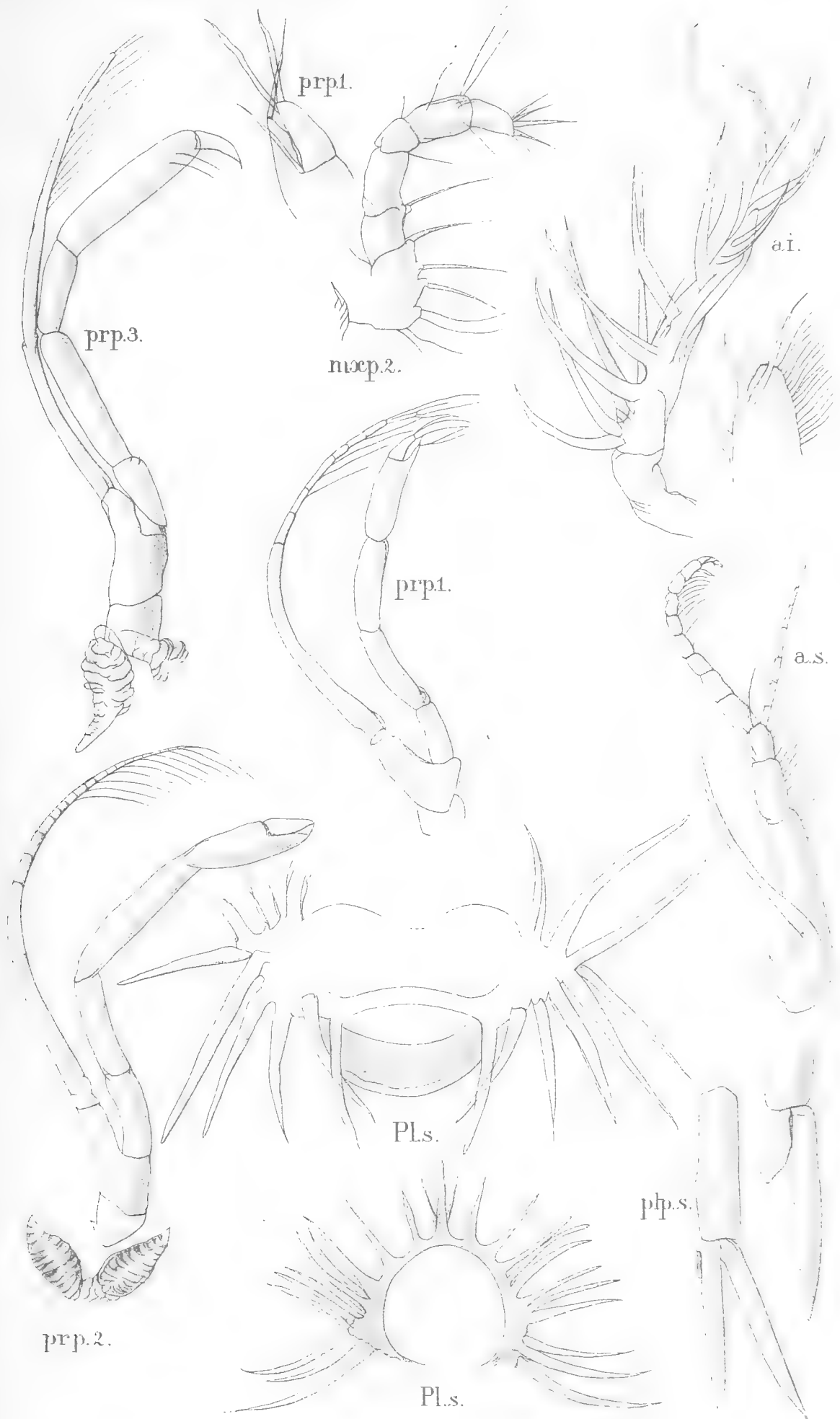


Stebbing del.

Fa. P. W. M. Tr. imp.

*PROBLEMACARIS SPINETUM*, Stebb.





Stebbing del.

PROBLEMACARIS SPINETUM, Stebb.

Fa. P. W. M. Tr. imp.



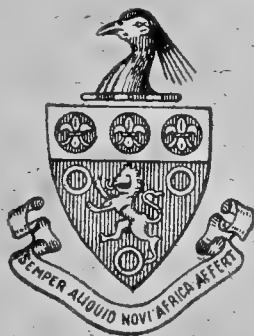


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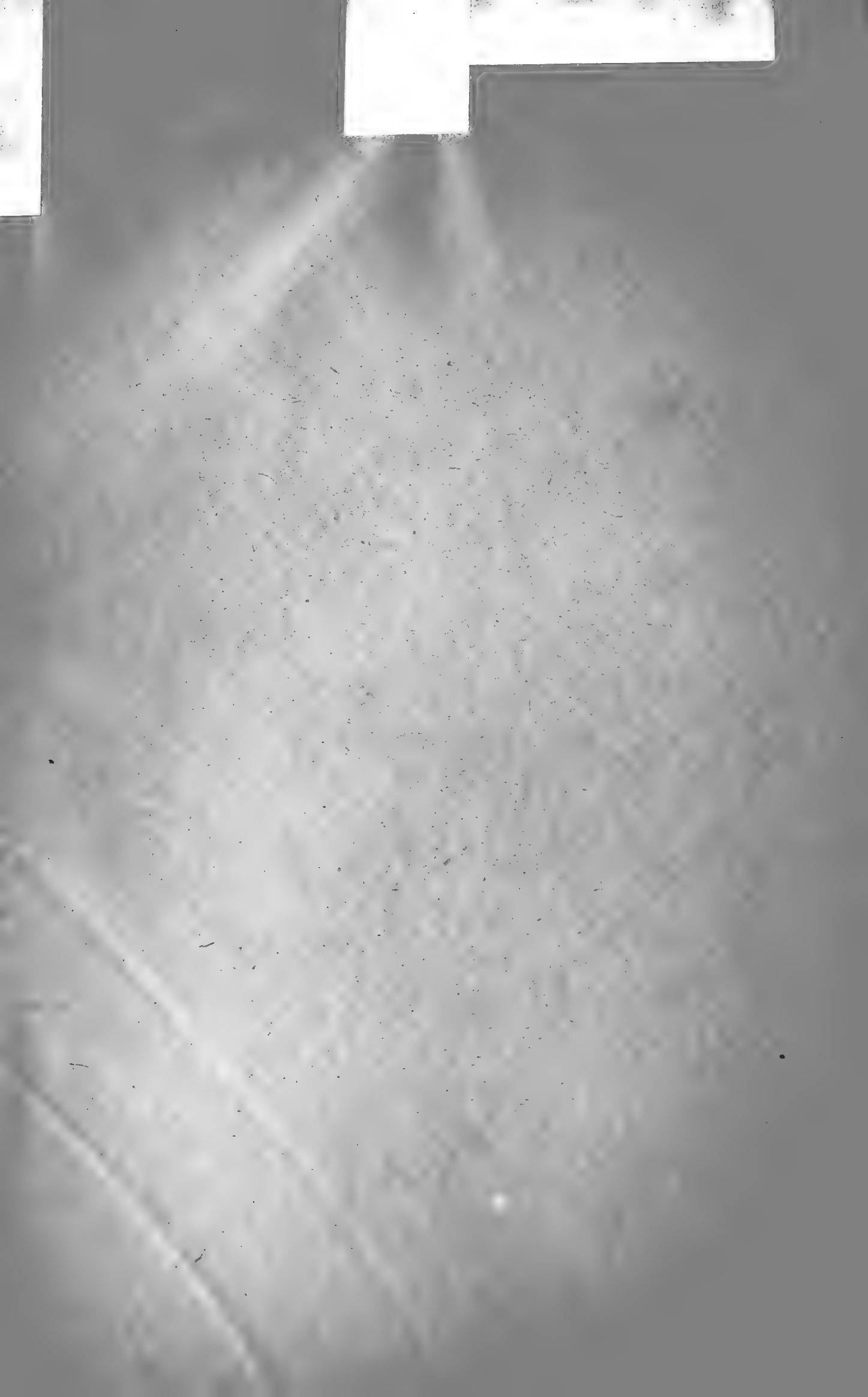
PART II, containing:—

- 7.—*The Drassidae of South Africa.* By R. W. E. TUCKER,  
M.A., Assistant. (Plates VIII–XI.)
- 8.—*The South and Central African Species of the Genus  
Synagris, Latr. (Hymenoptera).* By J. BEQUAERT.



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7. *The Drassidae of South Africa (Arachnida).*—By

R. W. E. TUCKER, M.A., Assistant.

(With Plates VIII–XI.)

*Scope.*

THE following Monograph gives an account of the Drassid spiders of South Africa. The term South Africa is meant to apply to the region south of the 15° latitude and not to political South Africa. Even so, the boundary is an artificial one arachnologically, for, as far as can be seen from the distribution of the species at present known, certain Cape Province \* species occur in South-West Africa, and others spread northwards to the East African equatorial region, and certain Abyssinian species spread south to the same region. Whether the interpenetration is carried further, the known material does not show. Mediterranean species, however, merge with Abyssinian, and the latter with Arabian species, and so on. To attempt to work out the distribution of species, therefore, requires the knowledge of a greater number of specimens recorded from various regions than are available at present. It is probable, however, that as Drassids are small, agile spiders, protecting themselves by living under any fallen object which can provide shelter, there is no reason why any barrier short of the Sahara Desert should impede their distribution. In fact, the distribution of the Drassids seems parallel to that of Ants, as set out by Mr. G. Arnold of the Rhodesia Museum in the preface to his Monograph on "Formicidae," Ann. S.A. Mus., vol. xiv, pt. i.

*Drassidae* as a rule do not feature largely in collections, because not only has special search to be made for them, but their agility makes them difficult to capture. In addition, owing to the uniformity in appearance of the species of various genera, it is only sexually mature specimens that can be identified with certainty, and such specimens are only obtainable at certain periods of the year. This being so, the records of species are naturally of a somewhat scattered and isolated nature; nevertheless the genera and species here dealt with most probably include the major portion of the Drassids of South

\* All the localities recorded in the following pages are in the Cape Province of S. Africa, save where definitely stated otherwise; e.g. S. Rhodesia, Natal, S.W. Prot., etc.

Africa. New species and genera will undoubtedly be found from time to time in the vast territory under consideration, but for the most part further collecting will help more towards working out the distribution of the species now known and dealt with than in increasing them.

#### *Arrangement.*

In his standard work, *Histoire Naturelle des Araignées*, tom. i, and Suppl., tom. ii, Simon deals with the family *Drassidae*, and it is on his divisions and tables of genera that the arrangement of the following Monograph is based. Simon divides the family into four sub-families, all of which are represented in Africa. The various genera of these families, however, are not all known from Africa. Keys are given in the following pages to include all genera of *Drassidae* given by Simon, together with other genera since added to the other sub-families, in order to facilitate the subsequent placing, or identification, of new genera which may be found in South Africa from time to time. Sub-families, groups, and genera are dealt with in the following pages in the sequence into which they fall in the keys based on their natural characters. Species, however, are described or recorded in alphabetical order, and not in the sequence into which they fall in their keys.

As this Monograph, however, is intended to deal only with the *Drassidae* of South Africa up to the latitude 15° S., only those species actually found up till now in this particular region are described and keyed here.

In some genera the general characters and appearance are so uniform, and sufficient specific characters on which to work out keys are so lacking, that keying the species of such genera has often been a matter of difficulty. In all cases of doubt, however, a glance at the figures of the sexual organs will settle the identity of a species almost at once.

Every description is based on type specimens, personally examined; in the few cases in which this has not been possible, the author's description is quoted in inverted commas.

My thanks are due to Mr. S. Hirst of the British Museum, and Mr. J. Hewitt of the Albany Museum, Grahamstown, for facilities given in examining the type specimens in their charge.

#### *Key to Sub-Families.*

- (4). 1. Inferior spinners widely separate, indurated, longer than the superior spinners, and usually well separated transversely from them.

- (3). 2. Coxae and often trochanters of 4th pair of legs longer than the rest.  
Maxillae not or scarcely impressed . . . . . *Hemicloeinae*.
- (2). 3. Coxae and almost always patellae of 1st pair of legs longer than the rest.  
Maxillae distinctly impressed . . . . . *Drassodinae*.
- (1). 4. Inferior spinners almost contiguous, soft integument, shorter and nearer  
to the superior spinners.
- (6). 5. Maxillae lightly impressed, borders of cheliceral grooves muticous. Tarsi  
of legs slender and curved . . . . . *Cithaeroninae*.
- (5). 6. Maxillae not impressed; borders of cheliceral grooves dentate. Tarsi of  
legs straight . . . . . *Cybaeodinae*.

## FIRST SUB-FAMILY.

### HEMICLOEINAE.

#### *Key to Genera.*

- (2). 1. Cephalothorax fairly thick, but flattened above. Legs not lateral, an-  
teriors longer than posteriors; coxae usually subequal. *Trachycosmus*.
- (1). 2. Cephalothorax very flat. Legs lateral, 2nd pair longer than the rest.  
Posterior coxae much longer than the remainder.
- (4). 3. Sternum produced between the anterior coxae, forming a transverse,  
somewhat rectangular extension . . . . . *Hemicloea*.
- (3). 4. Sternum gradually narrowed anteriorly.
- (6). 5. Cephalothorax wider than long, considerably rounded on both sides.  
*Pyrnus*.
- (5). 6. Cephalothorax longer than wide, as in *Hemicloea*.
- (10). 7. Median spinners truncated, laterally compressed, and bearing long fusules  
apically.
- (9). 8. Fusules on median spinners numerous and biseriate. Posterior median  
eyes much larger than the laterals . . . . . *Rebilus*.
- (8). 9. Fusules on median spinners sparse and large. Posterior median eyes  
slightly smaller than the laterals . . . . . *Corimaethes*.
- (7). 10. Median spinners simple and conical.
- (12). 11. Inferior margin of chelicera armed with 2 well-separated teeth. Posterior  
legs as in *Hemicloea* . . . . . *Hemicloeina*.
- (11). 12. Inferior margin of chelicera muticous, superior margin or ridge bearing  
0-5 (or more) well-separated teeth. Coxae and trochanters of posterior  
legs markedly the longest . . . . . *Platyoides*.

Of the above genera, only 2 are recorded from South Africa, namely, *Hemicloea* and *Platyoides*. As only 1 species of *Hemicloea* has been recorded, it may be doubtful whether the genus really occurs in South Africa. *Platyoides*, however, is widespread in South Africa.

*Trachycosmus*, *Pyrnus*, *Rebilus*, *Corimaethes*, and *Hemicloeina* have not as yet been found in South Africa.

## GEN. HEMICLOEA, Thorell.

## HEMICLOEA WALTERI, Karsch.

1886. *H. walteri*. F. Karsch in Berliner Ent. Zeit., Bd. xxx, Hft. ii, p. 151.

“♀. *Chief Character*.—Middle eyes of front row nearer to one another than side eyes; coxae of hind pair of legs as long as coxa and trochanter (hip joint and shank ring) of the last but one pair. Coxa and trochanter of hind pair about equally long, and together somewhat longer than the femur (shank) of the same leg.

“*Form*.—Cephalothorax very broad, flat, and sharply margined; head slightly produced anteriorly. Sternum broad oval, and produced in front beyond the coxae of the anterior pair of legs. Mandibles very strong and powerful, strongly convex, projecting far beyond the maxillae; maxillae slender. Abdomen very broad and flat. Plate of vulva broader than long, weakly scalloped in front, tripartite behind; the hollow of the surface T-shaped.

“*Colour*.—Cephalothorax, mandibles, and maxillae dark red brown; legs yellow; sternum yellow with black border, and dark red brown in front. Abdomen grey, darker above, and strongly wrinkled.

“*Clothing*.—Hairs simple, mostly rubbed off.

“*Measurements*.—Body between 15 and 16 mm. Cephalothorax 6.3 mm. long, 5.2 wide. Abdomen 9.3 long, 8 broad. 1st pair of legs 18.5, 2nd pair 20.5, 3rd pair 18, 4th pair 20.2 mm. long.

“*Locality*.—Botsabelo, Transvaal. (Dr. Max Bartels.)”

## GEN. PLATYOIDES, Cambr.

*Key to Species.*

- (12). 1. Anterior laterals twice or less the diameter of an anterior median eye from the latter.
- (7). 2. Legs smooth.
- (4). 3. Metatarsus I scopulate to base . . . . . *pictus*.
- (3). 4. Metatarsus I sparsely scopulate anteriorly.
- (6). 5. Metatarsus I spined on under surface . . . . . *pusillus*.
- (5). 6. Metatarsus I not spined on under surface . . . . . *laterigradus*.
- (2). 7. Legs clothed with bristles and long hairs.
- (9). 8. Chelicera without teeth . . . . . *abrahami*.
- (8). 9. Chelicera with teeth.
- 11). 10. Metatarsus scopulate over distal half; chelicera with 5 teeth. *costeri*.
- (10). 11. Metatarsus I with only a few scopular hairs anteriorly; chelicera with 2 teeth . . . . . *pusilliformis*.

- (1). 12. Anterior laterals three times, or more than twice, the diameter of a median eye from the latter.
- (14). 13. Chelicera without teeth . . . . . *separata*.
- (13). 14. Chelicera with teeth.
- (17). 15. Metatarsus with a small anterior scopula.
16. Chelicera bearing 2 teeth . . . . . *bidentifer*.
- (15). 17. Metatarsus I scopulate nearly to base.
- (19). 18. Chelicera with 3 teeth . . . . . *leppanae*.
- (18). 19. Chelicera with 5 teeth . . . . . *quinquedentatus*.

PLATYOIDES ABRAHAMI, Cambr.

1890. *P. abrahami*. Cambr. in P.Z.S., 1890, p. 625, pl. liii, fig. 4, *a-g*.

“*Adult female*, length (not including the falces) very nearly six lines. The colour of the cephalothorax and falces is a liver-coloured brown, the normal grooves and indentations blackish.

“The *legs* have the tarsi, metatarsi, tibiae, and genuae of a rather olive brown, the remainder dull orange yellow.

“The *palpi* are olive brown, as also are the maxillae and labium, the last being darkest.

“The *sternum* is dull orange, with a narrow reddish-brown margin.

“The *abdomen* is thinly clothed with short hairs, and of an almost uniform dull black above, paler along the middle of the upper side, and with traces of transverse pale oblique lines just above the spinners, but no distinct pattern visible, though this may have been owing to the rather damaged condition of the type specimen; the under side is of a uniform pale dull yellow brown.

“*Hab.*—South Africa.”

The dentition of the cheliceral grooves is not mentioned in the specific description, and in the generic description they are spoken of as “thickly furnished with hairs on the inner sides,” teeth being apparently absent. The generic description of the eyes applies equally to other species as to *abrahami*.

The vulva is figured in pl. liii, *loc. cit.*

PLATYOIDES BIDENTIFER, Purc.

1907. *P. bidentatus*. Purc. in A.M.N.H., ser. 7, vol. xx, p. 297, pl. xiii, figs. 1-2.

*Specimens*.—♂ and ♀ (13,710 types), Kentani (Miss Pegler, May 1903); also ♀♀ from East London and Port St. John's, Pondoland.

♀ *Colour*.—Carapace dark reddish brown with slight lateral and radial infuscation; chelicera reddish brown; legs yellowish brown, darker distally. Sternum yellowish brown, dark-edged. Abdomen testaceous, with fairly uniform infuscation dorsally and laterally.

*Eyes*.—Anterior laterals quite 3 times a median's diameter from latter. Posterior laterals about 3 times their diameter from the anterior laterals.

*Chelicera*.—Superior border with 2 teeth.

*Legs*.—Not hairy, but with scattered long bristles; metatarsus with very small anterior scopula and not spined on under surface.

*Vulva*.—As in fig. 1, *loc. cit.*

*Measurements*.—Length of carapace, 4.2 mm.; breadth, 4 mm. Total length, 8.6 mm.

♂ *Colour*.—Carapace and legs yellowish brown; legs slightly darker distally. Sternum dark-edged; abdomen testaceous, very slightly infuscated dorsally.

*Eyes*.—Anterior laterals barely a median's diameter from the latter. Posterior laterals more than a diameter from the anterior laterals.

*Chelicera and Legs*.—As in ♂.

*Pedipalps*.—Palpal organ as in fig. 2, *loc. cit.*

*Measurements*.—Length and breadth of carapace, 1.9 mm. Total length, 4.8 mm.

*Record of New Locality*.—1 ♀ (B 4155). Mfongosi, Zululand. (W. E. Jones, February 1918.)

#### PLATYOIDES COSTERI, n. sp. (Fig. 1.)

*Specimen*.—1 ♀ (B 4597 type). Mossel Bay. (J. H. Power, February 1919.)

*Colour*.—Carapace and chelicera red brown, carapace slightly yellower posteriorly; 1st pair of legs mahogany brown, other legs yellowish brown, becoming darker distally, except for the tarsi, which are all pale in colour; all legs considerably infuscated, especially the under surfaces of the femora. Abdomen testaceous, with a median dark testaceous band merging posteriorly with 2 lateral bands. Sternum orange brown, darker anteriorly, and dark-rimmed.

*Carapace*.—Length equal to patella and  $\frac{1}{2}$  tibia I; width equal to the distance from the posterior border to the posterior median eyes.

*Eyes*.—Median eyes more than a diameter apart, smaller than the laterals, which are about twice their own diameter distant. Posterior



row strongly recurved, medians small, nearly 4 times their own diameter apart, and slightly more from the laterals, which are subequal to the anterior laterals.

*Chelicera*.—Bearing 5 teeth.

*Legs*.—Tarsus and metatarsus I scopulated, the latter mainly on the distal half; metatarsus bearing several spiniform hairs, especially on the under surface; 2nd leg similar, tarsus also with a few stout bristles, and metatarsus with more numerous spiniform hairs on the under surface. Tarsus III clothed with bristles and fine spines on the under surface, and metatarsus bearing numerous fine spines; 4th leg similar.

*Vulva*.—As in fig. 1. (The figure should be narrower and broader, and the dark portions more inclined outwards.)

*Measurements*.—Carapace, 5.5 mm. Total length, 14 mm. (exclusive of chelicera).

This specimen has been named after Miss Alice Coster, of Bloemfontein, at the request of Mr. J. H. Power of Kimberley, in recognition of the help she gave him on many zoological excursions.

#### PLATYOIDES LATERIGRADUS, Poc.

1898. *P. laterigradus*. Pocock in A.M.N.H., vol. ii, ser. 7, p. 219, pl. viii, fig. 2.

“*Colour*.—Carapace and mandibles mahogany brown; sternum and basal three segments of legs ochre yellow; legs from patellae to tarsi lightly infuscate, though paler below; abdomen ashy grey, paler beneath.

“*Carapace*.—A little longer than broad, about as long as the tibia and half the protarsus of the first and as the femur of the fourth leg; anterior median eyes separated by a space slightly exceeding their diameter, but separated from the anterior laterals by a space which equals almost two diameters.

“*Mandibles*.—With one largish tooth near the base of the inferior border; hairy below, the hairs arising from the summits of little papillae; front of mandibles sparsely setose.

“*Legs*.—Also sparsely setose, not spined; protarsi and tarsi of first and second lightly scopulate below; the scopulae of the second thinner than of the first; patella and tibia of first and fourth about equal, and less than patella of second; fourth leg exceeding second leg by the length of its tarsus.

“*Abdomen* oval, nearly twice as long as wide.

“*Vulva* as in pl. viii, fig. 12; inferior spinners short and conical, scarcely longer than broad.

“*Measurements in Millimetres*.—Total length, 13; length of carapace 4, width 3.3; length of first leg 11, of second 13, of third 10, of fourth 12 (measured from base of femur).

“*Loc.*—Estcourt, Natal, 4000 ft.”

To this description Pocock adds: “In size and colouring this species certainly resembles *P. abrahami* (O. P. Cambr.)”; also, “Since neither Mr. Cambridge nor Mons. Simon detected in *P. abrahami* the tooth that I have described in *laterigradus*, one is compelled to assume that it is absent in the former species.”

#### PLATYOIDES LEPPANAE, Poc.

1902. *P. leppanae*. Pocock in A.M.N.H., ser. 7, vol. x, p. 19, pl. iii, fig. 8.

*Specimens*.—♂ and ♀ types, Br. Museum. Teafountain, Grahams-town. (Miss Leppan, 1900.)

♀ *Colour*.—Carapace mahogany brown, darker anteriorly; chelicera darker and redder; legs yellowish brown, slightly infuscate on under surface, redder distally. Abdomen testaceous, with median and lateral dark bands, the former narrowing posteriorly. Sternum reddish brown, dark-edged.

*Eyes*.—Anterior laterals at least 3 times a median’s diameter from the latter. Posterior laterals smaller than the anterior laterals and quite twice the latter’s diameter from them.

*Chelicera*.—Superior margin with 3 teeth.

*Legs*.—Well clothed with hair and bristles. Metatarsus I densely scopulate over anterior  $\frac{2}{3}$ ; no spines on under surface.

*Vulva*.—As in fig. 8, *loc. cit.*, save that the median T-shaped portion is narrower and finely pointed posteriorly.

*Measurements*.—Length of carapace, 4.3 mm.; width, 4 mm. Total length, 11 mm.

♂ *Colour*.—As in ♀, but a little darker.

*Eyes and Chelicera*.—As in ♀.

*Legs*.—Longer than in ♀, and hairy. Metatarsus I scopulate over anterior  $\frac{1}{2}$ , and bearing no spines on under surface.

*Pedipalps*.—Tibia bearing an anterior dorsal projection, broad basally, and tapering fairly rapidly anteriorly over dorsal surface of tarsus. Tarsal organ furnished with a long flagellum arising from the inner apical portion, curving across anteriorly, slightly bifid at outer

curve, and continuing down the outer side of the tarsus, and reaching in a filiform condition to the apex of the tarsus again. On outer side of tarsal organ is a stouter styliform process, tapering and curved apically.

*Measurements*.—Length of carapace, 3.6 mm.; breadth, 3.2 mm. Total length, 8 mm.

*Record of New Localities*.—2 ♀♀ (No. 5130). Pocaltsdorp, George Div. (Miss L. Leipoldt, 1899.)

These specimens agree in size, colour, markings, and vulva with Pocock's types. The chelicera, however, have 3 very distinct teeth, not 2 only, as stated in description, *loc. cit.* Further, there appears to be a slight discrepancy in the description of the legs. Of the statements "tarsi and protarsi of the anterior pairs lightly scopulate beneath," as given in the description, and "tibia and protarsus of first and second leg without scopula," as given in the key to the species, the former is more correct according to the type specimens. The tibiae are not scopulate, and the metatarsi bear a fairly dense clothing of hair on the under surface which, though long, is scopulate in appearance; the tarsi are slightly more densely clothed: the tarsal claws bear 2 small basal teeth in addition to the 2 median larger ones. Also the median, dark, raised portion of the vulva is pointed posteriorly, as mentioned in the description; from the figure given, it would appear that the reverse was the case.

#### PLATYOIDES PICTUS, Poc. (Fig. 2.)

1902. *P. pictus*. Pocock in A.M.N.H. (7), vol. x, p. 19, pl. iii, fig. 8.

*Specimens*.—2 ♀♀ types, Br. Museum. Teafountain, Grahamstown. (Miss Leppan, 1900.)

*Colour*.—Carapace, chelicera, and legs dark orange brown; sternum and coxae slightly lighter, sternum dark-edged. Abdomen dull testaceous, with dark lateral bands, and a dorsal median dark band bifurcating over anterior  $\frac{2}{3}$ .

*Eyes*.—Anterior laterals  $1\frac{1}{2}$  to less than twice a median's diameter from the latter. Posterior laterals  $1\frac{1}{2}$ –2 diameters from the anterior laterals.

*Chelicera*.—Superior border with 2 teeth.

*Legs*.—Smooth; metatarsus I scopulate densely to base, and spineless on under surface.

*Vulva*.—As in fig. 8, *loc. cit.*; also fig. 2.

*Measurements.*—Length of carapace, 3.4 mm.; breadth, 3 mm. Total length, 8 mm.

*Record of New Localities* :—

Caledon, 1 ♀ (150,066). Dr. W. F. Purcell, July 1910.

Addo Bush, Port Elizabeth, 1 ♀ (B 4656). J. Drury, July 1919.

River Zonde Ende (Caledon), 1 ♀ (B 5571). R. Tucker, December 1920.

PLATYOIDES PUSILLUS, Poc.

1898. *P. pusillus*. Poc. in A.M.N.H. (7), vol. ii, p. 220, pl. viii, fig. 13.

“*Colour.*—Carapace yellowish ochre brown, with narrow blackish rim; legs practically a uniform ochre yellow, the femora not noticeably paler than the remaining segments; abdomen testaceous above, clouded with fuscous at the sides.

“*Carapace.*—About as wide as long, a little shorter than patella and tibia of first leg; eyes of anterior line subequally spaced, the medians about their own diameter from the laterals.

“*Legs* as in *laterigradus*, but with the setae more rigid, those on the lower side of the tibiae and protarsi of the first converted into spines protarsi and tarsi of the first and second without scopulate hairs.

“*Vulva* as in pl. viii, fig. 13.

“*Measurements in Millimetres.*—Total length, 7; length and width of carapace, 2.3 mm.

“*Locality.*—Estcourt, Natal, 4000 ft. (G. A. K. Marshall.)”

PLATYOIDES PUSILLIFORMIS, n. sp. (Fig. 3.)

*Specimens.*—1 ♀ and jv. (No. 14,695 type). Kentani. (H. P. Abernethy, 1909.)

This specimen is allied to *P. pusillus*, Poc., in size, proportions, and type of vulva. It is separated, however, on account of difference from the vulva of *pusillus* as depicted in fig. 13, pl. viii, A.M.N.H., vol. ii, 1898; also on the scopulation of the anterior legs and dentition of the chelicera.

*Colour.*—Carapace and chelicera dark golden brown; the former dark-edged, and with an infuscated band running from the side of the ocular area to the fovea; the 1st pair of legs the same colour as the carapace, the posterior legs lighter. Abdomen testaceous, with lateral infuscated bands projecting inwards anteriorly and medially; the anterior projections fusing.

*Carapace*.—Breadth equal to the length; subequal to patella and tibia I.

*Eyes*.—Anterior medians about a diameter apart, and very slightly nearer to each other than to the laterals. Posterior medians about  $1\frac{1}{2}$  diameters apart, and about  $2\frac{1}{2}$  diameters from the laterals.

*Chelicera*.—Bearing 2 stout teeth as in *bidentifer*, Purc.; these teeth are obvious even in the very juvenile specimen.

*Legs*.—Tarsus I scopulate below; metatarsus with a few scopular hairs anteriorly, and spiniform hairs over the entire surface, those basally on the under surface appearing as slender spines; the remainder of the leg with similar hairs or weak spines. Tarsus II bearing a few scopular hairs; metatarsus II without. All legs bearing weak spines, especially on the femora.

*Vulva*.—As in fig. 3.

*Measurements*.—Carapace, length and breadth, 2.25 mm. Total length, 6 mm.

PLATYOIDES QUINQUEDENTATUS, Purc.

1907. *P. quinquedentatus*. Purcell in A.M.N.H. (7), vol. xx, pl. xiii, fig. 3.

*Specimens*.—2 ♀♀ and jv. (7889 types). Swellendam. (H. A. Fry, 1900.)

*Colour*.—Carapace and chelicera very dark, almost black, reddish brown; legs somewhat lighter and partially infuscated. Abdomen black dorsally and laterally, dull testaceous on under surface, and with 2 indistinct dorsal longitudinal testaceous stripes.

*Eyes*.—Anterior laterals just over twice a median's diameter from the latter. Posterior laterals about  $1\frac{1}{2}$  diameters apart.

*Legs*.—Moderately hairy; metatarsus I scopulate almost to base, and bearing no spines on under surface.

*Chelicera*.—Superior border with 5 teeth.

*Vulva*.—As in fig. 3, *loc. cit.*

*Measurements*.—Length of carapace, 5 mm.; breadth, 4.3 mm. Total length, 12.5 mm.

*Record of New Locality*.—1 ♀ (B 4612). Zonder End Mts. (K. H. Barnard, January 1919.)

PLATYOIDES SEPARATA, Cambr.

1907. *P. separata*. Cambridge in P.Z.S., 1907, p. 819, pl. 1, figs. 7-12.

“ Adult female, length  $4\frac{1}{4}$  lines.

“*Cephalothorax* and abdomen uniformly flattened; the former is of a dark, rather bright, yellow-brown colour; the latter, on the upper side, is of a mouse-coloured black above and on the sides, the under side being of a dull greyish white. The clypeus is almost obsolete. The legs 4, 2, 1, 3 are not very strong, the three basal joints pale yellow, the rest more or less suffused with yellowish brown; and there is a thin scopula of racquet-shaped hairs on the tarsi and part of the metatarsi of the first pair. The coxae and genual joints of the first pair are of moderate length, nearly equal together to that of the femoral joint. The cephalothorax is a little broader than long, and broadest behind, truncated before and somewhat truncate behind.

“*Eyes* small, not greatly unequal; the hind central pair smallest; placed in two transverse rows occupying the greater part of the width of the caput; the anterior row is straight, the posterior longest, and has the convexity of its very slight curve directed backwards. The interval between the two central eyes of each row is less than that which separates them from the laterals.

“*Falces* strong, tumid in form, divergent and porrected. Fang long, not very strong, regularly curved and tapering. Colour similar to that of the cephalothorax.

“*Maxillae* long, enlarged at their base, strongly constricted at the middle, enlarged again at their extremity, where they are obliquely truncated on the inner side; colour yellow brown.

“*Labium* nearly as broad as high, with a transverse suture below the middle, the apex rounded; colour of a darker hue than the maxillae.

“*Sternum* of a nearly regular roundish oval; colour yellow, tinged with orange.

“*Spinners* small, short and compact. Genital aperture of very distinct and characteristic form.

“A single adult ♀ from East London. (Mr. R. Hancock.)”

PLATYOIDES SIMONI, Cambr.

1907. *P. simoni*. Cambr. in P.Z.S., 1907, p. 820, pl. 1, figs. 13–17.

“Adult male, length 2 lines.

“Though resembling it in general form and other essential characters, the small comparative size of this spider will distinguish it at once from *P. separata*. The eyes also are more closely grouped together and rather larger.

“The *cephalothorax* is pale dull yellow brown, the normal grooves

and indentations indicated by darker lines. The legs are pale dull yellowish; the femora, tibiae, and metatarsi suffused with brownish.

“The *abdomen*, of a short oval form and dark, yellowish-brown hue, has a broad central longitudinal band or area of a pale colour, bearing a longitudinal dark central tapering stripe, with some indistinct lateral sloping or oblique dark lines on each side of its hinder extremity, and representing the normal angular bars or chevrons.

“The *palpi* are short; the radial shorter than the cubital joint, with a short, obliquely truncated apophysis at its extremity on the inner side. The digital joint is of moderate size and short oval form; the palpal organs well developed and complex, with spiny processes.

‘*Hab.*—Cape Colony, South Africa. (Mr. R. Hancock.)’

## SECOND SUB-FAMILY.

### DRASSODINAE.

#### *Key to Groups.*

- (2). 1. Six eyes, subcontiguous and resembling Dysderidae . . . *Lygrommateae*.
- (1). 2. Eight eyes arranged in two series.
- (12). 3. Labium longer than wide and considerably surpassing half the length of the maxillae.
- (7). 4. Inferior margin of chelicera carinate or lobate.
- (6). 5. Inferior margin of chelicera with sharp, weakly dentate keel, median stria more or less long . . . . . *Gnaphoseae*.
- (5). 6. Inferior margin of chelicera armed with 3 contiguous broad and obtuse teeth or lobes, thoracic stria minute and punctiform . . . *Laroneae*.
- (4). 7. Inferior margin of chelicera muticous or bidentate.
- (9). 8. Maxillae long and strongly impressed; inner and often outer margins carinate. Labium very long, often reaching inner apices of maxillae. Sternum strongly narrowed anteriorly and extending beyond the anterior coxae . . . . . *Lamponeae*.
- (8). 9. Maxillae transversely impressed, inner margin not or scarcely keeled, labium not or scarcely extending beyond upper third of maxillae.
- (11). 10. Maxillae nearly erect, emarginate on exterior behind the sub-basal insertion of trochanters. Cheliceral margins long and oblique, superior armed with 3 unequal teeth of which the central is the largest, and the inferior with 2 teeth . . . . . *Drassodeae*.
- (10). 11. Maxillae strongly curved, insertion of trochanter submedian. Superior margin of chelicera often muticous, keeled, short and subtransverse; inferior margin indistinct muticous or with 1 minute tooth. *Echemeae*.
- (3). 12. Labium not much longer than wide and only slightly surpassing half the length of the maxillae.
- 16). 13. Inferior spinners longest; lateral, remote, and bearing long fusules apically, and dentiform fusules on inner apex.

- (15). 14. Tarsal claws muticous and densely fasciculate . . . . . *Theumeae*.  
 (14). 15. Tarsal claws not fasciculate but pectinate . . . . . *Anagraphidae*.  
 (13). 16. Spinners normal, inferiors not much larger than superiors.  
 (19). 17. Tarsi not fasciculate, claws dentate.  
 18. Both rows of eyes recurved, inferior margin of chelicera furnished with  
 more than 2 teeth . . . . . *Anagrina*.  
 (17). 19. Tarsi fasciculate, claws muticous.  
 20. Both rows of eyes practically straight. Inferior margin of chelicera with  
 2 granuliform teeth . . . . . *Tricongeae*.

Of these groups, 5 are known in South Africa, namely, *Theumeae*, *Anagraphidae*, *Drassodeae*, *Echemeae*, and *Gnaphoseae*. *Laroneae* occurs in South Africa, but not in the region under consideration.

The remaining groups, *Lygrommateae*, *Lamponeae*, *Anagrina*, and *Tricongeae*, are not known to occur in Africa at all.

#### GNAPHOSEAE.

##### *Key to Genera.*

- (3). 1. Base of median spinners tuberculate.  
 2. Eyes subequal, posterior row not narrower than anterior row; inferior  
 spinners with 5-7 tubules . . . . . *Callilepis*.  
 (1). 3. Base of median spinners not tuberculate.  
 (7). 4. Clypeus less than the diameter of an anterior lateral eye.  
 (6). 5. Lateral eyes much larger than the medians. Posterior row wider than  
 the anterior row and straight to slightly procurved. Spinners with  
 4 apical tubules . . . . . *Trepophoda*.  
 (5). 6. Lateral eyes not much larger than the medians. Posterior row wider  
 than the anterior, and moderately recurved. Mouth-parts very large  
 and broad. Spinners with 2-3 tubules . . . . . *Upognampa*.  
 (4). 7. Clypeus exceeding the diameter of an anterior lateral eye.  
 (17). 8. Posterior row of eyes wider than anterior row.  
 (11). 9. Lateral eyes much larger than the medians.  
 10. Ocular area wider than long; posterior medians small (but not almost  
 obsolete) . . . . . *Gnaphosoides*.  
 (9). 11. Lateral eyes only slightly larger than the medians.  
 (14). 12. Posterior row of eyes almost straight.  
 13. Front metatarsi considerably shorter than the tarsi; spinners with  
 2 fusules . . . . . *Anusia*.  
 (12). 14. Posterior row of eyes recurved.  
 (16). 15. Posterior row moderately recurved, spinners with 4-5 tubules.  
*Aneplesa*.  
 (15). 16. Posterior row strongly recurved; spinners with 10-11 tubules.  
*Gnaphosa*.  
 (8). 17. Posterior row of eyes narrower than the anterior row.  
 18. Lateral eyes very much larger than the medians; posterior row strongly  
 recurved. Spinners with 2-3 tubules . . . . . *Asemesthes*.

Of these genera, *Gnaphosoides* alone is not found in South Africa.



GEN. CALLILEPIS, Westr.

Key to Species.

- (10). 1. Posterior median eyes smaller than the laterals.  
 (8). 2. Posterior row of eyes straight to faintly recurved.  
 (6). 3. Carapace equal in length to tarsus and metatarsus IV.  
 (5). 4. Carapace equal in length to metatarsus and  $\frac{1}{2}$  tarsus I; inferior spinners bearing 4 apical tubules . . . . . *tubalus*.  
 (4). 5. Carapace subequal in length to metatarsus and tarsus I; spinners with 5 apical tubules . . . . . *varius*.  
 (3). 6. Carapace equal in length to tarsus and  $\frac{1}{2}$  metatarsus IV.  
 7. Length of carapace slightly less than tibia and metatarsus II: spinners with 4 apical tubules . . . . . *frenata*.  
 (2). 8. Posterior row of eyes well recurved.  
 9. Carapace slightly less in length than metatarsus and tarsus I and equal to metatarsus IV. Spinners with 2-3 tubules . . . . . *marginalis*.  
 (1). 10. Posterior median eyes larger than the laterals.  
 11. Carapace slightly greater in length than metatarsus and tarsus I and equal to metatarsus and  $\frac{1}{2}$ - $\frac{2}{3}$  tarsus IV. Spinners with 5-6 tubules. . . . . *auris*.

CALLILEPIS AURIS, n. sp. (Fig. 4, A and B.)

*Specimens* :—

- 1 ♂ and 3 ♀ (12,660 types). Montagu Baths. (Dr. W. F. Purcell, November 1902.)  
 1 ♀ (11,917). Palmietfontein, near Hanover. (S. C. Schreiner, December 1901 to February 1902.)  
 1 ♂ (3946). Beaufort West. (F. Purcell, September 1896).

♀ *Colour*.—Carapace medium brown, dark-edged, and with slight radiate infuscations from the fovea; median portion between eyes and fovea clear. Legs similar in colour to the carapace, darker distally. Abdomen dull cinereous in colour dorsally, with numerous indistinct testaceous spots posteriorly; also with a lighter patch and 2 dark spots above the spinners; under surface slightly paler down the centre. Sternum medium brown, dark-edged.

*Carapace*.—Length slightly exceeds metatarsus and tarsus I; equal to tibia, metatarsus, and about  $\frac{1}{3}$  tarsus II, and to metatarsus and  $\frac{1}{2}$ - $\frac{2}{3}$  tarsus IV.

*Eyes*.—Anterior row seen from in front procurved; eyes approximately equal in size, medians less than a diameter apart, and close to the laterals. Posterior row scarcely at all wider than the anterior row and straight to slightly recurved; medians subangular, oblique, and close together; slightly farther from the laterals which are subequal to them, and also subequal to the anterior laterals, from

which they are about  $1\frac{1}{2}$  diameters distant. Clypeus exceeding the diameter of an anterior lateral eye.

*Legs.*—All the tarsi scopulated and bearing down the centre a line of bristly hairs; the scopulation decreases and the band of hairs broadens successively in the posterior legs; metatarsus I scopulate anteriorly and bearing 2 submedian spines, and sometimes 1–2 anterior median spines on the under surface. Metatarsus II also scopulated anteriorly and bearing 1–2 apical, 2 anterior median, and 2 submedian spines on the under surface (on one side the 2nd metatarsus is abnormal, being densely clothed with spines which are aggregated mainly upon the inner surface and basal under surface). Tibiae I and II as in *C. varius*. Metatarsi III and IV without scopulae; posterior legs well spined.

*Sternum.*—As in *C. varius*.

*Spinners.*—Inferior spinners with 5–6 apical fusules; median spinners with the tuberculate base characteristic of *Callilepis*.

*Vulva.*—As in fig. 4A.

*Measurements.*—Length of carapace, 4.4 mm.; breadth, 3.2 mm. Total length, 10 mm.

♂ *Colour.*—As in ♀; markings on abdomen slightly more distinct.

*Carapace.*—Equal in length to metatarsus and less than  $\frac{1}{2}$  the tarsus of 1st leg, and to tibia and  $\frac{3}{4}$  metatarsus of 2nd leg; also equal to metatarsus IV.

*Eyes.*—Resembling those of the ♀; anterior medians subequal to the laterals. Posterior row nearly straight; posterior laterals less than  $1\frac{1}{2}$  diameters from the anterior laterals. Clypeus  $1\frac{1}{2}$  times the diameter of an anterior lateral eye.

*Legs.*—Longer than in the ♀. Tarsus I scopulate; metatarsus with 1 or 2 scopular hairs anteriorly and 1 apical, 1 anterior median, and 2 sub-basal spines on the under surface; 2nd leg similar. Tarsus III bearing scopular hairs and bristles on the under surface. Tarsus IV with very few scopular hairs and numerous bristles; posterior legs heavily spined.

*Sternum.*—Slightly more circular than the ♀; width equal to the length.

*Spinners.*—As in ♀.

*Pedipalps.*—Tarsus long and tapering; tarsal organ as in fig. 4B; tibia short, bearing 2 blunt soft anterior projections and a broad curved tapering spur apically on the dorsal surface.

*Measurements.*—Length of carapace, 4.6 mm.; breadth, 3 mm. Total length, 10 mm.

1 ♂, B 5002, from Otjituo, Northern S.W. African Prot. (R. Tucker, January 1920), agrees in palpal organ and measurements with the ♂ of this species; it varies, however, in that the anterior medians are slightly larger than the laterals, whilst the posterior row is faintly recurved and the laterals at least  $1\frac{1}{2}$  diameters from anterior laterals; the clypeus is over  $1\frac{1}{2}$  times, but under twice, the diameter of a lateral eye. The legs are relatively shorter, since the carapace measurement equals the metatarsus and  $\frac{2}{3}$  tarsus of 1st leg and is subequal to tibia and meta. II and equal to metatarsus and  $\frac{1}{3}$  tarsus IV. Unless the ♀ should prove the contrary, the specimen is classed as *C. auris*.

1 ♀, B 4785. Ashton. (R. Tucker, November 1919.) In this specimen the vulva has a very dark, raised, and conspicuous border, whilst the pattern of the enclosed depression is almost obliterated; otherwise as in type.

#### CALLILEPIS FRENATA, Purc.

*C. frenata*. Purcell in Schultze, Forschungsreise in S. Afrika, vol. i, p. 241, pl. xi, fig. 28.

*Specimens*.—1 ♀ (150,606 *ex typis*). Kamaggas, Little Namaqualand. (L. Schultze, July–August 1904.)

*Colour*.—Carapace medium brown, lighter from ocular area to median stria; dark-edged, and with slight radial infuscation from stria, especially to base of ocular area. Abdomen brownish black; legs yellowish brown, distal segments reddish.

*Carapace*.—Length slightly less than tibia and metatarsus II, and equal to metatarsus and just over tarsus IV.

*Eyes*.—Front row procurved, medians subequal to the laterals. Posterior row straight, laterals equal to the anterior laterals, and medians slightly smaller than the laterals.

*Legs*.—Anterior tarsi well scopulate; metatarsus I with 1 inner and 2 outer spines on the under surface; anterior metatarsi scopulate, but not to base. Tarsi strongly fasciculate.

*Vulva*.—Pl. xi, fig. 28, *loc. cit.*

*Measurements*.—Length of carapace, 2.8 mm. Total length, 6.8 mm.

#### CALLILEPIS MARGINALIS, n. sp. (Fig. 5.)

*Specimens*.—4 ♀♀ (B 4675). Pemba, N. Rhodesia. (Fr. Cassett, August 1919.)

*Colour*.—Carapace yellowish brown, slightly dark-rimmed laterally, with a broad wavy dark line down the centre of each side area.

Abdomen dull testaceous dorsally, with a faint dark irregular median band, a broken lateral band down each side, and numerous dark flecks on the rest of the surface; under surface pale testaceous; legs the same colour as the carapace.

*Carapace*.—Broad oval posteriorly, sharply produced anteriorly to rectangle, in which lies the ocular area. A little shorter than metatarsus and tarsus I, slightly shorter than tibia and metatarsus II, and equal to metatarsus IV; width equal to metatarsus and a little over  $\frac{1}{2}$  tarsus 1st leg.

*Eyes*.—From above, anterior row moderately procurved; medians round, subequal to laterals, slightly closer to them than to each other. Posterior row no wider than anterior row and equally procurved; medians white, subangular, inclined outwards, less than a diameter apart, and about the same distance from the laterals, which are a little larger and subequal to the anterior laterals, from which they are slightly less than a diameter distant.

*Chelicera*.—Superior border with large apical tooth flanked on outer side by a smaller contiguous tooth.

*Legs*.—Tarsus I faintly scopulate and with scattered bristle-like hairs distally on the under surface; metatarsus with a very few scopular hairs distally and bearing 2 apical and 2 submedian spines on the under surface; 2nd leg similar, but with an additional spine between the 2 pairs and a median spine on the inner surface. Tarsus III scopulate, but with very numerous bristles on the under surface. Tarsus IV less scopulate; metatarsi III and IV heavily spined. All tibiae well spined, posterior ones more strongly; tarsi with slight fascicles; tarsal claws strongly dentate.

*Spinners*.—Inferior spinners with 2–3 tubules; median spinners set on tuberculate bases.

*Vulva*.—As in fig. 5; prominently bordered; in some specimens the anterior dark tongue is not nearly so conspicuous, and the posterior dark portions are faint.

*Measurements*.—Length of carapace, 2.5 mm.; breadth, 2 mm. Total length, 7.5 mm.

CALLILEPIS TUBALUS, n. sp. (Fig. 6.)

*Specimen*.—1 ♂ (B 5507 type). Windhuk, S.W. Afr. Prot. (R. W. Tucker, January 1920.)

*Colour*.—Carapace light brown, dark-edged, with infuscations radiating from fovea, the one to the posterior lateral eyes being

almost band-like. Legs pale brown, darker distally. Abdomen dull testaceous, faintly grained with black, and with a double line of distinct black spots down the centre of the dorsal surface; small dark spot laterally above the spinners. Sternum light brown, dark-edged.

*Carapace*.—Equal in length to metatarsus and  $\frac{1}{2}$  tarsus I, to tibia and  $\frac{4}{5}$  metatarsus II, and subequal to tarsus and metatarsus IV.

*Eyes*.—Anterior row from in front faintly procurved, laterals very close to medians and subequal to them. Clypeus equal to diameter of anterior lateral eye. Posterior row straight, scarcely wider than anterior row; medians angular, white, and close together, nearly touching laterals, which are larger, subequal to anterior laterals, and nearly their own diameter from them.

*Legs*.—Anterior tarsi long and moderately scopulate; posterior tarsi short and sparsely scopulate; posterior metatarsi more heavily spined than anterior.

*Spinners*.—Superior spinners with 4 apical tubules.

*Pedipalps*.—Tarsal organ as in fig. 6; tarsus bearing a spine-like projection dorsobasally which curves upwards and over towards distal surface of tarsus, broad basally, and tapering and curved distally. Tibia bearing a broad projection medially, and covering the base of the tarsal projection; also a small finger-like projection laterally.

*Measurements*.—Length of carapace, nearly 3 mm.; breadth, 2.2 mm. Total length, 6 mm.

This specimen may prove to be the ♂ of *C. varius*, n. sp., of which 2 ♀♀ have been taken at the same period at Windhuk; until ♂ and ♀ have been taken together, or it has been established that there is only the one species of *Callilepis* at Windhuk, I have described the ♂ under a new name which can be merged with *varius* if found necessary.

CALLILEPIS VARIUS, n. sp. (Fig. 7.)

*Specimens* :—

- 1 ♀ (B 3726 type). Junction Marico and Crocodile Rivers, N.W. Transvaal. (R. W. Tucker, January–February 1918.)
- 1 ♀ (12,510). Umtali commonage, S. Rhodesia. (D. L. Patrick, November 1901.)
- 1 ♀ (B 5504). Windhuk, S.W. Africa. (R. Tucker, January 1920.)
- 1 ♀ (B 5680). Windhuk, S.W. Africa. (R. Tucker, February 1920.)

*Colour*.—Carapace medium brown with a dark line, irregular, and

broadening posteriorly, reaching from each posterior lateral eye to the level of the stria; sides and posterior portion of the carapace infuscated; border dark. Abdomen dark and olivaceous in colour and flecked with testaceous spots which become very numerous posteriorly; area above spinners clear testaceous and bearing 2 conspicuous black spots; under surface testaceous. Sternum pale brown and dark-rimmed; legs medium brown, becoming redder distally; patellae light.

*Carapace.*—Subequal in length to tarsus and metatarsus I, equal to tibia and metatarsus II, and equal to tarsus and metatarsus IV; width equal to the metatarsus and  $\frac{3}{4}$  tarsus of the 2nd leg.

*Eyes.*—Seen from above, both rows appear straight to slightly recurved; posterior row slightly wider. Seen from in front, anterior row procurved; medians subequal to the laterals, which are distant their own diameter from the margin of the carapace. Posterior laterals subequal to the anterior laterals; posterior medians subangular and a little smaller than the laterals. Median ocular area rectangular and longer than wide.

*Chelicera.*—Keel on the inner margin strong, and deeply curved in the centre. Superior margin with a strong apical tooth.

*Sternum.*—Greatest width subequal to the length.

*Legs.*—Tarsus I spineless, and bearing club-shaped scopular hairs which are sparse down the centre and at the base; also with a few bristles and fascicular hairs distally; metatarsus with no scopular hairs, but with spiniform hairs apically, and 2 spines basally on the under surface; tibia spineless. Tarsus II similar to I, fascicular hairs denser; metatarsus with 1 apical, 1 median, and 2 basal spines on the under surface; tibia with 1 apical, 2 median, and 1 basal spines on the under surface. Tarsus III bearing bristles in addition to scopular hairs; metatarsus strongly spined; tibia with 2 apical, 2 median, and 2 basal spines on the under surface. Tarsus IV bristles short, and scopular hairs sparse; metatarsus with 5–6 spines on the distal portion of the under surface; tibia as in 3rd leg.

*Spinners.*—Inferior spinners with 5 fusules; median spinners raised on a tuberculate base.

*Vulva.*—As in fig. 7; more clearly seen in specimen 12,510.

*Measurements.*—Carapace: length, 3.5 mm.; breadth, 2.8 mm. Total length, 8.8 mm.

Specimen from Umtali differs slightly in being lighter in colour, and in bearing scopular hairs anteriorly, and 2 apical, 2 ant. median, and 2 submedian spines on under surface, and 1 median spine on inner

surface of metatarsus. Tuberculate base of spinners is hidden in this specimen.

TREPHOPODA, n. gen.

Cephalothorax short, oval, and produced anteriorly; slightly flattened; thoracic stria short and inconspicuous. Anterior row of eyes seen from in front strongly procurved, eyes close together, and the laterals much larger than the medians, which are very small and placed with their centres approximately on a line tangential to the upper borders of the laterals. Clypeus very narrow, anterior laterals almost touching the border of the carapace. Posterior row of eyes wider than the anterior row and straight to slightly procurved; laterals as large as the anterior laterals, and much larger than the posterior medians, which are subangular and very slightly nearer to each other than to the laterals.

Chelicera keeled on the inferior margin, and bearing an inner apical tooth on the superior margin.

Labium parallel-sided basally, tapering slightly anteriorly, and reaching nearly to the white tips of the maxillae, which are inclined inwards and furnished with elongated, slightly swollen bases.

Legs short and stout, especially the tarsal and metatarsal joints; anterior tarsi slightly swollen centrally; anterior metatarsi subequal to tarsi; well spined. Anterior tarsi scopulate, and tarsal claws strongly dentate; posterior tarsi not scopulate, and tarsal claws long and muticous. All tarsi bearing slight fascicules. Inferior spinners bearing at least 4 tubules; base of median spinners not tuberculate.

TREPHOPODA HANOVERIA, n. sp. (Fig. 8.)

*Specimens*.—2 ♀♀ (11,974 types). Eierfontein, near Hanover. (S. C. Schreiner, 1902.)

*Colour*.—Cephalothorax light brown, ocular portion darker, lateral margins infuscated; surface when dry covered with pale appressed pubescence. Legs similar in colour to the carapace. Abdomen testaceous dorsally and bearing no pattern. Sternum slightly dark-edged.

*Carapace*.—Length equal to that of patella, tibia, and metatarsus I, and slightly greater than tibia, metatarsus, and tarsus I; also slightly exceeding tibia and metatarsus of 4th leg.

*Eyes* and clypeus as in generic description; median ocular area longer than broad and slightly wider posteriorly.

*Legs.*—In order 4, 1, 2, 3. Tarsus I well scopulated; metatarsus scopulated anteriorly and bearing 2 anterior and 2 sub-basal spines on the under surface; metatarsus subequal to the tarsus. Tibia with 2 apical spines on the under surface; 2nd leg similar; metatarsus with fewer scopular hairs, and tibia with an additional anterior spine on the inner side of the under surface. Tarsus III with bristles and a few scopular hairs on the under surface; metatarsus and tibia strongly spined; 4th leg similar, but with bristles only on the under surface; metatarsus also longer than the tarsus. Anterior claw with a single row of 6 stout teeth; posterior claws long and muticous.

*Abdomen.*—Posterior dorsal portion is slightly produced into a blunt projection, defined by constrictions at the base, and bearing the anal tubercle apically.

*Spinners.*—Inferior spinners stout and cylindrical; apical tubules retracted, but 4 apparently present; median spinners small and slender, bases not tuberculate. Superior spinners slightly stouter, but smaller than the inferior spinners.

*Vulva.*—As in fig. 8.

*Measurements.*—Length of carapace, 2.6 mm. Total length, 6 mm.

#### UPOGNAMPA, n. gen.

Cephalothorax of ♀ long, oval, slightly narrower anteriorly; surface uniformly convex, stria short and posterior in position. Anterior row of eyes seen from in front procurved; medians smaller than the laterals and closer to them than to each other. Clypeus less in depth than the diameter of an anterior lateral eye. Posterior row of eyes wider than the anterior row, and moderately recurved; medians smaller than the laterals; laterals subequal to the anterior laterals.

Inferior border of chelicera keeled; superior border bearing a stout tooth.

Mouth-parts very large, total width greater than the width of the sternum. Labium narrowing anteriorly and reaching almost to the inner apices of the maxillae; the latter are inclined inwards almost to the point of touching, and are narrow posteriorly and anteriorly, but swell into a prominent and regular curve on the outer border; this, with the broad transverse depression, gives the maxillae a characteristic appearance, despite a similarity to those of *Callilepis*. The sternum is broad anteriorly, but not produced. The legs are short and stout, but less so than in Trephopoda; anterior metatarsi shorter than the tarsi; the tibiae are longer and stouter. All the



tarsi are scopulate, and bear a slight fascicle; the tarsal claws are dentate.

The inferior spinners bear 2-3 apical fusules, and the median spinners have non-tuberculate bases.

The legs of the ♂ are slightly longer and more slender. Patella and tibia of pedipalp are very short; the tibia bears a short but curved and sometimes stout projection on the outer side; the tarsus is oval and tapering. The eyes are respectively more strongly pro- and re-curved than in the ♀, and the lateral eyes are larger; also the posterior row is considerably wider relatively to the anterior row than in the ♀.

*Key to Species.*

- (4). 1. Length of carapace less than length of tibia, metatarsus, and tarsus of 1st leg.
- (3). 2. Metatarsus I with 1 anterior and 1 median spine on under surface. *lineatipes.*
- (2). 3. Metatarsus I with 2 anterior and 2 submedian spines on under surface. *aplanita.*
- (1). 4. Length of carapace equal to or greater than tibia, metatarsus, and tarsus I.
- (8). 5. Carapace equal in length to tibia and metatarsus IV.
- (7). 6. Metatarsus I with 1 submedian spine on the under surface . *parvipalpa.*
- (6). 7. Metatarsus I with 2 anterior and 1 median spines on under surface. *biamenta.*
- (5). 8. Carapace subequal in length to tibia, metatarsus, and tarsus IV.
- 9. Metatarsus I with 2 anterior and 2 submedian spines . *kannemeyeri.*

UPOGNAMPA APLANITA, n. sp. (Fig. 9.)

*Specimens.*—1 ♀ (13,872 type). Bergvleit, Cape Flats. (Dr. W. F. Purcell, December 1895.)

*Colour.*—Carapace medium brown, infuscated laterally and in the region of the stria; legs a little darker and more olivaceous in colour, except for the tarsi, which are orange red in colour. Abdomen testaceous, with somewhat olivaceous infuscation, especially on central anterior dorsal surface. Sternum, coxae, etc., the same colour as the legs; mouth-parts lighter and redder.

*Carapace.*—Length slightly less than the tibia, metatarsus, and tarsus of 1st leg, and equal to tibia and metatarsus IV.

*Eyes.*—As in *lineatipes*.

*Legs.*—Tarsus I lightly scopulate; metatarsus with a few scopular hairs anteriorly and 2 apical and 2 submedian spines; length of metatarsus a little over  $\frac{1}{2}$  the tarsus; 2nd leg similar; legs III and IV as in *lineatipes*.

*Spinners*.—Tubules retracted and indeterminable.

*Vulva*.—As in fig. 9.

*Measurements*.—Length of carapace, 2 mm. Total length, 5.5 mm.

UPOGNAMPA BIAMENTA, n. sp. (Fig. 10.)

*Specimens*.—1 ♀ (3364 type). Ashton, Robertson Div. (Dr. W. F. Purcell, November 1897.)

*Colour*.—Carapace light brown, slightly redder anteriorly, infuscated laterally and posteriorly, especially immediately anterior to the stria. Chelicera reddish brown; abdomen dull testaceous, infuscated posteriorly on the dorsal surface. Legs pale brown, moderately infuscated, with the exception of the metatarsi; sternum infuscated.

*Carapace*.—Subequal to patella, tibia, and metatarsus I, and slightly exceeding tibia and metatarsus IV.

*Eyes*.—As in *lineatipes*.

*Legs*.—Tarsus I scopulate; metatarsus with a few scopular hairs anteriorly, and with 2 anterior and 1 median spines on the under surface; 2nd leg similar, but with 2 median spines; tarsus III scopulate; metatarsus with numerous apical and 2 median spines; tarsus IV with fewer scopular hairs, and metatarsus with more numerous spines.

*Spinners*.—Inferior spinners with 2 apical fusules.

*Vulva*.—As in fig. 10.

*Measurements*.—Carapace, 1.7 mm. Total length, 3.8 mm.

UPOGNAMPA KANNEMEYERI, n. sp. (Fig. 11.)

*Specimens* :—

1 ♀ (B 258 type). Smithfield. (Dr. Kannemeyer.)

2 ♀♀ and ? ♂ (B 38). Smithfield. (Dr. Kannemeyer, December 1909.)

1 ♀ (8434). Dunbrody. (Rev. J. A. O'Neil.)

1 ♀ (Grahamstown Museum). Grahamstown. (J. Hewitt, September 1916).

*Colour*.—Medium to dark brown, redder anteriorly, and mottled posteriorly and laterally; legs and abdomen as in *lineatipes*, the latter with a short dark band anteriorly on the dorsal surface; sternum lighter than the carapace.

*Carapace*.—Equal in length to tibia, metatarsus, and tarsus I, and subequal to tibia, metatarsus, and tarsus IV.

*Eyes*.—Anterior row from in front well procurved; laterals much larger than the medians. Posterior row considerably wider than the anterior; otherwise as in *lineatipes*.

*Legs*.—Tarsus I densely scopulated; metatarsus with a few scopular hairs anteriorly, and bearing 2 anterior and 2 submedian spines; 2nd leg similar; legs otherwise as in *lineatipes*.

*Spinners*.—Apical tubules retracted and indeterminable.

*Vulva*.—As in fig. 11.

*Measurements*.—Carapace, 2.4 mm: Total length, 5.8 mm.

UPOGNAMPA LINEATIPES, Purc. (Fig. 12, A and B.)

1908. *Callilepis lineatipes*. Purc. in L. Schultze's Zool., Bd. i, vol. xiii, p. 242, pl. xi, fig. 29. ♀.

*Specimens* :—

♂, 2 ♀♀, and jv. (14,496 types). Poortjesfontein, near Hanover. (J. Neeser, 1905.)

1 ♀ (B 3420). Matroosberg Mts. (4000 ft.). (R. W. Tucker, December 1917.)

For other localities see below.

♀ *Colour*.—Carapace light to medium brown, tinged with red anteriorly; lateral margins slightly infuscated, surface clothed with sparse pubescence. Legs a little lighter than the carapace; femora infuscated and tarsi and metatarsi tinged with red. Abdomen dull testaceous, slightly infuscated, and with indistinct chevron-like markings posteriorly on the dorsal surface. Sternum the same colour as the carapace; mouth-parts and chelicera dark reddish brown.

*Carapace*.—Subequal to tibia, metatarsus, and tarsus I, and slightly exceeding tibia and metatarsus IV.

*Eyes*.—Anterior row seen from the front moderately procurved; medians slightly nearer to the laterals than to each other. Posterior row moderately recurved; medians oval, smaller than the laterals, and a little nearer to each other than to them. Clypeus less than the diameter of an anterior lateral eye.

*Legs*.—Tarsus I scopulate, metatarsus slightly scopulate anteriorly and bearing 1 anterior and 1 median spine on the inner side of the under surface; tibia stout and subequal in length to the metatarsus and tarsus; 2nd leg similar, but with fewer scopular hairs on

the metatarsus, and with the tibia relatively shorter. Tarsus III bearing scopular and bristle-like hairs; metatarsus and tibia well spined; 4th leg similar, tarsus bearing fewer scopular hairs.

*Spinners*.—Inferior spinners short, cylindrical, and bearing 2 apical tubules and a terminal fringe of plumose hairs; median spinners short and weak; superior spinners longer and stouter than the median spinners, but less so than the inferior. Ventral surface also bears a short transverse chitinous line, probably a tracheal opening anterior to the spinners.

*Vulva*.—As in fig. 12A.

♂ *Colour*.—Exactly as in ♀.

*Carapace*.—Length slightly less than tibia, metatarsus, and tarsus I, and just exceeding tibia and metatarsus IV.

*Eyes*.—As in generic description.

*Legs*.—Tarsus I clothed with fine scopular hairs on under surface; metatarsus with a few isolated scopular hairs and bearing 2 apical and 1 median inner spines on the under surface; tibia spineless; 2nd leg similar, metatarsus with 2 median spines. Tarsus III moderately scopulate, metatarsus and tibia bearing moderately long slender spines; 4th leg similar, tarsus with fewer scopular hairs. Legs moderately well clothed with pubescence.

*Pedipalps*.—Tibia, tarsus, and palpal organ as in fig. 12B.

*Measurements*.—Carapace: ♀ 2 mm. in length, ♂ 2 mm. Total length, ♀ 5 mm.; ♂ 4.4 mm.

The vulva depicted in fig. 12A seems to be identical with that figured by Purcell in L. Schultze's Zool. S.W. Afr., Bd. xiii, pl. xi, fig. 29, as *Callilepis lineatipes*. As there is only the one type specimen of *lineatipes*, which is not available, direct comparison is impossible. The description, however, appears to fit in with that of *Upognampa*: that this is a distinct genus from *Callilepis* there seems little doubt. The eye formation is quite distinct and constant; the spinners are distinct, and the bases of the median spinners are non-tuberculate. Also the size is uniformly smaller than in *Callilepis*, and the coloration is lighter, both of which help to confirm the other differences. Hence, from description and figure, I conclude that *Callilepis lineatipes*, Purc., should be transferred to the genus *Upognampa*.

The following specimens are also recorded:—

- 2 ♀♀ (B 2979). Matroosberg Mts., 3500–3700 ft. (R. W. Tucker, January 1917.)  
 1 ♀ (8648). Plumstead Flats, C. Peninsula. (Dr. W. F. Purcell, December 1900.)

- 1 ♀ (8485). Plumstead Flats, C. Peninsula. (J. Faure, 1900.)  
4 ♀♀ (11,670). Stompneus, St. Helena Bay. (J. C. Goold,  
January 1902.)  
1 ♀ (B 1927). Matjesfontein. (Dr. W. F. P., November 1905.)  
2 ♀♀ (4313-4). Olyvenbosch Kraal, Clanwilliam. (C. L.  
Leipoldt, September 1898.)  
1 ♂ (12,434). Dunbrody. (Fr. O'Neil, January 1902.)  
♂ and ♀ (11,773), Hanover. (S. C. Cron. Schreiner, November  
1901.)  
2 ♂♂ (11,919 and 11,791). Hanover. (S. C. Cron. Schreiner,  
1901-2.)

*UPOGNAMPA PARVIPALPA*, n. sp. (Fig. 13.)

*Specimens* :—

- 1 ♂ (B 1928 type). Matjesfontein. (Dr. W. F. Purcell,  
November 1905.)  
1 ♂ (13,870). Hout Bay, Cape Peninsula. (Dr. W. F.  
Purcell, November 1901.)  
1 ♂ (6018). Table Mt. (Dr. W. F. Purcell, October 1899.)  
1 ♂ (11,548), Lourensford, Somerset West. (H. Hermann,  
December 1901.)

*Colour*.—Carapace reddish brown, becoming darker anteriorly and laterally. Legs medium brown, abdomen dull testaceous, slightly infuscated dorsally.

*Carapace*.—Length slightly exceeding tibia, metatarsus, and tarsus I, and equal to patella, tibia, and metatarsus I, and to tibia and metatarsus IV.

*Eyes*.—Anterior row lightly procurved; medians a little smaller than the laterals, which are not large, and somewhat nearer to them than to each other. Posterior row considerably wider and recurved; medians equal or subequal to the laterals, and approximately the same distance from them as from each other. Clypeus subequal to the diameter of an anterior lateral eye.

*Chelicera*.—Somewhat prominent in appearance.

*Maxillae*, etc., as in generic description.

*Legs*.—As in *lineatipes*.

*Pedipalps*.—Remarkable for their exceedingly small size; outer apical projection of tibia longer and more slender than in *lineatipes* (see fig. 12B).

*Palpal organ* as in fig. 13.

*Measurements.*—Length of carapace, 2 mm. Total length, 5 mm.

1 ♂ (B 5231). Table Mt. (S. Gilman, November 1920.) Darker and smaller than type.

GEN. AMUSIA, Tullgr.

AMUSIA CATARACTA, n. sp. (Fig. 14, A and B.)

*Specimens.*—1 ♂ and 5 ♀♀ (150,690 types). Howick Falls, Natal. (Dr. W. F. Purcell, September 1905.)

♀ *Colour.*—Carapace dull brown, darker towards the border, mottled towards the centre, and with a slight dark V anterior to the stria; abdomen light dusky brown, legs similar in colour to the carapace.

*Eyes.*—Anterior row procurved, medians less than a diameter apart, and close to the laterals, which are slightly larger. Posterior row a little wider than the anterior row and straight to slightly recurved; medians smaller than the laterals, a diameter apart and approximately the same distance from the laterals, which are about the same size as the anterior laterals, and distant a diameter from them. Median ocular area longer than wide and wider posteriorly. Clypeus equal to or exceeding the diameter of an anterior lateral eye.

*Labium.*—Much longer than broad, tapering anteriorly, and nearly reaching the inner apices of the maxillae; the latter are inclined inwards, somewhat broader, and slightly swollen basally.

*Legs.*—Tarsi I and II nearly twice the length of the metatarsi, slightly swollen basally on the ventral surface, and tapering anteriorly; tarsus III subequal to the metatarsus and only tapering slightly; tarsus IV shorter than the metatarsus and scarcely swollen or tapering. Tarsi I and II scopulate to the base, tarsi III and IV slightly scopulate laterally and distally. Metatarsus I with 2 apical and 2 basal spines on the under surface, and 1 anterior spine on the inner surface. Tibia with 2 apical spines on the under surface; 2nd leg similar, tibia with a median spine also. Legs III and IV well spined.

*Spinners.*—Bearing 2, occasionally 3, tubules distally.

*Vulva.*—As in fig. 14A.

♂ *Colour.*—Similar to ♀; carapace comparatively shorter and broader, and with more conspicuous pubescence.

*Eyes.*—Anterior row compact, eyes practically contiguous; slightly more procurved than in the ♀, laterals decidedly larger than the medians. Posterior row wider, slightly recurved, eyes equidistant;

medians subequal to the laterals. Median ocular area longer than wide, and wider posteriorly. Clypeus equal to or exceeding the diameter of an anterior lateral eye.

*Labium*, etc.—As in ♀.

*Legs*.—Tarsi I and II about  $1\frac{1}{2}$  times as long as the metatarsi; otherwise tarsi as in the ♀; metatarsus I bearing 2 apical and 1 basal spines, tibia with 2 apical and 1 median spines on the under surface in addition to lateral spines. Second leg similar, with an additional basal spine on the inner under surface. Fourth tarsal claws with 2 or 3 small median teeth; 3rd tarsal claws toothed as in 1st and 2nd legs; in the ♀ the 3rd tarsal claw resembles the 4th.

*Spinners*.—Tubules retracted and indeterminable.

*Pedipalps*.—Tibia smaller than the patella, and bearing a stout apical projection on the inner side and a longer, slenderer, 2-pronged projection on the outer side. Tarsus and palpal organ as in fig. 14B (cf. *U. lineatipes*).

*Measurements*.—Length of carapace, ♂ 1.8 mm., ♀ 2 mm. Total length, ♂ 4 mm., ♀ 5.1 mm.

#### ANEPLASA, n. gen.

Cephalothorax long, oval, produced anteriorly; moderately convex, thoracic stria short and posterior in position. Anterior row of eyes seen from in front procurved; from above straight to recurved; lateral eyes not large, median eyes subequal to the laterals. Posterior row a little wider than the anterior row, and recurved; laterals subequal to the anterior laterals; medians opaque, smaller, and nearer to each other than to the laterals. Clypeus equal to or exceeding the diameter of an anterior lateral eye. Maxillae slightly less tapering, and inclined inwards to a less degree than in *Asemesthes*. Legs strong and well spined; all tarsi well scopulate; tarsal claws with a uniseriate row of strong teeth. Inferior spinners bearing 4–5 apical tubules, and median spinners without tuberculate base.

Tibia of pedipalp in ♂ without curved apical process.

#### Key to Species.

- (4). 1. Length of carapace equal or subequal to length of metatarsus and tarsus IV.
- (3). 2. Posterior lateral eyes a diameter or over from the anterior laterals. *nigra*.
- (2). 3. Posterior lateral eyes  $1\frac{1}{2}$  or more diameters from the anterior laterals. *primaris*.

- (1). 4. Length of carapace equal to metatarsus and  $\frac{2}{3}$  or over of tarsus IV.  
 (7). 5. Length of carapace equal to tibia, metatarsus, and  $\frac{1}{2}$  tarsus I.  
 6. Vulva dark, with central ridge broadening anteriorly, and bordered by long oval depressions each bearing circular dark-rimmed portion anteriorly . . . . . *facies*.  
 (5). 7. Length of carapace equal to tibia, metatarsus, and  $\frac{1}{3}$  or less of tarsus I.  
 (11). 8. Posterior lateral eyes  $1\frac{1}{2}$  or more diameters from the anterior laterals.  
 (10). 9. Central portion of vulva standing out in strong relief to lateral cavities and terminating in incurved lateral projections . . . . . *sculpturata*.  
 (9). 10. Central portion of vulva broader, flatter, and not terminating in incurved raised projections . . . . . *balnearia*.  
 (8). 11. Posterior lateral eyes slightly over 1 diameter from the anterior laterals.  
 12. Length of carapace equal to tibia and  $\frac{5}{8}$  metatarsus I . . . . . *interrogationis*.

ANEPLASA BALNEARIA, n. sp. (Fig. 15.)

*Specimens* :—

3 ♀♀ (12,657 types). Montagu Baths. (Dr. W. F. Purcell, November 1902.)

1 ♀ and jv. (4173). Hex R. valley. (R. Treleaven, October 1898.)

1 ♀ (B 4788). Ashton. (R. Tucker, November 1919.)

1 ♀ (B 4743). Montagu. (R. Tucker, November 1919.)

*Colour*.—Carapace medium brown, dark-edged; a narrower band of prone white hairs down each side, partially obscuring the infuscated markings, which form a more inner darker band; median band lighter in colour, save for 2 leaf-like infuscations anterior to the stria. Legs similar in colour to the carapace and slightly infuscated; also clothed with appressed whitish hairs. Dorsal surface of abdomen with a median testaceous band down the entire length, broader anteriorly, and narrower and serrated or plumed posteriorly; outer edges dark; lateral border of abdomen dark, rest of surface mottled. Sternum slightly darker than the carapace.

*Eyes*.—Anterior row seen from above straight to slightly recurved, seen from in front procurved; eyes of medium size, medians slightly nearer to the laterals and subequal to them. Posterior row a little wider than the anterior row, moderately recurved, medians smaller than the laterals and nearer to each other. Laterals equal to the anterior laterals and at least 2 diameters from them. Clypeus about  $1\frac{1}{2}$  times the diameter of an anterior lateral.

*Legs*.—Tarsi I and II densely scopulated, III slightly less so, IV with only a few scopular hairs. Metatarsi I and II with scopular hairs anteriorly. Metatarsi I and II with 2 basal and 1 apical spines on the under surface. Legs well spined.



*Spinners*.—Apical tubules retracted; 4–5 can, however, be made out within the terminal sheath. Apical border fringed with plumose hairs: these are present, though to a much less extent, in other species of *Asemesthes*.

*Vulva*.—As in fig. 15.

*Measurements*.—Largest specimen: carapace, 3 mm. in length. Total length, 8.8 mm.

This species appears to bear certain resemblances to genus *Gnaphosa*.

ANEPLASA FACIES, n. sp. (Fig. 16.)

*Specimens*:—

1 ♀ and 3 jv. (B 2411 type). Grahamstown. (Dr. W. F. Purcell, October 6, 1905.)

1 ♀ (Grahamstown Museum). Grahamstown. (J. Hewitt, September 1916.)

1 ♀ (5714). Blue Cliff, Uitenhage Div. (J. L. Drèje, October 1899.)

1 ♀ (3438), Dunbrody, Uitenhage Div. (Rev. J. A. O'Neil, 1898.)

*Colour*.—Carapace as in *balnearia*; hairs and infuscation less strongly developed; abdomen similar, but duller and much fainter.

*Eyes*.—Anterior row seen from above straight to slightly recurved; medians slightly smaller than the laterals. Posterior row moderately recurved, very slightly wider than the anterior row; median eyes subangular, smaller than the laterals, which are not large. Clypeus equal to the diameter of an anterior lateral eye.

*Legs*.—Tarsus I densely scopulated; metatarsus sparsely scopulated anteriorly, bearing 1 anterior spine on the inner side, and 2 sub-basally on the under surface; 2nd leg similar, scopulation less, and the pair of spines on the metatarsus almost median in position. Tarsus III with a few scopular hairs, tarsus IV with none. Metatarsi III and IV strongly spined.

*Spinners*.—Inferior spinners bearing 4 apical tubules; apical hairs as in *balnearia*, but less numerous.

*Vulva*.—As in fig. 16.

*Measurements*.—Carapace, 2.5 mm. in length. Total length, 7 mm.

ANEPLASA INTERROGATIONIS, n. sp. (Fig. 24.)

*Specimens*.—1 ♀ (12,665 type). Montagu Baths. (Dr. W. F. Purcell, November 1902.)

*Colour.*—Carapace pale yellowish brown, dark-rimmed, and with infuscated mottling over entire surface; no pubescence apparent in alcohol. Sternum, coxae, and legs paler than the carapace. Abdomen uniform dull testaceous in colour, slightly infuscated posteriorly.

*Carapace.*—Equal in length to metatarsus and just over  $\frac{1}{2}$  tarsus IV and slightly greater than metatarsus and tarsus I.

*Eyes.*—Anterior row seen from in front procurved and narrow; median eyes very small, about  $\frac{1}{2}$  a diameter apart, and nearly touching the laterals, which are very much larger. Seen from above, the anterior row is straight to very slightly recurved. Posterior row well recurved and wider than the anterior row; lateral eyes the same size as the anterior laterals; medians small, triangular, inclined inwards towards their bases, and nearer to each other than to the laterals. Clypeus subequal to the diameter of an anterior lateral eye.

*Legs.*—Clothed with long, often stiff hairs; plumose hairs also present. Tarsus and metatarsus I scopulate, but not densely; metatarsus I with 2 submedian spines on the under surface; tibia I spineless. Second leg less scopulated, especially on the metatarsus; under surface of the latter also with an apical spine; tibia II bearing an apical, a median, and a basal spine on the under surface. Tarsus III bearing scopular hairs and other bristle-like hairs; metatarsus well spined; 4th leg similar, but scopular hairs on the tarsus less numerous. Teeth on claws in a single row.

*Spinners.*—Apical tubules of inferior spinners retracted; 2 can, however, be made out, withdrawn into the terminal sheath.

*Vulva.*—As in fig. 24.

*Measurements.*—Length of carapace, 2 mm. Total length, 4.2 mm.

#### ANEPLASA NIGRA, n. sp. (Fig. 17.)

*Specimens.*—1 ♀ (B 3459 type). Matroosberg Mts., Ceres, 5000–6000 ft. (R. W. Tucker, November 1917.)

*Colour.*—Carapace very dark brown, rimmed and strongly mottled with black. Legs a little lighter, becoming paler distally; tarsi reddish in colour. Abdomen black, sternum dark infuscated brown.

*Eyes.*—Anterior row seen from in front procurved; medians about a diameter apart, and closer to the laterals, which are much larger. Posterior row slightly wider than the anterior row, moderately recurved; median eyes small, about a diameter apart, and  $1\frac{1}{2}$  diameters or more from the laterals. Laterals equal in size to the anterior laterals and a diameter from them. Clypeus just equal to the diameter of an anterior lateral eye.

*Legs.*—Tarsus I scopulate, also bearing bristle-like hairs; metatarsus bearing a few scopular hairs anteriorly, and 1 apical and 2 submedian spines on the under surface; 2nd leg similar; scopular hairs less and apical spines on the metatarsus weaker. Tarsi III and IV with a few scopular hairs. Tarsal fascicles become longer and stronger posteriorly.

*Spinners.*—Apical tubules of inferior spinners retracted; 3–4, however, appear to be present; apical fringe of plumed hairs also present.

*Vulva.*—As in fig. 17.

*Measurements.*—Length of carapace, 2 mm. Total length, 4.4 mm.

ANEPLASA PRIMARIS, n. sp. (Fig. 18.)

*Specimens* :—

1 ♂ (type) and 2 subad. ♀♀ (150,464). Matjesfontein. (Dr. W. F. Purcell, August 1906.)

1 ♂ (3342). Rabiesberg, Worcester Div. (Dr. W. F. Purcell, November 1897.)

1 ♂ (B 4746). Montagu. (R. W. Tucker, November 1919.)

*Colour.*—Carapace medium brown, black-rimmed, and with a slightly darker lateral band on each side between border and centre; border and central portion clothed with whitish hairs, remainder with dark hairs. Abdomen with usual light serrated median band, dark-edged, and more conspicuous posteriorly. Legs a little lighter than the carapace.

*Eyes.*—Anterior row seen from in front procurved; medians less than a diameter apart and nearly touching the laterals, which are only slightly larger; from above the anterior row appears straight to recurved. Posterior row wider and recurved; medians subangular, about a diameter apart, and slightly more from the laterals, which are somewhat larger, subequal to the anterior laterals, and distant from them  $1\frac{1}{2}$ –2 times their diameter. Clypeus somewhat exceeding the diameter of an anterior lateral eye.

*Chelicera.*—As in *sculpturata*.

*Legs.*—Tarsus I lightly scopulate, metatarsus without scopular hairs, and bearing 1 apical and 2 submedian spines on the under surface; 2nd leg similar. Tarsus III furnished with bristles and a few scopular hairs; metatarsus heavily spined. 4th leg similar, tarsus without scopular hairs.

*Spinners.*—Tubules retracted and indeterminable.

*Pedipalps*.—As in fig. 18; the structure varies in appearance even on the opposite palp of the same specimen, the central hook being more prominent and the upper left-hand projection in fig. 18 being more apparent.

*Measurements*.—Length of carapace, 2.2 mm. Total length, 5 mm.

A ♂ (B 2397), Grahamstown (Dr. W. F. P., October 1905), appears to belong to the same species, though a little larger; the spinners in this case bear 5 apical tubules.

ANEPLASA SCULPTURATA, n. sp. (Fig. 19.)

*Specimens* :—

1 ♀ (3962 type). Matjesfontein, Worcester Div. (Dr. W. F. Purcell, September 1896.)

2 ♀♀ (B 1650). Matjesfontein. (Dr. W. F. Purcell, November 3, 1905.)

*Colour*.—Carapace light brown, dark-edged; furnished with a narrow border of appressed white hairs down each side, followed by a slightly broader, darker, mottled band; median band light. Legs light yellowish brown in colour. Dorsal surface of abdomen with a light median band, serrated, a little narrower posteriorly, and dark-edged; lateral portion of abdomen narrowly infuscated, especially anteriorly; median band and remainder of dorsal surface clothed with cream-coloured hair. Ventral surface pale.

*Eyes*.—Anterior row seen from in front procurved; eyes close together, practically equidistant; medians subequal to the laterals, which are not large; seen from above, the anterior row is straight to recurved. Posterior row slightly wider and moderately recurved; medians subangular and a little smaller than the laterals, which are nearly equal in size to the anterior laterals and not more than  $1\frac{1}{2}$  diameters from them. Clypeus slightly exceeding the diameter of an anterior lateral eye.

*Legs*.—Tarsus of 1st leg scopulate; metatarsus scopulate anteriorly and bearing 1 apical and 2 submedian spines on the under surface; 2nd leg similar, the 2 submedian metatarsal spines being slightly more basal in position. Tarsus III bearing a few scopular hairs and stiff bristles; tarsus IV with practically no scopular hairs. Posterior legs well spined.

*Chelicera*.—With 2 contiguous teeth, 1 large and 1 small, at the inner apex; these teeth appear to be present in most species of *Asemethes* also, but are often difficult to detect. Inferior border with the usual dentate keel.

*Spinners*.—Apical tubules retracted; 4–5 can, however, be distinguished in the inferior spinners.

*Vulva*.—As in fig. 19.

*Measurements*.—Length of carapace, 3 mm. Total length, 6·5 mm.

This species is closely related to *balnearia*, n. sp.

GEN. ASEMESTHES.

*Key to Species.*

- (20). 1. Posterior row of eyes strongly recurved.
- (11). 2. Length of total ocular area nearly equal to anterior ocular width.
- (5). 3. Posterior lateral eyes subequal to anterior laterals.
- 4. General colour pale yellow; legs only slightly infuscate; abdomen with medio-dorsal and 2 lateral dark bands . . . . . *pallidus*.
- (3). 5. Posterior lateral eyes much smaller than the anterior laterals.
- (8). 6. Length of carapace less than the length of metatarsus IV.
- 7. Colour yellowish brown, carapace dark-edged, slightly mottled black. Abdomen without pattern . . . . . *paynteri*.
- (6). 8. Length of carapace exceeding length of metatarsus IV.
- (10). 9. Colour yellowish brown, legs infuscated. Abdomen infuscated laterally and mid-dorsally, leaving a testaceous U-shaped band on dorsal surface. Length of carapace equal to tibia, metatarsus, and  $\frac{2}{3}$  tarsus I . . . . . *albovittatus*.
- (9). 10. Colour dark brown. Length of carapace slightly greater than metatarsus and tarsus I . . . . . *reflexus*.
- (2). 11. Length of total ocular area considerably less than anterior width.
- (14). 12. Posterior lateral eyes just over their diameter from the anterior laterals.
- 13. Length of carapace equal to metatarsus and over  $\frac{1}{2}$  tarsus I, and equal to  $\frac{5}{8}$  metatarsus IV . . . . . *fodina*. ♂
- (12). 14. Posterior lateral eyes  $1\frac{1}{2}$ –2 diameters from the anterior laterals.
- (17). 15. Posterior lateral eyes subequal to the anterior laterals.
- 16. Length of carapace subequal to metatarsus and tarsus I and equal to metatarsus IV . . . . . *windhukensis*.
- (15). 17. Posterior lateral eyes much smaller than the anterior laterals.
- (19). 18. Length of carapace equal to metatarsus and  $\frac{1}{4}$  tarsus IV . . . . . *aureus*.
- (18). 19. Length of carapace subequal to metatarsus and tarsus I and equal to  $\frac{7}{8}$  metatarsus IV . . . . . *numisma*.
- (1). 20. Posterior row of eyes moderately to weakly recurved.
- (35). 21. Length of carapace equal to or greater than length of metatarsus and tarsus I, and of metatarsus IV.
- (32). 22. Posterior lateral eyes subequal to the anterior laterals.
- (30). 23. Posterior lateral eyes just over their diameter from the anterior laterals.
- (25). 24. Vulva with long anterior tongue and no margin outlining the epigynal area . . . . . *purcelli*.
- (24). 25. Vulva with small rounded anterior tongue and an outlining margin to the epigynal area.

- (27). 26. Carapace dark brown, abdomen bearing no distinct pattern . . . *ales*.  
 27. Carapace yellowish brown, dark-edged; abdomen with median serrated band and lateral infuscations; sternum with infuscated border.  
 (29). 28. Metatarsus I with 4-5 spines on the under surface . . . *ceresicola*.  
 (28). 29. Metatarsus I with 6 spines on the under surface . . . *decoratus*.  
 (23). 30. Posterior laterals  $1\frac{1}{2}$ -2 diameters from the anterior laterals.  
 31. Carapace medium brown, dark-edged, infuscated laterally; faint broad median bands of prone white hairs. Median dorsal band on abdomen followed by a series of arrow-shaped dark marks . . . *lamberti*.  
 (22). 32. Posterior lateral eyes much smaller than the anterior laterals.  
 (34). 33. Metatarsus I without scopular hairs and bearing 5 spines on the under surface . . . *flavipes*.  
 (33). 34. Metatarsus I with scopular hairs laterally over  $\frac{2}{3}$  length, and with 4 spines on the under surface . . . *montanus*.  
 (21). 35. Length of carapace less than length of metatarsus and tarsus I, and of metatarsus IV.  
 (37). 36. Posterior lateral eyes subequal to the anterior laterals . . . *o'connori*. ♂  
 (36). 37. Posterior lateral eyes much smaller than the anterior laterals. *lineatus*.

Simon's species, *A. subnubilis*, is not included in above, as the specimen has not been seen, and the description given is quite insufficient to place it.

#### ASEMESTHES ALBOVITTATUS, Purc. (Fig. 20.)

*A. albovittatus*. Purcell in Schultze, Forschungsreise in Sudafrika, vol. i, p. 245, pl. xi, fig. 35.

*Specimens* :—

2 ♀♀ (11,863, 13,890). Hanover. (S. C. Schreiner, March 1902.)

2 ♂♂ (11,847). Hanover. (S. C. Schreiner, March 1902.)

1 ♀ (14,483). Pootjesfontein, near Hanover. (Neeser, Jr., 1905.)

1 ♂ (B 1960). Cradock. (Dr. W. F. Purcell, October 1905.)

*Colour*.—Carapace and legs yellowish brown; abdomen testaceous, infuscated laterally and mid-dorsally, leaving a testaceous U-shaped band on dorsal surface. Carapace with lateral band of prone white hairs.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{2}{3}$  tarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus I.

*Eyes*.—Posterior row strongly recurved, narrower than anterior row. Posterior lateral eyes much smaller than the anteriors; length of total ocular area not much less than anterior ocular width.

*Legs*.—Anterior tarsi moderately scopulate; metatarsi with a few anterior scopular hairs; metatarsus I with 2 apical and 2 submedian spines on under surface; metatarsus II with 2 apical, 2 basal, and some

lateral spines. Posterior legs without scopular hairs, and with more numerous bristles and spines.

*Vulva*.—Somewhat “butterfly-shaped,” with outlining margin; see fig. 35, *loc. cit.*

*Measurements*.—Length of carapace, 1.5 mm. Total length, 3.5 mm.

♂ *Colour*.—General colour pale golden yellow; markings as in description of ♀; hair on abdomen more brown than black. Eyes slightly more strongly recurved than in ♀.

*Pedipalp*.—Tarsus and palpal organ as in fig. 20; process of tibia long, and anterior portion almost horizontal.

*Measurements*.—Total length, 2.75 mm.

ASEMESTHES ALES, n. sp. (Fig. 21.)

*Specimens*.—1 ♀ (5797 type). Grahamstown. (Rev. J. A. O’Neil, November 1899.)

*Colour*.—Carapace dark brown, dark-edged, and slightly more infuscated laterally; sparsely clothed with light appressed hairs; legs slightly lighter and paler distally. Abdomen dull greyish brown dorsally, and bearing no distinct pattern. Sternum medium brown and dark-edged.

*Carapace*.—Length slightly greater than metatarsus and tarsus I, and equal to metatarsus and  $\frac{1}{4}$  tarsus IV.

*Eyes*.—Normal; both rows moderately recurved. Posterior row slightly narrower than the anterior. Lateral eyes large, slightly smaller than the anterior laterals, and just over their diameter from them; posterior medians small, oval, whitish in colour, and slightly nearer to each other than to the laterals. Clypeus twice the diameter of an anterior lateral eye. Total ocular area wider than long.

*Legs*.—Tarsus I bearing numerous club-shaped scopular hairs; metatarsus bearing sparse scopular hairs, and 2 apical and 1 basal spines on the under surface; 2nd leg similar but with sparser scopular hairs, and 2 basal spines on the metatarsus. Tarsus III bearing sparse scopular hairs, metatarsus with none, but bearing numerous stout spines. Tarsus IV bearing stout bristles and isolated scopulated hairs. All legs, especially the posterior, are well armed with spines and stout bristles. Tarsal claws bearing large and conspicuous teeth.

*Spinners*.—Inferior spinners bearing the usual 3 apical tubules.

*Vulva*.—As in fig. 21.

*Measurements*.—Length of carapace, 2.5 mm. Total length, 6.4 mm.

## ASEMESTHES AUREUS, Purc.

*A. aureus.* Purcell in Schultze, Forschungsreise in Sudafrika, p. 242.

*Specimens.*—3 ♀♀ jv. (150,607, *ex typis*). Kamaggas, L. Namaqualand. (Schultze, July–August 1904.)

*Colour.*—Carapace dark brown, clothed with white appressed hair, with few intermingled yellow ones. Abdomen testaceous brown, clothed with golden-yellow appressed hairs. Legs similar to carapace, but paler from tibia onwards.

*Carapace.*—Equal in length to metatarsus and tarsus I, and to metatarsus and  $\frac{1}{4}$  tarsus IV.

*Eyes.*—Posterior row strongly recurved; lateral eyes much smaller than the anterior laterals and about twice a diameter from them. Total ocular area much wider anteriorly than long.

*Legs.*—Tarsus I moderately scopulated, metatarsus sparsely scopulated anteriorly, with 2 apical spines and 3–4 stout bristles on the under surface; posterior legs strongly clothed with bristles and spines.

*Spinners.*—Inferior with 3 large apical fusules.

*Measurements.*—Length of carapace, 3 mm. Total length, 6.2 mm.

## ASEMESTHES CERESICOLA, n. sp. (Fig. 22, A and B.)

*Specimens* :—

2 ♂♂, 6 ♀♀, 3 jv. (3289 types). Ceres. (Dr. W. F. Purcell and R. M. Lightfoot, October 1897.)

3 ♀♀ (B 3474). Matroosberg Mts. (Ceres), 4000 ft. (R. W. Tucker, November 1917.)

1 ♂, 1 ♀, and jvs. (B 2546). Gt. Winterhoek Mts. (R. W. Tucker, April 4 to 14, 1916.)

1 ♀ (13,161). Touws R. (Dr. W. F. Purcell, August 1903.)

1 ♀ and 2 jv. (B 2503). Gt. Winterhoek Mts. (R. W. E. Tucker, April 1916.) Darker than type.

5 ♀♀ (B 2544). Gt. Winterhoek Mts. (R. W. E. Tucker, April 1916.) Darker than type.

1 ♀ (B 2734). Gt. Winterhoek Mts. (R. W. E. Tucker, April 1916.) Darker than type.

2 ♂♂ (12,371). Breede River (Darling Bridge). (H. Hermann, October 1902.)

1 ♀ (5369). Mossel Bay. (L. J. Drèje, April 1899.)

♀ *Colour.*—Carapace light yellowish brown, dark-edged, and with dark markings on each side between fovea and border. Legs slightly



darker, femora infuscated. Abdomen dull testaceous dorsally, with a serrated median dark band broken or constricted towards the centre, and not extending as far as the spinners; irregular dark markings laterally, merging on the under surface to a slight general infuscation. Sternum with a slightly infuscated border.

*Carapace*.—Equal in length to metatarsus and tarsus I and to metatarsus IV.

*Eyes*.—With infuscated borders; anterior row moderately recurved, eyes equidistant; medians smaller than the laterals. Posterior row equal in width to the anterior row, and a trifle less recurved; medians smaller than the anterior medians; laterals subequal to the anterior laterals and more than a diameter from them; posterior eyes also approximately equidistant. Clypeus twice the diameter of an anterior lateral eye. Total ocular area much wider than long.

*Legs*.—Anterior legs bearing sparse, club-shaped scopular hairs on the tarsi and distal portion of the metatarsi. Tarsus III also with a few scopular hairs. All the tarsi bearing strongly toothed claws and coarse fascicles; remaining segments of legs well spined. Metatarsus I with 4–5 spines on under surface.

*Spinners*.—Inferior spinners bearing 3 large apical tubules.

*Vulva*.—As in fig. 22A.

♂ *Colour*.—Similar to ♀.

*Eyes*.—As in ♀; ocular area comparatively not so wide, and clypeus slightly less than twice the diameter of an anterior lateral eye.

*Legs*.—Tarsi I and II bearing a few club-like scopular hairs on the under surface; tarsi III and IV with a few scattered scopular hairs; remaining segments of legs bearing numerous long spines.

*Pedipalps*.—Tibial process as in *A. numisma* (fig. 27A). Ventral aspect of the palpal organ as in fig. 22B.

*Measurements*.—♂ and ♀ approximately equal in size; carapace, 2 mm. Total length, 5 mm.

#### ASEMESTHES DECORATUS, Purc.

*A. decoratus*. Purcell in L. Schultze, Forschungsreise in Sudafrika, vol. i, p. 243, pl. xi, fig. 30.

*Specimens*.—1 ♀ (150,608 *ex typis*). Kamaggas, Little Namaqualand. (L. Schultze, July–August 1904.)

For other localities see below.

*Colour*.—Carapace yellowish brown, black bordered, with irregular infuscated lateral bands. Abdomen dull testaceous, with irregular

median dark band and serrated lateral infuscation. Sternum bordered black.

*Carapace*.—Length equal to tibia and metatarsus I, and slightly greater than metatarsus and tarsus I; also equal to metatarsus and  $\frac{1}{4}$  tarsus IV.

*Eyes*.—Posterior row moderately recurved, and approximately the same width as the anterior row. Posterior lateral eyes equal to the anterior laterals, and just over a diameter from them. Total ocular area much wider than long.

*Legs*.—Tarsus I moderately scopulate; metatarsus scopulate anteriorly and bearing 6 spines on the under surface; 2nd leg similar.

*Vulva*.—As in fig. 30, *loc. cit.*

*Measurements*.—Length of carapace, 2.5 mm. Total length, 6 mm.

*Specimens* :—

1 ♀ (13,136). Matjesfontein. (R. M. Lightfoot, August 1903.)

1 ♀ (150,469). Matjesfontein. (Dr. W. F. Purcell, August 1906.)

The vulval plate in these specimens is lighter than in the *ex typis* specimen, and shows the convolutions of the vesicula seminalis beneath, even more than in fig. 30, *loc. cit.* They seem, however, justifiably referable to the above species.

#### ASEMESTHES FLAVIPES, Purc.

*A. flavipes*. Purcell in Schultze, Forschungsreise in Sudafrika, vol. i, p. 244, pl. xi, fig. 32.

*Specimens*.—1 ♀ (150,609 *ex typis*). Luideritz Bay, Gt. Namaqualand. (Schultze, January 1904.)

*Colour*.—Carapace light brown, darker anteriorly; dark-edged, and with conspicuous black mottling. Abdomen dull testaceous, with lateral infuscations and median irregular dark band. Legs pale yellow, redder distally; trochanters infuscated. Sternum infuscated; chelicera darker distally.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{4}$  tarsus I, and just exceeding metatarsus IV.

*Eyes*.—Posterior row moderately recurved, scarcely narrower than the anterior row; posterior lateral eyes much smaller than the anterior laterals, and about 1 diameter from them. Total ocular area considerably wider than long.

*Legs*.—Tarsus I with few scopular hairs, but numerous stout bristles.

Metatarsus I without scopular hairs and bearing 2 apical, 1 median, and 2 submedian spines on the under surface; metatarsus II more heavily spined.

*Spinners*.—Inferior, with 3 apical tubules.

*Vulva*.—As in fig. 32, *loc. cit.*

*Measurements*.—Length of carapace, 2.8 mm. Total length, 6 mm.

ASEMESTHES FODINA, n. sp. (Fig. 23.)

*Specimens*:—

1 ♂ (B 3157 type). Tsumeb, S.W. Afr. Prot. (R. W. Tucker, December 1919.)

1 ♂ (B 4815). Gaub., S.W. Prot. (R. W. T., January 1920.)

*Colour*.—Carapace medium brown, black-edged, and with irregular infuscated lateral bands and slight radial infuscations. Abdomen dull testaceous brown, with lateral infuscated mottling and indistinct dorsal band; also a slight dorsal scutum.

*Carapace*.—Length equal to metatarsus and over  $\frac{1}{2}$  tarsus I and equal to  $\frac{5}{6}$  metatarsus IV.

*Eyes*.—Anterior row seen from in front slightly recurved; medians smaller than laterals and nearer to them than to each other; anterior laterals 2–3 times the size of the medians; seen from above, anterior row is strongly recurved. Posterior row strongly recurved and slightly narrower than the anterior row; medians small, white, equidistant from each other and from the laterals; latter equal in size to the anterior laterals and at least a diameter from them. Clypeus at least the diameter of an anterior lateral eye. Total ocular area considerably wider than long.

*Legs*.—Tarsus I sparsely scopulate laterally to base, and with line of bristles down centre, metatarsus not scopulate but bearing 2 submedian and 2 apical spines on the under surface. Remaining tarsi without scopular hairs, but with bristles only on the under surface; spines on metatarsi successively stronger and more numerous on posterior legs.

*Spinners*.—Tubules retracted; apparently 2–3 present.

*Pedipalps*.—Very distinct in appearance; the general plan of palpal organ (fig. 23) is quite different to the usual palpal organ of Asemesthes; also the tibial process is straight, finely pointed and dagger-like, and swollen at the base; the usual process in Asemesthes is stouter and strongly curved.

*Measurements*.—Carapace, 2 mm. Total length, 4 mm.

## ASEMESTHES LAMBERTI, n. sp. (Fig. 25.)

*Specimens*.—1 ♀ (3632 type). Lambert's Bay, Clanwilliam. (R. Pattison, November 1897.)

*Colour*.—Carapace medium brown, dark-rimmed, lateral infuscated mottling, and faint broad median band of prone white hairs. Dorsal surface of abdomen with dark cinereous median band extending half-way and followed by a series of arrow-shaped dark marks narrowing to between the spinners; lateral and posterior borders of the upper surface dark; remainder somewhat pinkish in colour, and dotted with dark spots save on the portion occupied by the arrow markings. Legs slightly lighter than the carapace, femora infuscated and mottled on the upper surface.

*Carapace*.—Equal in length to metatarsus and tarsus I and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Anterior medians very slightly nearer to the laterals than to each other. Posterior row scarcely narrower than the anterior, and moderately recurved; laterals subequal to the anterior laterals and distant about  $1\frac{1}{2}$  diameters from them; and medians if anything nearer to each other than to the laterals. Clypeus about twice the diameter of an anterior lateral eye. Total ocular area wider than long.

*Legs*.—As in *A. ceresicola*, the scopular hairs being more numerous on each leg and a few present on tarsus IV.

*Spinners*.—Apparently without terminal fusules; by transmitted light, however, the 3 fusules can be seen retracted in the terminal sheath.

*Vulva*.—As in fig. 25.

*Measurements*.—Carapace, 3 mm. in length. Total length, 7 mm.

## ASEMESTHES LINEATUS, Purc.

*A. lineatus*. Purcell in Schultze, Forschungsreise in Sudafrika, vol. i, p. 244, pl. xi, figs. 33–34.

*Specimens*.—1 ♀ (150,610 *ex typis*). Rooibank, S. Hereroland. (L. Schultze, May 1905.)

For other specimens see below.

*Colour*.—Carapace golden brown, with a short, irregular, infuscated band midway between stria and lateral margin; legs slightly paler. Abdomen testaceous, with irregular infuscated lateral markings, and with an anterior median dark band extending half-way down dorsal

surface ; also a dark spot posteriorly midway to spinners, and irregular dark flecks. Under surface pale.

*Carapace*.—Length subequal to metatarsus and tarsus I, and equal to metatarsus IV.

*Eyes*.—Posterior row very strongly recurved, medians very much smaller than the lateral. Posterior laterals smaller than the anterior laterals, and a diameter from them. Total ocular area much broader than long.

*Legs*.—Tarsus I scopulate laterally, anteriorly, and with line of bristles down centre. Metatarsus with 3 pairs of spines on the under surface ; 2nd leg similar, median spines on under surface weak. Posterior legs without scopulae and more heavily spined.

*Vulva*.—As in fig. 33, *loc. cit.*

*Measurements*.—Length of carapace, 2 mm. Total length, 5 mm.

*Specimens* :—

6 ♀♀ and jvs. (9491). Hanover. (S. C. Schreiner, September-October 1901.)

7 ♂♂, 8 ♀♀, and 16 jvs. (14,466). Hanover. (S. C. Schreiner, 1905.)

1 ♀ (11,918). Palmietfontein, near Hanover. (S. C. Schreiner, February 1902.)

1 ♀ and jv. (B 1609). Poortjesfontein, near Hanover. (Neeser, Jr., 1905.)

2 ♀♀ (14,497). Poortjesfontein, near Hanover. (Neeser, Jr., 1905.)

1 ♂, 5 ♀♀, and 6 jvs. (13,889). Hanover. (Schreiner, 1905.)

1 ♀ (B 216), N.W. of Herbert Div. (A. L. du Toit, November 1906.)

The vulva of the ♀ appears as in fig. 34, *loc. cit.* ; in all specimens, however, the median ridge between the two lateral dark plaques curves outwards on each side into a somewhat T-shaped form, the lateral portions being concave posteriorly, and often dark and prominent and forming shallow arches ; the anterior convex margin is just shown in fig. 33. In some specimens the T is very faint and appressed, and in others it is dark and prominent. Also in some specimens the median anterior tongue is situated immediately anterior to the T, and is dark and button-like. The range in variation in the vulvae seems to vary with the age and condition of the specimen, and though the same features are present in all, some are more prominent to the detriment of others.

In ♀ B 216 the T-shaped portion is very conspicuous ; the

posterior row of eyes is also not so strongly recurved, the small median eyes being well below the line joining the anterior borders of the lateral eyes. B 1609 is similar but darker.

In the ♂ the process which tapers anteriorly to the apex of the tarsus sweeps round across the ventral surface in a bold outstanding curve, and is larger than in the case of other species figured.

*ASEMESTHES MONTANUS*, n. sp. (Fig. 26, A and B.)

*Specimens*.—2 ♂♂ and 7 ♀♀ (12,380 types). Waterfall Mts., Tulbagh Road. (R. M. Lightfoot, November 1902.)

Also numerous specimens from Muizenberg Mts., Hout Bay Mts., Table Mt., Kalk Bay Mts., Devil's Peak (Table Mt.), Signal Hill, and Retreat and Bergvleit in the Cape Peninsula; and from Houwhoek, Stellenbosch, St. Helena Bay, Malmesbury, Clanwilliam, Tulbagh Road, Matroosberg Mts., Ceres (4000 ft.), and Hermanus Petrusfontein in C. Province. Also ♂ and ♀ from Montagu, ♀ showing variety of vulva, central portion being shortened and narrowed posteriorly. Also

1 ♀ (B 5096). Waterberg Mts., S.W. Prot. (R. Tucker, February 1920.)

1 ♀ (B 5060). Grootfontein, S.W. Prot. (R. Tucker, January 1920.)

♀ *Colour*.—Similar to *A. ceresicola*; in some specimens the posterior portion of the median abdominal band is bordered with light spots, and the testaceous background is more tawny; sternum uniform black-brown in colour; coxae, especially anterior pairs, infuscated; femora, except of 4th legs, infuscated.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{6}$  tarsus I and metatarsus and  $\frac{1}{6}$  tarsus IV.

*Eyes*.—Lateral eyes comparatively small (smaller than in *ceresicola*); ocular area nearly twice as broad as long. Both lines moderately recurved, eyes equidistant. Clypeus about  $2\frac{1}{2}$  times the diameter of an anterior lateral eye. Posterior laterals subequal to anterior laterals and scarcely  $1\frac{1}{2}$  diameters from them. Total ocular area considerably wider than long.

*Legs*.—Tarsi I and II bearing numerous scopular hairs, and metatarsi a few anteriorly on the under surface. Tarsi III and IV with a few elongated scopular hairs. Legs otherwise, as in *ceresicola*.

*Spinners*.—Inferior spinners bearing 3 apical tubules.

*Vulva*.—As in fig. 26A. The central portion is often much

shortened, the anterior portion extending much further down, as in No. 11,671 (St. Helena, B).

♂ *Colour*.—As in ♀.

*Carapace*.—Length equal to tibia and metatarsus I and subequal to metatarsus IV.

*Eyes*.—Also as in ♀.

*Chelicera*.—Superior border apparently without teeth.

*Legs*.—Tarsi I and II well scopulated; III and IV sparsely so; metatarsi I and II bearing sparse scopular hairs on the under surface.

*Pedipalps*.—Tibial process of the usual form. Ventral surface of tarsal organ as in fig. 26B.

*Measurements*.—♂ and ♀ approximately the same; carapace, 2.2 mm. in length. Total length, 5.8 mm.

Specimen from Waterberg Mts., S.W. Prot., is lighter in colour than type; the spinners have 2 tubules, and the central portion of vulva is marked with lateral brown striae. Specimen from Grootfontein also shows a variety of vulva.

ASEMESTHES NUMISMA, sp. nov. (Fig. 27, A and B.)

*Specimens*.—1 ♂, 2 ♀♀, and jv. ♀ (No. B 2095 types). Namsem, S.W. Africa. (R. W. Tucker, December 22, 1915, Percy Sladen Memorial Expedition.)

♂ *Colour*.—Carapace pale brown with darkened edges, and median radiating infuscations down each side. Legs pale brown, with faint darker banding. Abdomen dull testaceous; dorsal surface with a median purple black band extending over half its length, continued as three spots on each side, and terminating in a transverse dark mark, and with additional dark markings above the spinners; further, each side of the abdomen bears a serrated or broken black band. Under surface of abdomen slightly infuscated. Sternum very light brown, with a black border; coxae and legs paler.

*Carapace*.—Length subequal to metatarsus and tarsus I, and equal to  $\frac{7}{8}$  metatarsus IV.

*Eyes*.—Seen from above, anterior row is recurved and slightly wider than the posterior row; laterals about 3 times the size of the medians and nearly touching them; medians slightly further apart. Posterior row strongly recurved; medians very small; laterals large, but smaller than the anterior laterals, from which they are about twice their own diameter distant. Total ocular area much wider than long.

*Spinners*.—Superior spinners clothed with sparse long hairs, and bearing a cluster of 3 fairly long grey fusules, dorsally, at the apex.

*Legs*.—Bearing long, stout spines save on the tarsi, which are long and slender. Tarsi not scopulated, but bearing stout bristles or fine spines on the under surface; fascicles are also present, which are as long as the tarsal claws but do not hide them; the latter are armed with long, strong teeth over the entire length of the inner curve.

*Pedipalps*.—As in fig. 27A; cf. *A. lineatus*, Purc.

*Measurements*.—Total length (excluding spinners), 4 mm.

♀ *Colour*.—In adult specimens carapace and abdomen have lost their hairy covering to a great extent. Integument of carapace medium to dark brown, ornamented much as in ♂, but with darker ocular area and a distinct long oval, or leaf-like, dark mark on each side, running obliquely outwards from an almost central spot. Sternum dark brown, coxae paler; legs dark brown, femora slightly infuscated.

*Carapace*.—Subequal in length to metatarsus of 4th leg.

*Eyes*.—Anterior row with centres almost in a straight line; *i.e.* less recurved than in ♂; posterior row slightly more recurved; posterior laterals  $1\frac{1}{2}$ –2 diameters apart.

*Spinners*.—As in ♂; terminal fusules stouter.

*Maxillae*.—Short, slightly longer than labium, and curving inwards to just meet over its apex.

*Chelicera*.—With usual keel on inner or posterior margin.

*Legs*.—In order 4, 3, 2, 1, the 4th legs being considerably the longest. Tarsi much as in ♂; fascicles pectiniform and less conspicuous than in the ♂. Claws with a uniseriate row of about 5 long teeth.

*Pedipalps*.—Comparatively short, tarsi spined, and equal in length to patella and tibia.

*Vulva*.—As in fig. 27B; in some cases the circular opening to the vesicula seminalis on each side is very considerably larger and hides the tubular portion, also the semi-detached upper flap varies in size, being in some cases longer and narrower.

*Measurements*.—Largest specimen, 8 mm. in length; carapace, 3.5 mm.

In young specimens the hairy clothing is complete on the carapace as well as on the abdomen. Seen in spirits, the carapace then appears covered with short appressed pale hairs in the centre, and laterally with a broad black band of hairs running down each side from lateral eyes to posterior border. The abdomen has a dark central band



anteriorly on the upper surface, continued by two arrow-like markings to  $\frac{3}{4}$  of the total length; the sides are covered with appressed fine black hairs forming a margin with serrated upper edges, and shading away on the under surface; the rest of the dorsal surface is pinkish in colour and clothed with fine light hairs and sparse longer dark ones. When dry, the pale hairs are a dirty white in colour, and are distributed over the legs as well, giving them a faint banded appearance.

Other specimens were obtained from S.W. Africa on the same expedition, from the following localities:—

Voigtsgrund; 1 ♀ and 2 jv.. December 19, 1915. (No. B 2147.)

Nomptsas, Usib River; jv. ♀ and 2 jv. ♂♂. December 24, 1915. (No. B 2071.)

Gamis River; 1 ♀. December 26, 1915. (No. B 2062.)

Hoffnungsveld, S. of Windhuk; 1 ♂. January 8, 1916. (No. B 2156.)

ASEMESTHES O'CONNORI, n. sp. (Fig. 28.)

*Specimens*:—

1 ♂ (B 4789 type). Ashton. (R. W. Tucker, November 1919.)

1 ♂ and subadult ♀ (B 4783). Montagu. (R. W. Tucker, November 1919.)

*Colour*.—Carapace very dark brown, infuscated laterally, a broad band of white hairs down the centre and a narrow border of white hairs laterally. Abdomen greyish black dorsally, with feather-like band of white hairs down the centre. Legs lighter than the carapace, except the anterior femora, which are similar in colour; sternum dark brown, coxae light brown.

*Carapace*.—Equal in length to metatarsus and  $\frac{4}{5}$  tarsus I, and subequal to metatarsus IV.

*Eyes*.—Anterior row seen from above recurved. Posterior row slightly more recurved, laterals subequal to the anterior laterals and about a diameter and a half from them. Clypeus twice the diameter of an anterior lateral eye. Ocular area considerably wider than long.

*Spinners*.—Bearing 3 fusules apically.

*Legs*.—Tarsus I bearing scopular hairs and stout bristles on the under surface; tarsus II with scarcely any scopular hairs and much stouter bristles; tarsi III and IV with bristles only, and metatarsi more heavily spined.

*Pedipalps*.—Palpal organ as in fig. 28. Outer apical process of tibia tapering to a fine straight point and furnished with only a blunt lobe midway on lower surface.

*Measurements*.—Carapace, 2.2 mm. Total length, 5 mm.

ASEMESTHES PAYNTERI, n. sp. (Fig. 29.)

*Specimens*.—1 ♀ (14,253 type). Touws River. (J. Paynter, December 1904.)

*Colour*.—Carapace yellowish brown, dark-edged; surface slightly mottled. Abdomen testaceous; sternum about the same colour as the carapace.

*Carapace*.—Equal in length to metatarsus and  $\frac{3}{4}$  tarsus I, and to  $\frac{8}{9}$  metatarsus IV.

*Eyes*.—Anterior row moderately recurved; medians very small, less than a diameter apart and nearer to the laterals, which are very large. Posterior row equal in width and strongly recurved (a little less than in *A. reflexus*, n. sp.); posterior laterals smaller than the anterior laterals, and separated by  $1\frac{1}{2}$  times their diameter; posterior medians very small, and set in the centre of a long oval dark mark; remaining eyes, especially the laterals, surrounded by black bands. Clypeus twice the diameter of an anterior lateral eye. Total ocular area quite as long as wide.

*Legs*.—Similar to *reflexus*.

*Spinners*.—Apical tubules of inferior spinners retracted and indeterminable.

*Vulva*.—As in fig. 29.

*Measurements*.—Length of carapace, 2.75 mm. Total length, 5.75 mm.

ASEMESTHES PURCELLI, n. sp. (Fig. 30.)

*Specimens* :—

2 ♀♀ and jv. (12,658 types). Montagu Baths. (Dr. W. F. Purcell, November 1902.)

1 ♀ (B 4250). Kaapmuiden, E. Transv., Low Veld. (R. W. Tucker, November 1918.)

2 ♀♀ (B 4344). Komatipoort, E. Transv., Low Veld. (R. W. Tucker, November 1918.)

*Colour*.—Carapace medium to dark brown, lighter in the centre, infuscated laterally; clothed with sparse appressed hairs, which are more numerous down the centre line, forming a white median band. Abdomen dull greyish brown dorsally; pattern faint, but consisting

of a narrow anterior median dark band, followed by dark chevrons which diminish posteriorly; sides infuscated, and remainder of dorsal surface flecked with dark spots. Femora of legs similar in colour to the carapace; patellae and distal portion of legs, especially the posterior pairs, much lighter.

*Carapace*.—Equal in length to metatarsus and tarsus I, and to metatarsus and  $\frac{1}{6}$  tarsus IV.

*Eyes*.—Both rows moderately recurved. Anterior eyes equidistant, laterals much larger than the medians. Posterior row not narrower than the anterior row. Posterior laterals slightly smaller than anterior laterals and just over their diameter from them. Total ocular area much wider than long.

*Legs*.—Tarsus I scopulate, and bearing numerous stiff bristles; metatarsus I bearing scopular hairs anteriorly on the lateral under surfaces; 2nd leg similar, but the bristles are stronger and more numerous, and the basal spines on the metatarsus are slightly more median in position. Tarsus III bearing a few scopular hairs, and numerous long bristles; metatarsus heavily spined; 4th leg similar. Tarsal claws as in *ales*.

*Spinners*.—Inferior spinners with 3 apical tubules.

*Vulva*.—As in fig. 30. (The original specimen from which the figure and description are taken was subsequently badly damaged.)

*Measurements*.—Length of carapace, 3 mm. Total length, 7 mm.

The ♀♀ from Kaapmuiden and Komatipoort are darker and slightly smaller than the type, and the vulvae differ somewhat in that the "tongue" is longer, and the lower median dark-rimmed hollow is by no means so pronounced, and in one case its outline can hardly be distinguished. Nevertheless the specimens do not appear specifically distinct from *A. purcelli*.

1 ♀ (B 4787) from Ashton, C.P. (R. W. Tucker, November 1919.)  
Coincides with type.

ASEMESTHES REFLEXUS, n. sp. (Fig. 31, A and B.)

*Specimens* :—

1 ♂ and 3 ♀♀ (B 1938 types). Beaufort West. (Dr. W. F. Purcell, October 1905.)

1 ♀ (12,659). Montagu Baths. (Dr. W. F. Purcell, November 1902.)

1 ♀ (3571). Clanwilliam. (C. L. Leipoldt, October 1897.)

♀ *Colour*.—Carapace dark brown, clothed with scanty pale pubes-

cence ; legs similar in colour to the carapace. Abdomen dull brownish in colour ; also clothed with a pale pubescence. Sternum dark brown.

*Carapace*.—Slightly longer than metatarsus and tarsus I, and equal to metatarsus and about  $\frac{1}{6}$  tarsus IV.

*Eyes*.—Seen from above, front row straight to lightly recurved ; medians set on a slight tubercle, small, about a diameter apart, and a little less from the laterals, which are much larger. Posterior row slightly narrower than the anterior, and very strongly recurved ; medians small, about a diameter apart, and about 3 diameters from the laterals, which are considerably posterior to them ; laterals smaller than the anterior laterals, and 2 diameters from them. Clypeus  $2\frac{1}{2}$ –3 times the diameter of an anterior lateral eye, and sloping forwards to a slight degree. Total ocular area not very much wider than long.

*Legs*.—Tarsus I bearing a few scopular hairs, and numerous short slender spines in rows down the under surface ; upper surface also bearing numerous slender spines ; metatarsus with 1 or 2 scopular hairs anteriorly, also with 2 apical, 2 median, and 2 sub-basal spines ; tibia also bearing paired spines on the under surface ; 2nd leg similar ; also with stiff bristles, and bearing an additional spine on the outer surface. Tarsi and metatarsi III and IV with no scopular hairs, but with more numerous and stronger bristles and spines (occasionally a few club-shaped scopular hairs may be present on tarsus III).

*Chelicera*.—Superior border with a large tooth at the inner apex ; inferior border with the usual keel.

*Spinners*.—Inferior spinners with 3 apical tubules.

*Vulva*.—As in fig. 31A ; in some specimens the central markings are absent, and the whole surface, apart from the tongue, is whitish.

♂ *Colour*.—Slightly lighter than the ♀ ; dorsal surface of the abdomen brownish testaceous, with a dark irregular median band, and the rest of the surface mottled with dark marks, especially laterally ; under surface paler, genital surface dark. Sternum dark brown.

*Eyes*.—As in ♀ ; anterior row more strongly recurved, and eyes slightly more separated. Clypeus vertical, and scarcely more than twice the diameter of an anterior lateral eye.

*Legs*.—Similar to the ♀ ; anterior tarsi scarcely scopulated, but bearing short fine spines ; posterior legs more heavily spined.

*Spinners*.—As in ♀.

*Pedipalps*.—Tarsal organ as in fig. 31B. Tibial projection as in other species.

*Measurements*.—Length of carapace, ♀ 2.75 mm., ♂ 2 mm. Total length, ♀ 5.75 mm., ♂ 5 mm.

ASEMESTHES SUBNUBILIS, Sim.

*A. subnubilis*. Simon, E., in Ann. Soc. Ent. Fr., 1887, p. 373.

“ ♀ (pullus).—Length, 8 mm.

“ Cephalothorax smooth, shining, dusky brown. Ocular region black. Abdomen oval, dark ashy colour above; under surface paler to dull testaceous. Sternum, chelicerae, and legs dark brown, smooth; metatarsi and tarsi lighter and yellowish red. (Vulva not fully adult.) ”

ASEMESTHES WINDHUKENSIS, n. sp. (Fig. 32.)

*Specimens* :—

1 ♀ (B 5164 type). Windhuk, S.W. Prot. (R. W. Tucker, December 1919.)

1 ♀ (B 5585). Tsumeb, S.W. Prot. (E. Koechig, January 1921.)

1 ♀ (B 5139), Tsintsabis, Northern S.W. Prot. (R. Tucker, December 1919.)

*Colour*.—Carapace light brown, margin dark; lateral and posterior borders mottled; no pubescence apparent; legs slightly lighter than the carapace, femora infuscated. Abdomen testaceous, with median dark band and strong lateral infuscation. Sternum similar in colour to carapace.

*Carapace*.—Length subequal to metatarsus and tarsus I, and equal to metatarsus IV.

*Eyes*.—Seen from above, the front row is well recurved; posterior row equal in width and also well recurved; medians small, a diameter apart, and a diameter or less from the laterals; laterals subequal to the anterior laterals and barely a diameter and a half from them. Clypeus quite twice the diameter of an anterior lateral eye. Total ocular area wider than long.

*Legs*.—Tarsus I bearing scopular hairs and stout bristles on under surface; tarsus II with fewer scopular hairs; metatarsus with 3 pairs of spines on under surface; tarsus III with a few scopular hairs anteriorly and more numerous long and stout bristles; metatarsus with numerous bristles and strong spines; 4th leg similar, but with fewer scopular hairs on the tarsus.

*Chelicera*.—Superior border with strong tooth; inferior border with usual dentate keel.

*Spinners*.—Inferior spinners with 2–3 apical tubules.

*Vulva*.—As in fig. 32.

*Measurements*.—Length of carapace, 2·8 mm. Total length, 7 mm.

## DRASSODEAE.

### *Key to Genera.*

- (4). 1. Lateral eyes on each side widely separated; median ocular area longer than wide; anterior eyes subequal, posterior row lightly procurved. Inferior border of chelicera with 2 teeth; labium much longer than broad; maxillae strongly impressed . . . . . *Drassodes*.
- (3). 2. Anterior medians smaller than the laterals, posterior row decidedly recurved. Labium about as broad as long . . . . . *Drassodella*.
- (2). 3. Median ocular area not distinctly longer than broad. Inferior border of mandibles with 3 teeth. Labium longer than broad . . . . . *Allodrassus*.
- (1). 4. Lateral eyes on each side subcontiguous; median ocular area wider than long. Maxillae faintly impressed.
- (7). 5. Posterior row of eyes straight.
6. Labium longer than broad. Anterior median eyes slightly smaller than the laterals . . . . . *Talanites*.
- (5). 7. Posterior row of eyes procurved.
- (11). 8. Anterior median eyes larger than the laterals; labium not much longer than broad.
- (10). 9. Inferior margin of chelicera bidentate. Legs slender. Inferior spinners distinctly biarticulate . . . . . *Leptodrassus*.
- (9). 10. Inferior margin of chelicera muticous. Legs short. Inferior spinners without distinct apical joint . . . . . *Homeothele*.
- (8). 11. Anterior median eyes equal in size to laterals and to remaining eyes. Labium longer than broad, parallel-sided.
12. Inferior margin of chelicera bidentate. Legs long and moderately strong. Inferior spinners not biarticulate . . . . . *Adelphodrassus*.

All of these genera, save *Homeothele* and *Adelphodrassus*, are found in Africa, but *Talanites* and *Allodrassus* are not known from South Africa.

## GEN. DRASSODES, Westr.

### *Key to Species.*

#### *Females.*

- (14). 1. Chelicera with one large and one small tooth.
- (11). 2. Anterior width of carapace equal to half the greatest width.
- (8). 3. Length of carapace equal to tibia, metatarsus, and a portion up to  $\frac{1}{3}$  of the tarsus of 1st leg.
- (5). 4. Posterior medians large and touching . . . . . *gooldi*.
- (4). 5. Posterior medians not touching.

- (7). 6. Posterior medians close together . . . . . *dregei*.  
 (6). 7. Posterior medians some distance apart . . . . . *lyratus*.  
 (3). 8. Length of carapace just equal to tibia and metatarsus of 1st leg.  
 (10). 9. Posterior border of anterior slit of vulva T-shaped . . . *sesquidentatus*.  
 (9). 10. Posterior border of anterior slot of vulva broad and tongue-like  
 posteriorly . . . . . *tessellatus*.  
 (2). 11. Anterior width of carapace greater than half the greatest width.  
 (13). 12. Posterior medians half a length apart and over a length from the laterals.  
 Vulva slightly longer than broad, basal portion U-shaped; anterior  
 slit extending posteriorly as a moderately broad white tongue.  
*lophognathus*.  
 (12). 13. Posterior medians  $\frac{1}{2}$  a length apart but less than a length from the laterals.  
 Vulva broader than long; anterior slit shallow, broad, and extending  
 between the arms of the broad U-shaped basal portion . . . *calceatus*.  
 (1). 14. Chelicera with 3 teeth.  
 (18). 15. Width of carapace equal to  $\frac{1}{2}$  the greatest width.  
 (17). 16. Length of carapace equal to tibia, metatarsus, and a portion up to  $\frac{1}{3}$  of  
 tarsus of 1st leg . . . . . *ereptor*.  
 (16). 17. Length of carapace just equal to tibia and metatarsus of 1st leg.  
*splendens*.  
 (15). 18. Width of carapace greater than  $\frac{1}{2}$  the greatest width.  
 (22). 19. Posterior medians nearly a length apart.  
 (21). 20. Vulva longer than broad; basal portion somewhat horseshoe-  
 shaped . . . . . *bechuanicus*.  
 (20). 21. Vulva broader than long . . . . . *solitarius*.  
 (19). 22. Posterior medians large and  $\frac{1}{2}$  a length apart . . . . . *tortuosus*.

In this genus the sexual organs are the distinguishing specific characters; other characters are so uniform in each species that the few available for specific purposes are practically all included in the key given in the previous pages, the descriptions in each case being made from type specimens; hence in the following species of Purcell's the descriptions are not repeated, the key and figures quoted below being deemed sufficient. New species are described as usual.

DRASSODES LOPHOGNATHUS, Purc.

1907. *D. lophognathus*. Purcell in A.M.N.H. (7), vol. xx, p. 305, pl. xiii, figs. 4-6, ♂ and ♀.

5 ♀♀ and 4 ♂♂ from Devil's Peak, Cape Town. (W. F. Purcell.)

1 ♀ from Stellenbosch. (L. Péringuey.)

5 ♀♀ from Pass at Avontuur, near Stormsvlei. (Mr. and Mrs. W. F. Purcell.)

♂ and ♀, St. Helena Bay, Malmesbury Div. (J. E. C. Goold.)

Other ♂♂ and ♀♀ from Onderbergvlei, Clanwilliam Div., Hex River

valley, Touws River, and Matjesfontein in Worcester Div., Laingsburg, Port Albert Div., Beaufort West, and Willowmore.

*Specimens from new localities* :—

1 ♀ (13,105). Engobe Distr., Transkei. (Weisbecker, August 1903.)

1 ♀ (Grahamstown Museum), De Aar.

1 ♀ (B 2683). Gt. Winterhoek Mts., 4400–5500 ft. (R. W. Tucker, November 29, 1916.)

Specimens darker or “ dirtier ” in colour than the types ; abdomen without the dark spots or bands ; eyes with the anterior row lightly procurved and the posterior row more strongly procurved.

#### DRASSODES TESSELLATUS, Purc.

1907. *D. tessellatus*. Purcell in A.M.N.H. (7), vol. xx, p. 307, pl. xiii, figs. 7 and 8, ♂ and ♀.

17 ♂♂ and 45 ♀♀ from Hanover. (S. C. Schreiner, 1901.)

♂ and ♀ from Steynsburg Div., C. Province. (G. G. Ponder.)

*Specimens from new localities*.—3 ♀♀ (B 1576), De Aar. (Dr. W. F. Purcell, September 1913.)

These specimens have been referred to this species, although in the absence of the ♂ it is somewhat difficult to differentiate it from *lophognathus*.

Also ♂ and ♀ (B 144), Smithfield. Dr. Kannemeyer.

The ♀ agrees with the type specimen, but the palp of the ♂ varies slightly ; the dentition of the chelicera, however, is that of *tessellatus*. These specimens are slightly smaller than the types, the length of the ♀ being 7.3 mm., and of the ♂ 8 mm.

#### DRASSODES SOLITARIUS, Purc.

1907. *D. solitarius*. Purcell in A.M.N.H. (7), vol. xx, p. 308, pl. xiii, fig. 9, ♀.

1 ♀ from Hanover. (S. C. Cronwright Schreiner.)

#### DRASSODES CAFFRERIANUS, Purc.

1907. *D. caffrerianus*. Purcell in A.M.N.H. (7), vol. xx, p. 308, pl. xiii, fig. 10, ♂.

1 ♂ from Keneha Bridge, about 22 miles west of Maclear, Pondoland. (A. S. Weisbecker, August 1903.)



DRASSODES CALCEATUS, Purc.

1907. *D. calceatus*. Purcell in A.M.N.H. (7), vol. xx, p. 309, pl. xiii, fig. 11, ♀.

2 ♀♀ from Matjesfontein.

DRASSODES GOOLDI, Purc.

1907. *D. gooldi*. Purcell in A.M.N.H. (7), vol. xx, p. 309, pl. xiii, fig. 12, ♀.

2 ♀♀ from Stompneus, St. Helena Bay, Malmesbury Div. (J. E. C. Goold.)

DRASSODES LYRATUS, Purc.

1907. *D. lyratus*. Purcell in A.M.N.H. (7), vol. xx, p. 309, pl. xxx, fig. 13, ♀.

1 ♀ from Matjesfontein, Worcester Div.

DRASSODES HELENÆ, Purc.

1907. *D. helenæ*. Purcell in A.M.N.H. (7), vol. xx, p. 309, pl. xiii, figs. 14 and 14A, ♂.

1 ♂ from Stompneus, St. Helena Bay, Malmesbury Div. (J. E. C. Goold.)

DRASSODES DREGÆI, Purc.

1907. *D. dragei*. Purcell in A.M.N.H. (7), vol. xx, p. 310, pl. xiii, fig. 15, ♀.

2 ♀♀ from Port Elizabeth. (J. L. Drège, July 1899.)

DRASSODES EREPTOR, Purc.

1907. *D. ereptor*. Purcell in A.M.N.H. (7), vol. xx, p. 310, pl. xiii, figs. 16 and 17, ♂ and ♀.

5 ♀♀ from the Hot Baths, Montagu. (W. F. Purcell, November 1902.)

1 ♀ from Clanwilliam. (C. L. Leipoldt, October 1897.)

1 ♀ from Bosch Kloof, in Cedarberg Range, Clanwilliam Div. (Leipoldt, December 1897.)

1 ♂, Salt River Flats, Cape Peninsula. (W. F. Purcell, April 1896.)

*New Localities*.—1 ♀ (Grahamstown Museum). Aliwal North. (Sr. Stephany.)

## DRASSODES SESQUIDENTATUS, Purc.

1908. *D. sesquidentatus*. Purcell in L. Schultze, Forschungsreise in Südafrika. Denk. med. nat. Gesell., Bd. xiii, p. 235, pl. xi, figs. 13 and 14.

15 ♀♀, 18 ♂♂, and 3 jvs. from Kamaggas, Little Namaqualand. July and August 1904.

Very near *D. lophognathus*, Purc.

## DRASSODES BECHUANICUS, n. sp. (Fig. 33.)

*Specimens*.—1 ♀ (14,504 type). Maritzsojo, Bechuanaland. (A. L. du Toit, October 1905.)

*Colour*.—Carapace light yellowish brown, becoming darker and redder distally; chelicera black-red in colour. Legs yellowish brown, abdomen testaceous, the dorsal surface bearing faint dark spots.

*Carapace*.—Width across the ocular area a little over half the greatest width. Length slightly exceeding tibia and metatarsus I. Clypeus subequal to the diameter of an anterior lateral eye.

*Eyes*.—Anterior row seen from in front moderately procurved; medians a diameter apart, but closer to the laterals, which are subequal in size. Posterior row procurved, medians subangular and closer to each other than to the laterals. Median ocular area longer than wide, and a trifle narrower posteriorly.

*Chelicera*.—Superior border with 3 teeth, of which the central one is the larger; inferior border with 3 small teeth (1 chelicera bears only 2, slightly larger in size).

*Legs*.—Metatarsus I bearing no spines; tibia also spineless, and bearing scarcely any trace of anterior lateral scopula. Metatarsus II with 2 basal spines on the under surface. Metatarsus III with an anterior scopula. Metatarsus IV with a few scopular hairs anteriorly. The tarsi are all scopulated, the posterior ones less densely.

*Vulva*.—As in fig. 33.

*Measurements*.—Carapace, 4.8 mm. long. Total length, 10.6 mm.

## DRASSODES MASCULUS, n. sp. (Fig. 34.)

*Specimens*.—1 ♂ (B 3896). Insiza, S. Rhodesia. (G. French.)

*Colour*.—Carapace light brown; redder anteriorly, and infuscated laterally and centrally; legs yellowish brown. Abdomen dull

testaceous with median anterior dorsal band and rest of dorsal surface mottled, with large infuscated marks.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{3}$  tarsus I; anterior width equal to  $\frac{1}{2}$  greatest width.

*Eyes*.—Anterior row procurved, laterals subequal to the medians. Posterior row procurved, medians large, angular, and contiguous; laterals smaller than the anterior laterals; median ocular area longer than wide, and wider posteriorly. Anterior laterals nearly touching the border of the carapace.

*Chelicera*.—Superior border with 2 large contiguous teeth; inferior border with 2 smaller teeth.

*Legs*.—Anterior tarsi scopulate and slightly dilated; metatarsi also lightly scopulate, 2nd metatarsus bearing 0–1 spines on the under surface; posterior legs more heavily spined.

*Pedipalps*.—Tibia with anterior dorsal process; tarsus broad, palpal organ as in fig. 34.

*Measurements*.—Length of carapace, 2 mm. Total length, 5 mm.

DRASSODES SPLENDENS, n. sp. (Fig. 35.)

*Specimens*.—1 ♀ (B 4000 type). Insiza, S. Rhodesia. (G. French.)

*Colour*.—Carapace yellowish brown, darker anteriorly; chelicera medium brown; legs pale testaceous, slightly darker distally. Abdomen dull testaceous, the dorsal surface bearing a dark median band anteriorly, which extends over  $\frac{1}{3}$  the length; remainder of the dorsal surface bearing numerous distinct dark spots; ventral surface pale; integument clothed with appressed dark hairs.

*Carapace*.—Length equal to tibia and metatarsus I; anterior width equal to  $\frac{1}{2}$  greatest width.

*Eyes*.—Anterior medians nearly a diameter apart, and slightly nearer to the laterals, which are subequal to them in size. Posterior medians large, subangular, and nearly touching posteriorly; lateral eyes much smaller, and at least  $1\frac{1}{2}$  times their diameter from the medians. Median ocular area longer than wide, and considerably wider posteriorly.

*Chelicera*.—Superior margin bearing 3 teeth, inferior margin 2.

*Legs*.—Tarsus and metatarsus I scopulate to the base, and spineless; tibia without scopular hairs and also spineless; 2nd leg similar, with the addition of 2 basal spines on the under surface of the metatarsus. Tarsus III scopulate at the sides but with bristles down the centre; metatarsus bearing scopular hairs anteriorly at the sides of the under

surface, and armed with numerous spines. Tarsus and metatarsus IV similar but with fewer scopular hairs.

*Vulva*.—As in fig. 35.

*Measurements*.—Length of carapace, 4 mm. Total length, 9 mm.

DRASSODES STATIONIS, n. sp. (Fig. 36.)

*Specimens* :—

1 ♂ (B 2618 type). Hout Bay Mts., Cape Peninsula. (R. W. Tucker, October 1916.)

1 ♂ (B 5226). Vryburg. (J. S. Brown, May 1920.)

1 ♂ (14,507). Vryburg. (Du Toit, September 1905.)

1 ♂ (B 2764). Gt. Winterhoek Mts. (R. W. Tucker, November 1916.)

*Colour*.—Carapace light brown, darker around ocular region. Legs light yellowish brown. Abdomen testaceous, fairly regularly flecked with black over entire dorsal surface.

*Carapace*.—Length slightly less than tibia and metatarsus I. Anterior width  $\frac{1}{2}$  greatest width.

*Eyes*.—Anterior row procurved, medians larger than laterals. Posterior row straight to very slightly procurved; medians large, subangular, and nearly touching; nearly long diameter from the laterals, which are equal in size to the anterior laterals. Median ocular area slightly longer than wide, and scarcely wider posteriorly. Clypeus slightly less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 1 large tooth, with long, slightly serrated inner base; inferior border with 2 denticles. In a young female specimen the superior border has 1 large and 1 small tooth, and inferior border 2 small teeth.

*Legs*.—Tarsi I and II scopulate to base; metatarsus I spineless and scopulate almost to base; metatarsus II slightly less scopulate and with 2 basal spines on the under surface. Tarsus III with scopula and bristle-like hairs; tarsus IV with bristles only.

*Pedipalps*.—Tibia with blunt median anterior dorsal process. Palpal organ as in fig. 36.

*Measurements*.—Carapace, 2.1 mm. Total length, 5.1 mm.

DRASSODES TORTUOSUS, n. sp. (Fig. 37.)

*Specimens*.—1 ♀ (150,697 type). Howick, Natal. (Dr. W. F. Purcell, September 1905.)

*Colour*.—Carapace light brown with radiate infuscations, and

becoming darker anteriorly in the ocular area. Chelicera dark reddish brown, legs light brown; abdomen testaceous, with traces of dark marks anteriorly on the dorsal surface, and faint infuscated spots posteriorly.

*Carapace*.—Width across the ocular area exceeding  $\frac{1}{2}$  the greatest width. Length equal to tibia, metatarsus, and  $\frac{1}{2}$  tarsus I.

*Eyes*.—Anterior row well procurved; median eyes less than a diameter apart, and nearer to the laterals, to which they are subequal. Posterior row moderately procurved, medians subangular, close together, and slightly larger than the laterals. Median ocular area slightly longer than broad, and slightly wider posteriorly. Clypeus half the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 2 stout teeth.

*Legs*.—Metatarsus I spineless; tibia without spines or scopular hairs. Metatarsus II bearing 2 spines basally on the under surface; tibia without spines or scopular hairs. Metatarsi III and IV with a few scopular hairs anteriorly.

*Vulva*.—As in fig. 37.

*Measurements*.—Carapace, 3 mm. in length. Total length, 7.5 mm.

#### GEN. DRASSODELLA, Hewitt.

##### *Key to Species.*

##### *Females.*

- (3). 1. Vulva without constriction of median depressed area.
- 2. Abdomen blackish brown, with 5 conspicuous white spots and 2-3 light arrow-shaped bands posteriorly; also 2 diffuse light spots on the lateral surfaces . . . . . *quinquelabecula*.
- (1). 3. Vulva with median depressed area constricted.
- (10). 4. Lateral projections into median area present.
- (8). 5. Length of carapace equal to tibia and slightly under or over  $\frac{1}{3}$  metatarsus of 4th leg.
- (7). 6. Abdomen greyish black, bearing a trace of 4-6 lateral and 1 terminal white spots dorsally . . . . . *melana*.
- (6). 7. Abdomen bright orange dorsally, coloured area sharply defined and broken only by a short median black streak anteriorly . . . *salisburyi*.
- (5). 8. Length of carapace equal to tibia and slightly under or over  $\frac{1}{2}$  of the metatarsus of 4th leg.
- 9. Abdomen brownish black, bearing 6 lateral and 1 terminal well-defined spots dorsally . . . . . *7-maculata*.
- (4). 10. Without lateral projections into the median area.
- (12). 11. Length of carapace equal to tibia and slightly under or over  $\frac{1}{3}$  metatarsus

- of 4th leg. Abdomen brownish black, with a long anterior white stripe down each side, followed by a separate white spot; terminal white spot inconspicuous . . . . . *vasivulva*.
- (11). 12. Length of carapace equal to tibia and slightly under or over  $\frac{1}{2}$  metatarsus of 4th leg. Abdomen dark brown dorsally, with a pair of anterior, a pair of anterior median, and a terminal white spot . . . . . *purcelli*.

*Males.*

- (4). 1. Stylus of palpal organ not hooked at extremity.  
 2. Length of carapace equal to tibia and slightly under or over  $\frac{1}{3}$  of metatarsus of 4th leg.  
 3. Stylus small, laminated and inconspicuous . . . . . *quinquelabecula*.
- (1). 4. Stylus of palpal organ hooked at extremity.  
 (7). 5. Length of carapace equal to tibia and slightly under or over  $\frac{1}{3}$  metatarsus of 4th leg.  
 6. Stylus of palp broad at base and tapering gradually . . . . . *salisburyi*.
- (5). 7. Length of carapace equal to tibia and slightly under or over  $\frac{1}{2}$  metatarsus of 4th leg.  
 8. Stylus laminated, moderately short; basal portion suddenly broad, and transverse . . . . . *7-maculata*.

DRASSODELLA MELANA, n. sp. (Fig. 38.)

*Specimens* :—

- 1 ♀ (B 4175 Type). Mfongosi, Zululand. (W. E. Jones, February 1918.)  
 3 ♀♀ (B 3610). Krantzkop, Natal. (K. H. Barnard, November 1917.)

*Colour*.—Carapace dark mahogany brown, darker towards the borders; surface sparsely clothed with appressed yellowish-white hairs, and with a narrow margin of white hairs laterally. Abdomen greyish black dorsally, bearing very sparse white hairs and a trace of 4–6 lateral and 1 terminal white spots; under surface slightly lighter. Legs, especially the femora, very dark; tarsi lighter; femur I with a light spot on the inner and on the outer surface; tibia I light and densely clothed with white plumose hairs; similar hairs scattered all over the legs, especially on the coxae.

*Carapace*.—Clypeus subequal to the diameter of an anterior lateral eye.

*Eyes*.—Anterior row straight and compact; median eyes slightly smaller than the laterals, nearly touching each other, and touching the laterals. Posterior row straight to slightly recurved; medians a little smaller than the laterals, and slightly nearer to each other than to the laterals.

*Chelicera* and sternum normal.

*Legs*.—Tarsus and metatarsus I slightly scopulated and spineless. Tarsus and metatarsus II scopulate to the base and also spineless. Tarsus III scopulate; metatarsus without scopular hairs, but bearing numerous stout spines. Tarsus IV with a few scopular hairs laterally and bristles centrally; metatarsus long and strongly spined.

*Pedipalps*.—As in *7-maculata*.

*Vulva*.—As in fig. 38.

*Measurements*.—Carapace, 2.7 mm. Total length, 7 mm.

The specimens from Krantzkop are even darker than the type, and bear fewer white hairs.

DRASSODELLA PURCELLI, n. sp. (Fig. 39.)

*Specimens* :—

1 ♀ (150,465 type). Matjesfontein. (Dr. W. F. Purcell, August 1906.)

2 ♀♀ (3971). Touws River Stn., Worcester Div. (Dr. W. F. Purcell, September 1896.)

*Colour*.—Carapace medium brown, slightly infuscated; lateral white border very faint. Posterior legs approximately the same colour as the carapace; anterior legs darker as far as the patellae and lighter onwards; tibia of 1st leg banded with white hairs as in *quinquelabecula*. Abdomen dark brown dorsally, and darker posteriorly; surface smooth and bearing a pair of anterior and a pair of median anterior white spots, and 1 terminal spot; under surface slightly paler.

*Carapace*.—Clypeus slightly narrower than  $\frac{1}{2}$  the diameter of an anterior lateral eye.

*Eyes*, sternum, etc., normal.

*Chelicera*.—Superior border with 3 teeth, inferior border with 2 teeth.

*Legs*.—Tarsus and metatarsus I scopulate; tibia also with scopular hairs anteriorly. Tarsus and metatarsus II scopulate; metatarsus apparently spineless. Tarsus III scopulate, metatarsus armed with bristles and spines on the lower surface. Tarsus IV furnished with stout bristles and a few scopular hairs on the under surface.

*Vulva*.—As in fig. 39; allied to *quinquelabecula*.

*Measurements*.—Length of carapace, 1.6 mm. Total length, 4.4 mm.

DRASSODELLA QUINQUELABECULA, n. sp. (Fig. 40, A and B.)

*Specimens*.—1 ♀ and jv. (150,065 types), and 1 ♂ (150,440). Caledon. (Dr. W. F. Purcell, July 1910.)

♀ *Colour*.—Carapace medium brown, very slightly infuscated, with lateral white border and scattered white hairs over the entire surface. Legs slightly lighter than the carapace and bearing sparse white hairs which are more numerous on the coxae; tibiae of the 1st legs lighter than the other segments, save for a dark basal band, and conspicuously clothed with white hairs; patellae almost black; femora with the lateral light patches inconspicuous. Tibiae of 2nd legs also slightly lightened; otherwise the legs are darker distally. Abdomen blackish brown on the dorsal surface, ornamented with 5 conspicuous spots and with 2 or 3 light arrow-shaped bands between the posterior and the 2 median spots; also with 2 diffuse light spots on the lateral surfaces; ventral surface paler. The juv. specimen is much darker, and shows the colour markings more prominently, especially on the 1st legs.

*Carapace*.—As in *7-maculata*; clypeus much narrower than the diameter of an anterior lateral eye.

*Eyes*.—As in *7-maculata*; the posterior medians slightly nearer to the laterals than to each other.

*Chelicera*.—With 2 inferior and 3 superior teeth; the fang not so stout or so sinuous basally as in *7-maculata*.

*Sternum*.—Slightly longer than broad.

*Legs*.—Tarsus and metatarsus of the 1st leg scopulate; metatarsus bearing 1 basal spine on the under surface; 2nd leg similar, but the metatarsus with 2 basal spines. Tarsus III scopulate; metatarsus longer, stouter, and strongly spined. Tarsus IV with no scopula, but with bristles on the under surface. All the tarsi bearing claws and fascicles; those of the anterior legs being much shorter than those of the posterior.

*Pedipalps*.—Tarsal claw very small.

*Vulva*.—As in fig. 40A.

♂ *Colour*.—As in ♀, but with fewer white hairs on the carapace; the legs also become lighter distally, and the abdomen is darker and lacks the arrow-like markings posteriorly.

*Carapace*.—Clypeus only slightly narrower than the diameter of an anterior lateral eye.

*Eyes*.—As in ♀.

*Chelicera*.—Fang longer than in ♀, and slightly more sinuous.

*Legs*.—Tarsus of 1st leg scopulate; metatarsus scopulate anteriorly, and bearing no spines; 2nd leg similar, but with 2 basal spines on the metatarsus. Tarsus III scopulated; metatarsus III bearing numerous spines; also bristles, especially anteriorly, on the under surface. Tarsus IV with no scopular hairs, but furnished with



bristles on the under surface ; metatarsus slightly exceeding twice its length.

*Pedipalps*.—Tibia longer than the patella, and about  $\frac{2}{3}$  the length of the tarsus ; and furnished on the outer apical border with a short curved projection. Tarsus bearing the usual scopular patch. Palpal organ as in fig. 40B.

*Measurements*.—Length of carapace, ♀ 2 mm., ♂ 1.8 mm. Total length, ♀ 4 mm., ♂ 3.6 mm.

1 ♀ (B 3484). Matroosberg Mts., 4000 ft. (R. W. Tucker, November 1917.)

DRASSODELLA SALISBURYI, Hewitt.

1916. *D. salisburyi*. Hewitt in Ann. Transv. Mus., vol. v (3), p. 209, fig. 9, A–E.

*Specimens* :—

1 ♀ type. (Grahamstown Museum), Grahamstown. (February 1915.)

1 ♂ (B 3332), Grahamstown. (J. Hewitt.)

♀ *Colour*.—Carapace dark mahogany brown, narrowly fringed with white hairs, and with a short median posteriorly bifurcated band of white hairs. Legs similar in colour, but lighter and redder distally ; also bearing white and orange hairs. Dorsal surface of abdomen clothed with orange-coloured hairs, and with a short anterior median black stripe. Femur I with light spot on inner and outer surfaces.

*Carapace*.—Equal in length to tibia and metatarsus I, and to tibia and  $\frac{1}{3}$  metatarsus IV.

*Clypeus*.—Slightly greater than the diameter of an anterior lateral eye.

*Eyes*.—Anterior row slightly procurved, medians smaller than the laterals and nearer to them ; posterior row recurved, wider than the anterior row ; medians smaller than the laterals and nearer to them than to each other.

*Chelicera*.—Superior border with 3 teeth, inferior with 2.

*Legs*.—Tibia I scopulate anteriorly, laterally, and bearing 2 median and 2 basal spines ; tibia II without scopula, and with 1 median and 1 basal spine.

*Vulva*.—As in fig 9E, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 3.2 mm. ; ♂ 4 mm.

♂ *Colour*.—As in ♀.

*Carapace*.—Equal in length to tibia and  $\frac{5}{6}$  metatarsus I, and to tibia and about  $\frac{1}{3}$  metatarsus IV.

*Clypeus*.—Equal to  $1\frac{1}{2}$  times the diameter of an anterior lateral eye.

*Eyes*.—As in ♀.

*Chelicera*.—Superior border with 3 teeth, inferior with 2.

*Legs*.—Tibia I not scopulate anteriorly, and with 2 median and 2 basal spines on under surface.

*Pedipalps*.—Palpal organ as in fig. 9, B and C, *loc. cit.*

DRASSODELLA 7-MACULATA, Strand. (Fig. 41, A and B.)

1903. *Prosthesima 7-maculata*. Strand in Deutsche Sudpolar Expedition, 1901–1903, Bd. x, "Zool.," vol. ii, p. 554.

Strand's species is founded on a single ♀ specimen from Miller's Point, Simonstown, Cape, July 1903. I have not been able to see the type, but those described below from the Cape and elsewhere coincide with Strand's description, and are undoubtedly the same species.

*Specimens*.—1 ♂ and 4 ♀♀ (8521 types), Signal Hill (Dr. W. F. P., April 1900); also from various localities noted below.

♀ *Colour*.—Carapace infuscated brown, with a lateral border and a sparse median stripe of slightly plumose white hairs; basal portions of legs also with a few white hairs; legs slightly paler than the carapace and lighter from the patellae onwards; femora of first legs with conspicuous light patches on the inner and outer surfaces. Abdomen brownish black, with 7 conspicuous white spots on the dorsal surface, 6 lateral and 1 terminal posteriorly; the 2 anterior spots are often elongated posteriorly; ventral surface of abdomen paler.

*Carapace*.—Surface moderately convex, and sloping fairly abruptly posteriorly to the stria. Clypeus equal in depth to the diameter of an anterior lateral eye.

*Eyes*.—Front row straight to very slightly procurved; laterals larger than the medians. Posterior row recurved, wider than the anterior row, and well separated from it; eyes practically equidistant, and the medians slightly smaller than the laterals. Median ocular area longer than wide, and narrower anteriorly.

*Chelicera*.—Inferior border with 2 teeth, superior border with 3 stout teeth; fang strong and slightly sinuous towards the base.

*Sternum*.—Shield-shaped; breadth subequal to the length.

*Legs*.—Tarsus I moderately long and slender, densely scopulated and spineless; metatarsus about the same length, slightly stouter, and also scopulated and spineless; tibia sometimes with a few scopular hairs anteriorly; 2nd leg similar, but with 2 spines basally on the under surface of the metatarsus, and no scopular hairs on the

tibia. Tarsus III spineless, and with a scopula of more bristle-like hairs; metatarsus strongly spined, longer and darker. Tarsus IV with sparse scopular hairs laterally, and moderately stout bristles centrally; metatarsus long and strongly spined. All tarsi furnished with fascicles; claws small, the posterior ones being longer, but less strongly toothed.

*Pedipalps*.—Tibia longer than the patella; tarsus subequal to the patella and tibia, and bearing a strongly toothed apical claw; all segments armed with spines, the femur bearing only 3–4 weak dorsal spines distally.

*Vulva*.—As in fig. 41A.

♂ *Colour*.—Slightly lighter than the ♀.

*Eyes*.—As in ♀; posterior medians slightly nearer to the laterals than to each other.

*Chelicera*.—Very stout; fang long, stout, and slightly sinuate. Inferior border of groove with 2 widely separated teeth, superior border with 3–4 teeth.

*Legs*.—Tarsus I scopulate, but bearing no spines; metatarsus slightly stouter and longer and bearing a few scopular hairs and stiff, bristle-like hairs; similarly with the 2nd leg, but the scopulae are more scanty, and the bristles on the metatarsus are more numerous; the latter has also 1 weak spine basally on the under surface. Tarsus III slender, scopulate, and spineless, and about equal in length to the metatarsus; metatarsus and tibia heavily spined. Tarsus IV slender, bearing a very few scopular hairs, clothed with sparse bristles and spineless; metatarsus  $1\frac{2}{3}$  times as long as the tarsus, and, together with the tibia, heavily spined.

*Pedipalps*.—Femur armed with 3 short distal spines on the dorsal surface; patella spineless; tibia, together with the patella, bearing numerous long spiniform hairs; the former also with a finger-like apical projection on the outer side; tarsus furnished with a dense scopula on the anterior dorsal portion. (*D. salisburyi*, Hewitt, is similarly scopulated.) Palpal organ as in fig. 41B.

*Measurements*.—Length of carapace, ♀ 2.5 mm., ♂ 2.1 mm. Total length, ♀ 6 mm., ♂ 5 mm.

This species occurs also in the following localities:—

Gt. Winterhoek Mts. at an altitude of 4000–5000 ft.; Tulbagh; R. W. Tucker, April 1916; 1 ♀ (B 2550). This specimen is almost black in colour, and has the abdominal spots very small.

Matroosberg Mts., Ceres, at an altitude of about 3500 ft.; R. W. Tucker, January 1917; 3 jv. specs. (B 2991).

Piquetberg Rd. Station, Tulbagh Div.; R. M. Lightfoot, August 1898; 1 ♀ (3998); slightly lighter in colour, and with the abdominal spots very faint; legs and dorsal surface of abdomen also bearing a sparse clothing of orange-coloured hairs.

Bergvleit, Diep River, Cape Flats; Dr. W. F. Purcell, July 1905; 1 ♀ (B 3343); spots on abdomen very faint.

St. James, C. Penins; Dr. W. F. Purcell, April 1901; 3 ♀♀ (9195).

Kalk Bay Mts., C. Penins; Dr. W. F. Purcell, February 1902; 2 ♂♂ and 3 jv. ♀♀ (12,311).

Hout Bay, C. Penins; Dr. W. F. Purcell, March 1898; 1 ♂ (4344), 1 jv. ♂ (B 1146); R. W. Tucker, April 1915.

Cape Town, E. A. Morris, July 1898; 1 ♀ (4330), 1 ♀ (3081); R. M. Lightfoot, September 1897. In both of these the abdominal spots are inconspicuous.

Table Mt., Platteklip Ravine; R. W. Tucker, April 1915; 1 ♂ (B 1158); Dr. W. F. Purcell, April 1900, 1 ♀ (8563).

Table Mt., slopes in woods; R. W. Tucker, August 1915; 1 ♀ (B 2550). Similar in colour to the Tulbagh specimen.

Signal Hill, Cape Town; Dr. W. F. Purcell, May 1904; 1 ♀ (12,082); July 1901, 1 ♀ (8974).

#### DRASSODELLA VASIVULVA, n. sp. (Fig. 42.)

*Specimens*.—1 ♀ (No. 876 type). Knysna. (Dr. W. F. Purcell, March 1906.)

*Colour*.—Carapace medium brown, slightly mottled with black, only faintly bordered with white hairs, and with a sparse strip of white hairs down the centre. Legs paler than the carapace and lighter distally; femora of 1st legs with lateral light patches. Dorsal surface of abdomen brownish black, with a long anterior white stripe down each side followed by a separate white spot; terminal white spot inconspicuous; ventral surface paler.

*Carapace*.—Clypeus subequal to the diameter of an anterior lateral eye.

*Eyes*.—As in *7-maculata*.

*Chelicera*.—Fang stout but not sinuous; cheliceral groove long, and superior border with 3 teeth, and inferior border with 2 smaller teeth.

*Sternum*.—Breadth subequal to the length.

*Legs*.—Tarsus, metatarsus, and anterior outer portion of tibia of the 1st leg scopulate. Tarsus and metatarsus of 2nd leg scopulate, the metatarsus bearing 2 basal spines on the under surface. Tarsus III

with a coarse scopula ; tarsus IV furnished with bristles on the under surface.

*Pedipalps*.—Tarsus shorter than the tibia and patella.

*Vulva*.—As in fig. 42.

*Measurements*.—Length of carapace, 2.5 mm. Total length, 6 mm.

GEN. LEPTODRASSUS, Sim.

LEPTODRASSUS BERGENSIS, n. sp. (Fig. 43.)

*Specimens* :—

2 ♀♀ (B 3475 types). Matroosberg Mts., Ceres, 4000 ft. (R. W. Tucker, November 1917.)

1 ♀ (B. 3536). Matroosberg Mts., Ceres, 4000 ft. (R. W. Tucker, December 1917.)

*Colour*.—Carapace, legs, and sternum yellowish brown ; sternum dark-edged. Abdomen greyish in colour, paler ventrally.

*Eyes*.—As in text-fig. 322, p. 355, Simon's Hist. Nat. des Araign ; posterior medians subangular, and larger than the laterals.

*Chelicera*.—Superior border indistinct and muticous ; inferior border dark, thickened along its entire length, and bearing 2 strong teeth, of which the 2nd is larger and slightly curved.

*Labium*.—Slightly longer than broad, tapering anteriorly, and reaching from  $\frac{1}{2}$ — $\frac{2}{3}$  the length of the maxillae, which are inclined inwards.

*Sternum*.—Shield-shaped, broad anteriorly, and produced in the median portion to the base of the labium.

*Legs*.—Tarsi scopulate to the base and with bristly hairs intermixed ; also bearing fascicles and strongly dentate claws ; metatarsus I bearing a few scopular hairs anteriorly and 2 basal spines on the under surface ; 2nd leg similar, but with fewer scopular hairs and with more numerous spines. Legs in general hairy and moderately spined.

*Spinners*.—Inferior spinners close together, but short, stout, and sub-cylindrical ; median spinners much slenderer, superior spinners slightly longer and slenderer than the inferiors.

*Vulva*.—As in fig. 43. In the other specimens the vulva is dark brown down the entire central length, and the lateral markings are hidden by the darker colour of the surrounding tissue.

*Measurements*.—Length of carapace, 1.9 mm. Total length, 5.8 mm.

One other species of this genus is recorded from Northern Africa, *Leptodrassus scutatus* (Sim.), Bull. Soc. Zool. Fr., vol. iv, p. 262, from oases of Biskra.

## ECHEMEAE.

*Key to Genera.*

- (8). 1. Cephalothorax without median stria.
- (3). 2. Labium 3 times as long as wide ; maxillae longer. Anterior row of eyes straight or nearly straight . . . . . *Sergiolus*.
- (2). 3. Labium scarcely twice as long as wide ; maxillae broader basally, curving inwards, and not greatly exceeding the length of the labium. Anterior row of eyes procurved.
- (5). 4. Anterior median eyes much smaller than the laterals. Clypeus narrower than the lateral eyes . . . . . *Setaphis (ad part)*.
- (4). 5. Anterior median eyes larger than the laterals.
- (7). 6. Cephalothorax ovate. Clypeus wider than an anterior eye. *Aphantaulax*.
- (6). 7. Cephalothorax long and flat. Clypeus narrow, almost non-existent.  
*Ladissa*.
- (1). 8. Cephalothorax with median stria.
- (29). 9. Posterior row of eyes procurved.
- (16). 10. Posterior medians round, equidistant from the laterals and from each other, or nearer to the laterals ; smaller than the laterals.
- (14). 11. Abdomen with plumose hairs.
- (13). 12. Posterior row of eyes strongly procurved . . . . . *Herpyllus*.
- (12). 13. Posterior row moderately procurved ; median eyes larger than the laterals . . . . . *Trichothyse*.
- (11). 14. Abdomen without plumose hairs.
15. Clypeus twice the diameter of an anterior lateral eye ; labium slightly longer than broad ; maxillae inclined inwards and broader anteriorly.  
*Epikurtomma*.
- (10). 16. Posterior median eyes oval or subangular, subcontiguous but separate from the laterals ; larger than the laterals, or at least not smaller than them.
- (19). 17. Posterior row of eyes moderately procurved.
18. Anterior median eyes smaller than the laterals ; posterior medians larger than the laterals, angular, and contiguous posteriorly. Metatarsi III and IV each with apical comb of bristles ; metatarsi usually not scopulate . . . . . *Camillina*.
- (17). 19. Posterior row of eyes strongly procurved.
- (21). 20. Posterior median eyes subcontiguous, but remote from the laterals.  
*Megamyrmecion*.
- (20). 21. Posterior median eyes subcontiguous also to the laterals.
- (28). 22. Posterior median and lateral eyes subequal.
- (25). 23. Inferior border of chelicera strongly dentate.
24. Inferior border of chelicera with 4 thick contiguous teeth, superior border with 2-3 teeth . . . . . *Maniana*.
- (23). 25. Inferior border of chelicera weakly dentate.
- (27). 26. Superior border of chelicera minutely bidentate . . . . . *Echemus*.
- (26). 27. Superior border of chelicera with 5 teeth . . . . . *Echemella*.
- (22). 28. Posterior median eyes much larger than the laterals . . . . . *Mulicymnis*.
- (9). 29. Posterior row of eyes almost straight.

- (37). 30. Posterior row of eyes not, or scarcely, wider than the anterior row.
- (32). 31. Posterior eyes equidistant from each other, or medians slightly further from the laterals than from each other. Metatarsi III and IV bearing each an apical comb of bristles . . . . . *Zelotes*.
- (31). 32. Posterior median eyes well separated from each other, but scarcely, or not, separated from the laterals.
- (36). 33. Anterior eyes equal. Clypeus at least twice the diameter of an anterior lateral eye.
- (35). 34. Maxillae broad at base and inclined inwards at apices . . . . . *Cesonia*.
- (34). 35. Maxillae not curved inwards, straight, and enlarged anteriorly. . . . . *Bonna*.
- (33). 36. Anterior median eyes much smaller than the laterals. Clypeus narrower than anterior eyes . . . . . *Setaphis (ad part)*.
- (30). 37. Posterior row much wider than the anterior row.
- (43). 38. Superior margin of chelicera short, transverse, and slightly emarginate; muticous or minutely dentate at a somewhat prominent angle.
- (40). 39. Cephalothorax wide in front, convex. Posterior row of eyes lightly procurved; median eyes elongate, triquetrous, and close together. Anterior or median eyes slightly larger than the rest . . . . . *Phaeocedus*.
- (39). 40. Cephalothorax oval, strongly narrowed in front. Posterior row of eyes lightly procurved, occasionally straight; median eyes round, widely distant from each other. Median anterior eyes more or less larger than the remainder.
- (42). 41. Maxillae short, curved inwards, broad at base, not carinate on inner margin . . . . . *Poecilochroa*.
- (41). 42. Maxillae resembling Lamponeae, long, and carinate on inner margin. . . . . *Latonigena*.
- (38). 43. Superior margin of chelicera very oblique, long, and armed with 2-3 teeth.
- (49). 44. Labium much longer than broad, and reaching to inner apices of maxillae.
- (48). 45. Sternum produced anteriorly. Posterior row of eyes slightly procurved. Distance between lateral eyes slightly less than between anterior and posterior median eyes.
- (47). 46. Lateral margin of maxillae narrowly keeled, surface depressed between keels . . . . . *Diaphractus*.
- (46). 47. Maxillae not keeled . . . . . *Scotophaeus*.
- (45). 48. Sternum not produced anteriorly. Posterior row of eyes moderately to strongly procurved; medians large, oblique, and close together. Distance between lateral eyes much less than between anterior and posterior medians . . . . . *Xerophaeus*.
- (43). 49. Labium not, or scarcely, longer than wide, and not exceeding  $\frac{1}{2}$  the length of the maxillae . . . . . *Micythus*.

Subsequent to the compilation of this key, reference to Bank's genus *Drassinella* was found in Proc. Californian Acad. of Sciences, 3 ser., vol. iii, 1904, p. 335.

From the account given, the genus is allied to, and should fit in near, *Poecilochroa*.

Of the other genera, *Sergiolus*, *Herpyllus*, *Mulicymnis*, *Cesonia*,

*Bonna*, *Micythus*, *Phaeocedus*, do not occur in Africa at all, and *Ladissa*, *Echemella*, and *Maniana* are only recorded north of the region here dealt with.

GEN. SETAPHIS, Simon.

*Key to Species.*

*Females.*

- (8). 1. Superior border of chelicera with 3 or less teeth, inferior border muticous.  
 (7). 2. Posterior row of eyes straight. Length of carapace equal to tibia, metatarsus, and  $\frac{1}{2}$  or more tarsus I, and to metatarsus and over  $\frac{1}{2}$  tarsus IV.  
 (4). 3. Posterior median eyes  $1\frac{1}{2}$  or more long diameters apart . . . *bilinearis*.  
 (3). 4. Posterior median eyes less than  $1\frac{1}{2}$  long diameters apart.  
 (6). 5. Clypeus equal to or less than diameter of anterior lateral eye. Vulva with anterior dark crescent . . . . . *bechuanica*.  
 (5). 6. Clypeus greater than diameter of anterior lateral eye. Vulva without anterior dark crescent . . . . . *calviniensis*.  
 (2). 7. Posterior row of eyes procurved . . . . . *anchoralis*.  
 (1). 8. Superior border of chelicera with more than 3 teeth; inferior border with 1 denticle (or more).  
 (11). 9. Posterior row straight.  
 10. Posterior medians less than  $1\frac{1}{2}$  long diameters apart; metatarsus II bearing spines on under surface . . . . . *bulawayensis*.  
 (9). 11. Posterior row procurved.  
 12. Posterior medians  $1\frac{1}{2}$  or more diameters apart. Metatarsus II not spined . . . . . *arcus*.

*Males.*

- (4). 1. Superior border of chelicera with 3 or less teeth; inferior border with 0. Length of carapace equal to or less than tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{2}$  or more tarsus IV.  
 (3). 2. Posterior median eyes less than  $1\frac{1}{2}$  long diameters apart . . . *bechuanica*.  
 (2). 3. Posterior median eyes over  $1\frac{1}{2}$  diameters apart . . . . . *lightfooti*.  
 (1). 4. Superior border of chelicera with more than 3 teeth; inferior border with 1 (or more) denticles. Length of carapace greater than tibia and metatarsus I, and less than  $\frac{1}{2}$  tarsus I . . . . . *calviniensis*.

SETAPHIS ANCHORALIS, Purc.

1908. *S. anchoralis*. Purcell in Schultze, Zool. Forschungsreise in Sudafrika, vol. i, p. 240, pl. xi, fig. 27.

One ♀ from Luderitz Bay (Angra Pequena), Gt. Namaqualand. January 1904.

*Colour*.—Cephalothorax brown, sparsely clothed with black hairs, densely covered with fine infuscated dots, the head with a fine, double,



median black stripe; the femora of all the legs, the patellae, and trochanters of the 2 anterior pairs and the tibia of the 1st pair more or less deeply infuscated, the remaining segments pale yellow; chelicera reddish brown with infuscate lines; sternum ochraceous in the middle, infuscated at the sides; abdomen coloured as in *S. bechuanica*, Purc., except that the 2 posterior white spots are absent.

*Cephalothorax*.—Broad in front, the cephalic region considerably elevated. Ocular area remote from anterior margin, the clypeus being more than twice the width of an anterior lateral eye; anterior row of eyes procurved, the lateral eyes rather small, but larger than the medians and quite close to them; posterior row of eyes distinctly a little wider than the anterior row, slightly procurved, the lateral eyes slightly smaller than the anterior laterals, the medians very small, subrotund, much nearer to the laterals than to each other.

*Chelicera*.—Robust, with 1 large and 2 smaller teeth on the superior margin, but no inferior tooth; the claw very stout and strong.

*Legs*.—1st pair not spined, the tarsus and metatarsus scopulate below, 2nd pair with an outer row of 2 long spines below; metatarsus III with a dense distal tuft of black hairs, IV with a small tuft at apex below.

*Abdomen*.—Rather broad posteriorly, with deep median groove in front, the anterior end appearing emarginate.

*Vulva*.—As in pl. xi, fig. 27, *loc. cit.*; very like that of *S. bechuanica*, Purc.; the fovea longitudinal and close to the 2 spherical brown bodies.

Length of cephalothorax and abdomen 6 mm.

This species is very abnormal, and may perhaps form a different genus.

SETAPHIS ARCUS, n. sp. (Fig. 44.)

*Specimens*:—

1 ♀ (150,665). Warmbaths, Transvaal. (Dr. W. F. Purcell, September 1905.)

2 ♀♀ (B 3683). Junction, Marico and Crocodile Rivers, N.W. Transvaal. (R. W. Tucker, February 1918.)

1 ♀ (Grahamstown Museum). Queenstown. (G. Rattray.)

*Colour*.—As in *calviniensis*, etc.; carapace and legs scarcely infuscated.

*Carapace*.—Length equal to tibia, metatarsus, and  $\frac{1}{3}$ – $\frac{1}{2}$  tarsus I, and to metatarsus and at least  $\frac{1}{2}$  tarsus IV.

*Clypeus*.—Scarcely half as wide as an anterior lateral eye.

*Eyes*.—Posterior row moderately procurved; medians smaller than the laterals, and  $1\frac{1}{2}$  diameters from each other and  $\frac{1}{2}$  diameter from laterals.

*Chelicera*.—Superior border with 4 teeth; inferior border with 1 blunt denticle.

*Legs*.—As in *calviniensis*. Tibia I without scopula or spines. Metatarsus III with strong apical comb; metatarsus IV with a small median apical comb.

*Vulva*.—As in fig. 44.

*Measurements*.—Length of carapace, 2.2 mm. Total length, 5.8 mm.

Specimens recorded under B 3683, N.W. Transvaal, are very much darker than the type; the carapaces are strongly infuscated, and the legs are marked with broad longitudinal dark bands as far as the metatarsi. Abdominal white marks also appear smaller. Vulvae also are dark brown in colour, so that the bow-like markings are somewhat obscured.

#### SETAPHIS BECHUANICA, Purc. (Fig. 45.)

1908. *S. bechuanica*. Purcell in Schultze, Zool. Forschungsreise in Sudafrika, vol. i, p. 240, pl. xi, fig. 26, ♀.

*Specimens* :—

1 ♀ (150, 604, *ex typis*). Bonce, Kalahari. (L. Schultze, January 1905.)

1 ♀ and 1 ♂ (B 5003). Otjituo, S.W. Prot. (R. W. Tucker, January 1920.)

♀ *Carapace*.—Length equal to or exceeding metatarsus and tarsus IV, and equal or subequal to tibia and metatarsus IV; also equal to tibia, metatarsus, and  $\frac{1}{2}$ — $\frac{3}{4}$  tarsus I.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Eyes*.—Posterior row straight; medians only slightly smaller than the laterals, just over a diameter apart, and  $\frac{1}{2}$  a diameter from the laterals. Median ocular area broader than long, wider posteriorly.

*Chelicera*.—Superior border with 2 very large teeth, inferior muticous.

*Legs*.—Metatarsus I scopulate and spineless; tibia I with no scopula and spineless. Metatarsus III with a strong apical comb, IV with none.

*Measurements*.—Length of carapace, 2 mm.

♂ *Colour*.—Carapace orange brown, slightly infuscated anteriorly and laterally; femora and often patellae of legs olivaceous black,

distal portion medium brown. Abdomen testaceous dorsally and ventrally; sparsely clothed with dark hairs and bearing a small brown scutum dorsally. Spinners olivaceous black. Sternum, mouth-parts, etc., orange brown.

*Carapace*.—Length subequal to tibia and metatarsus I and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Anterior row procurved; laterals a little larger than the medians and touching them. Posterior row straight, medians oblique, a long diameter apart; laterals not greatly larger, and about a short diameter from the medians, and nearly touching and equal in size to the anterior laterals. Median ocular area slightly longer than broad, much broader posteriorly.

*Chelicera*.—Superior border with 3 teeth; inferior muticous.

*Clypeus*.—Less than diameter of anterior lateral eye.

*Legs*.—Tarsus I scopulate; metatarsus with 2 pairs of spines on the under surface. Tibia also with 2 pairs of fine spines. Tarsus II with fewer scopular hairs and more bristles on the under surface; also with 2 pairs of strong spines on the under surface. Tarsi III and IV not scopulate, but clothed with stout bristles; metatarsi heavily spined; metatarsus III with no apical comb; IV with a weak apical comb on inner side. No fasciculi on tarsi.

*Pedipalps*.—As in fig. 45.

*Measurements*.—Carapace, 1.8 mm. Total length, 4.5 mm.

SETAPHIS BILINEARIS, n. sp. (Fig. 46.)

*Specimens*:—

- 1 ♀ (11,852 type). Hanover. (S. C. Schreiner, March 1902.)
- 1 ♀ (11,848). Hanover. (S. C. Schreiner, February 1902.)
- 1 ♀ (9981). Hanover. (S. C. Schreiner, January 1902.)
- 1 ♀ (B 4229). Pemba, S. Rhodesia. (Fr. Casset, November 1918.)
- 1 ♀ (Grahamstown Museum). Steytlerville. (Miss B. Geard, December 1916.)

*Colour*.—As in *calviniensis*; femora III and IV are, however, only infuscated apically, the basal portions being pale.

*Carapace*.—Length equal to tibia, metatarsus, and  $\frac{1}{2}$  tarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus IV.

*Eyes*.—As in description of *calviniensis*, the anterior row being slightly wider and less procurved, and the posterior row straight to procurved; posterior medians smaller than laterals, 2 diameters apart,

less than  $\frac{1}{2}$  a diameter from the laterals. Median ocular area longer than broad, broader posteriorly.

*Clypeus*.—About equal to the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border muticous.

*Legs*.—Tarsi I and II moderately scopulate; III and IV bearing stout bristly hairs on the under surface. Metatarsi I and II spineless and sparsely scopulate. Tibia I without spines or scopula. Metatarsi III and IV well spined; III bearing distinct apical comb, IV with comb faint or absent.

*Vulva*.—As in fig. 46; in the other specimens from Hanover the two median lines are not so clearly defined as in the type.

*Measurements*.—Length of carapace, 2 mm. Total length, 5.5 mm.

SETAPHIS BULAWAYENSIS, n. sp. (Fig. 48.)

*Specimens* :—

1 ♀ (B 3306 type). Bulawayo, S. Rhodesia. (R. W. Tucker, May 1917.)

1 ♀ (B 3885). Insiza, S. Rhodesia. (G. French.)

*Colour*.—Carapace dark brown, with almost black border and mottled towards the centre. Coxae of legs pale; anterior legs as far as patellae dark brown and infuscated, metatarsi and tarsi light brown; femora of remaining legs slightly infuscated, otherwise legs pale brown. Abdomen black dorsally, with an anterior lateral spot, faintly connected with a large median lateral spot, on each side. Diffuse light spot on each side of the under surface, meeting midway between the vulva and spinners. Sternum, mouth-parts, etc., medium brown.

*Carapace*.—Length equal to tibia, metatarsus, and  $\frac{1}{3}$  tarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—As in description of *calviniensis*. Posterior row straight; median eyes inclined inwards, smaller than the laterals, less than a long diameter from each other, and a short diameter from the laterals.

*Clypeus*.—Nearly equal to the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, the 2 central ones larger; inferior border with 1 small denticle near base of fang.

*Legs*.—Tarsi I and II lightly scopulate; tarsi III and IV clothed with bristles on the under surface. Metatarsus I with a few scopular hairs anteriorly; tibia I without spines; metatarsus II with no scopular hairs and 1 basal spine on the inner side of the under surface; metatarsus III well spined, and with a slight comb of bristles

apically on the under surface; metatarsus IV more heavily spined; also with a sparse, irregular comb of bristles on inner side.

*Vulva*.—As in fig. 48.

*Measurements*.—Length of carapace, 2 mm. Total length, 5 mm.

SETAPHIS CALVINIENSIS, n. sp. (Fig. 47, A and B.)

*Specimens*.—2 ♂♂ and 1 ♀ (13,200 types). Calvinia. (C. French, January 1903.)

♀ *Colour*.—Carapace reddish brown, infuscated marginally; legs brown, slightly paler distally, femora and patellae infuscated. Abdomen brownish black, with 2 small anterior and 2 larger median light spots on the dorsal surface; the median spots extend laterally, each nearly meeting a large ventro-lateral white spot. Sternum, mouth-parts, etc., reddish brown; coxae lighter brown.

*Carapace*.—Length equal to tibia, metatarsus, and  $\frac{1}{2}$  tarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Anterior row compact and strongly procurved; medians slightly smaller than the laterals; posterior row scarcely wider, straight to slightly recurved; medians much smaller than the laterals, slightly inclined inwards, more than a long diameter from each other, and  $\frac{1}{2}$  a long diameter from the laterals. Median ocular area longer than wide and wider posteriorly.

*Clypeus*.—Very slightly wider than an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border muticous.

*Labium*.—Long and parallel-sided, rounded anteriorly, and just surpassing the inner apices of the maxillae; central portion raised and separated from the margins by a slight groove.

*Legs*.—Tarsi and metatarsi I and II scopulate but bearing no spines, tibia I with no spines or scopula; tarsi III and IV without scopulae, but clothed on the under surface with stout bristles; rest of legs III and IV heavily spined; metatarsus III with a strong apical comb; metatarsus IV with a few setae arranged comb-fashion.

*Vulva*.—As in fig. 47A.

♂ *Colour*.—As in ♀.

*Carapace*.—Length slightly exceeding tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Chelicera*.—Superior border with 2-3 teeth, inferior border with 0-1.

*Labium*.—As in ♀.

*Eyes*.—Posterior row very slightly procurved, medians subrotund,

very slightly inclined inwards,  $1\frac{1}{2}$  diameters from each other, and barely 1 diameter from laterals.

*Legs.*—As in ♀, save that the scopulation of the metatarsi is not so complete; tibia I spineless. The 3rd metatarsi bear a comb of bristles similar to, but less distinct than, those of *Prosthesima*; metatarsus IV bears a few comb-like bristles.

*Pedipalps.*—Tibia small, bearing blunt outer apical projection as in fig. 47B.

Palpal organ as in fig. 47B.

*Measurements.*—Length of carapace, ♂ 2.4 mm., ♀ 3 mm. Total length, ♂ 5.8 mm., ♀ 7.4 mm.

SETAPHIS LIGHTFOOTI, n. sp. (Fig. 49.)

*Specimens.*—1 ♂ (B 4642 type). Otavi, S.W. Prot. (R. M. Lightfoot, December 1918.)

*Colour.*—Carapace medium brown with black margin and infuscation extending from border towards the centre. Coxae of legs orange coloured, femora nearly black, remainder of legs lighter and becoming orange brown distally; patellae of anterior legs somewhat infuscated. Abdomen with a testaceous U-shaped band occupying almost all the dorsal surface save for central and lateral dark portions; ventral surface almost entirely occupied by a large testaceous mark. Sternum pale brown.

*Carapace.*—Length equal to tibia and metatarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes.*—Anterior medians smaller than the laterals and close to them. Posterior row straight, medians much smaller than the laterals, subrotund, only slightly inclined inwards,  $1\frac{1}{2}$  diameters apart, and 1 diameter from the laterals; posterior laterals smaller than the anterior laterals.

*Clypeus.*—Less than  $\frac{1}{2}$  the diameter of an anterior lateral eye.

*Chelicera.*—Superior border with 3 stout teeth; inferior border muticous.

*Legs.*—Tarsus I scopulate; metatarsus bearing a very few scopular hairs anteriorly, and 2 median and 2 basal spines; tibia with 2 anterior, 2 median, and 2 basal fine spines; 2nd leg similar, the spines being longer. Tarsus III bearing bristly hairs only on the under surface; metatarsus with a distinct apical comb on the under surface; also bearing spines and bristles; 4th leg similar, but metatarsal comb sparse, lateral, and indistinct; posterior tarsal claws longer and more strongly toothed than the anterior.

*Pedipalps*.—Tibia slightly shorter than the patella and armed on the outer apex with a stout projection; tarsus spoon-shaped, palpal organ as in fig. 49.

*Measurements*.—Length of carapace, 1.8 mm. Total length, 4.9 mm.

SETAPHIS SEXMACULATA, Sim.

1893. *S. sexmaculata*. Simon in Ann. Soc. Ent. Fr., vol. lxii, p. 310, ♀ and ♂.

“ ♂. Length, 5–6 mm.

“ *Cephalothorax* dark reddish, black margined, finely coriaceous, and sparsely clothed with long appressed silky-white hairs, thoracic stria fairly long. Anterior row of eyes strongly procurved, medians at least  $\frac{1}{3}$  smaller than the laterals. Posterior median eyes elongate and oblique, further from each other than from the laterals.

“ *Chelicera*.—Mouth-parts and sternum dark reddish; smooth, sparsely and finely punctate and pilose.

“ *Abdomen*.—Narrow, and long oblong, smooth, black, and glittering; ornamented with 2 anterior round spots, and nearer middle with 2 larger transverse spots; underneath surface with larger oval, longitudinal spots, extending up outer side; all white, neat, and clean white haired.

“ *Legs*.—Pale; femora (anterior ones almost to base, posterior ones only at apices), patellae, and tibiae well marked with black, and slightly banded; anterior tibiae almost black, remainder somewhat long and strongly haired. 1st pair of legs entirely muticous; 2nd pair sometimes bearing 2 basal spines on metatarsus. Posterior legs strongly spined. Anterior tarsi and metatarsi sparsely scopulate, posterior tarsi neither scopulate nor fasciculate, but with strong hairs on the under surface.

“ *Pedipalps*.—Dark reddish, patellae lighter; femora strong, patellae slightly longer than broad; tibia longer than patellae, and bearing an apical projection which is longer than the joint directed apically forward, pointed, and curved upwards. Tarsus and bulb large and convex.

“ ♀. Similar to ♂.

“ *Vulva*.—Vulval area bearing an anterior transverse semicircular depression, and posteriorly with smooth red or black plagula, convex on each side, and grooved in centre.

“ *Locality*.—South Africa, Kimberley and Vryburg. (E. Simon.)”

## GEN. APHANTAULAX, Simon.

*Key to ♂♂ Species.*

- (4). 1. Tarsi and metatarsi of anterior pair of legs well scopulate.  
 (3). 2. Tibia of pedipalp with small outer apical projection . . . . . *inornata*.  
 (2). 3. Tibia with an apical and subapical spur dorsally . . . . . *stationis*.  
 (1). 4. Tarsi and metatarsi of anterior pair of legs sparsely scopulate . . . . . *australis*.

The two ♀♀ described are easily separable by their vulvae.

## APHANTAULAX AUSTRALIS, Sim.

1893. *A. australis*. Simon in Ann. Soc. Ent. Fr., vol. lxii, p. 309.

“ ♂. Length, 5 mm.

“ *Cephalothorax*.—Blackish, smooth, and shiny; furnished above with broad median band of long whitish hairs.

“ *Eyes*.—Posterior eyes small, equal, flat, and in a straight line; medians more remote from each other than from the laterals, and often 3 times their width apart. Anterior row strongly procurved, medians twice as large as the laterals, separate from each other, but touching the laterals.

“ *Clypeus*.—At least 3 times the diameter of an anterior lateral eye.

“ *Abdomen*.—Oblong, rounded anteriorly, posteriorly obtusely truncate; dorsal surface hard, black, and shiny, cinereo-pubescent; furnished anteriorly with large spots, and near middle on each side with transversely elongate spots, and posteriorly above spinners with a transversely elongate spot, all ornamented with white hairs; under surface dark testaceous.

“ *Sternum*.—Shiny black.

“ *Legs*.—Legs black, with fairly long hairs; metatarsi and tarsi slightly lighter and olivaceous. Tibiae of 1st pair of legs, with 1 spine, near centre of interior margin, and with 1 basal interior spine on under surface. Four anterior metatarsi with 2 spines near base. Scopulae long and sparse.

“ *Pedipalps*.—Fairly robust and short, olivaceous. Patellae slightly longer than broad, tibia slightly shorter than patellae, not narrower, almost quadrilateral, furnished on outer apex with a process which is scarcely shorter than the joint, directed straight forward, somewhat thicker at the base, and sharply pointed at the apex. Tarsus narrow oval, subterete; bulb long and simple.

“ *Locality*.—South Africa, Port Elizabeth.”



APHANTAULAX INORNATA, n. sp. (Fig. 50.)

*Specimens* :—

- 1 ♂ (B 3258 type). Salisbury, S. Rhodesia. (R. W. Tucker, April 1917.)
- 1 ♂ (B 4298). Kaapmuiden, E. Transvaal. (R. W. Tucker, November 1918.)
- 1 ♂ (B 3827). Mochudi, Bech. Prot. (R. W. Tucker, January 1918.)
- 1 ♂ (B 2619). Hout Bay Mts., C. Penins. (R. W. Tucker, October 1916.)
- 1 ♂ (9982). Hanover. (S. C. Schreiner, January 1902.)

*Colour*.—Carapace dark brown, almost completely mottled black. Abdomen black, with slight anterior lateral patches and more conspicuous median light patches covered with white hair, or obscured by brownish-black dorsal scutum. Distal portion of legs, especially tarsi, lighter.

*Eyes*.—Anterior row procurved, medians over a diameter apart, and nearly touching the laterals. Posterior row wider and straight; median ocular area longer than wide, scarcely wider posteriorly.

*Legs*.—Metatarsus I scopulate laterally almost to base, and with 2 sub-basal spines; second metatarsus similar. Tarsus III with a few scopular hairs and numerous bristles; tarsus IV without scopular hairs. All tarsi fasciculate.

*Spinners*.—Tubules retracted and indeterminable.

*Pedipalps*.—Palpal organ as in fig. 50. Tibia with small outer apical projection.

*Measurements*.—Carapace, 1.9 mm. Total length, 4 mm.

APHANTAULAX SIGNICOLLIS, n. sp. (Fig. 51.)

*Specimens* :—

- 4 ♀♀ (11,934 types). Vlag Kop, Hanover. (S. C. Schreiner, February 1902.)
- 1 ♀ (980). Durban, Natal. (J. P. Cregoe, October 1896.)
- 1 ♀ (7873). Umtata, C. Province. (Miss Pegler, 1900.)
- 1 ♀ (5278). Dunbrody. (Fr. J. O'Neil, 1899.)
- 1 ♀ (B 4384). Acornhoek, E. Transv., Low Veld. (R. W. Tucker, November 1918.)

*Colour*.—Carapace very dark brown, almost black; legs similar in colour proximally, dull red brown distally. Abdomen brownish black, with 2 small oblique testaceous spots anteriorly, and 2 long

narrow oblique spots medially, the latter extending almost to the ventral surface; dull testaceous mark centrally on the ventral surface.

*Eyes.*—Anterior row compact and procurved; medians about a diameter apart, larger than the laterals. Posterior row straight, slightly wider than the anterior row, and well separated from it; medians smaller than the laterals, flat, and nearer to them than to each other. Median ocular area longer than wide and wider posteriorly. Clypeus considerably wider than the diameter of an anterior eye.

*Chelicera.*—Superior border bearing one moderately stout apical tooth, and apparently a smaller one at its base. Inferior border apparently muticous.

*Legs.*—Tarsi and metatarsi I and II strongly scopulate; metatarsus I with 1 and metatarsus II with 2 basal spines on the under surface. Tarsi III and IV scopulate; metatarsi scopulate anteriorly and laterally and bearing numerous spines. Tarsi bearing moderate fascicles and strongly dentate claws.

*Vulva.*—As in fig. 51.

*Measurements.*—Length of carapace, 3.2 mm. Total length, 8.5 mm.

1 ♀ (7859), E. London (J. Wood, 1899), appears to belong to this species; it is apparently freshly moulted, but the general plan of vulva is as in fig. 51. This and the specimen from Umtata have also a light band dorsally on abdomen anterior to spinners.

1 ♀ (B 3213). Salisbury, S. Rhodesia. (R. W. Tucker, April 1917.)

1 ♀ (B 4274). Kaapmuiden, E. Transv., Low Veld. (R. W. Tucker, November 1918.)

#### APHANTAULAX STATIONIS, n. sp. (Fig. 52, A and B.)

*Specimens* :—

5 ♀♀ (12,222 types). Hout Bay, C. Penins. (Dr. W. F. Purcell, November 1901.)

1 ♀ (B 3483). Matroosberg Mts., Ceres, 4000 ft. (R. W. Tucker, November 1917.)

1 ♀ (5959). Cape Town. (R. M. Lightfoot, December 1899.)

1 ♀ (12,920). Willowmore. (J. Brauns, 1903.)

1 ♂ and 1 ♀ ju. (B 3662). Mochudi, Bechuanaland Prot. (R. W. Tucker, February 1918.)

*Colour.*—Carapace medium brown with darker mottling; femora similar in colour, but legs, especially anterior pairs, lighter from patellae onwards. Abdomen marked as in *signicollis*; testaceous lines in unrubbed specimens are clothed with white hairs.

*Eyes*.—Anterior medians less than a diameter apart, and noticeably larger than the laterals. Posterior row lightly procurved, laterals about  $1\frac{1}{2}$  diameters from the anterior laterals.

*Chelicera*.—Superior border with 1 medium-sized and 1 small tooth apically. Inferior border apparently muticous.

*Legs*.—Comparatively long and slender; tarsi densely scopulate and slightly curved. Metatarsi I and II scopulate to the base and bearing 1–2 fine spines basally; metatarsi III and IV bearing only a few scopular hairs, and moderately spined. Fascicles and tarsal claws short.

*Vulva*.—As in fig. 52A.

*Measurements*.—Length of carapace, 2 mm. Total length, 4.5 mm.

♂. Described from (B 1527).

*Colour*.—Similar to ♀; white spots on abdomen much less distinct, anterior ones being practically absent; abdomen with transverse depression medially.

*Eyes*.—Anterior row procurved, medians a little larger than the laterals; latter about  $\frac{1}{2}$  a diameter from the posterior laterals. Posterior row slightly procurved; medians oval and somewhat oblique, about 3 diameters apart and  $1-1\frac{1}{2}$  diameters from the laterals, which are slightly larger. Clypeus about  $1\frac{1}{2}$  times the diameter of an anterior lateral.

*Chelicera*.—Superior border with 1 tooth.

*Legs*.—Longer and slenderer than in the ♀. Tarsi scopulate, except the 4th tarsi, which are clothed with fine bristles; metatarsi I and II sparsely scopulate and spineless; metatarsi III and IV without scopular hairs, but well spined; metatarsi much longer than the tarsi. Tarsal fascicles small, tarsal claws finely dentate.

*Pedipalps*.—Tibia slightly longer than patella, and bearing an apical and a subapical spur dorsally; tarsus long and tapering anteriorly. Palpal organ as in fig. 52B.

*Measurements*.—Length of carapace, 2 mm. Total length, 4.1 mm.

*Other specimens*:—

1 ♀ (12,051). Signal Hill, Cape Town. (Dr. W. F. Purcell, 1900.)

1 ♀ (5925). Plumstead, Cape Flats. (J. Faure, October–December 1899.)

1 ♀ (12,605). Ashton. (Dr. W. F. Purcell, November 1902.)

1 ♂ (B 1527). Worcester. (Dr. W. F. Purcell, November 1905.)

Also ♂♂ from Cape Peninsula and Matroosberg Mts.

1 ♂ (B 4745). Montagu. (R. W. Tucker, November 1919.)

## TRICHOHYSE, n. gen.

Cephalothorax oval, convex, narrowing anteriorly; thoracic stria small. Anterior row of eyes close together; medians large and round, narrowly separated, and touching the laterals, which are much smaller and oval. Clypeus narrow, equal to short diameter of lateral eye. Posterior row of eyes procurved, scarcely wider than anterior row; medians subrotund, about a diameter apart, and slightly more from the laterals, which are a little larger and subequal to the anterior laterals, from which they are less than a diameter distant.

Chelicera moderately long and tapering gradually anteriorly. Superior margin armed with a small tooth below inner apex and a large tooth at apex, the outer border of which is continued as a keel-like projection of the superior margin. Inferior margin with one minute denticle towards the centre. Sternum oval, longer than broad, and extending between the coxae of the first pair of legs. Labium extending  $\frac{2}{3}$  length of the maxillae, longer than broad, and somewhat laminated laterally towards the apex. Maxillae laminated on inner border, external apices dilated. Legs stout and well spined; all tarsi scopulate and fasciculate. Abdomen clothed in part with plumose hairs. Genus allied to *Poecilochroa* and *Herpyllus*. Type, *T. hortensis*.

## TRICHOHYSE HORTENSIS, n. sp. (Fig. 53.)

*Specimens*.—2 ♀♀ (B 5072 types). Waterberg Mts., S.W. Africa Prot. (R. W. Tucker, February 1920.)

*Colour*.—Carapace medium brown, legs a little lighter; abdomen dull testaceous, uniformly infuscated dorsally and laterally. Sternum medium brown, coxae pale.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{2}$  tarsus I, and to metatarsus and tarsus I.

*Eyes and chelicera* as in generic description.

*Legs*.—Metatarsus I densely scopulate, tibia with lateral scopula extending  $\frac{2}{3}$  of under surface; metatarsus with 1 basal and tibia with 1 apical spine; 2nd leg similar, but without scopula on tibia. Metatarsus III scopulate nearly to base, and heavily spined. Metatarsus IV without scopula, but very heavily spined.

*Vulva*.—As in fig. 53.

*Measurements*.—Length of carapace, 3.8 mm. Total length, 8.8 mm.

## EPIKURTOMMA, n. gen.

Carapace long oval, narrower anteriorly; surface moderately convex, stria small and inconspicuous. Anterior row of eyes fairly strongly procurved; medians about a diameter apart, slightly smaller than the laterals, and close to them. Posterior row wider, lightly procurved, and moderately removed from the anterior row; medians about 2 diameters apart, slightly smaller than the laterals and less than a diameter from them. Posterior laterals subequal to the anterior laterals and  $1\frac{1}{2}$  diameters from them. Clypeus over twice the diameter of an anterior lateral eye. Labium slightly longer than broad, tapering anteriorly, and surpassing the half-length of the maxillae; latter slightly inclined inwards and somewhat broader anteriorly. Chelicera bearing 2 teeth on superior border and 1 tooth on inferior border. Legs long and moderately slender; tarsi and anterior metatarsi scopulate. Inferior spinners short and cylindrical, superior and median spinners slenderer. This genus is allied to *Setaphis* and *Cesonia*.

## EPIKURTOMMA BEAUFORTIA, n. sp. (Fig. 54.)

*Specimens*.—1 ♀ (B 1638 type). Beaufort West. (Dr. W. F. Purcell, October 1905.)

*Colour*.—Carapace golden brown, with slightly darker radiate markings; legs a little darker. Abdomen dull brown, with a narrow oblique white stripe medially on each side, and a thin central stripe running thence to the spinners; the lateral stripes extend to the ventral surface, where they broaden out and merge with the light under surface; slight trace also of anterior lateral marks on the dorsal surface.

*Eyes*.—As in generic description.

*Chelicera, Labium, etc.*—As in generic description.

*Legs*.—Tarsus and metatarsus I scopulate to the base and spineless; tibia I also slightly scopulate anteriorly; 2nd leg similar. Tarsus III scopulate; metatarsus bearing bristly hairs, together with a few scopular hairs, and armed with 2 apical, 2 median, and 2 basal spines. Tibia similarly armed; 4th leg similar, metatarsus much longer and bearing more numerous spines. Tarsal claws very small, the posterior ones being apparently muticous; tarsi also bearing slight fascicles.

*Vulva*.—As in fig. 54.

*Measurements*.—Length of carapace, 2 mm. Total length, 5 mm.

## CAMILLINA, Berland.

Among the South African species described as *Melanophora* by Purcell, were included certain forms which differed in eye formation, colour, etc., to the usual forms.

One such specimen was later described by Tullgren as a new genus, *Camilla*, one of the main characters of the genus being a metatarsal comb on legs III and IV. This I found to be common to all the South African species of *Zelotes* (*Melanophora*), and also to those of *Setaphis*, although not so strongly marked in the latter genus. Shortly afterwards a paper by L. Berland in Bull. Mus. Hist. Nat., 1919, No. 6, notes the same fact with regard to *Zelotes*, and describes and illustrates the form, function, and occurrence of this comb most admirably. Also, he proposes the name *Camillina* for the reception of species such as that described by Tullgren, owing to the pre-occupation of the name *Camilla* given to them by that author.

Under *Camillina*, therefore, are described species which differ from *Zelotes* as follows :—

Colour light brown, abdomen often testaceous. Anterior row of eyes, seen from in front, procurved ; laterals larger than the medians. Posterior row, seen from above, distinctly procurved ; median eyes larger than the laterals, angular, and contiguous posteriorly. Sternum narrower and more oval, and from  $1\frac{1}{4}$ – $1\frac{1}{2}$  times as long as broad ; about  $1\frac{1}{2}$  times as broad at the point of greatest width as anteriorly ; sometimes slightly produced or narrowed anteriorly. Metatarsi III and IV with apical combs of long bristles usually on under surface.

## GEN. CAMILLINA, Berland.

Syn. *Camilla*. Tullgren in Sjostedt's Kilimandjaro-Meru Expedition, vol. iii, pt. 20 : 6, p. 105, pl. i, fig. 16B.

*Key to Species.*

- (10). 1. Carapace equal to length of metatarsus and tarsus IV.
- (8). 2. Carapace equal in length to tibia, metatarsus and  $\frac{1}{2}$  or more tarsus I.
- (6). 3. Posterior median eyes long oblong, strongly inclined outwards.
- (5). 4. Metatarsus I scopulate and spineless . . . . . *corrugata*.
- (4). 5. Metatarsus I not scopulate, and also spineless . . . . . *arida*.
- (3). 6. Posterior median eyes subrotund, and only slightly inclined outwards.
- 7. Metatarsus I scopulate and spineless . . . . . *aestus*.
- (2). 8. Length of carapace not exceeding tibia and metatarsus I.
- 9. Metatarsus I not scopulate, but with a line of fine bristle-like spines and 2 subbasal spines on under-surface . . . . . *postrema* (♂).

- (1). 10. Carapace equal in length to metatarsus and more than  $\frac{1}{4}$  but less than the whole of tarsus IV.
- (12). 11. Carapace less in length than tibia and metatarsus I . . . *acanthognathus*.
- (11). 12. Carapace equal in length to tibia and metatarsus I.
- (16). 13. Metatarsus I scopulate anteriorly.
- (15). 14. Metatarsus I spineless; superior margin of chelicera with 4 teeth, inferior margin with 2 . . . . . *amnicola*.
- (14). 15. Metatarsus I with 2 lines of setae and 2 spines on under surface. Superior margin of chelicera with 5-6 teeth, inferior with 2-3 . . . *biplagia*.
- (13). 16. Metatarsus I not scopulate.
- (18). 17. Length of sternum slightly greater than the greatest width . . . *cordifera*.
- (17). 18. Length of sternum about  $1\frac{1}{2}$  times greatest width.
- (24). 19. Posterior median eyes long oblong, and strongly inclined outwards.
- (21). 20. Vulva with large posterior circula plagula not connected with anterior structure . . . . . *luteus*.
- (20). 21. Vulva with posterior circula plagula connected with anterior structure.
- (23). 22. Carapace equal in length to metatarsus and  $\frac{2}{3}$  tarsus IV . . . *procurva*.
- (22). 23. Carapace equal in length to metatarsus and  $\frac{1}{4}$  tarsus IV . . . *browni*.
- (19). 24. Posterior median eyes subrotund and only slightly inclined outwards. . . . . *setosus*.

CAMILLINA ACANTHOGNATHUS, Purc.

1907. *Melanophora acanthognathus*. Purcell in A.M.N.H., ser. 7, vol. xx, pl. xv, fig. 66, p. 333.

*Specimens*.—1 ♀ (14,197 type). Bergvliet, Cape Flats. (Dr. W. F. Purcell, September 1901.)

*Colour*.—Femur I with no light patch on inner surface.

*Carapace*.—Equal in length to tibia and  $\frac{4}{5}$  metatarsus I and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Clypeus*.—Slightly greater than diameter of anterior lateral eye.

*Chelicera*.—Superior margin with 3 teeth, inferior muticous and apparently slightly keeled.

*Sternum*.—Length equal to  $1\frac{1}{4}$  times greatest width.

*Legs*.—Metatarsus I without scopular hairs, but with bristles down the centre and 2 basal spines. Strong apical combs on metatarsi III and IV.

*Spinners*.—Bearing 5 apical fusules.

*Vulva*.—As in fig. 66, *loc. cit.*

*Measurements*.—Length of carapace, 3 mm.

CAMILLINA AESTUS, n. sp. (Fig. 55.)

*Specimens*.—1 ♀ (B 2135 type). Nomptsas, S.W. Africa. (R. W. Tucker, December 23, 1915.) Percy Sladen Memorial Expedition.

*Colour*.—Cephalothorax medium brown, and infuscated; abdomen

pallid and infuscated or clothed with dark hairs above; legs and sternum light brown.

*Cephalothorax*.—Narrowing fairly gradually anteriorly; median stria deep and with dark lines radiating from it; surface bearing sparse stiff hairs; clypeus narrower than diameter of anterior lateral eyes.

*Carapace*.—Length equal to metatarsus and tarsus IV, and to tibia, metatarsus, and tarsus I.

*Eyes*.—Seen from in front, the anterior row is well procurved; the lateral eyes larger than the medians and nearly touching them. Posterior row seen from above is straight to slightly procurved and wider than the anterior row; medians larger than the anterior medians, subangular, iridescent white in colour, and set obliquely so that they are nearly touching posteriorly, but anteriorly are equidistant from each other and from the laterals; the latter are smaller or subequal to them in area. Median ocular area parallel-sided and longer than wide.

*Sternum*.—Oval, and  $1\frac{1}{2}$  times as long as broad.

*Chelicera*.—With 1 tooth on the inferior margin, and 2–3 small teeth further along the groove on the superior margin.

*Legs*.—Metatarsus I sparsely scopulate and with 1 median and 1 inner basal spine on the under surface, and 1 basal spine on the inner surface. Posterior legs strongly spined; tarsus III bearing dense stout bristles on the under surface; metatarsus III with still coarser bristles anteriorly, and a strong comb apically; IVth leg with less bristles, and a slight comb on the inner apex of the metatarsus.

*Vulva*.—As in fig. 55; similar to *P. corrugata*, Purc.

*Measurements*.—Length, 6 mm.

No. B 2050, ♀, from Bull's Poorte, S.W. Africa (R. W. Tucker, December 27, 1915), appears referable to this species.

#### CAMILLINA AMNICOLA, n. sp. (Fig. 56, A and B.)

*Specimens* :—

2 ♀♀ (B 3702 type, and B 3715). Junction Crocodile and Marico Rivers, N.W. Transvaal. (R. W. Tucker, January–February 1918.)

1 ♂ (B 3087). Salisbury, S. Rhodesia. (R. W. Tucker, April 1917.)

♀ *Colour*.—Carapace orange brown; abdomen dull testaceous, clothed with sparse black hairs; sternum and mouth parts dark reddish brown; coxae lighter, legs similar to carapace in colour.



*Carapace*.—Length equal to metatarsus and  $\frac{1}{3}$  tarsus IV, and to tibia and  $\frac{2}{3}$  metatarsus I.

*Eyes*.—Seen from above, both rows are straight to slightly procurved; anterior medians smaller than the laterals. Posterior laterals subequal to the anterior laterals, posterior medians subrotund, not quite touching posteriorly, and slightly inclined outwards; nearly touching laterals, which are not greatly smaller. Clypeus slightly less than the diameter of an anterior lateral eye.

*Sternum*.—Length  $1\frac{1}{4}$  times greatest width.

*Chelicera*.—Inferior border with 2 teeth, superior border with 4.

*Spinners*.—Inferior spinners with 5 apical tubules.

*Legs*.—Tarsus I spineless; scopula of club-shaped hairs reaching to the base; metatarsus spineless, but with scopular hairs reaching  $\frac{1}{2}$ – $\frac{2}{3}$  way down the inner side of the under surface. Tarsus II similar to I; metatarsus with scopular hairs extending  $\frac{3}{4}$  way to the base, and with 1 inner median and 2 basal spines on the under surface. Tarsus III with no scopular hairs, but bearing stout bristle-like hairs on the under surface; metatarsus strongly spined and with a stout comb apically towards the outer side. Tarsus and metatarsus IV longer, but similar.

*Vulva*.—As in fig. 56A.

*Measurements*.—Carapace: length, 3.5 mm., breadth, 2.7 mm. Total length, 8.7 mm.

♂ *Colour*.—Carapace golden brown, legs slightly lighter; abdomen pale testaceous, with an anterior dorsal scutum which extends over slightly less than  $\frac{1}{4}$  of the length of the abdomen; dorsal and ventral surfaces sparsely clothed with long stiff black hairs, which have mostly rubbed off, leaving the surfaces stippled with their brown sockets. Ventral surface with a distinct brown epigastric scutum. Sternum orange brown in colour, with a distinct dark margin, and the surface strongly punctate by hair sockets; the carapace also bears marks of a sparse clothing of stiff hairs. Mouth-parts dark orange brown.

*Eyes*.—Anterior row, seen from in front, slightly procurved; laterals larger than the medians. Posterior row straight to slightly procurved, the medians subangular and larger than the laterals; slightly separated posteriorly; but anteriorly wider apart, and practically equidistant from the laterals. Median ocular area longer than wide, and broader posteriorly. Clypeus as deep as the diameter of an anterior median eye, or slightly exceeding the radius of an anterior lateral.

*Chelicera*.—Inferior border with 2 teeth; the proximal one (*i.e.*

nearest the fang) being very small; superior border with 4 teeth, the 2 central ones large, and the proximal one very small.

*Spinners*.—Inferior spinners bearing 5 stout apical tubules; the ventral apical projection bearing a spigot, being well marked.

*Legs*.—Coxa I longer and slenderer than coxa IV. Tarsus I long and slender, being  $\frac{3}{4}$  the length of the metatarsus; bearing no spines, but sparsely clothed on the lower surface with club-shaped scopular hairs; metatarsus with a few such hairs distally, but no spines. Tarsus II subequal to the metatarsus, clothed on its lower surface with scopular hairs, but bearing no spines; metatarsus with a few scattered scopular hairs, and bearing a median and two basal spines on the under surface. Tarsus III with bristles, but with no spines on the under surface; metatarsus heavily spined, and with a strong comb of bristles apically on the under surface. Tarsus IV also with bristles on the under surface; metatarsus twice as long as the tarsus, heavily spined, and with an apical comb of bristles.

*Pedipalps*.—As in fig. 56B.

*Measurements*.—Carapace: breadth, 2.4 mm.; length, 3 mm. Length of abdomen, 4 mm.; chelicera to end of abdomen, 7.8 mm.

Other examples:—

1 ♀ (No. 14,465). Hanover. (L. Schreiner, 1905.)

This specimen is slightly larger than the type, the total length being 9 mm. and the carapace 4 mm.

2 ♀♀, 1 ♂ (No. 14,353). St. Helena Bay, Malmesbury Div., C. Province. (J. E. C. Goold, 1905.)

The ♀♀ are the same size, or slightly smaller, than the type and carry a basal spine on metatarsus I, and 2 median spines on metatarsus II.

The ♂ is much smaller than that described from Rhodesia, the total length being only 5.5 mm.; carapace, 2.7 mm.; it is also lighter in colour; the palpal organ, however, is identical, and there is no doubt that all the above specimens belong to the one species.

Also 1 ♀ (Grahamstown Museum), Smitsdrift, Pietersburg.

#### CAMILLINA ARIDA, Purc.

*Melanophora arida*. Purcell in A.M.N.H., ser. 7, vol. xx, pl. xv, p. 333, fig. 65.

*Specimens*.—1 ♀ and jv. (13,247 type). Laingsburg, Pr. Albert Div. (Mrs. and Dr. W. F. Purcell.)

*Colour*.—Carapace very dark mahogany brown; femora of legs and sternum slightly lighter. Abdomen dull testaceous.

*Carapace*.—Equal in length to metatarsus and tarsus IV; and a little less than tibia, metatarsus, and tarsus I.

*Eyes*.—Posterior row moderately procurved; medians large, oblong, contiguous posteriorly and inclined outwards, and larger than the laterals from which they are slightly separated; clypeus narrower than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4 small teeth; inferior border muticous or with 1 minute tooth.

*Sternum*.—Length nearly twice the greatest breadth.

*Legs*.—Metatarsus I not scopulate or spineless. Apical comb on metatarsus III partially hidden by other bristles; comb on metatarsus IV sparse.

*Vulva*.—As in fig. 65, *loc. cit.*

*Measurements*.—Length of carapace, 2.4 mm. Total length, 6 mm.

CAMELLINA BIPLAGIA, n. sp. (Fig. 57, A and B.)

*Specimens*.—1 ♀ (B 2829 type), Gt. Winterhoek Mts., 4500 ft.; also 2 ♂♂ and 3 ♀♀ from altitudes up to 4700 ft. (R. W. Tucker, November 22, 1916.)

*Colour*.—Cephalothorax pale brown; mottled, and infuscated anteriorly and at the sides; legs the same colour distally as the carapace, but slightly lighter proximally; abdomen dull testaceous and uniformly infuscated on the dorsal surface; sternum, coxae, etc., pale brown; labium darker.

*Carapace*.—Equal in length to metatarsus and  $\frac{1}{2}$  tarsus IV, and to tibia and metatarsus I. Surface smooth and moderately convex.

*Eyes*.—Seen from above, the anterior row appears slightly recurved; the medians being less than a diameter apart, and the laterals and medians almost touching. Posterior row scarcely wider than the anterior, and strongly procurved; median eyes large, angular, slightly oblique, and contiguous posteriorly; laterals smaller and narrowly separate from the medians; less than a diameter from the anterior laterals and subequal to them. Seen from in front, the anterior row is procurved; the median eyes being subequal to the laterals.

*Chelicera*.—Superior margin with 5–6 teeth, of which the two distal ones are much larger; inferior margin with 2–3 teeth.

*Sternum*.—Broad, not tapering anteriorly. Length about  $1\frac{1}{4}$  times greatest breadth.

*Legs*.—Tarsus I scopulate on the under surface; no spines or fascicle, but with a line of stout setae. Metatarsus bearing a few scopular hairs; 2 spines basally, and 2 lines of stout setae on under

surface; patella longer than patella II. Tarsus II with a coarse scopula; metatarsus not scopulate. Tarsus III with coarse bristles on the under surface; metatarsus with strong scattered spines, and a broad comb of long stout setae around the apical border of the under surface. Tarsus IV also with bristles on the under surface; metatarsus with numerous spines and a comb of long stout setae on the inner apical border. Posterior legs more heavily spined than the anterior.

*Spinners*.—Inferior spinners bearing 4 stout fusules on the dorsal apical border; these most frequently are retracted and are hardly distinguishable.

*Vulva*.—As in fig. 57A. In some specimens the two light anterior plates are joined into one with a more conspicuous border, constricted at the centre.

♂ *Colour*.—Much as in the ♀; abdomen darker and with a small triangular dorsal scutum anteriorly and a faint epigastric scutum.

*Cephalothorax* and *eyes* as in ♀.

*Chelicera*.—Four teeth on superior margin, and 2–3 on inferior margin.

*Legs*.—Tarsus I bearing setose hairs on the under surface; short and dense anteriorly, longer and sparser basally. Metatarsus not scopulate, but bearing setae and 2–3 stout spines. Tarsus II with stouter bristles than I on the under surface; similarly with the metatarsus. Tarsus III with long and very stout bristles on the under surface; metatarsus with numerous spines dorsally and on the under surface, and with an apical comb of stout bristles on the under surface. Tarsus IV similar to III; metatarsus much longer and also bearing anteriorly a comb of bristles. Fascicles absent; claws strongly dentate.

*Pedipalps*.—Palpal organ and tibia (outer dorsal aspect) as in fig. 57B.

*Measurements*.—Length of carapace, ♂ 2.5, ♀ 2 mm. Total length, ♂ 3.6, ♀ 6 mm.

This species is closely allied to *Camillina procurva*, Purc., and *Camillina cordifera*, Tullgr.

Found also on Table Mt., foot of Plattekliip Ravine, 3 ♀♀ (B 842) (R. M. Lightfoot and R. W. Tucker, December 1914); and Camps Bay Slopes, 1 ♀ (B 5236) (R. W. Tucker, November 1920).

Also 1 ♀ (B 3539). Matroosberg Mts., 4000 ft. (R. W. Tucker, December 1917.)

2 ♂♂ (3252 and 3253), Ceres (W. Purcell, October 1897); and 1 ♂ (14 328) from Stellenbosch.

- 1 ♀ (3371). Signal Hill. (W. Purcell, November 1896.)  
1 ♂ (8711) and 1 ♀ (6169). Bergvliet, Diep R. (Dr. W. F. Purcell, December 1919.)  
2 ♀♀ (12,218). Hout Bay. (Dr. W. F. Purcell, November 1901.)  
1 ♀ (12,338). Side of Kalk Bay Mts. (Dr. W. F. Purcell, March 1902.)  
1 ♀ (Grahamstown Museum). Grahamstown. (J. Hewitt, September 1916.)

CAMILLINA BROWNI, n. sp. (Fig. 58.)

*Specimens*.—1 ♀ (B 5221 type). Vryburg. (J. E. Brown, May 1920.)

*Colour*.—Carapace and legs uniform light brown, abdomen greyish testaceous; sternum coxae, etc., unicolourous with carapace.

*Carapace*.—Length equal to metatarsus and  $\frac{1}{4}$  tarsus IV, and to tibia and metatarsus I.

*Eyes*.—Anterior row, seen from the front, procurved; medians slightly larger than the laterals and closer to them than to each other. Posterior row strongly procurved; medians very large and contiguous posteriorly, oblong, and inclined outwards; also nearly touching anteriorly the laterals, which are smaller than the anterior laterals.

*Sternum*.—Length  $1\frac{1}{3}$  times the greatest breadth.

*Legs*.—As in *luteus*.

*Vulva*.—As in fig. 58.

*Measurements*.—Length of carapace, 2.1 mm. Total length, 6.3 mm.

CAMILLINA CORDIFERA, Tullgr.

1910. *Camilla cordifera*. Tullgren in Sjostedt's Kilimandjaro-Meru Expedition, vol. iii, pt. 20: 6, p. 105; ♂ and ♀, pl. i, fig. 16 a-d.

*Specimens* :—

1 ♂ and 1 ♀ (150, 764). Near Pt. Shepstone, Natal. (Dr. W. F. Purcell, September 1905.)

1 ♀ (B 3267). Salisbury, S. Rhodesia. (R. W. Tucker, April 1917.)

1 ♀ (B 3711). Junction Marico and Crocodile Rivers, N.W. Transvaal. (R. W. Tucker, January–February 1918.)

♀ *Colour*.—Carapace and legs dark brown; sternum lighter and somewhat olivaceous; abdomen infuscated testaceous.

*Carapace*.—Equal in length to metatarsus and  $\frac{2}{3}$  tarsus IV, and to tibia and metatarsus I.

*Sternum*.—Length not greatly exceeding greatest breadth.

*Eyes*.—Anterior row subequal, medians and laterals almost touching each other.

Posterior row well procurved, medians large, oblong, and contiguous posteriorly; inclined outwards, and much larger than the laterals. Posterior laterals smaller than the anterior laterals and almost touching them.

*Chelicera*.—Superior margin with 3 teeth; inferior margin also with 3 teeth.

*Spinners*.—Bearing 3 stout tubules.

*Legs*.—Anterior tarsi very sparsely scopulated; metatarsus I not scopulated and with a pair of very fine apical spines. Metatarsi III and IV with strong apical combs.

*Vulva*.—As in fig. 16A, *loc. cit.*, and fig. 59.

*Measurements*.—Length of carapace, 1.6 mm. Total length, 4.5 mm.

♂ *Colour*.—As in ♀.

*Carapace*.—Equal in length to metatarsus and  $\frac{1}{2}$  tarsus IV, and to a little less than tibia and metatarsus I.

*Eyes and Sternum*.—As in ♀.

*Chelicera*.—Superior border with 4 teeth, inferior border with about 4 much smaller teeth.

*Legs*.—Metatarsi III and IV with large and conspicuous apical combs.

*Pedipalps*.—Palpal organ as in fig. 16, c-d, *loc. cit.*

*Measurements*.—Carapace, 1.7 mm. Total length, 3.9 mm.

#### CAMILLINA CORRUGATA, Purc.

*Melanophora corrugata*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 332, pl. xv, figs. 63 and 64.

*Specimens*.—3 ♀♀ and 1 ♂ (11,774, *ex typ.*). Hanover. (S. C. Schreiner, November 1904.)

For further localities, etc., see below.

♀ *Colour*.—Carapace golden brown, abdomen deep testaceous.

*Carapace*.—Equal in length to metatarsus and tarsus IV, and to tibia, metatarsus, and tarsus I.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times the greatest width.

*Eyes*.—Anterior medians smaller than the laterals. Posterior row very moderately procurved, medians oblong, contiguous posteriorly, inclined outwards, and well separated from the laterals, which are not greatly smaller. Clypeus less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3–4 teeth; inferior border with 0–1 small tooth.

*Legs*.—Metatarsus I scopulate to base and spineless. Metatarsus III with very strong apical comb; metatarsus IV with a slightly weaker comb.

*Vulva*.—As in fig. 63, *loc. cit.*

*Measurements*.—Carapace, 2.8 mm. Total length, 7 mm.

♂ *Colour*.—As in ♀, abdomen darker dorsally.

*Carapace*.—Length equal to metatarsus and tarsus IV, and slightly exceeding tibia and metatarsus I.

*Eyes, Chelicera, and Sternum*.—As in ♀.

*Legs*.—Metatarsus I and II with a few scopular hairs anteriorly, and 2 pairs of spines on the under surface; metatarsus III with a fairly strong apical comb; comb on metatarsus IV weak.

*Palpal Organ*.—As in fig. 64, *loc. cit.*

*Measurements*.—Length of carapace, 2.7 mm. Total length, 5 mm.

Specimens identified from new localities:—

De Aar; 1 ♀ (B 1580). (Dr. W. F. Purcell, September 1913.)

Warmbaths, Transvaal; 2 ♀♀ and 1 ♂ (150,663). (Dr. W. F. Purcell, September 1905.)

Johannesburg; 2 ♂♂ and 1 ♀ (150,647). (Dr. W. F. Purcell, September 1905.)

Kimberley; ♀ (B 4214). (J. H. Power, November 1918.)

Tsumeb, S.W. Africa; 2 ♀♀ (B 5179). (R. W. Tucker, December 1919.)

Swakopmund, S.W. Prot.; 1 ♀ (B 4833). (R. W. Tucker, February 1920.)

Windhuk, S.W. Prot.; 1 ♀ (B 4248). (R. W. Tucker, February 1920.)

CAMILLINA LUTEUS, n. sp. (Fig. 60.)

*Specimens*.—3 ♀♀ (No. 9479 types). Hanover. (S. C. Cronwright Schreiner, September–November 1901.)

*Colour*.—Golden yellow; abdomen slightly darker on the dorsal surface.

*Carapace*.—Length equal to metatarsus and  $\frac{1}{2}$  tarsus IV, and to tibia and metatarsus I. Clypeus very narrow; less than  $\frac{1}{2}$  the radius of an anterior lateral eye.

*Eyes*.—Anterior row procurved; eyes large, medians touching the laterals and subequal to them. Posterior row moderately procurved; median eyes elongate subangular, contiguous posteriorly, and

touching the laterals anteriorly ; very much larger than the laterals, being about twice their area.

*Chelicera.*—Superior groove with 5 teeth, inferior groove with 4 small teeth.

*Sternum.*—Length  $1\frac{1}{3}$  times the greatest breadth.

*Legs.*—Tarsus I slightly scopulate ; metatarsus not scopulate but bearing 1 outer basal spine on the under surface ; 2nd leg similar, but the metatarsus with 2 basal spines. Tarsus III furnished with fairly long bristles ; metatarsus heavily spined, and bearing a strong apical comb of setae ; metatarsus IV also with a strong apical comb on the under surface.

*Vulva.*—As in fig. 60.

*Measurements.*—Length of carapace, 1.6 mm. ; Total length, 4.6 mm.

*New Localities.*—2 ♀♀ (Grahamstown Museum). Alicedale. (F. Cruden.)

CAMILLINA POSTREMA, n. sp. (Fig. 61.)

*Specimens* :—

1 ♂ (728 type). Diep R., Cape Flats. (F. Purcell, December 1895.)

1 ♂ (3143). Cape Town. (J. Paynter, October 1897.)

*Colour.*—Carapace medium brown, legs lighter brown ; abdomen fairly strongly infuscated dorsally, with a slightly lighter patch posterior to small dorsal scutum ; ventral surface paler.

*Carapace.*—Equal in length to tarsus and metatarsus IV, and to tibia and metatarsus I.

*Eyes.*—Clypeus nearly equal to the diameter of an anterior lateral eye. Posterior row of eyes slightly procurved ; medians large, sub-angular, not quite touching posteriorly, slightly inclined outwards, and nearly touching laterals, which are much smaller.

*Chelicera.*—Superior border clothed with stout hairs which become bristle-like on the anterior surface. Inferior border apparently with a row of small denticles close together on a slightly curved ridge which ends in 2 apical teeth.

*Sternum.*—Length  $1\frac{1}{4}$  times greatest width.

*Legs.*—Tarsus I scopulate ; metatarsus without scopular hairs, but with a line of fine bristle-like spines down each side of the under surface, terminating in 2 fine subbasal spines. Second leg similar, scopular hairs less on the tarsus, and with bristles and spines stronger on the tarsus and metatarsus. Tarsus III clothed with bristles on the



under surface; metatarsus with strong apical comb and dense clothing of bristles on the under surface; also numerous spines. Bristles less on the 4th leg; metatarsal comb distinct.

*Pedipalps*.—As in fig. 61.

*Measurements*.—Length of carapace, 2.4 mm. Total length, 5.5 mm.

#### CAMILLINA PROCURVA, Purc.

*Melanophora procurva*. Purcell in Schultze, Zool. Forschungsreise in Sudafrika, vol. i, p. 239, pl. xi, figs. 25 and 24.

*Specimens*.—♂ and ♀ (150,603, *ex. typ.*). Kammaggas, Little Namaqualand. (Schultze, July–August 1904.)

For other localities and examples see below.

♀ *Colour*.—Cephalothorax dark brown, legs lighter brown; abdomen dull testaceous brown. (Other specimens tend to be lighter in colour.)

*Cephalothorax*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Anterior medians smaller than the laterals and close to them. Posterior row moderately procurved, medians subangular, not much longer than broad, contiguous posteriorly, and slightly inclined outwards; laterals very much smaller and close to them. Clypeus exceedingly narrow.

*Sternum*.—Length equal to  $1\frac{1}{4}$  times the greatest breadth.

*Chelicera*.—Superior border with 4–5 teeth, inferior border with 2 small teeth.

*Legs*.—Metatarsus I not scopulate, and with several spines on the under surface. Metatarsi III and IV with stout apical combs.

*Vulva*.—As in fig. 24, *loc. cit.*

♂ *Colour*.—Slightly lighter than the ♀.

*Cephalothorax*.—Equal in length to metatarsus and  $\frac{1}{2}$  tarsus IV, subequal to metatarsus and tibia I.

*Eyes, Sternum, and Chelicera*.—As in ♀.

*Pedipalps*.—Palpal organ as in fig. 25, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 2 mm., ♂ 2 mm. Total length, ♀ 6 mm., ♂ 4.8 mm.

Specimens identified from new localities:—

Kentani; 2 ♀♀ (13,861 and 14,537). (Miss Pegler, 1904 and 1905.)

Matjesfontein; 1 ♀ (B 3342). (Dr. W. F. Purcell, November 1897.)

Montagu; 1 ♀ (3893). (Dr. W. F. Purcell, March 1896.)

Doornnek, Alexander Div. ; 1 ♀ (5704). (J. L. Drège, October 1899.)

Pr. Albert ; 1 ♀ (3924). (Dr. W. F. Purcell, September 1896.)

Grahamstown (Grahamstown Museum). (J. Hewitt, February 1915.)

CAMILLINA SETOSUS, n. sp. (Fig. 62, A and B.)

*Specimens*.—1 ♂ and 2 ♀♀ (No. 3370 types). Signal Hill. (Dr. W. F. Purcell, November 1896.)

♀ *Colour*.—Carapace reddish-brown, with darker radiating lines ; legs slightly lighter than the carapace ; femur of 1st leg without light patches. Abdomen testaceous, infuscated on the dorsal surface. Entire surface, especially the legs, clothed with hairs which, when dry, are golden brown in colour.

*Carapace*.—Length equal to metatarsus and  $\frac{1}{2}$  tarsus IV, and to metatarsus and tibia I. Clypeus about equal to  $\frac{1}{2}$  the diameter of an anterior lateral eye.

*Eyes*.—Nocturnal in type. Anterior row strongly procurved, medians subequal to the laterals ; posterior row normal.

*Chelicera*.—Superior border with 5 teeth, the proximal ones (*i.e.* nearest the base of the fang) being small ; inferior border with 3 teeth. One ♀, which is lighter in colour, shows an additional very small proximal tooth on each border.

*Sternum*.—Length not more than  $1\frac{1}{3}$  times the greatest breadth.

*Legs*.—Tarsus I sparsely scopulated at the sides of the under surface, with bristle-like hairs basally, and a line of stout setae down each side ; metatarsus also with a line of spiniform bristles down each side, and bearing 2 basal spines and 1 or 2 weak apical spines ; tibia I bearing fine setae on the under surface. Tarsus II with a few scopular hairs distally, and an irregular line of setae down each side of the under surface ; metatarsus bearing 2 basal spines and numerous spiniform setae ; tibia II with stouter setae than I and with 1 median and 1 basal spine. Metatarsus III with a broad stout comb of setae, and numerous stout bristles and spines ; apical comb on 4th leg stouter but not so dense.

*Spinners*.—With 4 apical tubules.

*Vulva*.—Broad ; nearly filling the space between the lung operculae. Appearance as in fig. 62A. Cf. *P. (Camilla) procurva*, Purc.

♂ *Colour*.—As in ♀ ; abdomen with a slight anterior dorsal scutum. Other characters as in ♀.

*Legs*.—Tarsus and metatarsus of the 1st leg similar to the ♀. Metatarsus of the 2nd leg with a few scopular hairs anteriorly, and 1 median or lateral anterior spine in addition to the 2 basal spines. Apical combs on the metatarsus not quite so strong as in the ♀.

*Pedipalps*.—Patella and tibia short; the latter bearing a stout, slightly curved projection, as in fig. 62B. Palpal organ as in fig. 62B.

*Measurements*.—Length of carapace, ♀ 2.5 mm., ♂ 2.5 mm. Total length, ♀ 6 mm., ♂ 5 mm.

This species is quite distinct from *Camillina biplagia*, specimens of which were taken by Dr. Purcell from the same locality and apparently about the same time as *setosus*; it appears more nearly related to *procurva*, Purc., than to *biplagia*.

GEN. MEGAMYRMECEON, Reuss, 1834.

*Key to Species.*

- (3). 1. Anterior tibiae spined.  
 2. Clypeus less than twice the diameter of an anterior lateral eye . *velox*  
 (1). 3. Anterior tibiae spineless.  
 (5). 4. Clypeus twice the diameter of an anterior lateral eye . *transvaalensis*.  
 (4). 5. Clypeus 3 times the diameter of an anterior lateral eye . *schreineri*.

MEGAMYRMECEON SCHREINERI, n. sp. (Fig. 63.)

*Specimens* :—

1 ♂ (13,188 type). Hanover. (S. C. Schreiner, 1903.)

1 ♂ (823). Signal Hill, Cape Town. (F. Purcell, April 1896.)

*Colour*.—Carapace and legs light yellowish-brown, with a slight infuscated band between the border and the centre. Abdomen testaceous, covered with tawny pubescence; sternum dark-rimmed.

*Carapace*.—Length slightly exceeding metatarsus I, and equal to patella and little over  $\frac{1}{2}$  tibia IV.

*Eyes*.—Anterior medians less than a diameter apart, and close to the laterals, which are about  $\frac{1}{2}$  their size. Posterior medians large, subangular, and equidistant from the laterals and from each other; posterior laterals smaller than the medians, but larger than the anterior laterals, from which they are over  $\frac{1}{2}$  a diameter distant. Clypeus about twice the diameter of an anterior median, and 3 times the diameter of an anterior lateral eye.

*Chelicera*.—Inferior border muticous; superior border also apparently muticous, but with an apical row of 3–4 small denticles.

*Legs.*—Long and slender; anterior tarsi long and somewhat curved, densely scopulate and spineless. Metatarsi longer than the tarsi, scopulate to the base, and also spineless; tibiae I and II spineless. Tarsi of posterior legs scopulate, also bearing bristles on the under surface, metatarsi and remainder of legs well spined.

*Pedipalps.*—Tibia longer than the tarsus, slender, but swollen distally and bearing a short outer apical spur. Tarsal organ as in fig. 63.

*Measurements.*—Length of carapace, 3.8 mm. Total length, 8 mm. The specimen from Signal Hill is slightly smaller and lighter in colour, being evidently newly moulted.

MEGAMYRMECEON TRANSVAALENSIS, n. sp. (Fig. 64.)

*Specimens* :—

2 ♀♀ (B 3716 types). Junction of the Crocodile and Marico Rivers, N.W. Transvaal. (R. W. Tucker, January–February 1918.)

1 ♀ (Grahamstown Museum). Steytlerville. (Miss B. Geard, December 1916.)

*Colour.*—Uniform pale testaceous; integument covered with appressed dark pubescence; and legs armed with black spines.

*Carapace.*—Length equal to the metatarsus of the 1st leg, and to patella and  $\frac{1}{2}$  tibia 4th leg. Median stria long and dark; surface with slight dark radiations. Clypeus deep, twice the diameter of an anterior median eye.

*Eyes.*—Anterior medians  $\frac{1}{2}$  a diameter apart and touching the laterals, which are about  $\frac{1}{2}$  their size. Posterior row strongly procurved, but not forming a semicircle; the laterals equal to the anterior laterals and slightly removed from them; medians larger than the laterals, subangular, inclined inwards at the bases, the apices being approximately the same distance from the laterals as the bases are from each other.

*Chelicera.*—With a row of 4–5 minute denticles at the apex of the superior margin.

*Pedipalps.*—Fairly heavily spined; femur bearing on the inner surface, distally, a stout spine bifurcated apically (this may possibly be an exception).

*Legs.*—Tarsus I long, slender, and flexible; heavily scopulated to the base and bearing a dense fascicle; metatarsus scopulate almost to the base, and also spineless on the under surface; tibia with a few

scopular hairs anteriorly on the outer surface; spineless; 2nd leg similar, but with no scopular hairs on the tibia and less basally on the metatarsus. Tarsus III slender and scopulate to the base; metatarsus with a few scopular hairs anteriorly, and numerous strong spines on the under surface. Tarsus IV slender, flexible, and bearing scopular hairs almost to the base; apical fascicle weak; tarsal claw with a prominent base, bearing 5-6 teeth. Metatarsus very long (twice the length of the tarsus), slender, and bearing numerous spines.

*Spinners*.—Superior spinners long and slender, with a subconical apical joint; longer than the inferior and median spinners; inferior pair stouter and bearing 4 (in one case 3 only) apical fusules. On abdomen at the base of the spinners a transverse chitinous slit is just visible; probably a tracheal opening.

*Vulva*.—As in fig. 64.

*Measurements*.—Length of carapace, 3.3 mm.; breadth 2.9 mm. Total length (excl. spinners), 7.9 mm.

#### MEGAMYRMECEON VELOX, Sim.

1887. *M. velox*. Simon in Ann. Soc. Ent. Fr. (6), vol. vii, p. 372.

“♀ *Length*, 11 mm. Cephalothorax tawny yellow, smooth, shiny, white, silky pubescence, oblong, thoracic stria deep and remote. Anterior row of eyes strongly procurved; medians only  $\frac{1}{3}$  larger than the laterals, and further from each other than from the laterals. Posterior row of eyes equally procurved, medians larger than the laterals, oblique, triquetrous, and subcontiguous, but widely remote from the laterals. Clypeus not as wide as twice a lateral eye. Abdomen oblong, flattened, slightly enlarged posteriorly, truncate anteriorly and posteriorly, four dorsal impressions, entirely yellow, and with silky-white pubescence. Spinners reddish, inferiors long, terete or slightly less thickened towards the apices; superior spinners only half the size of the inferiors. Chelicera, sternum, mouth-parts, and legs shiny tawny yellow. Chelicera robust, sparsely setose; fangs fairly long, superior margin of groove with three teeth, central one largest; inferior margin submuticous, bearing very minute denticles. Legs fairly long, numerous spined; 4 anterior tibiae with submedian spine (situated near exterior margin) and 2 apical spines; metatarsi sometimes with 2 basal spines. Tarsi entirely, and metatarsi anteriorly, scopulate. Tibia and patella IV longer than cephalothorax. Vulval area tawny and coriaceous, bearing longi-

tudinal, lanceolate median plagula, bounded on each side by a curved black line.

“ Akin to Egyptian species.

“ *Locality*.—Kalahari, S.W. Africa. (Dr. H. Schinz, 1884–86.) ”

GEN. ECHEMUS, Sim.

ECHEMUS ERUTUS, n. sp. (Fig. 65.)

*Specimens*.—1 ♀ (B 3663 type). Mochudi, Bechuanaland Prot. (R. W. Tucker, February 1918.)

*Colour*.—Carapace yellowish brown, chelicera slightly darker; posterior legs similar in colour to the carapace; 1st pair of legs considerably darker and redder distally. Abdomen testaceous, slightly infuscated dorsally.

*Eyes*.—The ocular portion of the carapace is unfortunately damaged; the eyes, however, appear as follows. Anterior row strongly procurved; medians light in colour, round, and less than a diameter apart; laterals light in colour, oval, a trifle smaller than the medians, and very close to them. Posterior row very strongly procurved; medians subangular and close together, distant their long diameter from the anterior medians; larger than the posterior laterals, which are subequal to the anterior laterals, and about their own diameter from the posterior medians.

*Chelicera*.—Superior border with 3 teeth, inferior border with 2.

*Legs*.—First leg subequal to the 4th leg, and considerably stouter than any others; tarsus sparsely scopulated, metatarsus with a few scopular hairs anteriorly and bearing 1 apical and 1 submedian spine on the under surface; tibia spineless, and, together with patella and femur, large and swollen. Tarsus of 2nd leg scopulate; metatarsus with fine hairs but no scopular hairs on the under surface, bearing 2 apical and 2 submedian spines; tibia with 2 apical spines on the under surface. Tarsi III and IV bearing a few scopular hairs, but mainly clothed with bristles; metatarsi and tibiae strongly spined; no metatarsal comb of setae; tarsal claws dentate.

*Spinners*.—Inferior spinners short, cylindrical, nearly their own length apart.

*Vulva*.—As in fig. 65.

*Measurements*.—Length of carapace, 2.2 mm. Total length, 5.7 mm.

GEN. ZELOTES, Gistl.

This name was proposed by Gistl, in 1848, to take the place of *Melanophora*, C. Koch, 1833, owing to the latter name having been preoccupied by Meigen in 1803 for a genus of Diptera. The name, however, was overlooked by later workers, and *Prosthesima* was substituted for *Melanophora* by L. Koch in 1872, owing to the aforesaid preoccupation of that name. Both *Melanophora* and *Prosthesima* have been largely used by various workers, but Petrunkevitch in 1911, Bull. Amer. Mus. Nat. Hist., vol. xxix, puts the synonymy right and establishes *Zelotes* as the name for this genus.

ZELOTES, Gistl.

Key to ♀♀.

- (23) 1. No light patch on inner surface of femur I.
- (12). 2. Length of carapace equal to metatarsus and tarsus IV.
- (5). 3. Length of carapace equal to tibia and metatarsus I.
- 4. Metatarsus I weakly scopulate and spined on outer surface. *fuliginoides.*
- (3). 5. Length of carapace greater than tibia and metatarsus I.
- (7). 6. Clypeus greater than diameter of anterior lateral eye . . . *simoni.*
- (6). 7. Clypeus less than diameter of lateral eye.
- (9). 8. Metatarsus I well scopulate . . . . . *lava.*
- (8). 9. Metatarsus I weakly scopulate.
- (11). 10. Metatarsus IV with weak apical comb . . . . . *hewitti.*
- (10). 11. Metatarsus IV with strong apical comb . . . . . *rufipes.*
- (2). 12. Length of carapace less than metatarsus and tarsus IV.
- (14). 13. Length of carapace greater than tibia and metatarsus I . . . *aculeata.*
- (13). 14. Length of carapace equal to tibia and metatarsus I.
- (16). 15. Superior margin of chelicera with 3 or less than 3 teeth ; inferior margin with more than 2.
- (15). 16. Superior margin of chelicera with more than 3 teeth ; inferior with 2.
- (18). 17. Metatarsus I well scopulate . . . . . *zonognathus.*
- (17). 18. Metatarsus I weakly scopulate.
- (20). 19. Metatarsus I not spined on under surface ; metatarsus IV with weak apical comb . . . . . *caldaria.*
- (19). 20. Metatarsus I spined on under surface ; metatarsus IV with strong apical comb.
- (22). 21. Length of sternum not much greater than breadth . . . *natalensis.*
- (21). 22. Length of sternum  $1\frac{1}{4}$  times greatest breadth . . . *vespertilionis.*
- (1). 23. Distinct light patch on inner surface of femur.
- (35). 24. Length of carapace equal in length to tibia and metatarsus I.
- (32). 25. Posterior median eyes nearer to laterals than to each other.
- (29). 26. Metatarsus I not spined, and metatarsus IV with weak apical comb.

- (28) 27. Vulva with anterior central portion longer and narrower than posterior portion . . . . . *capsula*.
- (27) 28. Vulva with anterior central portion shorter and broader than posterior portion . . . . . *flavitarsis*.
- (26) 29. Metatarsus I spined, metatarsus IV with strong apical comb.
- (31) 30. Clypeus equal to, or less than diameter from, anterior laterals. *ungula*.
- (30) 31. Clypeus greater than diameter of anterior lateral . . . *vryburgensis*.
- (25) 32. Posterior median eyes nearer to each other than to laterals.
- (34) 33. Superior margin with 3 or less than 3 teeth, inferior margin with more than 2 denticles . . . . . *fuliginea*.
- (33) 34. Superior margin with more than 3 teeth, inferior margin with 2 denticles . . . . . *lightfooti*.
- (24) 35. Length of carapace greater than tibia and metatarsus I.
- (49) 36. Length of carapace equal to metatarsus and tarsus IV.
- (46) 37. Posterior median eyes nearer to laterals than to each other.
- (43) 38. Metatarsus I spined.
- (40) 39. Clypeus greater than diameter of anterior lateral eye . . . *anchora*.
- (39) 40. Clypeus equal to or less than diameter of anterior lateral eye.
- (42) 41. Vulva with central lines forming an ornate M . . . . . *ornata*.
- (41) 42. Vulva with central lines produced into wide lateral scrolls . . . *broomi*.
- (38) 43. Metatarsus I not spined.
- (45) 44. Clypeus greater than diameter of anterior lateral eye . . . *redunca*.
- (44) 45. Clypeus equal to or less than diameter of anterior lateral eye . . . *o'neili*.
- (37) 46. Post-median eyes nearer to each other than to laterals.
- (48) 47. Clypeus greater than diameter of anterior lateral eye . . . *invida*.
- (47) 48. Clypeus equal or less than diameter of anterior lateral eye . . . *humilis*.
- (36) 49. Length of carapace less than metatarsus and tarsus IV.
- (55) 50. Clypeus greater than diameter of anterior lateral eye.
- (52) 51. Posterior median eyes nearer to each other than to laterals . . . *gooldi*.
- (51) 52. Posterior median eyes nearer to laterals than to each other.
- (54) 53. Sternum not much longer than greatest breadth; Metatarsus IV with strong apical comb . . . . . *albanicus*.
- (53) 54. Sternum  $1\frac{1}{4}$  times as long as greatest breadth; metatarsus IV with weak apical comb . . . . . *cronwrighti*.
- (50) 55. Clypeus equal to or less than diameter of anterior lateral eye.
- (59) 56. Superior margin of chelicera with more than 3 teeth; inferior with 2 denticles.
- (58) 57. Metatarsus I spined, metatarsus IV with strong apical comb . . . *montana*.
- (57) 58. Metatarsus I not spined; metatarsus IV with weak apical comb. . . . . *montivaga*.
- (56) 59. Superior margin of chelicera with 3 or less than 3 teeth; inferior margin with more than 2 teeth.
- (63) 60. Metatarsus I spined.
- (62) 61. Vulva with 4 circular dark spots, the 2 anterior being almost central. . . . . *frenchi*.
- (61) 62. Vulva with 2 fainter circular spots posteriorly . . . . . *sclateri*.
- (60) 63. Metatarsus I not spined.
64. Metatarsus IV with weak apical comb . . . . . *pedimaculosa*.



ZELOTES.

Key to ♂♂.

- (14). 1. No light patch on inner surface of femora I.  
 (10). 2. Length of carapace equal to or exceeding tibia and metatarsus I.  
 (5). 3. Length of carapace equal to metatarsus and less than  $\frac{1}{2}$  tarsus IV.  
 4. Metatarsus I well scopulate and bearing spines on under surface. *fuliginea.*  
 (3). 5. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or more tarsus IV.  
 (7). 6. Metatarsus I with no spines on under surface . . . . . *zonognathus.*  
 (6). 7. Metatarsus I bearing spines on under surface.  
 (9). 8. Palpal organ with large sickle-shaped free process . . . . . *ungula.*  
 (8). 9. Palpal organ with no free process . . . . . *rufipes.*  
 (2). 10. Length of carapace less than tibia and metatarsus I.  
 11. Length of carapace equal to metatarsus and less than  $\frac{1}{2}$  tarsus IV.  
 (13). 12. Metatarsus I spined on under surface . . . . . *aculeata.*  
 (12). 13. Metatarsus I not spined on under surface . . . . . *vespertilionis.*  
 (1). 14. Distinct light patch on inner surface of femur I.  
 (19). 15. Length of carapace equal to, or exceeding tibia and metatarsus I.  
 16. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or more tarsus IV.  
 (18). 17. Metatarsus I spined on under surface . . . . . *humilis.*  
 (17). 18. Metatarsus I not spined on under surface . . . . . *pallidipes.*  
 (15). 19. Length of carapace less than tibia and metatarsus I.  
 (22). 20. Length of carapace equal to metatarsus and less than  $\frac{1}{2}$  tarsus IV.  
 21. Metatarsus I spined on under surface . . . . . *crownwrighti.*  
 (20). 22. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or more tarsus IV.  
 (24). 23. Metatarsus I lightly scopulate anteriorly . . . . . *caldaria.*  
 (23). 24. Metatarsus I not scopulate anteriorly . . . . . *capsula.*

*Zelotes pulchripes*, Purc., of which I have not been able to see the types, has not enough characters in the description to fit into the above keys. It is evidently, however, a distinct and pronounced species, and could readily be recognised from the description and figures given.

ZELOTES ACULEATA, Purc.

1908. *Melanophora aculeata*. Purcell in Schulze, Forschungsreise in Sudafrika, vol. i, p. 237, pl. xi, fig. 20.

*Specimens*.—♂ and 2 ♀♀ (150,601 types). Possession Island, S.W. Africa. (L. Schulze, May 1903.)

♀ *Colour*.—No light patch on inner surface of femora I.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{2}$  tarsus I, and to metatarsus and  $\frac{4}{5}$  tarsus IV.

*Eyes*.—Posterior medians nearer to the laterals than to each other, oval and inclined inwards.

*Clypeus*.—Over  $1\frac{1}{2}$  times the diameter of an anterior lateral eye.

*Chelicera.*—Superior margin with 4 teeth, inferior with 2.

*Sternum.*—Length equal to  $1\frac{1}{4}$  times the greatest width.

*Legs.*—Metatarsus I scopulate nearly to base, and with 1 weak spine on under surface. Apical comb on metatarsus III partially hidden by other bristles; IVth metatarsal comb weak.

*Spinners.*—Bearing 4 apical fusules.

*Vulva.*—As in fig. 20, *loc. cit.*

*Measurements.*—Length of carapace, ♀ 3 mm., ♂ 2.8 mm.

♂ *Colour, Chelicera, Sternum, Spinners, Clypeus, and Eyes.*—As in ♀.

*Carapace.*—Equal in length to tibia and  $\frac{3}{4}$  metatarsus I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Legs.*—Metatarsus I slightly scopulate anteriorly, and bearing 2 basal spines on under surface. Metatarsi III and IV with apical combs.

*Pedipalps.*—Palpal organ as in figs. 45 and 46, A.M.N.H., vol. xx, ser. 7, pl. xv.

ZELOTES ANCHORA, n. sp. (Fig. 66.)

*Specimens* :—

1 ♀ (B 2701 type). Gt. Winterhoek Mts., 4000–4100 ft. (R. W. Tucker, November 29, 1916.)

1 ♀ (B 2622). Hout Bay Mts., C. Penins. (R. W. Tucker, October 1916.)

*Colour.*—Carapace, legs, and sternum dark mahogany brown; tarsi lighter. Abdomen, black dorsally and ventrally; lung operculae light brown. Light patch on the inner surface of femur I conspicuous; patch on outer under surface less conspicuous.

*Carapace.*—Length slightly less than tibia, metatarsus, and tarsus I, and equal to metatarsus and tarsus IV.

*Eyes.*—Anterior medians small, and placed on a slight protuberance; laterals much larger and situated at the sides of the protuberance. Posterior row straight, eyes practically equidistant.

*Sternum.*—Nearly as broad as long;  $1\frac{1}{2}$ –2 times as wide at the broadest part as anteriorly.

*Chelicera.*—Inferior border with 2 small teeth; superior border with no teeth, but with several stout bristles.

*Legs.*—Metatarsi I and II with 2 spines basally on the under surface. Metatarsi III and IV with an apical comb of bristles on the under surface. Femora III and IV with a few fine spines dorsally, but none ventrally.

*Vulva.*—As in fig. 66; akin to *Camillina acanthognathus*, Pure., in formation.

*Measurements.*—Carapace, 2 mm. in length. Total length, 5·5 mm. Also 1 ♀ (B 3473). Matroosberg Mts., Ceres, 4000 ft. (R. W. Tucker, November 1917.)

1 ♀ (B 4741). Mountains beyond Montagu, C. Province. (R. W. Tucker, November 1919.)

ZELOTES BROOMI, Purc.

1907. *Melanophora broomi*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 329, pl. xv, fig. 52.

*Specimens.*—1 ♀ (13,877 type). Stellenbosch, C. Province. (R. Broom, September 1904.)

*Colour.*—Femur I with very pale mark on inner side.

*Carapace.*—Equal in length to tibia, metatarsus, and  $\frac{1}{3}$  tarsus I, and to metatarsus and tarsus IV.

*Clypeus.*—Equal in depth to diameter of anterior lateral eye.

*Eyes.*—Posterior medians slightly nearer to laterals than to each other.

*Chelicera.*—Superior border with 3 teeth, inferior border with 2.

*Sternum.*—Nearly as broad as long.

*Legs.*—Metatarsus I scopulate almost to base, and with 2 basal spines; metatarsi III and IV with strong combs almost lateral in position.

*Spinners.*—Bearing 4 apical fusules.

*Vulva.*—As in fig. 52, *loc. cit.*

*Measurements.*—Length of carapace, 2·5 mm.

ZELOTES CALDARIA, Purc.

1907. *Melanophora caldaria*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 330, pl. xv, figs. 56 and 57.

*Specimens.*—2 ♀♀, 1 ♂ (12,666 types). Montagu Baths, C. Province. (Dr. W. F. Purcell, November 1902.)

♀ *Colour.*—No pale spots on inner surface of femora I.

*Carapace.*—Subequal in length to tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{2}$ - $\frac{2}{3}$  tarsus IV.

*Eyes.*—Posterior medians small and nearer to laterals than to each other.

*Clypeus.*—Less than diameter of anterior lateral eye.

*Chelicera.*—Superior border with 4 teeth, inferior muticous.

*Sternum.*—Length about  $1\frac{1}{4}$  times greatest width.

*Legs.*—Metatarsus I scopulate anteriorly, and spineless; metatarsus III with strong apical comb; IV with sparse comb.

*Spinners.*—Bearing 4 apical fusules.

*Vulva.*—As in fig. 56, *loc. cit.*

*Measurements.*—Length of carapace, ♀ and ♂ 2.1 mm.

♂ *Colour.*—Femur I with no definite light spot on inner surface, but with entire lighter under surface.

*Carapace.*—Subequal in length to tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes, Sternum, Chelicera, and Spinners.*—As in ♀.

*Clypeus.*—Equal in diameter to anterior lateral eye.

*Legs.*—Metatarsus I very slightly scopulate anteriorly, and without spines; combs as in ♀.

*Pedipalps.*—Palpal organ as in fig. 57, *loc. cit.*

*New Locality.*—Matroosberg Mts., Ceres, 6000–7000 ft., 1 ♀ (B 3507) (R. W. T., December 1917); also 1 ♀ (B 3458), Matroosberg, 5000–6000 ft. (R. W. T., November 1917).

In these specimens, as in the type ♀, the central V-shaped portion of the shaded area in fig. 56, *loc. cit.*, is dark edged and more conspicuous.

#### ZELOTES CAPSULA, n. sp. (Fig. 67, A and B.)

*Specimens.*—1 ♂ and 2 ♀♀ (B 2872 types). Gt. Winterhoek Mts., 5500–6000 ft. (R. W. Tucker, November 1916); also 6 ♀♀ from the same locality at altitudes from 4000–5500 ft., and 2 ♂♂ and jv. (B 2797), 3800–4000 ft.

♀ *Colour.*—Carapace and legs very dark brown, almost black; light patch on femur of first leg conspicuous; abdomen dull testaceous, strongly infuscated on the dorsal surface.

*Carapace.*—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Clypeus.*—Much deeper than the anterior lateral eyes.

*Eyes.*—Seen from above, the anterior row appears slightly re-curved; posterior row scarcely wider, and straight along posterior border of eyes, procurved along anterior border. Anterior laterals larger than the medians; medians nearer to the laterals than to each other. Posterior laterals much larger than the medians; medians slightly further from each other than from the laterals.

*Sternum.*—Length not much greater than breadth.

*Labium.*—Long; reaching to inner apices of the maxillae; border slightly depressed.

*Chelicera.*—Superior margin with 3–4 teeth; inferior margin with 0–1 tooth.

*Legs.*—Metatarsi I and II unspined, scopulate laterally over  $\frac{2}{3}$  of length; metatarsus III with apical spines and a comb of stout setae; metatarsus IV with apical spines, but with setal comb lateral and very sparse.

*Spinners.*—With 3–4 stout fusules; usually retracted and scarcely visible.

*Vulva.*—As in fig. 67A; the circular plaques are sometimes nearer together and often not so well defined, being masked by a thickened cuticle. In general appearance the vulva approaches the form usually found in *Drassodella*.

♂ *Colour.*—Slightly darker than the ♀, especially the abdomen; the light patch on the femur of the 1st leg very distinct on the inner side, but less so than on the other.

*Eyes.*—As in the ♀.

*Carapace.*—Equal in length to tibia and barely  $\frac{1}{2}$  metatarsus I, and equal to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Clypeus.*—About the width of a posterior lateral eye.

*Labium.*—As in ♀.

*Chelicera.*—4–5 teeth on the superior margin; inferior margin muticous.

*Legs.*—Anterior legs spineless and without scopulae; posterior legs spined. Metatarsus III with setal comb; metatarsus IV without.

*Pedipalps.*—Palpal organ and tibial spur as in fig. 67B.

*Measurements.*—Length of carapace, ♂ 2.5 mm., ♀ 2 mm.. Total length, ♂ 5 mm., ♀ 5.8 mm.

#### ZELOTES CRONWRIGHTI, Purc.

1907. *Melanophora cronwrighti*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 330, pl. xv, figs. 54 and 55.

*Specimens* :—

18 ♀♀ (9477 *ex. typis*). Hanover. (S. C. Schreiner, September 1901.)

2 ♂♂ and 1 ♀ (11,933). Hanover. (S. C. Schreiner, December 1901–February 1902.)

♀ *Colour.*—Distinct light patch on inner surface of femora I.

*Carapace.*—Equal in length to tibia, metatarsus, and  $\frac{1}{4}$  tarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes.*—Posterior medians inclined inwards, and nearer posteriorly to laterals and anteriorly to each other.

*Clypeus*.—Greater in depth than diameter of anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 2.

*Sternum*.—Length  $1\frac{1}{4}$  times greatest breadth.

*Legs*.—Metatarsus I scopulate anteriorly, and with 1 basal spine on under surface.

Metatarsus III with strong apical comb; comb on IV weak and lateral.

*Spinners*.—Bearing 5 apical fusules.

*Vulva*.—As in fig. 54, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 2.6, ♂ 2.9 mm.

♂ *Colour, Eyes, Clypeus, and Chelicera*.—As in ♀.

*Carapace*.—Length of carapace subequal to tibia and metatarsus II, and equal to metatarsus and  $\frac{1}{5}$  tarsus IV.

*Legs*.—Metatarsus scopulate over anterior two-thirds and bearing 2 basal spines; comb on metatarsus III strong, on metatarsus IV weak.

*Pedipalps*.—Palpal organ as in fig. 55, *loc. cit.*

*Record of New Localities*.—♂ and ♀ (B 229), from Burghersdorp, O.F.S. (Dr Kannemeyer, September 1909.) 1 ♀ (Grahamstown Museum), Douglas, C. Province. (R. Broom.)

#### ZELOTES FLAVITARSIS, Purc.

1908. *Melanophora flavitarsis*. Purcell in Schultze, Forschungsreise in Sudafrika, Bd. I, p. 238, pl. xi, fig. 21.

*Specimens*.—2 ♀♀ (150,602 *ex. typis*). Kammaggas, Little Namaqualand. (L. Schultze, July 1904.)

*Colour*.—Light patch on inner surface of femur I.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Posterior medians round and nearer to laterals.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, inferior muticous.

*Sternum*.—Only slightly longer than broad.

*Legs*.—Metatarsus I scopulate to base and spineless. Metatarsus III with normal comb, metatarsus IV apparently lacking apical comb.

*Vulva*.—As in fig. 21, *loc. cit.*

*Measurements*.—Length of carapace, 2.3 mm.

#### ZELOTES FRENCHI, n. sp. (Fig. 68.)

*Specimens*.—1 ♀ (B 3900 type). Insiza, S. Rhodesia. (G. French.)

*Colour*.—Carapace dark brown with infuscated mottling; abdomen

infuscated dorsally; legs dark olivaceous brown, the metatarsi and tarsi being redder; light patch on anterior femora, faint.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{4}$  tarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus IV.

*Eyes*.—Large and close together, those in the posterior row being practically equidistant, and the posterior medians subequal to the laterals. Clypeus about  $\frac{3}{4}$  diameter of an anterior lateral eye.

*Sternum*.—Length equal to  $1\frac{1}{4}$  times greatest width.

*Labium*.—As in *Z. capsula*.

*Chelicera*.—Superior margin with 3 teeth, inferior 2.

*Legs*.—Under surface of metatarsus I, with 2 weak apical spines and 2 spines  $\frac{1}{3}$  of the total length from the base, also scopulate anteriorly; metatarsus II with an additional pair of spines midway between the apical and sub-basal spines; both metatarsi I and II bearing scopular hairs. Metatarsus III with a very strong apical comb of bristles, more towards the outer edge of the under surface; metatarsus IV also with a strong apical comb.

*Spinners*.—Inferior spinners with 5 stout apical fusules.

*Vulva*.—As in fig. 68.

*Measurements*.—Carapace, 2.3 mm. long. Total length, 7 mm.

#### ZELOTES FULIGINEA, Purc.

1907. *Melanophora fuliginea*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 327, pl. xv, figs. 44–46.

*Specimens* :—

1 ♀ (3059 type ♀). Signal Hill, Cape Town. (R. M. Lightfoot, December 1897.)

3 ♀♀ and 1 ♂ (9277 ♂ type). Signal Hill. (Dr. W. F. Purcell, September 1901.)

♀ *Colour*.—Distinct pale spot on inner surface of femur I.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus IV.

*Eyes*.—Posterior medians nearer to each other than to the laterals.

*Clypeus*.—Depth equal to quite  $1\frac{1}{2}$  times diameter of an anterior lateral.

*Chelicera*.—Superior border with 3 teeth, inferior with 2.

*Sternum*.—Length equal to  $1\frac{1}{4}$  times the greatest breadth.

*Legs*.—Metatarsus I scopulate laterally almost to base, and with 2 basal spines on under surface. Metatarsi III and IV with strong apical combs.

*Spinners*.—Bearing 5 apical fusules.

*Vulva*.—As in fig. 44, *loc. cit.*

*Measurements*.—Length of carapace, ♀ and ♂, 3.1 mm.

♂ *Colour*.—Inner light patch on femur not so distinct.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{1}{4}$  tarsus IV.

*Eyes*.—Posterior medians nearer posteriorly to laterals, but nearer anteriorly to each other.

*Sternum, Chelicera, Spinners, and Legs*.—As in ♀.

*Pedipalps*.—Palpal organ as in figs. 45 and 46, *loc. cit.*

#### ZELOTES GOOLDI, Purc.

1907. *Melanophora gooldi*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 330, pl. xv, fig. 53.

*Specimens*.—2 ♀♀ (11,705 types). Stompneus, St. Helena Bay. (J. C. Goold, May–June 1902.)

*Colour*.—Conspicuous light patch on inner surface of femur I.

*Carapace*.—Equal in length to tibia and metatarsus and  $\frac{1}{4}$  tarsus I, and to metatarsus and  $\frac{1}{3}$ – $\frac{1}{2}$  tarsus IV.

*Eyes*.—Posterior medians long oblique, nearer to laterals posteriorly and to each other anteriorly.

*Clypeus*.—Slightly greater than diameter of anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 2.

*Sternum*.—Length not much more than greatest breadth.

*Legs*.—Metatarsus I scopulate almost to base, and bearing 2 basal spines. Metatarsus III with strong apical comb, IV with a weaker more lateral comb.

*Vulva*.—As in fig. 53, *loc. cit.*

*Spinners*.—5 apical fusules.

*Measurements*.—Length of carapace, 3 mm.

*Specimens identified from New Localities*.—Caledon; 12 ♀♀ (150,072), Dr. W. F. Purcell, July 1910. These examples are darker than the types, being almost black in colour; the vulva is consequently darker; and has the central markings above the circular plaques continued up the light middle area, and in some cases apparently curved over laterally.

#### ZELOTES HEWITTI, n. sp. (Fig. 69A.)

*Specimens*.—2 ♀♀ (B 5698 types). Grahamstown. (J. Hewitt, November 1914 and February 1915.)

*Colour*.—Carapace medium to light brown, mottled with black;



dorsal and lateral surfaces of abdomen infuscated; legs slightly lighter than carapace, and partially infuscated. Femur I without inner light spot.

*Carapace*.—Equal in length to tibia, metatarsus, and about  $\frac{1}{2}$  tarsus I, and equal to metatarsus and tarsus IV.

*Eyes*.—Posterior medians small and much nearer to the laterals.

*Clypeus*.—Very narrow; much less than diameter of anterior lateral eye.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Metatarsus I with a few scopular hairs anteriorly, and with 2 spines on the under surface; metatarsal comb distinct on metatarsus III, indistinct on IV.

*Vulva*.—As in fig. 69A.

*Measurements*.—Length of carapace, 1.3 mm. Total length, 3.4 mm.

ZELOTES HUMILIS, Purc.

1907. *Melanophora humilis*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 331, pl. xv, figs. 60 and 61.

*Specimens*.—♂ and ♀ (3231 types). Ceres, Cape Province. (Dr. W. F. Purcell, October 1897.)

♀ *Colour*.—Light patches present on inner surfaces of femora I.

*Carapace*.—Length equal to metatarsus and tarsus IV, and very slightly greater than tibia and metatarsus I.

*Eyes*.—Posterior medians round to subangular, and nearer to each other than to the laterals.

*Clypeus*.—Less than the diameter of an anterior lateral eye.

*Sternum*.—Length equal to  $1\frac{1}{4}$  times the greatest diameter.

*Chelicera*.—Superior border with 4 teeth, inferior border 2 small teeth.

*Legs*.—Metatarsus I sparsely clothed with scopular hairs and bearing 2 fine apical and 2 sub-basal spines. Metatarsi III and IV with strong median apical combs.

*Spinners*.—Number of tubules indeterminable.

*Vulva*.—As in fig. 60, *loc. cit.*

*Measurements*.—Carapace, ♂ and ♀, 1.3 mm.

♂ *Colour*.—Pale area on inner surface of femora I very large.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{3}$  tarsus I, and to metatarsus and tarsus IV.

*Eyes*.—Posterior medians slightly oval and inclined inwards, nearer to laterals posteriorly, and to each other anteriorly.

*Clypeus, Sternum, Chelicera, and Spinners.*—As in ♀.

*Legs.*—Metatarsus I not scopulate and bearing 2 spines on under surface; apical combs on metatarsi III and IV strong.

*Pedipalps.*—Palpal organ as in fig. 61, *loc. cit.*

ZELOTES INVIDA, Purc.

1907. *Melanophora invida*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 328, pl. xv, fig. 47.

*Specimens.*—1 ♀ (3497 type). Bergvliet, Cape Flats. (Dr. W. F. Purcell, October 1896.)

*Colour.*—Distinct light patch on inner surface of femora I.

*Carapace.*—Equal in length to tibia, metatarsus, and  $\frac{1}{2}$  tarsus I, and to metatarsus and tarsus IV.

*Eyes.*—Posterior medians slightly oval and inclined inwards, and nearer to each other than to the laterals.

*Clypeus.*—Equal to  $1\frac{1}{2}$  times the diameter of an anterior lateral eye.

*Chelicera.*—Superior margin with 5 teeth, inferior margin 3 teeth.

*Sternum.*—Length not much greater than the greatest width.

*Legs.*—Metatarsus I scopulate almost to base, and with 2 basal spines; apical combs on metatarsi III and IV strong, that on metatarsus IV slightly lateral.

*Spinners.*—Tubules retracted, 4 apparently present.

*Vulva.*—As in fig. 47, *loc. cit.*

*Measurements.*—Length of carapace, 3 mm.

*Specimens identified from New Localities* :—

Caledon; 2 ♀♀ (B 378 and B 379) and 8 ♀♀ (150,071) (Dr. W. F. Purcell, July 1910), the latter examples being smaller and darker than the type.

Matjesfontein; 1 ♀ (150,466). (Dr. W. F. Purcell, August 1906.)

Table Mt., Plattekliip Gorge; 1 ♀ (B 799). (R. W. Tucker, December 1914.)

Stompneus, St. Helena Bay, Malmesbury Div.; 1 ♀ (B 3412). (J. E. C. Goold, January 1902.)

Dassen Island; 1 ♀ (B 383). (R. M. Lightfoot, April 1897.)

Alicedale; 1 ♀ (Grahamstown Museum). (F. Cruden.)

Grahamstown; 1 ♀ (Grahamstown Museum). (J. Hewitt, September 1916.)

ZELOTES LAVA, n. sp. (Fig. 69B.)

*Specimens* :—

1 ♀ (B 1941 type). Beaufort West. (Dr. W. F. Purcell, October 1905.)

1 ♀ (B 1579). De Aar. (Dr. W. F. Purcell, September 1913.)

*Colour*.—Medium brown, slightly mottled with black; legs and chelicera a little lighter; abdomen testaceous, slightly infuscated dorsally and paler ventrally; femora of 1st legs with no light patch.

*Carapace*.—Equal in length to tibia, metatarsus, and  $1\frac{1}{4}$  tarsus I, and slightly greater than metatarsus and tarsus IV.

*Clypeus*.—About  $\frac{1}{2}$  the diameter of an anterior lateral eye.

*Eyes*.—Diurnal in type; anterior row only slightly procurved, posterior row slightly procurved, medians nearer to the laterals than to each other.

*Chelicera*.—Superior border with 5 stout teeth; inferior border with 3 teeth, the middle one being nearer the centre of the groove.

*Sternum*.— $1\frac{1}{3}$  times as long as broad.

*Legs*.—Tarsus I bearing long club-shaped scopular hairs, metatarsus with similar hairs which become sparser basally; no spines on under surface. Tarsus and metatarsus II scopulate; metatarsus bearing 0–1 median and 2 basal spines. Metatarsus III with a very stout apical comb of setae on the under surface; similarly with the 4th leg.

*Spinners*.—Inferior spinners bearing 4 stout apical tubules.

*Vulva*.—As in fig. 69; in the De Aar specimen the vulva is paler, and has the lateral lines shorter and less distinct, and the basal ovals longer and larger.

*Measurements*.—Length of carapace, 2.4 mm. Total length, 6 mm.

Also 1 ♀ (B 3886) from Insiza, S. Rhodesia. (G. French.) This specimen is much smaller than the type, the measurements being: carapace, 1.8 mm.; total length, 5.7 mm. The vulva agrees with the type, but is slightly longer and more compressed.

ZELOTES LIGHTFOOTI, Purc.

1907. *Melanophora lightfooti*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 329, pl. xv, fig. 48.

*Specimens*.—2 ♀♀ (3251 types). Ceres, Cape Province. (R. M. Lightfoot, October 1897.)

*Colour*.—Light patch on inner surface of femur I diffuse.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Posterior medians round, very slightly nearer to each other than to the laterals.

*Clypeus*.—A little wider than the diameter of an anterior lateral eye.

*Chelicera*.—Superior margin with 5 teeth, inferior margin 2 teeth.

*Sternum*.—Equal in length to  $1\frac{1}{4}$  times the greatest breadth.

*Legs*.—Metatarsus I scopulate laterally over  $\frac{1}{2}$  length, and bearing 2 fine apical and 2 basal spines. Metatarsus III with strong apical comb, IV with a smaller and more lateral comb.

*Vulva*.—As in fig. 48, *loc. cit.*

*Spinners*.—Bearing 5 apical fusules.

*Measurements*.—Length of carapace, 3 mm.

#### ZELOTES MONTANA, Purc. (Fig. 70.)

1907. *Melanophora montana*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 329, pl. xv, fig. 51.

1910. *Prothesima montana*. Tullgren in Kilimandjaro - Meru Expedition, 20 : 6, vol. iii, p. 110, ♀.

*Specimens*.—1 ♀ (8589 type). Top of Table Mt., Cape Town. (Dr. W. F. Purcell, October 1900.)

*Colour*.—Light spot on inner surface of femur I small.

*Carapace*.—Length slightly exceeding tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Slightly inclined inwards, but nearer to laterals, especially posteriorly.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—Superior margin with 4 teeth, inferior with 3.

*Sternum*.—Length not much more than greatest width.

*Legs*.—Metatarsus I scopulate laterally two-thirds of length, and with 2 basal spines on under surface ; metatarsi III and IV with strong apical combs.

*Spinners*.—With 5 apical fusules.

*Vulva*.—As in fig. 51, *loc. cit.*

*Measurements*.—Length of carapace, 3 mm.

♂ *Colour*.—Entirely black ; ventral surface of abdomen paler, and lung opercula light brown ; dorsal scutum dark brown.

*Eyes*.—Posterior row straight to slightly procurved, typically diurnal in form.

*Chelicera*.—Superior border with 3 large and 1 small teeth ; inferior

border with 2 large and 1 small teeth ; the small teeth being near the base of the fang.

*Legs.*—Anterior tarsi lightly scopulated ; metatarsi bearing a few scopular hairs, and 2 sub-basal spines ; tarsi III and IV bearing no scopular hairs, but bristles ; metatarsi III and IV strongly spined, and bearing stout apical combs of setae.

*Pedipalps.*—Palpal organ as in fig. 70.

*Measurements.*—Length of carapace, 3 mm. Total length, 7 mm.

*Specimens* :—

- 1 ♂ and 1 ♀ (B 4523). Table Mt. (January 1919.)
- 11 ♂♂ and 3 jv. ♀ (B 4598). Table Mt., Lower Plateau. (R. W. Tucker, February 1919.)
- 1 ♂ and jv. ♀ (B 3345). Steenbras Valley. (R. W. Tucker, October 1, 1917.)
- 1 ♂ (Grahamstown Museum). Alicedale. (F. Cruden, September 1916.)
- 2 ♂♂ (150,070). Caledon. (Dr. W. F. Purcell, July 1910.)
- 2 ♂♂ (14,327). Stellenbosch, C. Province. (R. Broom, October 1904.)
- 1 ♂ (B 4723). Montagu, C. Province. (R. W. Tucker, October 1919.)
- 2 ♀♀ (B 2729). Gt. Winterhoek Mts., 4100 ft. (R. W. Tucker, November 1916.)
- 1 ♀ (B 3464). Matroosberg Mts. (7500–8000 ft.). (R. W. Tucker, December 1917.)

The specimens are slightly smaller and darker than those described by Purcell ; in addition, the vulva shows strongly a character only weakly represented in Purcell's specimens, and not shown in his fig. 51. This character consists of two distinct " tunnels " in the space above the circular plaques ; they are arched over by a continuation of the lateral curved lines, which do not merge in the median dark lines, as fig. 51 shows, but curve down and are superimposed on them. The arches or tunnels so formed are akin to those figured in *P. fuliginea*, Purc., pl. xv, fig. 44. There is great similarity also to the vulva of *P. simoni*, Purc., which is sometimes not so big centrally as in fig. 49. One of the Winterhoek specimens in which the above character is not so conspicuous agrees very well with a specimen from the summit of Table Mountain, which shows it more strongly than the other Peninsula specimens ; one from Kalk Bay Mts. (C. Penins.) shows the character fairly well, and one from Port Elizabeth shows traces of it. One, however, from Table Mt. is as shown in fig. 51, the

arches being almost indistinguishable ; this specimen appears newly moulted.

Also 1 ♀ (B 2771). Gt. Winterhoek Mts. (4800–5000 ft.). (R. W. Tucker, November 17, 1916.)

A ♀ example (B 3211) from Salisbury, S. Rhodesia (R. W. Tucker, April 1917), also appears referable to this species. Tullgren (*loc. cit.*) records a specimen from a height of 3000–4000 ft., Kilimandjaro, G.E. Africa, which, according to his description, is black and differs slightly in eye formation from *montana*. The specimen from Salisbury is also practically black and very large (carapace, 3.5 mm. ; total length, 9.2 mm.), but agrees with *montana*. The vulva is coarse, and has the two dark central lines, figured by Purcell and Tullgren, masked or absent. Both Cape and Rhodesian specimens have the patella and tibia subequal to the cephalothorax, as given by Tullgren for the E. African example. In none, however, are the anterior median eyes so widely separated (2 diameters) as in Tullgren's example, and, further, the median ocular area is wider posteriorly, *i.e.* the medians slightly nearer to the laterals than to each other. Unless the northern examples ultimately prove to belong to a new species, *P. montana* appears to have a wide distribution, namely, from C. Peninsula to G.E. Africa.

ZELOTES MONTIVAGA, n. sp. (Fig. 71.)

*Specimens*.—1 ♀ (B 3503 type). Matroosberg Mts., Ceres, 4500 ft. (R. W. Tucker, November 1917.)

*Colour*.—Carapace and sternum nearly black ; legs similar but slightly lighter distally ; femora of 1st legs with usual lateral light marking. Abdomen dull testaceous, strongly infuscated dorsally.

*Carapace*.—Equal in length to tibia, metatarsus,  $\frac{1}{2}$  tarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Posterior medians round, much nearer to laterals.

*Clypeus*.—Subequal to diameter of anterior lateral eye.

*Chelicera*.—Inferior border muticous ; superior border bearing 4 teeth.

*Sternum*.—Length equal to  $1\frac{1}{4}$  times greatest breadth.

*Legs*.—1st and 2nd legs without spines on the under surface. Tarsi III and IV well clothed with bristles on the under surface ; legs otherwise not so heavily spined as is usual. Metatarsal comb on 3rd leg weak and small ; practically absent on 4th metatarsus.

*Vulva*.—As in fig. 71.

*Measurements*.—Length of carapace, 2 mm. Total length, 5.2 mm.

ZELOTES NATALENSIS, n. sp. (Fig. 72.)

*Specimens*.—1 ♀ (B 1326 type). Inyalazi River, Natal. (H. W. Bell Marley, July 1915.)

*Colour*.—Carapace medium brown, mottled with black; coxae of legs light brown; legs dark, the tarsi and metatarsi being reddish in colour. Dorsal surface of abdomen infuscated olivaceous in colour; ventral surface paler. Femur or 1st leg without lateral light patches.

*Carapace*.—Equal in length to tibia and  $\frac{3}{4}$  metatarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus I.

*Clypeus*.—Slightly less than the diameter of an anterior lateral eye.

*Eyes*.—Anterior laterals much larger than the medians; posterior row very slightly procurved; medians as large as laterals, subangular and much nearer to each other than to laterals.

*Sternum*.—Slightly longer than broad.

*Chelicera*.—Superior border with 4 teeth, inferior border with 3 smaller teeth.

*Legs*.—Tarsus I scopulate; metatarsus not scopulate, but bearing 2 basal spines on the under surface. Tarsus II not scopulate, metatarsus with 1 median and 2 basal spines. Tarsus III densely clothed with bristle-like hairs on the under surface, and metatarsus with a strong apical comb of setae; 4th leg similar, and metatarsus twice the length of the tarsus.

*Spinners*.—Inferior spinners with 5 stout apical tubules.

*Vulva*.—As in fig. 72.

*Measurements*.—Length of carapace, 2.8 mm. Total length, 7 mm. This species greatly resembles *Camillina* in eye formation.

ZELOTES O'NEILI, Purc.

*Melanophora o'neili*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 332, pl. xv, fig. 62.

*Specimens*.—2 ♀♀ (5277 types). Dunbrody, Uitenhage Div. (Rev. J. A. O'Neil.)

*Colour*.—Light patch on inner surface of femora I very distinct.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{3}$  tarsus I, and slightly exceeding metatarsus and tarsus IV.

*Eyes*.—Posterior medians subangular, nearer to laterals than to each other.

*Clypeus*.—Barely equal to the diameter of an anterior lateral eye.

*Chelicera.*—Superior border with 3 large teeth, inferior border muticous.

*Sternum.*—Length equal to  $1\frac{1}{4}$  or more times the greatest width.

*Legs.*—Metatarsus I scopulate almost to base and spineless; metatarsi III and IV with strong apical median combs.

*Spinners.*—Number of fusules indeterminable.

*Vulva.*—As in fig. 62, *loc. cit.*

*Measurements.*—Length of carapace, 2.4 mm.

ZELOTES ORNATA, n. sp. (Fig. 73.)

*Specimens* :—

1 ♀ (B 2859 type). Gt. Winterhoek Mts., 4500–5000 ft. (R. M. Lightfoot, November 20, 1916.)

1 ♀ (B 2545). Gt. Winterhoek Mts. (R. W. Tucker, April 4–14, 1916.)

*Colour.*—Carapace dark mahogany brown; legs very slightly lighter. Dorsal surface of abdomen infuscated, ventral surface slightly paler. Sternum, coxae, and mouth-parts dark brown. Light patches on inner surface, and outer under surface of femur I only moderately distinct.

*Carapace.*—Equal in length to tibia, metatarsus, and  $\frac{1}{5}$  tarsus I, and to metatarsus and tarsus IV.

*Eyes.*—Posterior medians round and nearer to laterals.

*Sternum.*—Slightly longer than broad.

*Clypeus.*—Equal to diameter of an anterior lateral eye.

*Chelicera.*—Inferior border muticous; superior border with 3 stout teeth.

*Legs.*—Metatarsi I and II with 0–1 basal and 1 lateral spines on the lower surface. Metatarsus III with a strong apical comb of bristles on under surface; metatarsus IV with a stout but small apical comb.

*Vulva.*—As in fig. 73.

*Measurements.*—Carapace, 2.6 mm. in length. Total length, 6 mm. Species allied to *Z. invicta* (Purc.).

ZELOTES PALLIDIPES, n. sp. (Fig. 74.)

*Specimens.*—1 ♀ (No. B 2134 type). Nomptsas, S.W. Africa. (R. W. Tucker, December 23, 1915.) Percy Sladen Memorial Expedition.

*Colour.*—Carapace almost black, and with radiating and mottled



infuscations; legs dark brown, femora tinged olivaceous, tarsi lighter; no distinct light patch on femur I inner surface. Abdomen pale testaceous below, and infuscated and wrinkled above. Spinners dark brown; sternum, coxae, etc., medium brown.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Anterior laterals larger than the medians; anterior medians small, round, and situated on a slight protuberance, which, seen from above, gives the anterior row a slightly recurved appearance; seen from in front, the row is slightly procurved. Posterior row straight and wider than the anterior row; medians small, round, slightly nearer to the laterals than to each other; laterals much larger than the medians.

*Clypeus*.—A little less than the diameter of an anterior lateral eye.

*Chelicera*.—With 2 blunt projections on the posterior border, and 1 large blunt tooth and an adjacent small one on the anterior border.

*Sternum*.—Nearly  $1\frac{1}{4}$  times as long as broad.

*Legs*.—Anterior legs spineless, and with sparse bristle-like scopulae on the tarsi. Tibia of the 1st leg slightly longer and much stouter than the metatarsus. Posterior legs bearing moderately stout spines save on the tarsi, which are clothed with strong bristles or short fine spines on the under surface. Metatarsus III bearing an imperfect comb of long bristles on the lower anterior border; metatarsus IV apparently lacking a comb. Posterior tarsal claws long and bearing 4–5 strong teeth.

*Pedipalps*.—Patella longer and stouter than the tibia; tibia, tarsus, and palpal organ as in fig. 74.

*Spinners*.—Inferior spinners with a fringe of hairs and fusules (number indeterminable) on the outer apex; in length slightly exceeding the median, and twice as long as the superior spinners.

*Measurements*.—Length, 3.9 mm. Carapace, 1.6 mm. in length.

ZELOTES PEDIMACULOSA, n. sp. (Fig. 75.)

*Specimens*.—3 ♀♀ (B 5247 types). Windhuk, S.W.A. Prot. (R. W. Tucker, January 1920.)

*Colour*.—Carapace very dark brown, mottled black. Abdomen grey black dorsally, dull testaceous laterally. Sternum brown, coxae lighter. Anterior legs similar in colour to carapace; tarsi and metatarsi lighter; posterior pair of legs mottled light and dark; pronounced light patch on inner surface of femur I.

*Carapace*.—Equal in length to tibia, metatarsus, and about  $\frac{1}{2}$  tarsus I, and to metatarsus and nearly  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Posterior medians round, nearer to laterals than to each other.

*Chelicera*.—Superior border with 3 teeth, inferior with 2.

*Sternum*.—Slightly longer than broad (nearly  $1\frac{1}{4}$  times greatest breadth).

*Clypeus*.—Less than diameter of an anterior lateral eye.

*Legs*.—Tarsi I and II entirely scopulate; metatarsus sparsely scopulate and spineless. Legs III and IV without scopular hairs, but bearing bristles on tarsi and bristles and spines on metatarsi. Metatarsus III bearing strong apical comb of bristles; IV with comb weak or lacking.

*Vulva*.—As in fig. 75. Cf. *Z. montivaga*, n. sp.

*Measurements*.—Length of carapace, 2 mm. Total length, 5 mm.

#### ZELOTES PULCHRIPES, Purc.

1908. *Melanophora pulchripes*. Purcell in Schultze, Forschungsreise in Sudafrika, vol. i, p. 238, pl. xi, figs. 22 and 23.

“*Specimens*.—1 ♂ and 1 ♀. Steinkopf, Little Namaqualand. (L. Schultze, July 1904.)

“♂ (type). *Colour*.—Cephalothorax testaceous, the margins narrowly blackened; abdomen deep black, slightly iridescent, the underside slightly paler in the middle, the lung opercula and the area between them pale yellowish; sternum, coxae of pedipalps, and chelicera testaceous; legs pale ochraceous, the 2 anterior pairs much blackened on the femora, patellae, and tibiae; third and fourth pairs with a black distal patch on each side of the femora, fourth pair also with a black distal spot on each side of the patella and a long black patch on each side of the tibia, extending over more than the distal half of the segment; tibiae and metatarsi pale ochraceous.

“Anterior row of eyes strongly procurved, the laterals larger than the medians; posterior row straight, distinctly wider than the anterior row, the eyes equidistant, the laterals a trifle larger than the medians.

“*Chelicera*.—With 1 large and 3 small teeth on superior margin, but none on inferior margin.

“*Legs*.—Metatarsus I with 2 spines below, but without scopula; tibia I unspined.

“*Pedipalps*.—Femur sinuated on outer side at distal end, the sinus with a short stout spine at its proximal end ; patella a little longer than the tibia ; tibia short, without the usual outer spur at apex, but with a short apical spine above ; palpal organ as in pl. xi, fig. 22, the distal end with a short horizontal plate projecting forwards and outwards, and provided on medial side with a small tooth directed downwards and a slender spine projecting forwards and outwards.

“♀. Abdomen paler, the legs much less blackened, the posterior pairs almost entirely pale ochraceous.

“*Legs*.—Anterior pair spined as in the ♂.

“*Chelicera*.—With a distinct inferior tooth in addition to the superior ones.

“*Vulva*.—As in pl. xi, fig. 23, *loc. cit.*

“*Length*.—♂,  $3\frac{1}{4}$  mm. ; ♀, 5 mm.

“This little species is prettily coloured and is well characterised by the structure of the femur and tibia of ♂. In ♀ anterior row of eyes are abortive.” (W. F. P.)

#### ZELOTES REDUNCA, Purc.

1907. *Melanophora redunca*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 329, pl. xv, fig. 50.

*Specimens*.—3 ♀♀ (3394 types). Salt River, Cape Town. (Dr. W. F. Purcell, April 1896.)

*Colour*.—Light patch on inner surface of femur present, but indistinct.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{2}{3}$  tarsus I, and to metatarsus and tarsus IV.

*Eyes*.—Posterior medians subangular, very slightly nearer to the laterals.

*Clypeus*.—Slightly greater than the diameter of an anterior lateral eye.

*Chelicera*.—Superior margin with 3, possibly 4 teeth, inferior margin 2 or 3.

*Sternum*.—Length slightly greater than the greatest breadth.

*Legs*.—Metatarsus I scopulate almost to base, and with 2 basal spines. Metatarsi III and IV with strong apical combs.

*Spinners*.—Tubules retracted and indeterminable.

*Vulva*.—As in fig. 50, *loc. cit.*

*Measurements*.—Length of carapace, 3 mm.

## ZELOTES RUFIPES, n. sp. (Fig. 76, A and B.)

*Specimens.*—3 ♀♀ and 3 ♂♂ (B 3255 types). Salisbury, S. Rhodesia. (R. W. Tucker, April 1917.)

♀ *Colour.*—Carapace dark brown, with marginal and slight radial infuscations. Legs dark olivaceous brown from femora to tibiae; metatarsi and tarsi lighter, redder brown (in a newly moulted ♀ the distinction is very clear); femora of 1st leg without light patches. Abdomen testaceous, completely infuscated on the upper surface, but less so underneath. Sternum medium brown; coxae lighter and slightly olivaceous.

*Carapace.*—Equal in length to tibia, metatarsus, and  $\frac{1}{3}$ – $\frac{1}{4}$  tarsus I, and to metatarsus and tarsus IV.

*Eyes.*—Diurnal type. Posterior medians subangular and oblique, and nearer to each other posteriorly than to the laterals. Clypeus equal in depth to the diameter of an anterior lateral.

*Sternum.*—About  $1\frac{1}{4}$  times as long as broad.

*Chelicera.*—Superior margin with 3 strong teeth; inferior margin with 3 small teeth, the proximal one being minute.

*Legs.*—Tarsus I slightly scopulate, and with a line of fine bristles down the under surface; metatarsus with a few bristles and scopular hairs anteriorly on the lower surface; 3–4 of the apical bristles being spiniform; also with 2 spines basally. Tarsi and metatarsi II similar, but metatarsus with 2 median spines also. Posterior legs heavily spined. Tarsus III densely clothed with bristles on the lower surface; metatarsus with a strong apical comb. Tarsus IV not so densely clothed as III; metatarsus also with a strong apical comb.

*Vulva.*—As in fig. 76A.

*Spinners.*—Inferior spinners with 5 apical tubules.

♂ *Colour.*—As in ♀. Dorsal surface of abdomen with a dark brown scutum anteriorly, extending over  $\frac{2}{3}$  of the entire length. Ventral surface with a lighter brown epigastric scutum.

*Eyes and Sternum.*—As in ♀.

*Carapace.*—Length equal to tibia and  $\frac{3}{4}$  or more metatarsus I, and to metatarsus and  $\frac{1}{2}$ – $\frac{2}{3}$  tarsus IV.

*Chelicera.*—Superior border armed with 5 teeth, inferior border with 4 smaller ones; in each case the proximal two are smaller than the others.

*Legs.*—Tarsus I with a few scopula-like hairs on the under surface; metatarsus with 4 stout spines on the under surface; the two on the outer edge being closer together than those on the inner. Tarsus II

also with a few scopular hairs and a line of bristles down the centre; metatarsus also with 4 spines. Metatarsi III and IV with stout apical combs.

*Pedipalps*.—Femur with 2 distal and 1 nearly median spines on the dorsal surface. Patella much larger than the tibia, furnished on the outer under side with an apical projection and a brush of long stiff hairs. Tibia bearing the usual apical projection. Palpal organ as in fig. 76B.

*Measurements*.—Carapace (largest examples), ♀ 2.9 mm., ♂ 3 mm. in length. Total length, ♀ 6.7 mm., ♂ 7.6 mm.

Two ♀♀ (B 2390) from Cookhouse (Somerset East), taken by Dr. W. F. Purcell, October 1905, conform to this species. They do not show such distinct bicoloration of the legs as in the Salisbury specimens, the legs being more uniformly rufous. The slight lightening or reddening of the tarsi and metatarsi, however, is fairly common among *Zelotes*.

Also 1 ♀ (150,621). Durban, Natal. (Dr. W. F. Purcell, September 1905.)

12 ♀♀ and 5 ♂♂ (B 4156). Mfongosi, Zululand. (W. E. Jones, February 1918.)

1 ♀ (B 4376). Acornhoek, E. Transvaal, Low Veld. (R. W. Tucker, December 1918.)

1 ♂ (B 228). Burghersdorp, O.F.S. (Dr. Kannemeyer), appears referable to this species; the specimen, however, is somewhat damaged.

*ZELOTES SCLATERI*, n. sp. (Fig. 77.)

*Specimens*.—1 ♀ (14,425 type). Korokoro, Basutoland. (L. Selater, 1905.)

*Colour*.—Carapace dark brown with radiate infuscation; legs a little lighter than the carapace, and becoming slightly paler distally; femur I with light patch on inner and outer surfaces. Abdomen strongly infuscated dorsally and ventrally.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{3}$  tarsus I, and to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Clypeus*.—Equal to the diameter of an anterior lateral eye.

*Eyes*.—Posterior medians slightly inclined inwards; nearer to laterals than to each other.

*Chelicera*.—Superior border with 3 stout teeth, inferior border with 2 denticles.

*Legs*.—Metatarsus I slightly scopulated anteriorly and bearing 2

spines basally on the under surface, metatarsus II similar. Tarsus III bearing bristles, but no scopular hairs; metatarsus heavily spined, IVth leg similar.

*Vulva*.—As in fig. 77.

*Measurements*.—Length of carapace, 2.6 mm. Total length, 6 mm.

#### ZELOTES SIMONI, Purcell.

1907. *Melanophora simoni*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 329, pl. xv, fig. 49.

*Specimens*.—3 ♀♀ (4343 types). Hout Bay, C. Penins. (Dr. W. F. Purcell, March 1898.)

*Colour*.—Light patch on inner side femora I absent.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{4}$  tarsus I, and to metatarsus and tarsus IV.

*Eyes*.—Posterior medians slightly nearer to laterals.

*Clypeus*.—Wider than the diameter of an anterior lateral eye.

*Sternum*.—Length not quite  $1\frac{1}{4}$  times the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, inferior border with 2 teeth.

*Spinners*.—Bearing 4 apical tubules.

*Legs*.—Metatarsus I scopulate almost to base, bearing 2 basal spines; metatarsi III and IV with strong apical combs.

*Vulva*.—As in fig. 49, *loc. cit.*

*Measurements*.—Length of carapace, 2.6 mm.

#### ZELOTES UNGULA, n. sp. (Fig. 78, A and B.)

*Specimens* :—

1 ♂ and 1 ♀ (B 4158 types). Mfongosi, Zululand. (W. E. Jones, February 1918.)

1 ♂ (8437) and 1 ♂ (12,432). Dunbrody. (Fr. O'Neil, 1906.)

♀ *Colour*.—Carapace medium brown, slightly olivaceous, mottled, and with slight radiate infuscations. Abdomen black dorsally, and very slightly lighter ventrally. Sternum, coxae, etc., light brown. Legs dark and tinged olivaceous as far as the metatarsi; tarsi and metatarsi light orange red.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Clypeus*.—About  $\frac{2}{3}$  the diameter of an anterior lateral eye.

*Eyes*.—Posterior medians round to subangular, equidistant from each other and laterals, or nearer each other.

*Chelicera*.—Superior border with 4 teeth, inferior border with 4 smaller teeth.

*Legs*.—Tarsus I clothed with stout hairs, but apparently without scopular hairs on the under surface; metatarsus without scopular hairs, and bearing 2 spines towards the base of the under surface; 2nd leg similar, metatarsus with 2 additional spines distally. Tarsus III clothed with stout bristles on the under surface, metatarsus well spined and bearing a strong comb of bristles apically and slightly towards the outer surface; IVth leg similar; comb of bristles on metatarsus very dense and more towards the centre. Tarsal claws strongly dentate.

*Spinners*.—With 5 apical fusules.

*Vulva*.—As in fig. 78A, occupying the entire space between the lung operculae; on one side, the loop immediately above the basal circular “plaques” is underdeveloped, and on the other side overdeveloped; they are figured, however, as symmetrical.

♂ *Colour*.—Slightly darker than the ♀; abdomen with a dark brown dorsal scutum extending over nearly  $\frac{1}{2}$  the total length.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Posterior medians subangular, close together, and subequal to the laterals.

*Clypeus*.—Half the diameter of an anterior lateral eye.

*Chelicera*.—As in ♀; inferior basal tooth very small.

*Legs*.—Similar to the ♀; metatarsus I with the addition of an anterior spine on the inner side of the under surface.

*Spinners*.—Bearing 4 apical tubules, as in ♀.

*Pedipalps*.—Tarsus broad, clothed dorsally with hairs, of which the anterior ones are fine and scopular-like; palpal organ as in fig. 78B, bearing 2 claw-like processes, and a long curved style. Tibia bearing a stout apical process on the outer side, and a ridge-like projection apically on the inner side; dorsal surface thickly clothed with long black hair.

*Measurements*.—Length of carapace, ♂ and ♀, 2.5 mm. Total length, ♂ and ♀, 5.5 mm.

The specimens from Dunbrody are larger in size than type specimens: No. 8434 measuring 3 mm. carapace and 6.5 mm. total length; No. 12,432, 3.7 mm. and 6.8 mm. respectively. Further, they are redder in colour, and the abdomen more testaceous, whilst the eyes tend towards

the formation shown in *Camellina*. The palpal organ, however, undoubtedly coincides with *Z. angula*.

Also 1 ♂ (Grahamstown Museum). Alicedale. (F. Cruden.)

1 ♂ (Grahamstown Museum). Steytlerville. (Miss B. Geard, December 1916.)

*ZELOTES VESPERTILIONIS*, n. sp. (Fig. 79, A and B.)

*Specimens*.—2 ♀♀ and 2 ♂♂ (B 3095 types); 1 ♂ (B 3252); and 1 ♀ (B 3212). Salisbury, S. Rhodesia. (R. W. Tucker, April 1917.)

♀ *Colour*.—Carapace dark brown, infuscated marginally, and with slight radiate infuscations. Legs slightly lighter and redder distally. Abdomen infuscated testaceous on the upper surface, and paler below. Sternum and mouth-parts reddish brown; coxae lighter brown. No light areas on femora of 1st legs.

*Carapace*.—Length subequal to tibia and metatarsus I, and equal to metatarsus and at least  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Moderately large, conforming to the diurnal arrangement save that the posterior medians are slightly nearer to each other than to the laterals. Clypeus deeper than the diameter of an anterior median eye, but less than  $\frac{1}{2}$  the diameter of an anterior lateral.

*Sternum*.—Length  $1\frac{1}{4}$  times the greatest breadth.

*Labium*.—Nearly twice as long as broad.

*Chelicera*.—Superior margin with 4 strong teeth; inferior margin with 4 smaller ones, the proximal one being minute.

*Legs*.—Tarsi I and II slightly scopulate. Metatarsi I and II with 1 median and 2 basal spines on the under surface. Metatarsi III and IV heavily spined, and each furnished with a dense apical comb of setae on the under surface. Tarsal claws strongly toothed.

*Vulva*.—As in fig. 79A.

*Spinners*.—Inferior spinners with 7–8 dark apical tubules.

♂ *Colour*.—As in ♀. Abdomen with a dark brown dorsal scutum extending over  $\frac{1}{3}$  of its length. Ventral surface with a lighter brown epigastric scutum, bearing a lip-like generative opening.

*Carapace*.—Length equal to tibia and nearly  $\frac{2}{3}$  metatarsus I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—As in ♀; posterior medians nearly touching each other.

*Sternum*.—As in ♀.

*Chelicera*.—Superior margin with 4 teeth, the middle ones being the largest; inferior margin with 3 small teeth.



*Legs.*—Tarsi I and II not scopulated. Metatarsus I bearing no spines; metatarsus II with 1 median and 2 basal spines on the under surface. Metatarsi III and IV with strong apical combs.

*Pedipalps.*—Femur bearing 3 spines distally on dorsal surface; patella smaller than tibia; latter bearing a stout, blunt apical projection on outer surface. Palpal organ as in fig. 79B.

*Spinners.*—Inferior spinners with 7 apical tubules.

*Measurements.*—Carapace, ♀ 4.3 mm., ♂ 3.7 mm. long. Total length (chelicera to end of abdomen), ♀ 10.2 mm., ♂ 9 mm.

Also 2 ♀♀ (B 3864). Salisbury. (Rev. J. O'Neil, 1917.)

1 ♀ (B 3889). Insiza, S. Rhodesia. (G. French.)

ZELOTES VRYBURGENSIS, n. sp. (Fig. 80.)

*Specimens.*—1 ♀ (B 3326 type). Vryburg. (J. S. Brown, April 1917.)

*Colour.*—Carapace dark brown centrally, and almost black anteriorly and marginally; general appearance mottled. Abdomen dark grey, with testaceous mottlings. Sternum very dark brown; coxae lighter and mottled above and below. Legs dark olivaceous brown, lighter and slightly redder distally. Femora of 1st legs with an almost white patch on the inner surface, and a similar patch extending over the entire length of the under portion of the outer surface.

*Carapace.*—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Clypeus.*—Slightly exceeding the diameter of an anterior lateral eye.

*Eyes.*—Posterior medians round, much nearer to laterals than to each other.

*Sternum.*—Length only slightly exceeding the greatest breadth.

*Chelicera.*—Superior border bearing 4 teeth, of which the two middle ones are the largest; inferior border with 2 small teeth.

*Legs.*—Tarsus I bearing a scopula of club-shaped hairs; metatarsus also with similar hairs, especially anteriorly; and two spines basally on the under surface. Tarsus and metatarsus II similar, but the metatarsus with an additional median spine on the inner border of the under surface. Metatarsi III and IV with the usual apical comb of bristles.

*Vulva.*—As in fig. 80; anterior border overlapped by dense black hairs.

*Spinners.*—Inferior spinners with 5 apical tubules.

*Measurements.*—Carapace 3.1 mm. in length. Total length, 9.8 mm.

## ZELOTES ZONOGNATHA, Purc.

1907. *Melanophora zonognatha*. Purcell in A.M.N.H., ser. 7, vol. xx, p. 331, pl. xv, figs. 58 and 59.

*Specimens*.—4 ♀♀ (13,883 types), 4 ♂♂ (11,971). Eierfontein, near Hanover. (S. C. Schreiner, December 1901–February 1902.)

♀ *Colour*.—No light patch on inner surface of femora I.

*Carapace*.—Equal in length to tibia and  $\frac{5}{6}$  metatarsus I, and slightly less than metatarsus and tarsus IV.

*Eyes*.—Posterior medians nearer to the laterals than to each other.

*Clypeus*.—Less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior margin with 5 teeth, one of which is very small; inferior with 3, two of which are medium sized.

*Sternum*.—Length at least  $1\frac{1}{4}$  times the greatest width.

*Spinners*.—Bearing 6 apical fusules.

*Legs*.—Metatarsus scopulate nearly to base and spineless; metatarsi III and IV with strong apical combs.

*Measurements*.—Length of carapace, ♂ and ♀, 2.6 mm.

♂ *Colour, Clypeus, and Chelicera*.—As in ♀.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus I.

*Eyes*.—Posterior medians equidistant from laterals and each other, or perhaps slightly nearer to the laterals.

*Sternum*.—Length barely equal to  $1\frac{1}{4}$  times the greatest width.

*Spinners*.—Bearing 5–6 apical fusules.

*Legs*.—Metatarsus I scopulate anteriorly and bearing no spines; metatarsus III with strong setal comb, IV with a moderate comb.

*Pedipalps*.—Palpal organ as in fig. 59, *loc. cit.*

## ZELOTES ALBANICUS, Hewitt.

1915. *Melanophora albanicus*. Hewitt Records, Albany Museum, vol. iii, No. 2, p. 100, fig. 8B.

*Specimens*.—1 ♀ type (Grahamstown Museum). Grahamstown. (C. Sole, July 1901.)

*Colour*.—Light patch present on inner surface of femur I.

*Carapace*.—Equal in length to tibia, metatarsus, and  $\frac{1}{4}$  tarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Posterior medians much nearer to laterals.

*Sternum*.—Length only slightly exceeding greatest breadth.

*Clypeus*.—Equal to nearly  $1\frac{1}{2}$  times diameter of an anterior lateral eye.

*Chelicera*.—Inferior border with 1 tooth.

*Legs*.—Metatarsus I scopulate nearly to base, and bearing 2 basal spines; strong apical comb on metatarsus III, comb on metatarsus IV weak and lateral.

*Vulva*.—See fig. 8B, *loc. cit.* Anterior lateral shading shown is not apparent in specimen. The main distinction between this species and *Z. gooldi* is that the central portion of the vulva is narrower than the lateral portions; the species is undoubtedly very narrowly separated from *gooldi*.

*Measurements*.—Length of carapace, 3 mm. Total length, 7.2 mm.

ZELOTES FULIGINOIDES, Hewitt.

1915. *Melanophora fuliginoides*. Hewitt in Records, Albany Museum, vol. iii, No. 2, p. 101, fig. 8A.

*Specimens*.—1 ♀ type (Grahamstown Museum). Grahamstown. (J. Hewitt.)

*Colour*.—Light patch on inner side of femora dull and inconspicuous.

*Carapace*.—Equal in length to tibia and metatarsus I, and to metatarsus and tarsus IV.

*Eyes*.—Medians round and decidedly nearer to the laterals.

*Clypeus*.—Slightly less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 2.

*Sternum*.—Slightly longer than broad.

*Legs*.—Metatarsus I without scopula, and with 2 fine basal spines; metatarsi III and IV with strong apical combs.

*Spinners*.—Inferior spinners with 5 apical tubules.

*Vulva*.—See text-fig. 8A, *loc. cit.* In appearance the vulva bears considerable resemblance to that of various specimens of *montana*, to which the species is undoubtedly closely allied.

*Measurements*.—Length of carapace, 2.1 mm.

GEN. POECILOCHROA, Westr.

Key to ♀ Species.

- (4). 1. Superior border of chelicera with 3 teeth, inferior with one small tooth.
- (3). 2. Clypeus scarcely exceeding diameter of anterior lateral eye . . . *involuta*.
- (2). 3. Clypeus twice diameter of anterior lateral eye . . . *anomalous*.
- (1). 4. Superior border of chelicera with 1 tooth, inferior border with 0–1 denticles.
- 5. Clypeus scarcely exceeding diameter of anterior lateral eye . . . *capensis*.

## POECILOCHROA CAPENSIS, Strand.

1909. *Poecilochroa capensis*. Strand in Deutsch Sudpolar Exped., 1901-3, Bd. 10, Hft. 5, p. 552.

“*Locality*.—Fishoek, C. Penins. 1 subadult ♀, July 8, 1903.

“*Cephalothorax*.—Black to light brownish, with white appressed hairs. Sternum pure black. Mandibles brown internally, and lighter redder apically. Ocular region deep black; maxillae and labium black, former with whitish anterior and inner border. Legs brownish black, and on I and II the joints are yellow from, and including, patellae onwards; the former, however, are somewhat infuscated. On III and IV only metatarsi and tarsi are yellowish. Abdomen deep black above, with weak metallic shimmer, and with pure white markings at the basis, in middle an indistinct patch, and on each shoulder an angular spot; these spots are distant from one another by fully their diameter. Over the middle of the abdomen a narrow cross band, beginning from the margin of the belly area, narrowly interrupted dorsally, and bent convexly forward from the lower half of sides; near end of back 2 small spots, distant from one another by breadth of all the spinnerettes; belly with 2 white, somewhat elongated longitudinal spots in middle, distant from one another by fully their breadth, and diverging slightly in front.

“*Spinnerettes*.—Brownish black, scarcely darker at ends.

“*Eyes*.—Seen in fluid. Posterior row straight, eyes equally large, or perhaps the side eyes a little larger. Middle eyes diverging posteriorly, distant from one another by double their longest diameter, and a little further distant from the side eyes. Front row shorter and so strongly procurved that a straight line drawn tangential to the lower margin of middle eyes will pass through the centre of the side eyes. Middle eyes largest of all eyes, distant from one another  $\frac{2}{3}$  their diameter, and almost touching the side eyes; the latter 1 diameter from the clypeus margin. Median ocular area as broad anteriorly as posteriorly, but longer than broad.

“*Chelicera*.—Upper margin with 1 small tooth, lower margin 0-1 granules; upper margin also with a row of bent bristles.

“*Epigyne*.—Unripe; epigaster coloured like the belly; behind, in the middle of the groove, is a small white spot; somewhat farther in front are 2 smallish, round grey spots, forming a cross band; distant from one another by less than their diameter, and forming with the posterior spot a triangle, which is longer than anterior breadth.

“*Legs*.—Tarsal claws toothed and bearing fascicles which are formed

of remarkably strongly widened hairs. Tarsi I and II scopulate, III and IV with bristles only, or mixed with scopular hairs on sides. Metatarsi I and II scopulate in apical  $\frac{2}{3}$ . All femora dorsally, near base with 1 long outstanding spine, as also 1 or 1.1 above; in addition, III and IV at least each with 1 spine in front and behind on the point; 3, in addition, above, in front, in the middle, 1. All patellae above at point with 1 bristle, which sometimes can be very long and fine; patella III always with 1 spine posteriorly in centre. Metatarsi I and II with 1, sometimes 2 spines on under surface. Tibia I with 1 spine anteriorly on under surface; posterior tibiae and metatarsi with many spines.

“Very fine thoracic stria present.

“*Abdomen*.—Broadly elliptical, both endsequally blunted, flattened above. Lower spinnerettes long, about equal to the front tarsi, broadly truncate apically, also slightly curved convexly outwards, and distant from one another by scarcely their breadth; upper ones  $\frac{2}{3}$  as long as lower body length.”

POECILOCHROA ANOMALUS, Hewitt. (Fig. 81.)

1915. *Xerophoeus anomalus*. Hewitt in Records, Albany Museum, vol. iii, No. 2, p. 98, fig. 6.

*Specimens* :—

1 ♀ (5141 type). Pocaltsdorp, George Div., C. Col. (Miss L. Leipoldt.)

1 ♀ and jv. (B 1994). Grahamstown. (Dr. W. F. Purcell, October 6, 1905.)

*Colour*.—Carapace dark brown with radiate infuscations and mottling; abdomen testaceous, infuscated dorsally; sternum, coxae, etc., light brown; femora of legs dark, patellae pale yellow, tibiae pale brown; femora I with light patch as in *Prothesima*. Carapace, abdomen, and sternum without pubescence.

*Eyes*.—Anterior row lightly procurved; medians larger than the laterals and touching them. Posterior row straight, eyes practically equidistant, medians smaller than the laterals. Median ocular area rectangular, and longer than wide. Clypeus twice the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 contiguous teeth, the middle one being the largest; inferior border with 1 small tooth.

*Legs*.—Tarsus and metatarsus I scopulate to the base; metatarsus bearing one basal spine; tibia with 1 apical and 1 anterior median

spine on the under surface ; 2nd leg similar. Metatarsus III sparsely scopulate, and bearing no anterior comb of bristles ; tarsus IV bearing bristles and a few scopular hairs on the under surface ; metatarsus long, heavily spined, and also without an apical comb.

*Vulva*.—As in fig. 81 : fig. 6, *loc. cit.* Hewitt, does not seem to adequately represent the actual formation, which is as in figure given.

*Measurements*.—Length of carapace, 2 mm. Total length, 6.4 mm.

The specimen from Grahamstown (B 1994) is much darker, especially in the sternum and legs, and bears whitish appressed hairs on the carapace ; the abdomen is also clothed, and not bare as in type. The abdomen also bears a dark central anterior band, indistinct bands of whitish hairs anteriorly, and scattered hairs posteriorly. Clypeus less than twice the diameter of an anterior lateral eye. Tibia I with a basal spine in addition to those mentioned above. Vulva identical but somewhat longer.

Also 1 ♀ (14,694) from Kentani. (H. P. Abernethy, 1909.) This specimen agrees with type.

#### POECILOCHROA INVOLUTA, n. sp. (Fig. 82.)

*Specimens*.—1 ♀ (7923 type). Avontuur, near Stromsvlei, Swellendam Div. (Dr. W. F. Purcell, August 1900.)

*Colour*.—Carapace very dark, infuscated marginally, and with an infuscated network from the median ocular area to the stria. Abdomen dull grey brown, very slightly lighter on the under surface. Sternum, coxae, femora, etc., dark ; legs lighter from patellae onwards ; pedipalps and apices of chelicera, pale. Femur I bearing a light patch on the external surface. Integument clothed with light brown sparse pubescence ; present also on the sternum and carapace.

*Eyes*.—Anterior row close together, and procurved ; medians slightly larger than the laterals and touching them. Posterior row straight, medians subangular, inclined inwards, and slightly nearer to each other than to the laterals. Clypeus slightly exceeding the diameter of an anterior eye.

*Chelicera*.—As in *anomalus*.

*Legs*.—Tarsus and metatarsus I scopulate to the base ; metatarsus I with 1 inner basal spine ; tibia with 1 apical, 1 median, and 1 basal spine, and bearing a few scopular hairs anteriorly. Metatarsus II with 2 basal spines, tibia with 2 apical and 1 median spine.

Tarsus IV scopulated anteriorly on the under surface; metatarsus long and heavily spined.

*Vulva*.—As in fig. 82.

*Measurements*.—Carapace, 2.4 mm. long. Total length, 6.4 mm.

GEN. LATONIGENA, Sim.

LATONIGENA AFRICANA, n. sp. (Fig. 83.)

*Specimens*.—

1 ♀ (B 3448 type). Matroosberg Mts., Ceres (3500 ft.). (R. W. Tucker, January 1917.)

1 ♀ (150,696). Howich, Natal. (Dr. W. F. Purcell, September 1905.)

*Colour*.—Carapace yellowish brown, clothed with sparse dark hairs; legs slightly lighter than the carapace, and, especially in the case of the anterior legs, darker distally; abdomen uniform dull testaceous.

*Carapace*.—Oval, narrowing anteriorly, moderately convex, and with the median stria practically absent.

*Eyes*.—Anterior row from in front straight to recurved; medians much larger than the laterals and closer to them than to each other. Posterior row hardly wider than the anterior row and lightly procurved; medians subangular, inclined inwards, larger than the laterals, and slightly nearer to them than to each other; laterals subequal to the anterior laterals and close to them. Clypeus equal to the diameter of an anterior lateral eye.

*Sternum*.—Narrow oval, and slightly produced anteriorly.

*Chelicera*.—Inferior border inconspicuous and muticuous; superior border resembling T, fig. 327, Hist. Nat. des Araign, Simon, p. 364; the curve being somewhat less prominent.

*Labium*.—Long, extending the length of the maxillæ, and tapering slightly anteriorly; laminated laterally and anteriorly; maxillæ long, constricted medially and slightly wider anteriorly than posteriorly; also with laminated inner borders.

*Legs*.—Short and moderately stout; tarsus I scopulate and spineless; metatarsus bearing a few scopular hairs and 0–1 weak spines; tibia stout and not scopulate, bearing 0–1 spines on the under surface; 2nd leg similar, but not quite so stout. Legs III and IV well spined; tarsi moderately scopulate and bearing numerous spines on the under surface. All tarsi bearing dense fascicles and strongly dentate claws.

*Spinners*.—Inferior spinners short and cylindrical, over  $\frac{1}{2}$  their

length apart; tubules retracted; apices fringed with plumose hairs; median, spinners slender, close together, and about the same length as the inferior spinners. Superior spinners wide apart and bearing a small apical segment. Distinct anal tubercle above the spinners.

*Vulva*.—As in fig. 83.

*Measurements*.—Length of carapace, 2 mm. Total length, 7.5 mm. (abdomen distended).

The specimen from Natal agrees with above details, but is darker and redder in colour, and the abdomen is normal in size. (Carapace, 2.5 mm. Total length, 5.5 mm.)

This is the first record of this genus from S. Africa, and in some respects it diverges from the S. American type; the anterior median eyes are much larger, the anterior row is not procurved, and its clypeus is barely equal to the diameter of an anterior lateral eye; also, the posterior median eyes are oval and slightly larger than the laterals.

Apart from these ocular differences, the specimens agree with the generic description, and it seems valid to record that genus as now occurring in S. Africa.

#### DIAPHRACTUS LEIPOLDTI, Purc.

1907. *D. leipoldti*. Purcell in A.M.N.H. (7), vol. xx, p. 313, pl. xiii, fig. 19.

1915. *D. kalaharicus*. Hewitt in Rec. Albany Museum, vol. iii, No. 2, p. 99, fig. 7.

*Specimens*.—

1 ♀ (3581 type). Rondegat, S.E. Clanwilliam. (G. Leipoldt, 1898.)

1 ♀ (Grahamstown Museum). N.W. Gordonia. (C. A. Anderson.)

*Colour*.—Carapace pale reddish brown, darker anteriorly; legs yellow, anterior pairs redder distally. Sternum and mouth parts light reddish brown; abdomen testaceous. Appressed hairs of abdomen, legs, etc., plumose at base; similar hairs are also present on Xerophaeus.

*Carapace*.—Width across posterior row of eyes about  $\frac{2}{3}$  greatest width. Length equal to patella, tibia, and about  $\frac{1}{2}$  metatarsus I, and to tibia, metatarsus, and  $\frac{1}{4}$  metatarsus IV.

*Clypeus*.—Equal to about  $\frac{1}{2}$  the diameter of anterior lateral eye.

*Eyes*.—Anterior row almost straight; eyes about equidistant,



medians a little larger. Posterior row wider, very slightly procurved ; medians smaller than the laterals and much farther from them than from each other.

*Chelicera.*—Superior border with 3 teeth, inferior border muticous.

*Sternum.*—Length equal to  $1\frac{1}{2}$  times the greatest breadth.

*Legs.*—Metatarsus I scopulate to base, and with 2 basal spines. Tibia I with very few scopular hairs anteriorly on inner side, and with 3 spines down inner side and 2 down outer side of under surface. Tarsus IV scopulate to base.

*Vulva.*—As in Purcell's fig. 19, *loc. cit.* The 2 longitudinal markings depicted in the middle portion are contiguous anteriorly, thus leaving a median pale line which is shown in Hewitt's fig. 7, *loc. cit.* ; also the lateral anterior curves of the median portion, depicted in Hewitt's fig., are present also in Purcell's type, but are faint and not shown in the figure.

*Measurements.*—Anterior width of carapace, 2 mm. Length of carapace, 4 mm.

#### GEN. SCOTOPHAEUS, Simon.

##### *Key to ♀♀.*

- (4). 1. Anterior width of carapace equal to or exceeding  $\frac{1}{2}$  the greatest width.
- (3). 2. Anterior median eyes  $\frac{1}{2}$  a diameter or less apart ; inferior border of chelicera muticous . . . . . *lamperti.*
- (2). 3. Anterior median eyes over  $\frac{1}{2}$  a diameter apart, inferior border of chelicera with 1 tooth . . . . . *relegatus.*
- (1). 4. Anterior width of carapace less than  $\frac{1}{2}$  the greatest width.
- (6). 5. Posterior border of maxillae slightly emarginate . . . . . *marleyi.*
- (5). 6. Posterior border of maxillae not emarginate . . . . . *purcelli.*

#### SCOTOPHAEUS LAMPERTI, Strand.

1906. *S. lamperti.* Strand in Jahrb. Nass. Vereins f. Naturkunde, 59, p. 28.

“*Cephalothorax.*—Anterior width more than  $\frac{1}{2}$  greatest width. Length equal to tibia, metatarsus and  $\frac{1}{4}$  tarsus I and to metatarsus and  $\frac{3}{4}$  tarsus IV.

“*Eyes.*—Anterior medians  $\frac{1}{2}$  a diameter apart. Posterior row weakly procurved, exceeding the length of the anterior row by well over the diameter of a lateral eye ; median eyes  $\frac{1}{2}$  their longest diameter part, and well over a long diameter from the laterals.

“*Clypeus.*—Subequal to the diameter of an anterior lateral eye.

“*Chelicera*.—Superior border with 3 teeth, inferior border with none.

“*Sternum*.—Widest portion between coxae II and III; equally narrowed at both ends, short, and not sharply pointed; truncate in front, and not much broader than labium at base.

“*Legs*.—Tibia I apparently without scopula; bearing 1 apical and 1 median spines.

“*Vulva*.—(Undeveloped). Appears as 2 small brownish longitudinal spots, distant from one another by more than their diameter, and situate immediately in front of epigynal fold.

“*Measurements*.—Cephalothorax, 4.3 mm. long, 3 mm. broad. Anterior width, 1.8 mm.

“*Locality*.—Rietmond, Gibeon, S.W. Afr. (C. Berger).”

The above description is extracted from Strand's rather lengthy description, *loc. cit.*

SCOTOPHAEUS MARLEYI, n. sp. (Fig. 84.)

*Specimens*.—1 ♀ (B 1304 type). Durban, Natal. (H. W. Bell Marley, July 1915.)

*Colour*.—Carapace golden brown, very slightly darker anteriorly; abdomen testaceous with brown pubescence dorsally; legs slightly paler than the carapace, darker distally.

*Carapace*.—Width of cephalic portion slightly less than  $\frac{1}{2}$  the greatest width of the thoracic portion; surface bearing sparse dark hairs.

*Eyes*.—Anterior row straight to procurved; medians large and their own diameter apart; nearly touching the laterals. Posterior row slightly procurved, and only a very little wider than the anterior row; eyes approximately equidistant, medians smaller than the laterals.

*Chelicera*.—Superior groove with 3 fairly widely separated teeth, inferior groove with 1 small tooth.

*Maxillæ*.—Posterior outer border slightly emarginate.

*Legs*.—Tarsus and metatarsus I densely scopulate to base; latter with 1 basal spine on the under surface; tibia with a slight scopula on the anterior inner border of the under surface, and 1 small apical spine; 2nd leg with an anterior as well as a basal spine on the inner under surface of the metatarsus, and tibia without scopular hairs. Tarsus III with scopular hairs and bristles on the under surface; metatarsus with no scopular hairs and strongly spined; 4th leg

similar, metatarsus longer and more heavily spined. All tarsi with short, dense fasciculi.

*Vulva*.—As in fig. 84.

*Measurements*.—Carapace, 4.3 mm. long. Total length, 10.5 mm.

SCOTOPHAEUS PURCELLI, n. sp. (Fig. 85.)

*Specimens*.—1 ♀ (150,489 type). Modderfontein, N. of Johannesburg, Transvaal. (Dr. W. F. Purcell, August 1905.)

*Colour*.—Carapace and legs medium brown, legs slightly darker distally; abdomen dull testaceous, slightly darker posteriorly, and sparsely clothed with appressed dark hairs.

*Carapace*.—Similar to *marleyi*.

*Eyes*.—Anterior row slightly procurved; medians larger than the laterals, but not touching them. Posterior row slightly procurved, and only a little wider than the anterior row; medians nearer to each other than to the laterals, and subequal to them.

*Chelicera*.—As in *marleyi*.

*Maxillæ*.—Not emarginate on the outer border.

*Legs*.—Tarsus and metatarsus I scopulate to the base; tibia with a few scopular hairs anteriorly on each side, and 1 apical spine on the under surface; 2nd leg with no scopula on the tibia, and 1 basal spine on the under surface of the metatarsus. Tarsus III scopulate to the base, and with bristles down the centre; metatarsus with coarse scopular hairs anteriorly on both sides, and strongly spined; 4th leg similar; metatarsus with only a few scopular hairs anteriorly on the outer side of the under surface.

*Vulva*.—As in fig. 85.

*Measurements*.—Carapace, 3.1 mm. long. Total length, 7 mm.

SCOTOPHAEUS RELEGATUS, Purc.

1907. *S. relegatus*. Purcell in A.M.N.H. (7), vol. xx, p. 312, pl. xiii, figs. 18 and 18A.

1908. *S. relegatus*. Purcell in Schultze Zool. Forschungsreise in Sudafrika, p. 235.

*Specimens* :—

1 ♂ (4327 type). Cape Town. (E. A. Morris, July 1898.)

1 ♂ (3974). Robben Island, C. T. (A. Tucker, December 1896.)

1 ♂, 9 ♀♀ (3♀♀, 150, 596). Luderitz Bay, Namaqualand. (L. Schultze, 1904.)

♂ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and metatarsus I and to metatarsus and tarsus IV.

*Eyes*.—Anterior row straight to procurved, medians  $\frac{1}{2}$  diameter apart. Posterior row moderately procurved, medians nearly a short diameter apart, just over a long diameter from laterals.

*Clypeus*.—Equal to diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 1.

*Sternum*.—Length over  $1\frac{1}{2}$  times greatest breadth.

*Legs*.—Tibia I with a few scopular hairs anteriorly on inner side; 2 apical and 2 median and 1 basal spines.

*Pedipalps*.—Palpal organ as in fig. 18A, *loc. cit.* Tibial process small, stout, terminating in a sharp incurved claw.

*Measurements*.—Length of carapace, ♂, 3.5 mm.; ♀, 5.2 mm. Anterior width, ♂, 1.5 mm.; ♀, 2.1 mm.

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia, metatarsus, and tarsus I, and to tibia and just over  $\frac{1}{2}$  metatarsus IV.

*Eyes*.—Anterior row slightly procurved, medians  $\frac{3}{4}$  diameter apart. Posterior medians sub-rotund, nearly 2 diameters apart, and about 3 from the laterals.

*Clypeus*.—Slightly less than the diameter of an anterior lateral eye.

*Sternum and chelicera*.—As in ♂.

*Legs*.—Metatarsus I with no basal spines. Tibia I with scopula  $\frac{1}{2}$  way down inner side, and  $\frac{1}{3}$  outer; no spines on under surface.

*Vulva*.—Consisting of a light brown oval plate, twice as long as broad, the anterior  $\frac{1}{2}$  clear, the lower  $\frac{1}{2}$  with 2 diffuse dark-brown oval lateral markings, between which are 2 short outwardly curved, narrow, dark markings meeting posteriorly, but separate anteriorly, each curving outwards sharply into an almost circular hook; region between these dark markings depressed, and leading anteriorly into a small hooded pocket.

#### GEN. XEROPHAEUS, Purcell.

##### Key to ♀♀.

- (29). 1. Vulva with anterior hooded pocket.  
 (18). 2. Length of carapace equal to tibia, metatarsus and  $\frac{1}{4}$  or less tarsus I.  
 (6). 3. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or less tarsus IV.  
 (5). 4. Posterior row of eyes moderately procurved, inferior border of chelicera  
           muticous . . . . . *longispina*.  
 (4). 5. Posterior row of eyes well procurved, inferior border of chelicera 1  
           denticle . . . . . *vickermanni*.

- (3). 6. Length of carapace equal to metatarsus and over  $\frac{1}{2}$  tarsus IV.
- (12). 7. Posterior row of eyes moderately procurved.
- (11). 8. Inferior border of chelicera muticous.
- (10). 9. Tibia of 1st leg with basal spine on under surface . . . . . *anthropoides*.
- (9). 10. Tibia of 1st leg without basal spine . . . . . *spoliator*.
- (8). 11. Inferior border of chelicera with one tooth . . . . . *lunulifer*.
- (7). 12. Posterior row of eyes well procurved.
- (16). 13. Anterior median eyes  $\frac{1}{2}$  their diameter or less apart.
- (15). 14. Tibia of 1st leg without basal spines on under surface. Vulva with large oval dark lateral marks, between which runs a laterally-ridged groove with hooded pocket at anterior end . . . . . *capensis*.
- (14). 15. Tibia of 1st leg without basal spines on under surface. Vulva somewhat similar to *capensis*, central groove not ridged, and with a black depression at posterior half on each side of groove . . . . . *tenebrosus*.
- (13). 16. Anterior median eyes over  $\frac{1}{2}$  a diameter apart.
17. Tibia I with basal spine on under surface. Vulva with 2 large black oval plates anteriorly, and 2 small dark depressions posteriorly; no distinct median groove and no anterior pocket visible . . . . . *silvaticus*.
- (2). 18. Length of carapace equal to tibia, metatarsus and more than  $\frac{1}{4}$  tarsus I.
- (22). 19. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or less tarsus IV.
- (21). 20. Posterior row moderately procurved. Posterior medians less than  $1\frac{1}{2}$  long diameter from the laterals . . . . . *aridus*.
- (20). 21. Posterior row well procurved. Posterior medians  $1\frac{1}{2}$  or more long diameter from laterals . . . . . *lightfooti*.
- (19). 22. Length of carapace equal to metatarsus and over  $\frac{1}{2}$  tarsus IV.
- (26). 23. Inferior border of chelicera muticous.
- (25). 24. Posterior medians  $1\frac{1}{2}$  or more long diameter from laterals. Tibia I scopulate anteriorly . . . . . *hottentotus*.
- (24). 25. Posterior medians less than  $1\frac{1}{2}$  long diameter from laterals. Tibia I not scopulate . . . . . *phaseolus*.
- (23). 26. Inferior border with 1 tooth.
- (28). 27. Tibia I with 1 apical median and 1 basal spines on under surface . . . . . *flammeus*.
- (27). 28. Tibia I with 1 spine apically only, on under surface . . . . . *spiralifer*.
- (1). 29. Vulva with anterior tongue.
- (47). 30. Length of carapace equals tibia, metatarsus and  $\frac{1}{4}$  or less tarsus I.
- (42). 31. Length of carapace equals metatarsus and  $\frac{1}{2}$  or less tarsus IV.
- (39). 32. Tibia I scopulate anteriorly.
- (36). 33. Anterior medians  $\frac{1}{2}$  a diameter or less apart; clypeus equal to or less than diameter of anterior lateral eye.
- (35). 34. Length of carapace slightly exceeding tibia and metatarsus I. . . . . *exiguus*.
- (34). 35. Length of carapace slightly less than tibia and metatarsus I. . . . . *rostratus*.
- (33). 36. Anterior medians over  $\frac{1}{2}$  a diameter apart, clypeus exceeding diameter of lateral eye.
- (38). 37. Anterior width of carapace equal to  $\frac{1}{2}$  greatest width . . . . . *appendiculatus*.
- (37). 38. Anterior width of carapace distinctly less than  $\frac{1}{2}$  greatest width . . . . . *aurariarium*.
- (32). 39. Tibia I not, or very sparsely, scopulate anteriorly.
- (41). 40. Anterior tongue of vulva small . . . . . *ahenus*.

- (40). 41. Anterior tongue of vulva long . . . . . *communis*.  
 (31). 42. Length of carapace equal to metatarsus and over  $\frac{1}{2}$  tarsus IV.  
 (44). 43. Posterior row of eyes moderately procurved . . . . . *matroosbergensis*.  
 (43). 44. Posterior row of eyes well procurved.  
 (46). 45. Post medians  $1\frac{1}{2}$  long diameter from laterals. Carapace longer than  
 metatarsus and tarsus IV . . . . . *coruscus kibonotensis*.  
 (45). 46. Post medians less than  $1\frac{1}{2}$  long diameter from laterals. Carapace not  
 longer than metatarsus and tarsus IV . . . . . *rubeus*.  
 (30). 47. Length of carapace equal to tibia, metatarsus and more than  $\frac{1}{4}$  tarsus I.  
 49). 48. Posterior row of eyes well procurved. Tibia I with basal spine  
*bicavus*.  
 (48). 49. Posterior row of eyes moderately procurved. Tibia I without basal  
 spine . . . . . *crusculus*.

*Key to ♂♂.*

- (9). 1. Tibial process equal to or shorter than tibia.  
 (10). 2. Length of carapace equal to tibia, metatarsus and  $\frac{1}{4}$  or less tarsus I.  
 (5). 3. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or less tarsus IV.  
 4. Posterior row of eyes well procurved, post medians less than  $1\frac{1}{2}$  long  
 diameters from laterals . . . . . *pallidus*.  
 (3). 5. Length of carapace equal to metatarsus and over  $\frac{1}{2}$  tarsus IV.  
 (7). 6. Posterior row of eyes well procurved . . . . . *bicavus*.  
 (6). 7. Posterior row of eyes moderately procurved.  
 (9). 8. Posterior medians  $1\frac{1}{2}$  or more long diameters from laterals; inferior  
 border of chelicera muticous . . . . . *spoliator*.  
 (8). 9. Posterior medians less than  $1\frac{1}{2}$  long diameters from laterals inferior border  
 of chelicera with 1 tooth . . . . . *vickermani*.  
 (2). 10. Length of carapace equal to tibia, metatarsus and more than  $\frac{1}{4}$  tarsus I.  
 (14). 11. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or less tarsus IV.  
 (13). 12. Posterior row of eyes well procurved. Tibia I scopulate anteriorly on  
 both sides . . . . . *exiguus*.  
 (12). 13. Posterior row of eyes moderately procurved. Tibia I with small scopula  
 on inner side only . . . . . *lunulifer*.  
 (11). 14. Length of carapace equal to metatarsus and over  $\frac{1}{2}$  tarsus IV.  
 (24). 15. Posterior row of eyes well procurved.  
 (21). 16. Posterior medians less than  $1\frac{1}{2}$  long diameters from laterals.  
 (20). 17. Length of carapace exceeding metatarsus IV.  
 (19). 18. Palpal organ with long free slender style curved from centre to base and  
 up outer under surface to apex . . . . . *spiralifer*.  
 (18). 19. Palpal organ without long free style . . . . . *rostratus*.  
 (17). 20. Length of carapace not exceeding metatarsus IV . . . . . *communis*.  
 (16). 21. Posterior medians  $1\frac{1}{2}$  or more long diameters from laterals.  
 (23). 22. Tibia I without basal spine, inferior border of chelicera with 1 tooth  
*aurariarium*.  
 (22). 23. Tibia I with basal spine, inferior border of chelicera muticous  
*lightfooti*.  
 (15). 24. Posterior row of eyes moderately procurved.  
 (26). 25. Inferior border of chelicera with one tooth . . . . . *patricki*.

- (25). 26. Inferior border of chelicera muticous.  
 (28). 27. Posterior medians less than  $1\frac{1}{2}$  long diameters from laterals *aridus*.  
 (27). 28. Posterior medians more than  $1\frac{1}{2}$  long diameters from laterals *perversus*.  
 (1). 29. Tibial process longer than tibia.  
 (33). 30. Length of carapace equal to tibia, metatarsus and  $\frac{1}{4}$  or less tarsus I.  
 (32). 31. Length of carapace equal to metatarsus and  $\frac{1}{2}$  or less tarsus IV  
*crusculus*.  
 (31). 32. Length of carapace equal to metatarsus and more than  $\frac{1}{2}$  tarsus IV  
*capensis*.  
 (30). 33. Length of carapace equal to tibia, metatarsus and more than  $\frac{1}{4}$  tarsus I  
 and to metatarsus and  $\frac{1}{2}$  or less tarsus IV.  
 (39). 34. Posterior row well procurved.  
 (36). 35. Tibia I well scopulate anteriorly, but without basal spine  
*appendiculatus*.  
 (35). 36. Tibia I not or very sparsely scopulate anteriorly, and with basal spine.  
 (38). 37. Anterior medians over  $\frac{1}{2}$  diameter apart; clypeus subequal to diameter  
 of lateral anterior eye . . . . . *druryi*.  
 (37). 38. Anterior medians  $\frac{1}{2}$  diameter apart; clypeus greater than diameter of  
 anterior lateral eye . . . . . *flavescens*.  
 (34). 39. Posterior row moderately procurved.  
 (41). 40. Posterior medians  $1\frac{1}{2}$  or more long diameters from laterals; clypeus  
 greater than diameter of anterior lateral eye . . . *crustosus*.  
 (40). 41. Posterior medians less than  $\frac{1}{2}$  a long diameter from laterals; clypeus  
 subequal to diameter of anterior lateral eye . . . *occiduus*.

XEROPHÆUS AHENUS, Purc.

1908. X. *ahenus*. Purcell in Schultze Zool. Forschungsreise in Sudafrika, p. 237, pl. xi, fig. 19.

*Specimens* :—

- 1 ♀ (13,235). Blaukranze, 23 mls. S.W. of Calvinia. (G. French, January 1903.)  
 1 ♀ (11,703). Stompneus, St. Helena Bay, Malmesbury Div. (J. C. Goold, May–June 1902.)  
 1 ♀ (11,721). Steenberg Cove, St. Helena Bay. (J. C. Goold, May 1902.)

*Carapace*.—Anterior width barely  $\frac{1}{2}$  greatest width. Length equal to tibia and metatarsus I and to metatarsus and  $\frac{1}{3}$  or more tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{2}$  a diameter apart. Posterior row well procurved, medians less than a short diameter apart posteriorly, and less than a long diameter from the smaller laterals.

*Clypeus*.—Slightly greater than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 1.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times the greatest width.

*Legs*.—Tibia I with a few scopular hairs anteriorly on the inner side ; apical and 1 median spines.

*Vulva*.—As in fig. 19, *loc. cit.* The narrow, flat median keel mentioned in Purcell's description is shown, especially in specimen 13,235, to consist apparently of 2 hollow ducts leading from the entrance of each vesicula seminalis, marked on either side by the dark spot at the entrance, and curving thence inwards and upwards, and finally tapering away a little below the anterior tongue.

*Measurements*.—Length of carapace, 4.3 mm. Anterior width, 1.8 mm.

#### XEROPHAEUS ANTHROPOIDES, Hewitt.

1916. *X. anthropoides*. Hewitt in Ann. Transv. Museum, vol. v, 3, p. 211, fig. 10.

*Specimens*.—1 ♀ (type No. 200, Transvaal Museum). Roodeplaat, Pretoria Dist. (G. van Dam, May 1915.)

*Carapace*.—Anterior width slightly exceeding greatest width. Length equal to metatarsus, tibia, and about  $\frac{3}{4}$  tarsus I, and equal to metatarsus and tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{2}$ – $\frac{3}{4}$  diameter apart. Posterior row moderately procurved, medians less than a short diameter apart posteriorly, and  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus*.—Subequal to diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 0.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I with slight scopula over  $\frac{1}{3}$  inner apical side ; 1 apical, 1 median, and 0–1 basal spine on under surface.

*Vulva*.—See fig. 10, *loc. cit.* The lateral borders of the light median area are black, with clearly defined outer as well as inner edges, and anteriorly curving partially round the lateral circular pits. The region immediately anterior to the pits, and around the obsolescent median pocket is diffusely darkened. Posteriorly, on either side of the longitudinal black markings, is an almost circular reddish brown plaque, which, though mentioned in the description, is not shown in the figure.

*Measurements*.—Length of carapace, 4 mm. Anterior width, 2 mm.

*Record of other Localities* :—

1 ♀ (B 3330). Kimberley.

1 ♀ (B 3888). Insiza, Rhodesia. (G. French.)

1 ♀ (5223B). Vryburg. (J. E. Brown.)



## XEROPHAEUS APPENDICULATUS, Purc. (Fig. 86.)

1907. *X. appendiculatus*. Purc. in A.M.N.H. (7), vol. xx, p. 326, pl. xv, figs. 41-42.

*Specimens*.—2♂♂ and 1♀ (9480 types). Hanover. (S. C. Schreiner, September-October, 1901.)

*Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and metatarsus I, and to metatarsus and at least  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{3}{4}$  diameter apart. Posterior row strongly procurved, medians less than  $\frac{1}{2}$  short diameter apart posteriorly, and nearly 2 long diameters from the laterals.

*Clypeus*.—Equal to  $1\frac{1}{2}$  times the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 1.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I with strong lateral scopulae over distal  $\frac{1}{2}$  of either side, and 1 apical and 1 median spines on under surface. Vulva as in fig. 42, *loc. cit.*; see also fig. 86.

*Measurements*.—Length of carapace, ♀ 5 mm.; ♂ 4.9 mm. Anterior width, ♀ 2.5 mm.; ♂ 2.1 mm.

♂ *Carapace*.—Length equal to tibia and about  $\frac{1}{2}$  metatarsus I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—As in ♀; posterior medians nearly touching posteriorly, and about  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus*.—Equal to  $\frac{1}{2}$  diameter of anterior lateral eye.

*Chelicera* and *Sternum*.—As in ♀.

*Legs*.—As in ♀, scopulation not so strong. Tarsus IV with no lighter distal portion.

*Pedipalps*.—Palpal organ as in fig. 41, *loc. cit.* Tibial process much longer than tibia, and extending over  $\frac{2}{3}$  length of tarsus; narrow, but tapering anteriorly, and swelling at base, straight, slightly hooked at extremity.

*Specimens from other Localities* :—

♂ and ♀ (9934). Zululand. (W. Anderson, 1901.)

1 ♀ (12,552). Umtali, Bavians Kop. (L. Patrick, June 1902.)

1 ♀ (B 1575). De Aar. (Dr. W. F. Purcell, September 1913.)

1 ♀ (Grahamstown Museum.) Bloemfontein. (T. F. Dryer, December 1916.)

## XEROPHAEUS ARIDUS, Purc. (Fig. 87.)

1907. *X. aridus*. Purcell in A.M.N.H. (7), vol. xx, p. 319, pl. xiv, fig. 26.

1908. *X. aridus*. Purcell in Schultze Zool. Forschungsreise in Sudafrika, Bdl., p. 236.

1915. *X. poweri*. Hewitt in Rec. Albany Mus., vol. iii, No. 2, p. 94, fig. 4.

*Specimens*.—1 ♀ (13,281 type). Tsabis, N.E. Concordia (Krapohl, 1902.) Also numerous other specimens mentioned below.

*Carapace*.—Anterior width slightly less than greatest width; length slightly exceeding tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Anterior row only slightly procurved, medians  $\frac{3}{4}$  diameter apart. Posterior row very slightly procurved, medians large, subangular, close together posteriorly, and at least a long diameter from the laterals.

*Clypeus*.—Equal to  $1\frac{1}{2}$  times the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth; inferior muticous.

*Sternum*.—Length equal to nearly  $1\frac{1}{2}$  times the greatest breadth.

*Legs*.—Tibia I with a slight anterior scopula on both sides, and with 1–2 apical spines (very occasionally a median and a basal spine may be present also).

*Vulva*.—As in fig. 26, pl. xiv, A.M.N.H. (7), vol. xx.

*Measurements*.—Length of carapace, ♀ 5.5 mm.; ♂ 4.5 mm. Anterior width, ♀ 2.3 mm.; ♂ 1.8 mm.

♂ *Carapace*.—Anterior width slightly less than  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{4}{5}$  metatarsus I, and to metatarsus and  $\frac{1}{4}$  tarsus IV.

*Eyes and Chelicera*.—As in ♀.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I with a few anterior scopular hairs, bearing 2 apical, 2 median, and occasionally 2 basal spines.

*Pedipalps*.—Palpal organ as in fig. 87. Also fig. 4, Rec. Albany Museum, p. 94.

The ♂ is described from the specimens ♂, 2 ♀♀, and jv. (B 2113), from Haris, S.W. Afr. Prot. (R. W. Tucker, January 1916), Percy Sladen Memorial Expedition.

*Other specimens were taken from—*

- S.W. Windhuk, S.W. Afr. ; 5♀♀ (B 2158). (R. W. Tucker, January 1916.)
- Nauchas, S.W. Afr. ; 1 ♀ (B 2167). (R. W. Tucker, January 1916.)
- Nauchas-Areb, S.W. Afr. ; 2 ♀♀ (B 2116). (R. W. Tucker, January 1916.)
- Bull's Poorte, S.W. Afr. ; 1 ♀ (B 2048). (R. W. Tucker, January 1916.)
- Gurumanas, S.W. Afr. ; 2 ♀♀ (B 2154). (R. W. Tucker, January 1916.)
- Grootfontein, S.W. Afr. ; ♂ and 3 ♀♀ (B 4623). (J. Drury and R. M. Lightfoot, December 1918.)
- Kimberley, C. Province ; 3 ♂♂ and 3 ♀♀ and jv. (B 4203). (Bro. J. H. Power, December 1918.)
- Ganachaams, near Gaub, S.W. Afr. Prot. ; 1 ♂ (B 4816) and 3 ♀♀ (B 4813 and 4814). (R. W. Tucker, January 1922.)
- Grootfontein, S.W. Afr. Prot. ; 1 ♀ (B 5051). (R. W. Tucker, January 1920.)
- Windhuk, S.W. Afr. Prot. ; 5 ♀♀ (B 4835). (R. W. Tucker, February 1920.)

The above ♀♀ specimens all belong to *X. aridis*; the ♂♂ of the specimens from Haris, Grootfontein, and Kimberley do not, however, agree at all with the ♂ described as *X. aridus* by Purcell in L. Schultze's Zool. S.W. Afr., Bd. xiii, p. 236, but are as in fig. 87 and description as above. The ♀♀ recorded by Purcell from Kubub (*loc. cit.*) are undoubtedly *X. aridus*; the ♂ from Cape Cross, which has been examined, is separated, however, as a new species. *X. perversus*, since it does not agree with the ♂♂ taken in conjunction with the above-mentioned specimens from Haris, etc., and which it seems valid to regard as the true ♂♂ of *aridus*.

In the series of ♀♀ represented above are certain forms in which the vulva appears different, in that the median hooded pocket is more anterior in position, being in fact beyond the lateral projections, which are shorter and have the dark lateral marks figured by Purcell as their centres or cores; the lateral lines immediately anterior to the lower broad markings are darker and more pronounced in all specimens. Although previously separated in MS. as new, these forms are now included as variations of *aridus*.

## XEROPHAEUS AURARIARUM, Purc.

1907. *X. aurariarum*. Purcell in A.M.N.H. (7), vol. xx, p. 324, pl. xiv, figs. 35 and 36.

*Specimens*.—3 ♀♀ and 2 ♂♂ (12,982 types). Witwatersrand, Transv. (Miss Pegler, 1903.)

*Carapace*.—Anterior width distinctly less than  $\frac{1}{2}$  the greatest width. Length slightly exceeding tibia and metatarsus I, and metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Anterior row well procurved, medians a diameter apart. Posterior row very strongly procurved, medians larger than the laterals, subangular, nearly touching posteriorly, and about  $1\frac{1}{2}$  long diameters from the laterals. Median ocular area much longer than broad, and slightly narrower posteriorly.

*Clypeus*.—About  $1\frac{1}{2}$  times diameter of anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1.

*Sternum*.—Length  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I with small anterior lateral scopula and 1 apical spine.

*Vulva*.—As in fig. 36, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 5 mm. ; ♂ 3.5 mm. Anterior width, ♀ 2 mm. ; ♂ 1.4 mm.

♂ *Carapace*.—Anterior width less than  $\frac{1}{2}$  greatest width. Length subequal to tibia and metatarsus I, and equal to metatarsus and nearly  $\frac{1}{4}$  tarsus I.

*Eyes*.—Anterior row well procurved, medians less than a diameter apart ; posterior row as in ♀.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—As in ♀.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times greatest width.

*Legs*.—Tibia I with a few scopular hairs anteriorly on inner side, and with 2 apical spines. Tarsus IV lighter over entire distal  $\frac{1}{2}$ .

*Pedipalps*.—Palpal organ as in fig. 35, *loc. cit.* Tibial process strong, shorter than tibia, and with apex pointed and slightly incurved.

*Specimens from new Localities* :—

Naauwpoort, Hanover ; 1 ♂ and jv. ♀♀ (B. 1596). (Dr. W. F. Purcell, October 1905.)

Matjesfontein ; 1 ♂ (B 1649). (Dr. W. F. Purcell, November 1905.)

Burghersdorp, Albert Div. ; ♂ and ♀ (B 222), September 1909, and 2 ♂♂ and 4 ♀♀ (B 73), October 1907. (Dr. Kannemeyer.)

Florida, Transv. High Veld; 5 ♀♀ (B 4484). (R. W. Tucker, December 1913.)

Zoekmakaar, N. Transv., Middle Veld; 3 ♀♀ (B 4442). (R. W. Tucker, November 1918.)

Vryburg; ♂ (B 5222). (J. C. Brown, May 1920.)

Aliwal North; 1 ♀ (Grahamstown Museum). (J. Hepburn.)

XEROPHAEUS BICAVUS, n. sp. (Fig. 88, A and B.)

*Specimens*.—2 ♂♂ and 1 ♀ (B 4378 types). Acornhoek (vicinity), E. Transvaal, Low Veld. (R. W. Tucker, November 1918.)

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{3}{4}$  metatarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Anterior row fairly well procurved, medians less than  $\frac{1}{2}$  diameter apart. Posterior row strongly procurved, medians a short diameter or less apart posteriorly, and a long diameter from the laterals.

*Clypeus*.—Less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 1.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Metatarsus I with only 1 basal spine; tibia with no anterior scopula, and with 1 apical, 1 median, and 1 basal spine on inner side of under surface.

*Vulva*.—As in fig. 88A.

*Measurements*.—Length of carapace, ♀ 4 mm.; ♂ 3.5 mm. Anterior width, ♀ 1.7 mm.; ♂ 1.3 mm.

♂ *Carapace*.—Anterior width slightly less than  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{1}{5}$  metatarsus I, and to metatarsus and  $\frac{1}{4}$  tarsus I (legs I and IV on other side much shorter and weaker).

*Eyes, Clypeus, Chelicera, and Sternum*.—As in ♀.

*Legs*.—Metatarsus and tibia I as in ♀. Tarsus IV with no obvious lighter apical portion.

*Pedipalps*.—As in fig. 88B. Tibial process short and strong,  $\frac{1}{4}$  length of tarsus and almost as long as tibia; straight, and tapering anteriorly.

XEROPHAEUS CAPENSIS, Purc. (Fig. 89.)

1907. *X. capensis*.—Purcell in A.M.N.H. (7), vol. xx, p. 314, pl. xiii, figs. 20 and 20A.

1907. *X. delphinurus*. Purcell, p. 316, pl. xiii, fig. 21, *loc. cit.*

1907. *X. interrogator*. Purcell, *loc. cit.*, p. 316, pl. xiv, fig. 22.

*Specimens*.—1 ♂ (13,852 type), and 4 ♀♀ and 4 ♂♂ (9068). Devil's Peak, C. Town. (Dr. W. F. Purcell, August 1901.)

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length slightly exceeding tibia and metatarsus I and equal to metatarsus and tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{2}$  a diameter apart. Posterior row well procurved, medians less than a short diameter apart posteriorly, and a long diameter from the laterals.

*Clypeus*.—Equal to the diameter of an anterior lateral eye.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times the greatest breadth.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1.

*Legs*.—Tibia I with slight lateral anterior scopulæ, and with 1 apical and 1 median spine on under surface.

*Vulva*.—As in fig. 20, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 3.8 mm.; ♂ 3.7 mm. Breadth, ♀ 1.8 mm.; ♂ 1.6 mm.

♂ *Carapace*.—Anterior width slightly less than  $\frac{1}{2}$  greatest width. Length equal to, or slightly less than tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{2}$  or more tarsus IV.

*Clypeus, Sternum, and Chelicera*.—As in ♀.

*Eyes*.—As in ♀, median anteriors farther apart.

*Legs*.—Tibia I with slight scopula on anterior inner side, and with 1 apical and 1 median spine on under surface; tarsus IV with distal  $\frac{1}{3}$  very light.

*Pedipalps*.—As in figs. 20 and 20A, *loc. cit.*; also as in fig. 89, full ventral view. Tibial process longer than tibia, broad at base, tapering and curved over dorsal surface of tarsus, but appressed thereto, except at apex, which ends in a black curved claw-like process with lobate base.

*X. delphinurus* and *X. interrogator* agree with *capensis* in every detail of palpal organ, proportions, spination, etc.; the slight differences noticed are no more than usually found in any species of which a fair number of specimens can be examined; the differences depicted in figs. 22, 21, 20A, *loc. cit.*, seem to be exceptional, and due as much to difference in the angle of observation as to actual structural difference. The ♀♀ mentioned on p. 317, *loc. cit.*, are simply variations of *capensis*, in which the anterior pocket is more forward in position and the central groove is therefore prolonged to meet it. (See note on *aridus*.)

*Record of New Localities* :—

♀ and 2 jv. (B 2504). Gt. Winterhoek Mts. (4000–4500 ft.).  
(R. W. Tucker, January 1917.)

1 ♀ (B 5570). River Zonde Ende. C. Prov. (R. Tucker,  
December 1920.)

XEROPHAEUS COMMUNIS, Purc.

1907.—*X. communis*. Purcell in A.M.N.H. (7), vol. xx, p. 322, pl. xiv, figs. 33, 33A, and 34.

*Specimens*.—3 ♀♀, 1 ♂ (12,939 types). Willowmore district. (E. H. Schwartz, 1903.)

Also numerous specimens from localities all over S. Africa.

*Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{4}{5}$  or more metatarsus I, and equal to metatarsus and  $\frac{1}{4}$  or less tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{2}$  diameter apart. Posterior row strongly procurved, medians close together posteriorly, and just over a long diameter from the laterals.

*Clypeus*.—Subequal to diameter of anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I scopulate laterally over anterior  $\frac{1}{3}$ , and bearing 1 apical and 1 media spine on under surface.

*Vulva*.—As in fig. 34, *loc. cit.*

♂ *Measurements*.—Length of carapace, ♂ 4.1 mm.; ♂ 4.5 mm. Anterior width, ♀ 2 mm.; ♂ 1.5 mm.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{4}$  diameter apart. Posterior row well procurved, medians about a short diameter apart, and just over a long diameter from the laterals.

*Clypeus* and *Chelicera*.—As in ♀.

*Sternum*.—Length equal to  $1\frac{1}{4}$  times greatest width.

*Legs*.—Tibia I with a very few scopular hairs anteriorly, and with 2 apical and 1 median spine. Tarsus IV with a light and a dark band in distal  $\frac{1}{2}$ .

*Pedipalps*.—Palpal organ as figs. 33 and 33A, *loc. cit.* Tibial process long, slightly shorter than tibia, pointed apically, and slightly incurved.

*Carapace*.—Anterior width less than  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{1}{2}$  metatarsus I, and equal to metatarsus IV.

XEROPHAEUS CORUSCUS KIBONOTENSIS, Tullgren.

1910. *X. coruscus kibonotensis*. Tullgren in Sjostedts Kilimandjaro Meru Expedition, June 1916, p. 108, pl. i, fig. 20.

*Specimens*.—2 ♀♀ (12,538). Queenskop, Umtali. (L. Patrick, January 1902.)

*Carapace*.—Anterior width slightly less than  $\frac{1}{2}$  greatest width.

Length equal to tibia, metatarsus and  $\frac{1}{4}$  tarsus I and tibia and  $\frac{2}{3}$  metatarsus IV (longer than metatarsus and tarsus IV).

*Eyes.*—Anterior row moderately procurved, medians  $\frac{1}{2}$  a diameter apart, and much larger than the laterals. Posterior row well procurved, medians subangular, less than a short diameter apart, and  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus.*—Slightly less than the diameter of an anterior lateral eye.

*Chelicera.*—Superior border with 3 teeth, inferior with 1.

*Sternum.*—Length over  $1\frac{1}{2}$  times the greatest breadth.

*Legs.*—Tibia I with slight lateral scopula on anterior inner surface, and with 1 apical, 1 median and 1 basal spine.

*Vulva.*—As in fig. 20, *loc. cit.*

*Measurements.*—Anterior width of carapace, 2 mm. Length of carapace, 5 mm.

#### XEROPHAEUS CRUSCULUS, n. sp. (Figs. 90, A and B.)

*Specimens.*—♂, 2 ♀♀, and jv. (B 2682 types). Gt. Winterhoek Mts. (4400–5500 ft.). (R. W. Tucker, 29th January 1916); and others from the same locality, and at altitudes from 4000 to 6000 ft.

♂ *Carapace.*—Width across the posterior row of eyes  $\frac{1}{2}$  of the greatest width.

*Eyes.*—Anterior row lightly recurved (seen from above); medians round, less than a diameter apart, larger than the laterals and nearly touching them. Posterior row slightly wider than the anterior, and procurved; medians subangular and nearer to each other than to the laterals. Clypeus as deep as the long diameter of an anterior lateral eye.

*Chelicera.*—1 tooth on the posterior (or inferior) border, and 2 large and 1 smaller one on the anterior border.

*Legs.*—All the tarsi and the 2 anterior pairs of metatarsi scopulate to the base; metatarsi III and IV slightly scopulate anteriorly; metatarsi I and II with a pair of stout basal spines on the under surface.

*Pedipalps.*—Femur armed with 1 median and 3 stout apical spines on the upper surface; patella with a few stout bristles only; tibia armed with a fine median spine on the upper surface; also bearing a small apical projection on the inner under edge, and a long stout process on the outer apical edge as in fig. 90B; tarsus and palpal organ as in fig. 90B.



♀ *Carapace* and *Eyes* as in the ♂.

*Chelicera*.—Toothed as in the ♂.

*Legs*.—Anterior scopula on the tibia of 1st leg very weak; also with 1 apical and 1 median spine on the under surface.

*Vulva*.—As in fig. 90A; often partially obscured by overhanging hairs; some specimens also lacking a clear distinction of the two lateral plates, or of the dark portions seen through the central membrane. Anterior tongue-like appendage less visible in some specimens than in others.

*Measurements*.—Carapace, ♂ and ♀ 4 mm. Total length, ♂ 8.5 mm.; ♀ 9.5 mm.

*Other Localities*.—

1 ♀ (B 3457). Matroosberg Mts. (5000–6000 ft.). (R. W. Tucker, November 1917.)

2 ♂♂ (B 3506). Matroosberg Mts. (6000–7500 ft.). (R. W. Tucker, December 1917.)

Also 1 ♀ (B 3080) from the Matroosberg Mts. at an altitude of 5000 ft. (R. W. Tucker, November 1917). This specimen has the integument of the vulva darker, and strongly corrugated down the soft central portion. Anterior tongue dark and very conspicuous, and 1 ♂ (B 3344) from Steenbraas. (R. W. T., October 1917.)

Subsequently specimens have been identified from the following localities:—

Sir Lowry's Pass, 1 ♀ (3483); Hermanus Petrusfontein, 3 ♀♀ (11,638); Robertson, 1 ♀ (3351); Rabiesberg, Worcester Div., 1 ♀ (3346) and (3340); Caledon, 2 ♀♀ (B 362) and (B 375).

One of the ♀♀ (No. 11,638) presents a slightly varietal form of vulva; the dark portions shown in fig. A, interior to the two longitudinal dark lines, are as dark as, and practically continuous with the lateral outer plates; the latter extend higher than the tongue, which is small, whilst the longitudinal dark lines continue up almost straight and finally bend inwards about the level of the tongue; the outer two specimens are also aberrant, though to a less degree, but all appear referable to the above species.

The ♀ (3351) from Robertson varies in the direction of the 3 ♀♀ (11,638) from Hermanus Petrusfontein, but is undoubtedly referable to *crusculus*.

The ♀ (3346) from Rabiesberg is doubtfully included as *crusculus*; the general plan of the vulva is as in the fig., but less clearly defined; it could hardly, however, justifiably be separated. No. 3340 from the same locality is undoubtedly *X. crusculus*.

## XEROPHAEUS CRUSTOSUS, Purc.

1907. *X. crustosus*. Purcell in A.M.N.H. (7), vol. xx, p. 325, pl. xv, fig. 40.

*Specimens* :—

1 ♂ (7857 type). E. London. (J. Wood, 1899.)

1 ♂ (B 2008). E. London. (R. M. Lightfoot, October 1915.)

*Carapace*.—Anterior width less than  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{3}{4}$  metatarsus I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{2}$  diameter apart. Posterior row slightly procurved, medians not quite a short diameter apart posteriorly, and  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus*.—Exceeding the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1 tooth.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I not scopulate, bearing 1 apical and 1 median spine. Tarsus IV with the distal  $\frac{1}{2}$  very light.

*Pedipalps*.—Palpal organ as in fig. 40, *loc. cit.* Tibial process long, reaching to distal end of palpal organ, distal portion slightly curving upwards, apex slightly incurved.

*Measurements*.—Anterior width of carapace, 2 mm.; length of carapace, 5.4 mm.

## XEROPHAEUS DRURYI, n. sp. (Fig. 91.)

*Specimens*.—1 ♂ (No. 14,542) type. Mashonaland. (J. Drury, 1904–5.)

*Colour*.—Carapace and legs orange-brown. Abdomen dull testaceous brown, sparsely clothed with hairs, and with a small brown scutum. Sternum orange-brown and dark edged.

*Eyes*.—Anterior row from in front straight to slightly procurved; medians large, over  $\frac{1}{2}$  a diameter apart, and much nearer to anterior laterals which are less than  $\frac{1}{2}$  their size. Posterior row from above well procurved; medians subangular, about  $\frac{1}{2}$  a diameter apart and more than a long diameter from the laterals which are round, equal to anterior laterals and  $\frac{1}{2}$  diameter from them.

*Chelicera*.—Superior border with 3 strong teeth; inferior border with 1 small tooth.

*Legs*.—Tarsus I scopulate over entire length; metatarsus scopulate entirely over distal third and laterally almost to base; 2 basal spines on under surface. Second leg similar. Tarsus III densely scopulate;

IV with more bristle-like and fewer scopular hairs. Metatarsi III and IV strongly spined and bearing numerous bristles.

*Pedipalps*.—Femur with 1 median and 3 stout apical spines dorsally. Patella with 2 lateral bristles and 1 small apical spine dorsally. Tibia with apical spur as in fig. 91. Palpal organ as in fig. 91.

*Measurements*.—Length of carapace, 4 mm. Total length, 8.8 mm.

#### XEROPHAEUS EXIGUUS, Purcell.

1907. *X. exiguus*. Purc. in A.M.N.H. (7), vol. xx, p. 324, pl. xiv, figs. 37 and 37A.

*Specimens* :—

1 ♂ (13,579 type). Laingsburg. (R. M. Lightfoot, August 1903.)

8 ♀♀ and 3 ♂♂ (150,074). Caledon. (Dr W. F. Purcell, July 1910.)

♀ *Carapace*.—Anterior width slightly less than  $\frac{1}{2}$  greatest width; length equal to or slightly exceeding tibia and metatarsus I, and equal to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{2}$  diameter apart. Posterior row well procurved, medians  $\frac{1}{2}$  a short diameter apart posteriorly, and a long diameter from laterals.

*Clypeus*.—Less than diameter of anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I scopulate apically down inner and outer side of under surface, and with 1 apical and 1 median spine.

*Vulva*.—Strongly resembling *X. rostratus*, the slight differences being hardly describable.

*Measurements*.—Length of carapace, ♀ 3.8 mm.; ♂ 3 mm. Anterior width, ♀ 1.6 mm.; ♂ 1.2 mm.

♂ *Carapace*.—Anterior width slightly less than  $\frac{1}{2}$  greatest width; length equal to tibia and  $\frac{1}{2}$  or more metatarsus I, and equal to metatarsus IV.

*Eyes*.—Anterior row slightly procurved, medians less than  $\frac{1}{2}$  a diameter apart, and touching the laterals. Posterior row well procurved, medians almost touching posteriorly, and less than a long diameter from laterals.

*Clypeus, Chelicera, and Sternum*.—As in ♀.

*Legs*.—Tibia I with no lateral scopula, and with 2 apical and 1 median spine. Tarsus IV lighter over distal  $\frac{1}{2}$ — $\frac{1}{3}$ .

*Pedipalps.*—As in fig. 37 and 37A, *loc. cit.* Tibial process as long as tibia, slightly upturned at apex.

*Record of New Localities.*—2 ♂♂ (B 1993). Grahamstown. (Dr W. F. Purcell, October 1905.)

XEROPHAEUS FLAMMEUS, n. sp. (Fig. 92.)

*Specimens.*—1 ♀ (No. 6087 type). Maitland Flats, C. Penins. (Mrs W. F. Purcell, September 1899.)

*Colour.*—Carapace medium brown with slight radiate infuscations, and darker around the borders; legs slightly lighter proximally, but darker from tibiae onwards; tips of posterior tarsi paler. Abdomen testaceous where rubbed; otherwise clothed with appressed tawny hairs.

*Carapace.*—Equal to tibia, metatarsus and  $\frac{1}{2}$  tarsus I; equal to metatarsus and tarsus IV.

*Eyes.*—Anterior medians less than  $\frac{1}{2}$  a diameter apart, and nearer to the laterals, which are only slightly smaller. Posterior medians large and nearly touching posteriorly; less than a long diameter from the laterals, which are subequal. Median ocular area longer than wide and very slightly narrower posteriorly.

*Chelicera.*—Superior border with 1 long and 2 small teeth; inferior border with 1 large tooth.

*Legs.*—Metatarsus I with 2 basal spines; tibia with 1 apical, 1 median, and 1 basal spine on the inner side; also an anterior scopular band on the inner side and scopular hairs anteriorly on the outer side; 2nd leg similar, but without the basal spine or the scopular hairs on the tibia. Tarsi III and IV scopulated, metatarsi heavily spined.

*Vulva.*—As in fig. 92.

*Measurements.*—Length of carapace, 4 mm. Total length, 8 mm.

XEROPHAEUS FLAVESCENS, Purc.

1907. *X. flavescens*. Purcell in A.M.N.H. (7), vol. xx, p. 317, pl. xiv, fig. 23.

*Specimens.*—1 ♂ (3582 type). Rondegat, S.E., Clanwilliam. (C. L. Leipoldt, October 1897.)

*Carapace.*—Anterior width about equal to greatest width. Length equal to tibia and  $\frac{1}{2}$  or more metatarsus I; 4th legs mutilated.

*Eyes.*—Anterior row moderately procurved, medians  $\frac{1}{2}$  diameter

apart, and touching laterals. Posterior row strongly procurved, medians nearly touching posteriorly, and about a long diameter from the laterals.

*Clypeus*.—Greater than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 1.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times greatest breadth.

*Legs*.—Tibia I with no lateral anterior scopula, and with 1 apical and 1 median spine.

*Pedipalp*.—Palpal organ as in fig. 23, *loc. cit.* Tibial process nearly as long as tarsus, straight, narrow, tapering slightly from base to apex, which is minutely hooked.

*Measurements*.—Length of carapace, 3.5 mm.; anterior width, 3.5 mm.

XEROPHAEUS HOTTENTOTTUS, Purc.

1908. *X. hottentottus*. Purcell in Schultze Zool. Forschungsreise in Sudafrika, Bd. 1, p. 236, pl. xi, fig. 17.

1915. *X. gordonicus*. Hewitt in Rec. Albany Museum, vol. iii (2), p. 97, fig. 5.

*Specimens* :—

1 ♀ (150,598 type). Steinkopf, L. Namaqualand. (L. Schultze, July–August, 1904.)

1 ♀ (Grahamstown Museum). N.W. Gordonia. (C. A. Anderson.)

2 ♀♀ (13,246). Laingsburg. (Dr W. F. Purcell, August 1903.)

*Carapace*.—Width across posterior row of eyes  $\frac{1}{2}$  greatest width. Length equal to tibia, metatarsus and  $\frac{1}{3}$  tarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus IV.

*Eyes*.—Anterior row very slightly procurved; medians about  $\frac{3}{4}$  diameter apart, and much larger than the laterals. Posterior row moderately procurved, medians subangular, a short diameter apart posteriorly, and  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus*.—Equal to  $1\frac{1}{2}$  times diameter of anterior lateral.

*Chelicera*.—Superior border with 3 teeth, inferior border with 0.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times greatest width.

*Legs*.—Metatarsus I with 2 spines on under surface; tibia I with anterior lateral scopula and with 1 apical, 1 median, and 1 basal spine on under surface.

*Vulva*.—As in fig. 17, *loc. cit.*

*Measurements*.—Anterior width of carapace, 2 mm.; length of carapace, 5 mm.

## XEROPHAEUS LIGHTFOOTI, Purc.

1907. *X. lightfooti*. Purcell in A.M.N.H. (7), vol. xx, p. 321, pl. xiv, figs. 31 and 32.

*Specimens*.—1 ♂ and 1 ♀ (3330 types). Triangle, C. P. (R. M. Lightfoot, May 1898.)

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia, metatarsus and about  $\frac{1}{3}$  tarsus I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Anterior row not strongly procurved, medians nearly a diameter apart. Posterior row strongly procurved, medians  $\frac{1}{2}$  a diameter apart posteriorly, and  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus*.—At least  $1\frac{1}{2}$  times the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 2–3 teeth, inferior border muticous.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times greatest breadth.

*Legs*.—Tibia I with a small anterior scopula on inner side, and 3 spines down inner side of under surface. Tarsus IV with faint broad light band apparent in distal  $\frac{1}{2}$ .

*Vulva*.—As in fig. 32, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 4 mm.; ♂ 4 mm. Anterior width, ♀ and ♂ 1.9 mm.

♂ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length slightly exceeding tibia and  $\frac{1}{2}$  metatarsus I, and equal to metatarsus IV.

*Eyes and Sternum*.—As in ♀.

*Clypeus*.—Slightly exceeding diameter of anterior lateral eye.

*Chelicera*.—Superior border with 2 teeth, inferior muticous.

*Legs*.—Tibia I without scopula, and with 3 spines down inner side of under surface. Tarsus IV with light distal band.

*Pedipalps*.—As in fig. 31, *loc. cit.* Tibial process very small, blunt and sub-cylindrical, curving slightly upwards and inwards at apex.

*Record of New Localities*.—1 ♀ (B 1670). Matjesfontein. (Dr W. F. Purcell, November 1905.)

## XEROPHAEUS LONGISPINA, Purc.

1908. *X. longispina*. Purcell in Schultze Zool. Forschungsreise in Sudafrika, Bd. I, p. 235, pl. xi, figs. 15 and 16.

*Specimens*.—12 ♀♀ (150,597 ex. typis). Kamaggas, L. Namaqualand. (L. Schultze, July–August 1904.)

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{2}{3}$  metatarsus I, and slightly exceeding metatarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{4}$  diameter apart, and much larger than the laterals. Posterior row moderately procurved, medians subangular,  $\frac{1}{2}$  a short diameter apart posteriorly, and a long diameter from the laterals.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior muticous.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times the greatest breadth.

*Legs*.—Tibia I with narrow lateral scopula over  $\frac{2}{3}$  length; 2–3 spines down inner side.

*Vulva*.—As in fig. 15, *loc. cit.*

*Measurements*.—Anterior width of carapace, 1.7 mm.; length, 4 mm.

♂. “Pedipalps and palpal organ almost exactly as in *X. capensis*, Purc., differing solely in the shape of the outer tibial spine, which is longer, reaching almost to the apex of the palpal organ, and is quite straight at the apex, and simply pointed (p. xi, fig. 16).”

*Record of New Localities*.—1 ♀ (No. 3673). Calvinia or Van Rhynsdorp. (L. Mally, August 1897.)

#### XEROPHAEUS LUNULIFER, Purc.

1907. *X. lunulifer*. Purcell in A.M.N.H. (7), vol. xx, p. 319, pl. xiv, figs. 27 and 28.

*Specimens*.—1 ♂ and 3 ♀♀ (9618 ex. typis). Signal Hill, Cape Town. (Dr W. F. Purcell, September 1901.)

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and metatarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus IV.

*Eyes*.—Anterior row only slightly procurved, medians a diameter apart, smaller than usual. Posterior row moderately procurved, medians at least a short diameter apart posteriorly, and over a long diameter from the laterals.

*Clypeus*.—Equal to  $1\frac{1}{2}$  times diameter of anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1 tooth.

*Sternum*.—Length slightly exceeding  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I with small anterior scopula on inner side, and 1 apical and 1 median spine.

*Vulva*.—As in fig. 28, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 5.1 mm.; ♂ 5 mm. Anterior width, ♀ 2.3 mm.; ♂ 2 mm.

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length

equal to tibia and  $\frac{3}{4}$  metatarsus I, and to metatarsus and  $\frac{1}{2}$  or more tarsus IV.

*Eyes.*—Anterior row slightly procurved, medians over a diameter apart, not much larger than the laterals. Posterior row slightly procurved, medians subrotund,  $\frac{1}{2}$  a short diameter apart, and  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus, Chelicera, and Sternum.*—As in ♀.

*Legs.*—Tibia I with a few anterior lateral scopular hairs on inner side, and 1 apical and 1 median spine. Metatarsus IV not appreciably lighter distally.

*Pedipalps.*—Palpal organ as in fig. 27, *loc. cit.* Tibial process short, just over  $\frac{1}{2}$  length of tibia, and about  $\frac{1}{3}$  length of tarsus; straight, moderately stout, tapering gradually anteriorly, hooked at extremity.

*Record of New Localities* :—

1 ♀ (No. 9413). Near Bethlehem (Stellenbosch Div.). (G. French, 1911.)

1 ♂ (B 5230). Table Mt. (R. W. Tucker, November 1920.)

#### XEROPHAEUS MATROOSBERGENSIS, n. sp. (Fig. 93.)

*Specimens.*—1 ♀ (B 3328 type). Matroosberg Mts., Ceres. (R. W. Tucker, January 1917.)

*Colour.*—Carapace medium brown, legs slightly lighter, abdomen dull testaceous.

*Carapace.*—Equal in length to tibia and metatarsus of 1st leg and to metatarsus and tarsus of 4th leg.

*Eyes.*—Anterior row procurved, laterals smaller than the medians and their own diameter from the margin of the carapace. Posterior row more strongly procurved, laterals subequal to the anterior laterals; medians subangular, oblique, and close together.

*Chelicera.*—Superior border with 3 strong teeth, inferior border with 1 tooth.

*Legs.*—All tarsi scopulate; metatarsi I and II scopulate to the base. Metatarsus I bearing 2 basal spines, tibia 1 apical and 1 median spine; metatarsus II similar. Metatarsus III with a few scopular hairs anteriorly, and numerous spines and bristles; metatarsus IV without scopular hairs.

*Vulva.*—As in fig. 93.

*Measurements.*—Length of carapace, 4 mm. Total length, 11.5 mm.



XEROPHAEUS OCCIDUUS, n. sp. (Fig. 94.)

*Specimens*.—1 ♂ (B 5095 type). Waterberg Mts., S.W. Prot. (R. Tucker, February 1920.)

*Carapace*.—Width across posterior row of eyes a little less than  $\frac{1}{2}$  the greatest width.

*Eyes*.—Anterior row moderately procurved (seen from above, slightly recurved); medians much larger than the laterals and touching them. Posterior row very slightly procurved; medians subrotund, over a diameter apart and a diameter or less from the laterals, which are somewhat larger. Clypeus equal to the long diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, which are small and joined together basally, ridge fashion. Inferior border with 1 small denticle.

*Legs*.—Anterior legs missing or rubbed. Metatarsi I and II with 2 basal spines on the under surface. Tarsi III and IV scopulate; metatarsi with few scopular hairs anteriorly, and numerous strong spines on the under surface.

*Pedipalps*.—Tibia armed on the outer apex with a long, stout process which divides into 2 anteriorly. Tarsal organ as in fig. 94; cf. *X. aridus* ♂.

*Measurements*.—Length of carapace, 2.8 mm. Total length, 4.9 mm.

XEROPHAEUS PALLIDUS, n. sp. (Fig. 95).

*Specimens*.—1 ♂ (B 3611 type). Krantzkop, Natal. (K. H. Barnard, November 1917.)

*Colour*.—Carapace and legs pale testaceous yellow, sparsely clothed with appressed dark hairs. Abdomen very slightly lighter, also clothed with dark hairs (almost completely rubbed off in the specimen). Anterior dorsal scutum showing as a small brown patch.

*Carapace*.—Equal to tibia and  $\frac{1}{3}$  metatarsus I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Anterior medians over  $\frac{1}{2}$  a diameter apart, and nearly touching the laterals. Posterior row very strongly procurved; medians less than a long diameter apart, and more than a long diameter from the laterals, which are equal to, or slightly larger than the medians. Median ocular area longer than wide and narrower posteriorly.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1 small one.

*Legs.*—Scopula on inner side of metatarsus I weak ; inner side also with 1 basal spine ; tibia with 1 apical, 1 median, and 1 basal spine on the inner side ; no scopular hairs present. Metatarsus II. similar to I but bearing 2 basal spines ; tibia without basal spine. Tarsus III scopulate, metatarsus very heavily spined. Tarsus IV bearing bristly hairs, and scopular hairs laterally on the under surface ; metatarsus with a moderately dense aggregation of hair apically on the under surface.

*Pedipalps.*—Femur with 2 apical, and 1 more median, spines dorsally. Tibia and palp as in fig. 95.

*Measurements.*—Length of carapace, 3.2 mm. Total length, 6.8 mm.

#### XEROPHAEUS PATRICKI, Purc.

1907. *X. patricki*. Purcell in A.M.N.H. (7), p. 327, pl. xv, fig. 43.

*Specimens.*—1 ♂ (13,642 type). Pungwe River, 50 miles E. of Umtali, Portug. E. Afr. (D. L. Patrick.)

*Carapace.*—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{1}{2}$  metatarsus I, and equal to metatarsus IV.

*Eyes.*—Anterior row moderately procurved, medians  $\frac{1}{2}$  diameter apart. Posterior row moderately procurved, medians nearly touching posteriorly, and barely a long diameter from the laterals.

*Clypeus.*—Greater than the diameter of an anterior lateral eye.

*Chelicera.*—Superior border with 3 teeth, inferior 1.

*Sternum.*—Length equal to  $1\frac{1}{4}$  times greatest breadth.

*Legs.*—Tibia I with slight lateral anterior scopulae on both sides ; and with a row of 4 spines down inner side of under surface. Distal  $\frac{1}{2}$  of tarsus IV much lighter.

*Pedipalps.*—Palpal organ as in fig. 43 *loc. cit.* Tibial process as long as tibia, and  $\frac{1}{2}$  as long as tarsus ; stout basally, tapering gradually anteriorly, straight, apex pointed and slightly curved inwards.

*Measurements.*—Length of carapace, 4 mm. ; anterior width, 2 mm.

#### XEROPHAEUS PERVERSUS, Purc.

1908. *X. aridius*. Purcell in Schultze Zool. Forschungsreise in Sudafrika, Bd. i, p. 236, pl. xi, fig. 18.

*Specimens.*—1 ♂ (150,599 type). Cape Cross, S. Hereroland. (L. Schultze, 1903.)

*Carapace.*—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{2}{3}$  metatarsus I, and to metatarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{3}{4}$  diameter apart. Posterior row moderately procurved, medians  $\frac{1}{2}$  a short diameter apart, and quite  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus*.—Equal to diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border muticous.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times the greatest breadth.

*Legs*.—Tibia I with a few scopular hairs anteriorly, and 1 median and 1 basal spine. Tarsus IV with no light apical portion.

*Pedipalps*.—Palpal organ as in fig. 18, *loc. cit.* Tibial process short, stout, and blunt, slightly pointed anteriorly; length only  $\frac{1}{3}$  tibia, and less than  $\frac{1}{4}$  tarsus.

XEROPHAEUS PHASEOLUS, n. sp. (Fig. 96.)

*Specimens* :—

2 ♀♀ (11,722 types). Steenberg Cove, St. Helena Bay, Malmesbury Div. (J. C. Goold, May 1902.)

2 ♀♀ (13,261). Stompneus, St. Helena Bay. (J. C. Goold, July 1903.)

*Colour*.—Carapace and legs light golden brown; abdomen densely clothed with tawny brown hairs on the dorsal surface; slightly paler below.

*Carapace*.—Equal to the tibia, metatarsus, and nearly  $\frac{1}{2}$  the tarsus of the 1st leg, and to metatarsus and tarsus IV.

*Eyes*.—Anterior medians a diameter apart, and about  $\frac{1}{4}$  diameter from the laterals, which are only slightly smaller than the medians. Posterior medians less than a long diameter apart, and rather more than a long diameter from the laterals which are sub-equal to them. Median ocular area a little longer than wide, and very slightly narrower posteriorly.

*Chelicera*.—Superior border with 1 large and 2 very small teeth; inferior border muticous.

*Legs*.—Metatarsus I with 2 basal spines; tibia without spines or scopula. Tibia II with at least an apical spine. Tarsi III and IV scopulated; metatarsi heavily spined.

*Vulva*.—As in fig. 96.

*Measurements*.—Length of carapace, 3.3 mm. Total length, 7.3 mm.

XEROPHAEUS ROSTRATUS, Purc.

1907. *X. rostratus*. Purcell in A.M.N.H. (7), vol. xx, p. 321, pl. xiv, figs. 38, 38A, and 39.

*Specimens*.—♂ and ♀ (12,574 types). Graaf Reinet. (J. Paynter, September 1903.)

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{9}{10}$  metatarsus I, and to metatarsus and  $\frac{1}{4}$  or less metatarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{2}$  diameter apart. Posterior row well procurved, medians very close together posteriorly, and a long diameter from the laterals.

*Clypeus*.—Less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest breadth.

*Legs*.—Tibia I with anterior lateral scopula on inner side, and with 1 apical and 1 median spine.

*Vulva*.—As in fig. 39, *loc. cit.*

*Measurements*.—Length of carapace, ♀ 4.5 mm.; ♂ 4.8 mm. Anterior width, ♀ and ♂, 2 mm.

♂ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{2}{3}$  metatarsus I, and to metatarsus and  $\frac{1}{4}$  tarsus IV.

*Eyes, Clypeus, Chelicera, and Sternum*.—As in ♀.

*Legs*.—Tibia I with no anterior scopula, and with 2 apical and 1 median spines. Distal  $\frac{1}{2}$  of tarsus IV slightly lighter.

*Pedipalps*.—Palpal organ as in fig. 38A. Tibial process as in 38, short, stout, tapering, and curved apically, about  $\frac{1}{4}$  length of tarsus and  $\frac{1}{3}$  length of tibia.

#### XEROPHAEUS RUBEUS, n. sp. (Fig. 97.)

*Specimens*.—1 ♀ and jv. (No. 878). Knysna. (Dr. W. F. Purcell, March 1896.)

*Colour*.—Carapace light reddish brown; legs slightly lighter. Abdomen testaceous, densely clothed with fine appressed brown hairs.

*Carapace*.—Equal in length to tibia, metatarsus, and about  $\frac{1}{3}$  tarsus I, and equal to metatarsus and tarsus IV.

*Eyes*.—Anterior medians large and slightly nearer to the laterals than to each other. Posterior medians sub-circular and slightly smaller than the laterals; about  $\frac{1}{2}$  their own diameter apart, and nearly 2 diameters from the laterals. Median ocular area much longer than wide, and slightly narrower posteriorly.

*Chelicera*.—Superior border with the usual 3 teeth, inferior border with 1 denticle.

*Legs*.—Metatarsus I with 2 basal spines; tibia with an apical and

a median spine, and a few anterior scopular hairs on the inner side; 2nd leg similar, but without the scopular hairs on the tibia. Tarsi III and IV scopulate, metatarsi heavily spined.

*Vulva*.—As in fig. 97.

*Measurements*.—Length of carapace, 5 mm. Total length, 10 mm.

XEROPHAEUS SILVATICUS, n. sp. (Fig. 98.)

*Specimens*.—1 ♀ (14,513 type). Manubi Forest, Kentani District. (Miss Pegler, October 1905.)

*Colour*.—Carapace and legs golden yellow; abdomen clothed with dark brown hairs on the dorsal surface, and paler below.

*Carapace*.—Subequal to tibia and metatarsus I, and equal to metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Anterior medians very little farther from each other than from the smaller laterals. Posterior medians about  $\frac{1}{2}$  a diameter apart, and at least a long diameter from the laterals, which are slightly larger than the medians.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1 small tooth.

*Legs*.—Metatarsus I with 2 basal spines; tibia with 1 apical, 1 median, and 0–1 basal spine on the inner side; no scopula present. Metatarsus II with or without an additional median spine on the under surface; tibia lacking the basal spine. Tarsus III scopulated; metatarsus densely clothed distally on the under surface with black bristle-like hairs. Tarsus IV bearing scopular hairs laterally, and short bristle-like hairs down the centre; metatarsus also with black bristles distally on the under surface.

*Vulva*.—As in fig. 98; the posterior dark portions have the appearance of depressions, and are masked by a dense growth of stiff hairs directed posteriorly and inwards.

*Measurements*.—Length of carapace, 3.1 mm. Total length, 7.5 mm.

XEROPHAEUS SPIRALIFER, Purc.

1907. *X. spiralifer*. Purcell in A.M.N.H. (7), vol. xx, p. 318, pl. xiv, figs. 24 and 25.

*Specimens*.—♂ and ♀ (11,978 types). Eierfontein, 8–9 mls. W. of Hanover. (S. C. Schreiner, December 1901–February 1902.)

♀ *Carapace*.—Anterior width slightly less than  $\frac{1}{2}$  greatest width. Length equal to tibia, metatarsus and  $\frac{1}{3}$  tarsus I, and metatarsus and  $\frac{2}{3}$  tarsus IV.

*Eyes*.—Anterior row moderately procurved, medians  $\frac{1}{4}$  diameter apart. Posterior row strongly procurved, medians large, subangular, nearly contiguous posteriorly, and less than a long diameter from the laterals.

*Clypeus*.—About equal to the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 1.

*Sternum*.—Length equal to  $1\frac{1}{3}$  times greatest width.

*Legs*.—Tibia I with lateral scopulae over  $\frac{1}{2}$  anterior length; 1 apical spine on under surface.

*Vulva*.—As in fig. 25, *loc. cit.*

*Measurements*.—Anterior width of carapace, ♂ and ♀, 1.5 mm. Total length, ♀ 3.8 mm.; ♂ 3.5 mm.

♂ *Carapace*.—Anterior width  $\frac{1}{2}$  greatest width. Length equal to tibia and  $\frac{2}{3}$  metatarsus I, and slightly exceeding metatarsus IV.

*Clypeus, Eyes, Sternum, and Chelicera*.—As in ♀.

*Legs*.—Metatarsus I with 1 spine basally. Tibia I with very slight apical lateral scopulae and 1 apical spine. Metatarsus IV with distinct light band in distal  $\frac{1}{2}$ .

*Pedipalps*.—As in fig. 24, *loc. cit.* Tibial process short, thick, truncated apically, and bearing on anterior side a slender process almost at right angles to the main portion, and ending in a downward curved claw.

#### XEROPHAEUS SPOLIATOR, Purc.

1907. *X. spoliator*. Purc. in A.M.N.H. (7), vol. xx, p. 321, pl. xiv, figs. 29 and 30.

*Specimens*.—2 ♂♂ (9546 types) and 2 ♀♀ (9485). Hanover. (S. C. Schreiner, September–November 1901.)

♀ *Carapace*.—Anterior width equal to  $\frac{1}{2}$  greatest width. Length equal to tibia, metatarsus, and at least  $\frac{1}{4}$  metatarsus I, and to metatarsus and  $\frac{4}{5}$  tarsus IV.

*Eyes*.—Anterior row very slightly procurved, medians a diameter apart. Posterior row very slightly procurved, medians over a short diameter apart, and nearly 2 long diameters from the laterals.

*Clypeus*.—About equal to the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth and 1 to 2 denticles; inferior border muticous.

*Sternum*.—Length equal to  $1\frac{1}{2}$  times the greatest breadth.

*Legs*.—Tibia I scopulate laterally over  $\frac{1}{3}$  inner side; bearing 1 apical, 1 median, and 1 basal spine.

*Vulva*.—As in fig. 30, *loc. cit.*

*Measurements.*—Length of carapace, ♀ 6 mm. ; ♂ 4 mm. Anterior width, ♀ 2.5 mm. ; ♂ 1.6 mm.

♂ *Carapace.*—Anterior width  $\frac{1}{2}$  greatest width. Length equal to tibia and at least  $\frac{1}{3}$  metatarsus I, and to metatarsus and about  $\frac{1}{4}$  tarsus IV.

*Eyes.*—Anterior row slightly procurved, medians  $\frac{3}{4}$  diameter apart. Posterior row slightly procurved, medians less than a short diameter apart posteriorly, and about  $1\frac{1}{2}$  long diameters from the laterals.

*Clypeus, Chelicera, and Sternum.*—As in ♀.

*Legs.*—Tibia I with a few scopular hairs apically on inner side, and with 2 apical, 2 median, and 2 basal spines on under surface ; tarsus IV slightly lighter over distal  $\frac{1}{2}$ .

*Pedipalps.*—Palpal organ as in fig. 29, *loc. cit.* Tibial process short and stout, scarcely as long as tibia, and about  $\frac{1}{4}$  length of tarsus ; tapering anteriorly, very slightly hooked.

*Record of New Localities.*—3 ♀♀ (B 3329). Kimberley.

#### XEROPHAEUS TENEBROSUS, n. sp. (Fig. 99.)

*Specimens* :—

1 ♀ (No. 869 type). Knysna Forest, Knysna Div. (Dr. W. F. Purcell, March 1896.)

1 ♀ (150,698). Howick, Natal. (Dr. W. F. Purcell, September 1908.)

*Colour.*—Carapace dark orange brown, sparsely clothed with appressed silky hairs ; legs similar in colour, but patellae lighter distally, and metatarsi and distal portion of tarsi darker and redder ; tarsi, especially of posterior legs, with light extremities. Abdomen dull testaceous where rubbed, otherwise clothed with tawny brown hairs ; paler ventrally.

*Carapace.*—Slightly surpassing tibia and metatarsus I, and equal to metatarsus and tarsus IV.

*Eyes.*—Median anteriors about  $\frac{1}{3}$  of a diameter apart, and nearly touching the much smaller laterals. Posterior medians sub-angular, less than a long diameter apart, and at least a long diameter from the laterals. The posterior laterals are larger than the medians, and slightly larger than the anterior laterals. Median ocular area very little longer than wide and slightly narrower posteriorly.

*Chelicera.*—Superior border with 1 large and 2 very small teeth ; inferior border bearing 1 denticle.

*Sternum.*—Somewhat longer and narrower than usual.

*Legs.*—Metatarsus I with 1 basal spine ; tibia I with 1 inner apical spine but bearing no scopular hairs ; several hairs on the under surface, however, are stout and bristle like. Metatarsus II with 2 basal spines ; tibia with 2 apical, 2 median, and 1 anterior lateral spines on the inner surface ; also furnished with numerous fine bristle-like hairs. Tarsi III and IV scopulate ; metatarsi heavily spined and bearing apically on the under surface a brush of long bristly hairs ; that on metatarsus IV being longer than on III.

*Vulva.*—As in fig. 99.

*Measurements.*—Length of carapace, 4.2 mm. Total length, 9.2 mm.

The specimen from Natal differs from the type on the following slight points : Colour of carapace and legs a duller and more uniform brown ; abdomen testaceous, and lacking pubescence. Sternum comparatively not so long and narrow. The spination of the anterior legs is different, in that metatarsus I has 2 basal spines, and the tibia has a median spine also on the under surface ; the 2nd leg is similar. The vulva varies slightly, in that the anterior pocket is further produced, rounder, and less compressed in shape ; the median groove is wider, and has a dark central ridge, which tapers into the anterior pocket.

*XEROPHAEUS VICKERMANI*, n. sp. (Fig. 100 A and B.)

*Specimens* :—

1 ♀ (B 3686 type). Junction of Marico and Crocodile Rivers, N.W. Transv. (R. W. Tucker, January–February 1918.)

2 ♀♀ (B 2084). Upington, S.W. Africa. (R. W. Tucker, December 1915. Percy Sladen Memorial Exped.)

1 ♀ and 1 ♂ (B 4343). Komatipoort, Low Veld, E. Transv. (R. W. Tucker, December 1918.)

*Carapace.*—Equal in length to tibia and  $\frac{2}{3}$  metatarsus I, and to metatarsus and  $\frac{1}{2}$  tarsus IV.

*Eyes.*—Anterior row procurved ; laterals sub-equal to the medians, and  $\frac{2}{3}$  their own diameter from the anterior margin of the carapace. Posterior row more strongly procurved ; laterals slightly smaller than the anterior laterals ; medians sub-angular and close together.

*Chelicera.*—Superior border with 3 teeth, the central one large ; inferior border with 2 small denticles.

*Legs.*—All the tarsi scopulate. Metatarsi I and II scopulate to the base. Tibia I scopulate anteriorly on both sides of the under surface,



the scopulation on the inner side extending  $\frac{2}{3}$  of the total length. Tibia II scopulate slightly on the inner side of the under surface; metatarsus I and II each with an inner basal spine on the under surface, and tibia I and II each with a median and a basal spine on the outer side of the under surface.

*Vulva*.—As in fig. 100A.

*Measurements*.—Carapace, 3.9 mm. long. Total length, 9 mm.

The occurrence of the same species in both S.W. Africa and N.W. Transvaal is worthy of notice. Several cases are known of the occurrence of species of Drassidae from C. Province to Rhodesia and E. Africa, e.g., *Camillina amnicola* (Tucker) and *Zelotes montana* (Purc.), and several others; but a more lateral connection across Bechuanaland has hitherto not been apparent. It is possible, though, that the distribution of the species lies to the south through C. Province and Orange Free State, and not across Bechuanaland.

♂ *Carapace*.—Slightly exceeding in length tibia I and metatarsus IV.

*Eyes*.—Median anterior eyes much larger than the laterals; laterals  $\frac{1}{2}$  their diameter from the anterior border. Posterior medians very much larger than the laterals; otherwise as in the ♀.

*Maxillae*.—Narrow and with protuberant outer apices (as in *Clubionidae*).

*Chelicera*.—As in ♀.

*Legs*.—All tarsi scopulated. Metatarsus I very long, scopulate to the base and with one inner basal spine; tibia with one or two scopular hairs anteriorly on the inner side, and one median and one basal spine. Metatarsus II shorter than I, scopulate to the base and with 2 basal spines; tibia with 2 median spines and no scopular hairs.

*Pedipalps*.—Tibia nearly as long as the tarsus, without apical spur and bearing 1 dorsal and 4 lateral spines as in fig. 100B. Tarsus and palpal organ as in fig. 100B. Femur with 3 apical and 1 nearly median spines on the dorsal surface.

*Measurements*.—Carapace, 3.4 mm. Total length, 7.9 mm.

## THEUMEAE.

### *Key to Genera.*

Anterior median eyes equal to or smaller than the laterals; inferior spinners twice as long and stout as the superiors, and well separated from them.

Anterior tarsi and metatarsi well scopulate. Inferior margin of chelicera with 3–4 small teeth, superior margin with 3 or more larger teeth *Theuma*.

Anterior median eyes not smaller than the laterals; inferior spinners three times



- (2). 3. Length of carapace exceeding tibia I.  
 (5). 4. Posterior medians 1 diameter or less apart and over  $1\frac{1}{2}$  diameters from laterals . . . . . *capensis*.  
 (4). 5. Posterior medians over 1 diameter apart and  $1\frac{1}{2}$  diameters or less from laterals . . . . . *parva*.  
 (1). 6. Length of inferior spinners exceeding the width of posterior row of eyes.  
 7. Length of carapace equal to or less than metatarsus IV.  
 (9). 8. Posterior row of eyes straight . . . . . *schreineri*.  
 (8). 9. Posterior row of eyes recurved.  
 (11). 10. Posterior medians 1 diameter or less apart . . . . . *ababensis*.  
 (10). 11. Posterior medians over 1 diameter apart . . . . . *fusca*.

THEUMA ABABENSIS, n. sp. (Fig. 116.)

*Specimens*.—1 ♂ (B 2143 type). Ababis, S.W. Protectorate. (R. W. Tucker, December 1915. Percy Sladen Memorial Expedition.)

*Colour*.—Carapace light yellowish brown with darker radiations from the stria; legs a little lighter. Abdomen testaceous (rubbed); sternum testaceous, dark rimmed and with 3 lateral brown marks.

*Carapace*.—Length equal to tibia I and to metatarsus IV.

*Eyes*.—Anterior medians less than  $\frac{1}{2}$  a diameter apart, and touching the larger laterals. Seen from above the anterior row is slightly recurved; posterior row more recurved, medians round,  $\frac{1}{2}$  a diameter apart, and nearly a diameter from the laterals, which are only a little larger; laterals scarcely nearer to the anterior laterals than to the posterior medians.

*Chelicera*.—Superior border with 3 teeth, inferior border with 3–4 small denticles.

*Legs*.—Tibia I with 3 spines down each side of the under surface, and 2 spines on each lateral surface; remaining legs missing or mutilated.

*Spinners*.—Long and comparatively close together; length nearly twice the width of the posterior row of eyes.

*Pedipalps*.—Palpal organ as in fig. 116.

*Measurements*.—Length of carapace, 2.5 mm. Total length, 5.4 mm.

THEUMA APRICA, Sim.

1892. *T. aprica*. Simon in Hist. Nat. des Araign., 2nd edit., p. 351.

“♀.—Length, 5.8 mm. From *T. xyliana*, Sim., to which it is closely related and similar, it differs in the median anterior eyes, being considerably smaller than the laterals, posterior row of eyes strongly procurved, the medians being oval, oblique, and less than an eye’s length apart, and legs and spines weak.”

## THEUMA CAPENSIS, Purc. (Figs. 105 and 115.)

1907. *T. capensis*. Purcell in A.M.N.H. (7), vol. xx, p. 299.

*Specimens* :—

♀ and jv. (12,112 ex. typis). Camps Bay, Cape Pens. (Dr. W. F. Purcell, May 1902.)

3 ♂♂ (12,064). Signal Hill, Cape Town. (Dr. W. F. Purcell, October 1901.)

♀ *Carapace*.—Length equal to tibia and metatarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row slightly recurved; medians scarcely smaller than the laterals, over a diameter apart, and at least  $1\frac{1}{2}$  from the laterals. Posterior laterals nearer to anterior laterals than to posterior medians.

*Clypeus*.—Slightly less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4–5, inferior with 2–3 teeth.

*Legs*.—Metatarsus I with 1–2 spines on inner side and 2 basally on outer side of under surface. Tibia I with scanty scopular hairs laterally, and 4–5 spines down inner side and 3–6 down outer side of under surface; no lateral spines.

*Spinners*.—Length of inferior spinners less than width of posterior row of eyes.

*Vulva*.—As in fig. 105.

*Measurements*.—Length of carapace, ♀ 2.8 mm.; ♂ 2 mm.

♂ *Carapace*.—Length slightly exceeding tibia I, and equal to metatarsus and  $\frac{1}{4}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row well recurved; medians smaller than the laterals, nearly  $1\frac{1}{2}$  diameters apart and  $1\frac{1}{2}$  from the laterals; the latter nearer to the anterior laterals than to the posterior medians.

*Clypeus*.—Very much less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4, inferior with 3–4 teeth.

*Legs*.—Metatarsus I with 2 spines down inner and 3 down outer side of under surface.

*Spinners*.—Inferior spinners longer than the posterior row of eyes.

*Pedipalps*.—Tibial process normal, palpal organ as in fig. 115.

A variety of this form with 4 minute teeth instead of 2 on the inferior margin of the chelicera is represented by the following specimens :—

(b) 1 ♀ from Ceres. (Dr. W. F. Purcell.)

(c) 1 ♀ from near Tulbagh Road Station. (Dr. W. F. Purcell.)

(d) 1 ♀ from Caledon. (Dr. W. F. Purcell.)

*Records of New Localities* :—

- ♂ and jv. ♀♀ (B 3027). Matroosberg Mts., Ceres (3500–4000 ft.).  
(R. W. Tucker, January 1917.)
- ♂ (B 3429). Matroosberg Mts., Ceres (4000 ft.). (R. W. Tucker, December 1917.)
- ♂ (B 4647). Matjesfontein. (Dr. W. F. Purcell, November 1905.)
- ♀ (B 4832). Nr. Gaub, North S.W. Protect. (R. W. Tucker, January 1920.) This specimen, although from such a distant locality, does not appear separable from this species.

THEUMA CEDRI, Purc. (Fig. 106.)

1907. *T. cedri*. Purcell in A.M.N.H. (7), vol. xx, p. 302.

*Specimens*.—1 ♀ (3629 type). Bosch Kloof Cedarbergen, Clan-William. (R. Pattison, November 1897.)

*Carapace*.—Length equal to tibia and just over  $\frac{1}{3}$  metatarsus I, and to metatarsus and about  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row slightly recurved, medians smaller than the laterals, less than a diameter apart, and about  $1\frac{1}{2}$  diameters from the laterals; latter equidistant from the anterior laterals and posterior medians.

*Clypeus*.—Slightly exceeding the diameter of a posterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior with 3 teeth.

*Legs*.—Metatarsus I with 2 basal and 2 sub-median spines on under surface. Tibia I with no scopula, and with 2 apical, 2 median, and 2 basal spines on under surface, and 2–3 spines on interior lateral surface.

*Spinners*.—Length of inferior spinners very slightly exceeding width of posterior row of eyes.

*Vulva*.—As in fig. 106.

*Measurements*.—Length of carapace, 3.8 mm.

THEUMA ELUCUBATA, n. sp. (Fig. 101.)

*Specimens*.—1 ♀ (B 4483). Florida, Transvaal High Veld. (R. W. Tucker, December 1918.)

*Colour*.—Carapace uniform tawny yellow, ocular region somewhat infuscated. Legs similar in colour, darkening distally. Abdomen testaceous, usual dark hairs mainly rubbed off. Sternum and coxae very pale brown, almost testaceous, and dark-rimmed.

*Carapace*.—Length equal to tibia, and nearly  $\frac{2}{3}$  metatarsus I, and to metatarsus and just over  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Anterior median eyes a diameter apart, and much smaller than the laterals, from which they are about  $\frac{1}{2}$  a diameter apart. Seen from above the anterior row is straight to slightly procurved; posterior row wide and very slightly recurved; posterior medians rotund, subequal to the anterior medians; well over a diameter apart, and at least  $2\frac{1}{2}$  diameters from the laterals. Posterior laterals slightly nearer to the anterior laterals than to the posterior medians.

*Chelicera*.—Superior border bearing 3 large and 1 small teeth; inferior border bearing 5 small teeth of equal size.

*Legs*.—Metatarsus I scopulate at sides of under surface nearly to base; 2 basal and 1 lateral spines and 2 apical spiniform hairs on the under surface; tibia with 4 outer and 3–4 inner spines on the under surface; 2nd leg similar, but tibia with 5 inner spines.

*Spinners*.—Inferior spinners a little over  $\frac{1}{2}$  their length apart; length exceeding the width of the posterior row of eyes; each bearing a conspicuous apical spigot in addition to the long bunched fusules.

*Vulva*.—As in fig. 101.

*Measurements*.—Carapace, 3.9 mm. Total length, 8.5 mm.

#### THEUMA FOVEOLATA, n. sp. (Fig. 102.)

*Specimens*.—1 ♀ (B 3254 type). Salisbury, S. Rhodesia. (R. W. Tucker, April 1917.)

*Colour*.—Carapace yellowish-brown, darker anteriorly; legs slightly darker than the carapace; abdomen pallid; sternum, coxae, etc., paler than the carapace.

*Carapace*.—Length equal to tibia and just over  $\frac{1}{2}$  metatarsus I and to metatarsus and  $\frac{4}{5}$  tarsus IV.

*Eyes*.—Seen from above, the anterior row is slightly recurved; medians subequal to laterals and equidistant. Posterior row much wider than the anterior, and very slightly recurved; median eyes oblique, pearly, more than their long diameter from the laterals, but less from each other; posterior laterals slightly nearer to the anterior laterals than to the posterior medians.

*Chelicera*.—Toothed as in *T. velox*, Purc.

*Legs*.—Metatarsus I without spines, and densely scopulate. Tibia I with a narrow scopular strip extending over halfway down the inner

edge of the under surface; anterior scopula on outer edge weak; 4 stout spines down inner, and 3 down outer edge of the under surface. Tarsal fascicles very dense, and as long as the claws.

*Spinners*.—Inferior spinners nearly their own length apart, and equal in length to the posterior row of eyes; median spinners very short; superior spinners over twice as long as the medians.

*Vulva*.—As in fig. 102. The usual triangular portion of the vulva is very short, and almost parallel-sided; posterior pocket broad and conspicuous; anterior enlargement of considerable size.

*Measurements*.—Carapace, 4 mm. long. Total length, 9·8 mm.

A ♀ and jv. ♂ (B 4195), Kimberley (Bro. J. H. Power, September 1918), are also identified as this species; the ♀ is a little smaller and lighter than the type, and the vulva differs slightly from text-fig. 102 in that the central dark portion is more anterior in position and is strongly arched showing a tunnel-like opening underneath; the general shape and appearance, however, points to their being the same species.

#### THEUMA FUSCA, Purc. (Figs. 104 and 111.)

1907. *T. fusca*. Purcell in A.M.N.H. (7), vol. 20, pp. 300 and 304.

1908. *T. fusca*. Purcell in L. Schultze, Zool. Forschungsreise in Sudafrika, p. 234.

*Specimens* :—

6 ♀♀ (12,667 types). Montagu Baths. (Dr. W. F. Purcell, November 1902.)

2 ♂♂ (3357). Ashton. (Dr. W. F. Purcell, November 1897.)

♀ *Carapace*.—Equal in length to tibia and about  $\frac{1}{2}$  metatarsus I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row moderately recurved; posterior medians over a diameter apart, and 2 diameters from the laterals which are slightly larger. Posterior laterals equidistant from the anterior laterals and posterior medians.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, inferior with 3.

*Legs*.—Tibia I with a slight anterior lateral scopula, and with 3 pairs of spines on the under surface.

*Spinners*.—Inferior spinners equal in length to  $1\frac{1}{2}$  times the breadth of the posterior row of eyes.

*Vulva*.—As in fig. 104.

*Measurements*.—Length of carapace, 4·1 mm.

♂ *Carapace*.—Length equal to metatarsus and  $\frac{1}{6}$  tarsus I, and to slightly less than metatarsus IV.

*Eyes*.—Posterior row moderately recurved; medians barely a diameter apart, and about 2 diameters from the laterals. Posterior laterals equidistant from anterior laterals and posterior medians.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, inferior with 3 small teeth.

*Legs*.—Tibia I without scopula, with 3 pairs of spines on under surface, and also 2 spines on lateral surface.

*Pedipalps*.—Tibial process equal to  $\frac{1}{2}$  the length of the tarsus, tapering gradually, and curved outwards. Palpal organ, fig. 111.

*Measurements*.—Length of carapace, about 3.1 mm.

*Record of new localities* :—

2 ♀♀ and 1 jv. Bergvliet, C. Penins. (Dr. W. F. Purcell.)

♀ (B 1651). Matjesfontein. (Dr. W. F. Purcell, November 1905.)

♀ (B 4474). Messina, N. Transvaal. (R. W. Tucker, November 1918.)

2 ♀♀ (B 3883). Insiza, S. Rhodesia. (G. French.)

♀ (B 3717). Junc. Croc. and Marico Rs., N. W. Transv. (R. W. Tucker, February 1918.)

2 ♀♀ (B 2973). Matroosberg Mts., Ceres. (R. W. Tucker, January 1917.)

2 ♀♀ (B 3472). Matroosberg Mts., Ceres. (R. W. Tucker, November 1917.)

4 ♀♀ (B 3447). Matroosberg Mts., Ceres. (R. W. Tucker, December 1917.)

2 ♀♀ and 1 ♂ (B 3500). Matroosberg Mts., Ceres; 4500 ft. (R. W. Tucker, November 1917); it is doubtful if this ♂ belongs to the ♀♀; it does not altogether agree with the type ♂ *fusca*.

#### THEUMA MACULATA, Purc. (Figs. 109 and 112.)

1907. *T. maculata*. Purcell in A.M.N.H. (7), vol. xx, p. 302.

1908. *T. maculata*. Purcell in Schultze, Zool. Forschungsreise in Sudafrika, p. 234.

*Specimens*.—2 ♀♀, 1 ♂, and 1 jv. (3936 types). Beaufort West. (Dr. W. F. Purcell, September 1896.)



*Carapace*.—Length equal to tibia and  $\frac{1}{3}$  or more metatarsus I, and equal to metatarsus and  $\frac{1}{3}$  or more tarsus IV.

*Eyes*.—Seen dry. Posterior row decidedly recurved, medians smaller than the laterals, less than a diameter apart, and  $1\frac{1}{2}$  diameters from the laterals. Posterior laterals equidistant from posterior medians and anterior laterals.

*Clypeus*.—Equal to diameter of anterior lateral.

*Chelicera*.—Superior border with 4–5 teeth; inferior with 3–4.

*Legs*.—Metatarsus with 2 basal, and 1 outer median spines; tibia I not scopulate, and with 2 anterior and 2 other pairs of spines on the under surface, but no lateral spines.

*Spinners*.—Length of inferior spinners at least  $1\frac{1}{3}$  times width of posterior row of eyes.

*Vulva*.—As in fig. 109.

*Measurements*.—Length of carapace, ♀ 3.1 mm.; ♂ 3.2 mm.

♂ *Carapace*.—Length equal to tibia I, and to metatarsus and  $\frac{1}{3}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row very slightly recurved; medians less than a diameter apart, and not much more than 1 diameter from the laterals; latter nearer to anterior laterals than to posterior medians.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—Superior border with 4 large and 1 small teeth; inferior border with 3 small teeth.

*Legs*.—Tibia I with 1 pair of apical, and 2 other pairs of spines on under surface, and 1 anterior spine on outer lateral surface; metatarsus I with 2 basal and 1 median spines on outer side of under surface.

*Pedipalps*.—Tibial process normal. Palpal organ, fig. 112.

*Spinners*.—Length of inferior spinners equal to  $1\frac{1}{3}$  width of posterior row of eyes.

*New localities*.—The following determinations are regarded as doubtful, but are recorded in case further specimens from these regions confirm the presence there of this species:—

1 ♀ (B 3890). Insiza, S. Rhodesia. (G. French.) Eyes slightly different from type; anterior medians slightly larger; posterior row not so recurved.

2 ♀♀ (B 4475). Messina, N. Transv. (R. W. Tucker, November 1918.)

1 ♂ (B 2139). Tsais, Bull's Mouth Pass, S.W. Protectorate. (R. W. Tucker, Percy Sladen Memorial Expedition, December 1915.)

2 ♂♂ (B 4790). Ashton C.P. (R. W. Tucker, November 1919.)

## THEUMA MUTICA, Purc. (Fig. 103.)

1907. *T. mutica*. Purcell in A.M.N.H. (7), vol. xx, pp. 303 and 304.

*Specimens*.—1 ♀ (7783 type). Kogman's Kloof, Robertson Div. (Mrs. Purcell, August 1903.)

*Carapace*.—Length equal to tibia and  $\frac{1}{2}$  metatarsus I, and to metatarsus and nearly  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row straight, medians subequal to the laterals, almost touching each other and just over a diameter from the laterals; the latter very much nearer to the anterior laterals than to the posterior medians.

*Clypeus*.—Slightly less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 5 teeth, inferior border with 1 denticle.

*Legs*.—Tibia and metatarsus I spineless.

*Vulva*.—As in fig. 103.

*Spinners*.—Inferior spinners longer than posterior row of eyes.

*Measurements*.—Length of carapace, barely 2 mm.

## THEUMA PARVA, Purc. (Fig. 113.)

1907. *T. parva*. Purcell in A.M.N.H. (7), vol. xx, pp. 303 and 304.

*Specimens*.—1 ♂ (13,502 type). Eierfontein, 8–9 miles west of Hanover. (S. C. Schreiner, January 1902.)

*Eyes*.—Seen dry. Posterior row straight. Medians larger than the laterals, over a diameter from each other, and less from the laterals; latter nearer to the anterior laterals than to the posterior medians.

*Clypeus*.—Equal to diameter of anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, inferior with 3.

*Legs*.—Metatarsus I with 3 long spines basally on under surface. Tibia I with 2 apical, 2 median, and 2 basal spines on under surface.

*Spinners*.—Length of inferior spinners slightly exceeding width of posterior row of eyes.

*Pedipalps*.—As in fig. 113.

*Measurements*.—Length of carapace, 1.7 mm.

*New Locality*.—1 ♂ (B 3305). Bulawayo, S. Rhodesia. (R. W. Tucker, May 1917.)

## THEUMA PURCELLI, n. sp. (Fig. 110.)

*Specimens* :—

1 ♀ (B 1945 type). Beaufort West. (Dr. W. F. Purcell, October 1905.)

1 ♀ (B 3731). Junction Crocodile and Marico Rs., N.W. Transv. (R. W. Tucker, February 1918.)

*Colour*.—Carapace and legs light orange brown; abdomen testaceous, apparently clothed with tawny hairs (mostly rubbed off) on dorsal surface; ventral surface slightly lighter.

*Carapace*.—Length equal to tibia and  $\frac{3}{4}$  metatarsus I, and to metatarsus and  $\frac{3}{4}$  tarsus IV.

*Eyes*.—Anterior row straight; medians a little smaller than the laterals and slightly nearer to each other. Posterior row straight; medians round and subequal to the laterals; over a diameter apart, and somewhat more from laterals; laterals considerably nearer to the anterior laterals than to the posterior medians.

*Chelicera*.—Two large and 1 small superior teeth, and 3 small inferior teeth.

*Legs*.—Metatarsus I with 1 large and 1–2 small basal spines, and a double row of fine short spines down the centre of the under surface; tibia with 4 pairs of long spines down the under surface, and practically no scopular hairs anteriorly. Metatarsus of 2nd leg similar to 1st leg; scopulation slightly less; tibia bearing 3 pairs of strong spines and a weak apical pair on the under surface.

*Spinners*.—Inferior spinners short, about  $\frac{1}{2}$  their own length apart and equal in length to the anterior row of eyes.

*Vulva*.—As in fig. 110.

*Measurements*.—Carapace, 2.7 mm. Total length, 6 mm.

*Other Localities* :—

1 ♀ (B 3753). Junc. Croc. and Marico Rs. (R. W. Tucker, February 1918), appears referable to this species.

2 ♀♀ (B 4291). Kaapmuiden, E. Transv., Low Veld. (R. W. Tucker, November 1918), also appear referable; the posterior lateral eyes, however, are subequal to the medians; total length of each specimen, 5 mm.

1 ♀ (B 4345). Komatipoort, E. Transv. (R. W. Tucker, November 1918); total length 4 mm.

#### THEUMA PUSILLA, Purc.

1908. *T. pusilla*. Purcell in Schultze, Zool. Forschungsreise in Sudafrika, p. 232, pl. x, fig. 11.

*Specimens* :—1 ♀ (150,528 type). Kammaggas, L. Namaqualand. (L. Schultze, August 1904.)

1 ♀. Kubub, Gt. Namaqualand. (March–April 1904.)

*Carapace*.—Length slightly exceeding tibia and metatarsus I, and equal to tibia and metatarsus IV.

*Eyes*.—Seen dry. Posterior row slightly recurved; posterior medians slightly larger than the laterals, oblique, oval, and about 2 diameters from the laterals, and  $1\frac{1}{2}$  from each other; laterals nearer to the anterior laterals than to the posterior medians.

*Clypeus*.—Exceeding the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4–5 teeth, inferior border with 3.

*Legs*.—Metatarsus I with 1 sub-basal spine on outer side; tibia I narrowly scopulate almost to base on each side; no apical spines, but 3–4 outer and 2–3 inner spines on under surface.

*Spinners*.—Length of inferior spinners slightly less than width of posterior row of eyes.

*Vulva*.—As in fig. 11, *loc. cit.* Anterior cavity large.

*Measurements*.—Length of carapace, 2.5 mm.

THEUMA SCHREINERI, Purc. (Figs. 108 and 114.)

1907. *T. schreineri*. Purcell in A.M.N.H. (7), vol. xx, p. 301.

*Specimens*.—2 ♀♀ and 5 ♂♂ (9483). Hanover. (S. C. Schreiner, September–October 1901.)

♀ *Carapace*.—Equal in length to tibia and less than  $\frac{1}{2}$  metatarsus I, and to metatarsus and less than  $\frac{1}{6}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row very slightly recurved; medians about  $1\frac{1}{2}$  diameters apart, and over 2 diameters from the laterals. Posterior laterals nearer to the anterior laterals than to the posterior medians.

*Clypeus*.—Slightly less than the diameter of an anterior lateral eye.

*Legs*.—Tibia I with 1 apical and 3 other pairs of spines, and with 2 inner lateral spines.

*Spinners*.—Length equal to  $1\frac{1}{2}$  times breadth of posterior row of eyes.

*Vulva*.—As in fig. 108.

*Measurements*.—Length of carapace, ♀, 4.5 mm.; ♂, 3.1 mm.

♂ *Carapace*.—Length equal to metatarsus and about  $\frac{1}{3}$  tarsus I, and subequal to metatarsus IV.

*Eyes*.—Seen dry. Posterior row almost straight, medians just over a diameter apart and  $1\frac{1}{2}$  from the laterals.

*Clypeus*.—Slightly less than the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, inferior with 3.

*Legs*.—Tibia I as in ♀.

*Pedipalps*.—As in *fusca*. Palpal organ as fig. 114.

*Spinners*.—Length of inferior spinners over  $1\frac{1}{2}$  times width of posterior row of eyes.

*New Localities* :—

1 ♀ (B 220). Burghersdorp. (Dr. Kannemeyer, September 1909.)

3 ♂♂ (B 4179). De Aar. (Dr. W. F. Purcell, September 1903.)

♂ and ♀ (B 2093). Namsem, S.W. Africa. (R. W. Tucker, December 22, 1915). Percy Sladen Memorial Expedition.

♂ and ♀♀ (B 5224). Vryburg. (J. E. Brown, May 1920.)

THEUMA SCHULTZEI, Purc. (Fig. 107.)

1908. *T. schultzei*. Purcell in Schultze, Zool. Forschungsreise in Sudafrica, p. 234.

*Specimens*.—2 ♀♀ (150,593). Steinkopf, L. Namaqualand. (L. Schultze, July–August 1904.)

*Carapace*.—Length equal to  $\frac{1}{2}$ – $\frac{3}{4}$  metatarsus I, and to metatarsus and about  $\frac{1}{2}$  tarsus IV.

*Eyes*.—Seen dry. Posterior row slightly recurved; medians about  $1\frac{1}{2}$  diameters apart, and 2 from the laterals which are equally distant from the anterior laterals and posterior medians, or perhaps slightly nearer the anterior laterals.

*Clypeus*.—About equal to the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4 teeth, inferior border 3 denticles.

*Legs*.—Tibia I with slight lateral anterior scopula, and 4 pairs of spines on the under surface; no lateral spines.

*Spinners*.—Length of inferior spinners equal to  $1\frac{1}{5}$  width of posterior row of eyes.

*Vulva*.—As in fig. 107.

*Measurements*.—Length of carapace, 3.6 mm.

THEUMA VELOX, Purc.

1908. *T. velox*. Purcell in L. Schultze, Zool. Forschungsreise in Sudafrica, p. 233, pl. xi, fig. 12.

*Specimens*.—1 ♀ (150,591 *ex typis*). Kubub, Gt. Namaqualand. (L. Schultze, March–April 1904.)

*Carapace*.—Length equal to tibia and  $\frac{2}{3}$  metatarsus I, and subequal to metatarsus and tarsus IV.

*Eyes*.—Seen dry. Posterior row straight to very slightly recurved,

medians scarcely smaller than the laterals, and at least a diameter apart, and  $1\frac{1}{2}$  diameters from the laterals; posterior laterals distinctly nearer to the anterior laterals than to the posterior medians.

*Clypeus*.—Equal to the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 4, inferior border with 3 strong teeth.

*Legs*.—Tibia I with no apical spines, but with 3 other pairs and 1 mid-basal spine.

*Spinners*.—Length of inferior spinners about equal to width of posterior row of eyes.

*Vulva*.—As in fig. 12, *loc. cit.*

*Measurements*.—Length of carapace, 3.2 mm.

#### THEUMA XYLINA, Sim.

1892. *T. xylyna*. Sim in Hist. Nat. des Araign, 2nd ed., p. 351.

“♀.—Length, 6 mm. Cephalothorax, sternum, and legs pale yellowish, bearing silky pubescence; metatarsi, tarsi, and chelicera reddish. Abdomen whitish, densely clothed with reddish silky pubescence, and bearing long, black, erect hairs anteriorly. Anterior eyes equally and narrowly separated, subequal (medians scarcely smaller). Posterior eyes in a scarcely recurved line, subequal, medians transversely oval, separated by at least an eye's length. Anterior tibiae armed below with 3-3 long spines, metatarsi armed basally with 2-2 similar spines. Posterior tibiae armed laterally and dorsally with pairs of weak spines. Vulval plate reddish, longer than wide and parallel; fovea a longitudinal, narrow, triangular slit.”

#### ANAGRAPHIDAE.

##### GEN. ANAGRAPHIS, Sim.

##### ANAGRAPHIS PALLENS, Sim.

1893. *A. pallens*. Sim, Ann. Soc. Ent. Fr., vol. xlii, p. 308.

“Length, 8 mm.

“*Cephalothorax*.—Pallid, clothed with long, prone, silky white hairs; thoracic stria short. Median ocular area slightly longer than wide.

“*Abdomen*.—Narrow oblong, pale cinereous, clothed with silky white hairs, truncate anteriorly, and bearing dense ash-coloured setae.

“*Chelicera*, mouth parts, sternum, pedipalps, and legs pallid; spines of legs long, black, and numerous.

“ *Labium*.—Fairly long, exceeding  $\frac{1}{2}$  length of maxillae.

“ *Chelicera*.—Inferior margin with 3 minute teeth.

“ *Pedipalps*.—Very small; femora nearly straight, black spines; patella scarcely longer than wide, subquadrate and spined; tibia shorter than patella, apex obliquely cut, broadly produced on outer side into graceful spur, long and pointed, directed straight forward, but curved outwards apically. Tarsus fairly long oval, bulb simple, discoidal, wholly encircled by thick stylus.

“ *Locality*.—Cape of Good Hope.”

### THIRD SUB-FAMILY.

#### CITHAERONINAE.

Only 1 Genus, *Cithaeron*, recorded from South Africa. Species *C. delimbatus*, Strd., from E. Africa. North of region dealt with.

### FOURTH SUB-FAMILY.

#### CYBAEODINAE.

##### *Key to Genera.*

- (3). 1. Legs spined, sternum slightly longer than wide.  
 2. Eight eyes, labium longer than broad; tarsi slender . . . . . *Cybaeodes*.
- (1). 3. Legs spineless, sternum broader than long.
- (5). 4. Eight eyes (sometimes reduced to four). Labium semicircular, and much wider than long. Inferior margin of chelicera armed with one simple denticle . . . . . *Andromma*.
- (4). 5. Eight eyes. Labium at least as long as broad. Inferior spinners more widely separated. Chelicera armed on inferior margin with 2 strong processes, the first straight, the second long, curved, and with terminal angular dilation . . . . . *Baeriella*.

#### GEN. ANDROMMA.

##### ANDROMMA RAFFRAYI, Sim.

1899. *A. raffrayi*. Simon in Bull. Soc. Ent. Fr., vol. 68, p. 180, figs. A, B, C.

##### *Specimens* :—

- 1 ♂ and 1 ♀ (12,763). Willowmore. (H. Brauns, 1903, from nest of *Plagiolepis custodiens*.)  
 5 ♂♂ and 1 ♀ (14,330). Stellenbosch. (R. Broom, September 1904.)  
 1 ♀ (12,105). Slopes Devil's Peak, C.T. (Dr. W. F. Purcell, May 1902.)  
 1 ♂ and 1 ♀ (19,055). Cape Town, in nest of *Plagiolepis*.

♀ *Colour*.—Carapace and chelicera pale golden yellow, sternum and legs even lighter, but former darker edged; abdomen pale testaceous. Body entirely clothed with distinct stiff short hairs.

*Eyes*.—See fig. A, *loc. cit.* Anterior row nearly straight; medians larger than the laterals, black, and with black pigmented borders, and over  $1\frac{1}{2}$  diameters apart. Posterior row procurved, medians small, very wide apart, and only  $\frac{1}{2}$  a similar distance from the laterals, which are larger, and contiguous with the anterior laterals.

*Clypeus*.—About twice the diameter of an anterior lateral eye.

*Chelicera*.—Superior border with 3 teeth, inferior border with 1 tooth, and possibly 2 denticles.

*Legs*.—Spineless. Tarsi and metatarsi not scopulate, but with the short stiff hairs stronger and denser, especially on under surface; tarsal claws very small, pellucid, and finely toothed. Metatarsi quite  $1\frac{1}{2}$  times length of tarsi.

*Pedipalps*.—Tarsus slightly longer and stouter than tibia, flat on under surface, but arched or swollen dorsally.

*Vulva*.—Consisting of 2 pits bounded by ear or C-shaped dark-brown ridges, and set in the middle of the sides of a reddish, somewhat heart-shaped plate.

*Measurements*.—Total length, ♀ and ♂, 3.2 mm.

♂ *Colour*.—Carapace and legs slightly darker than in ♀.

*Eyes and Chelicera*.—As in ♀. For latter see fig. B, p. 180, *loc. cit.*

*Legs*.—As in ♀.

*Pedipalps*.—As in fig. C, *loc. cit.* Tibia longer and stouter than patella, and with 3 short stout, dark processes on inner apex, 2 being broad basally, and curved and sharp apically, and the 3rd blunt and complex in shape. Palpal organ with a fine process projecting outwards anteriorly, curving round down outer side of under surface of organ in an S shape, becoming broader and darker basally.



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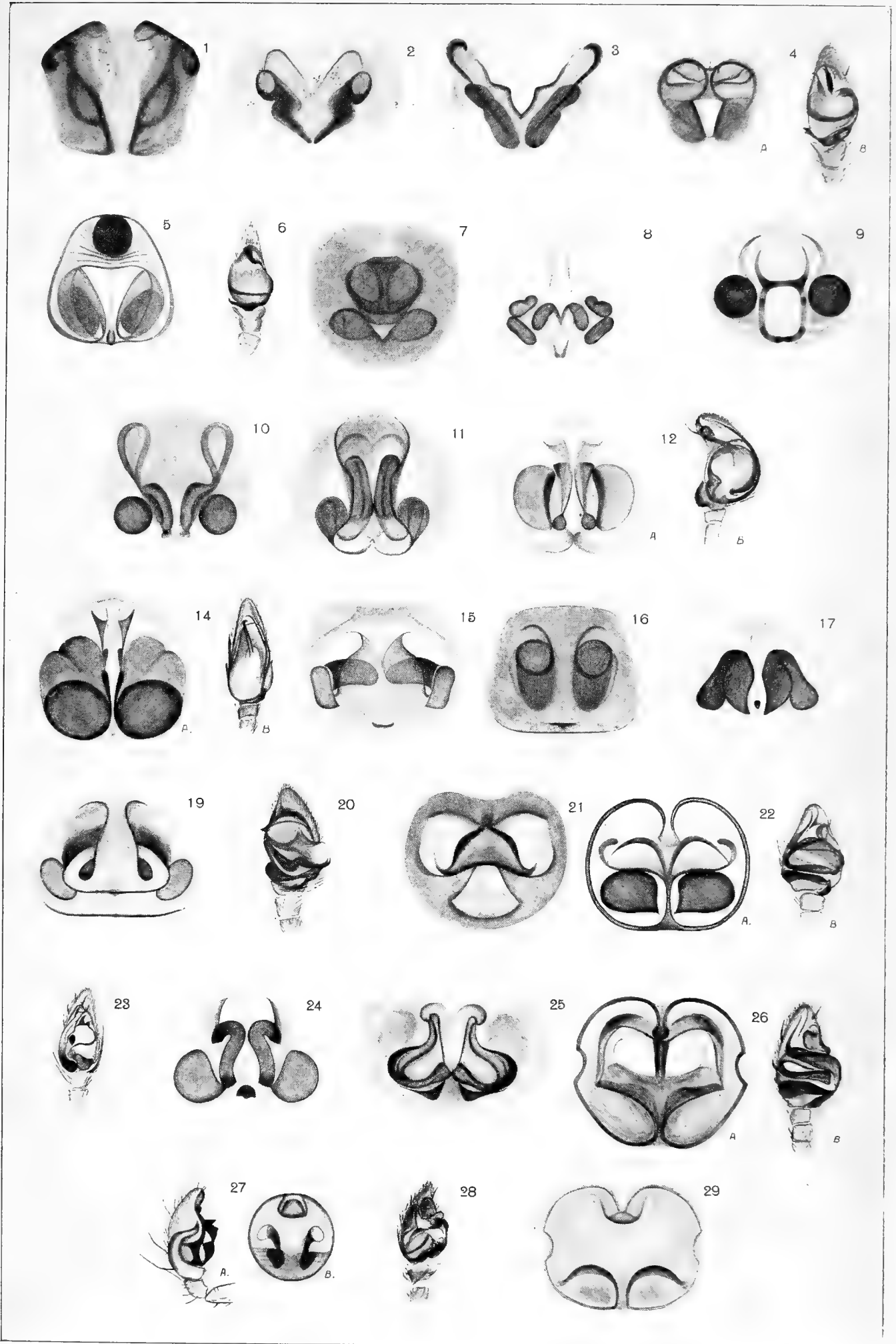
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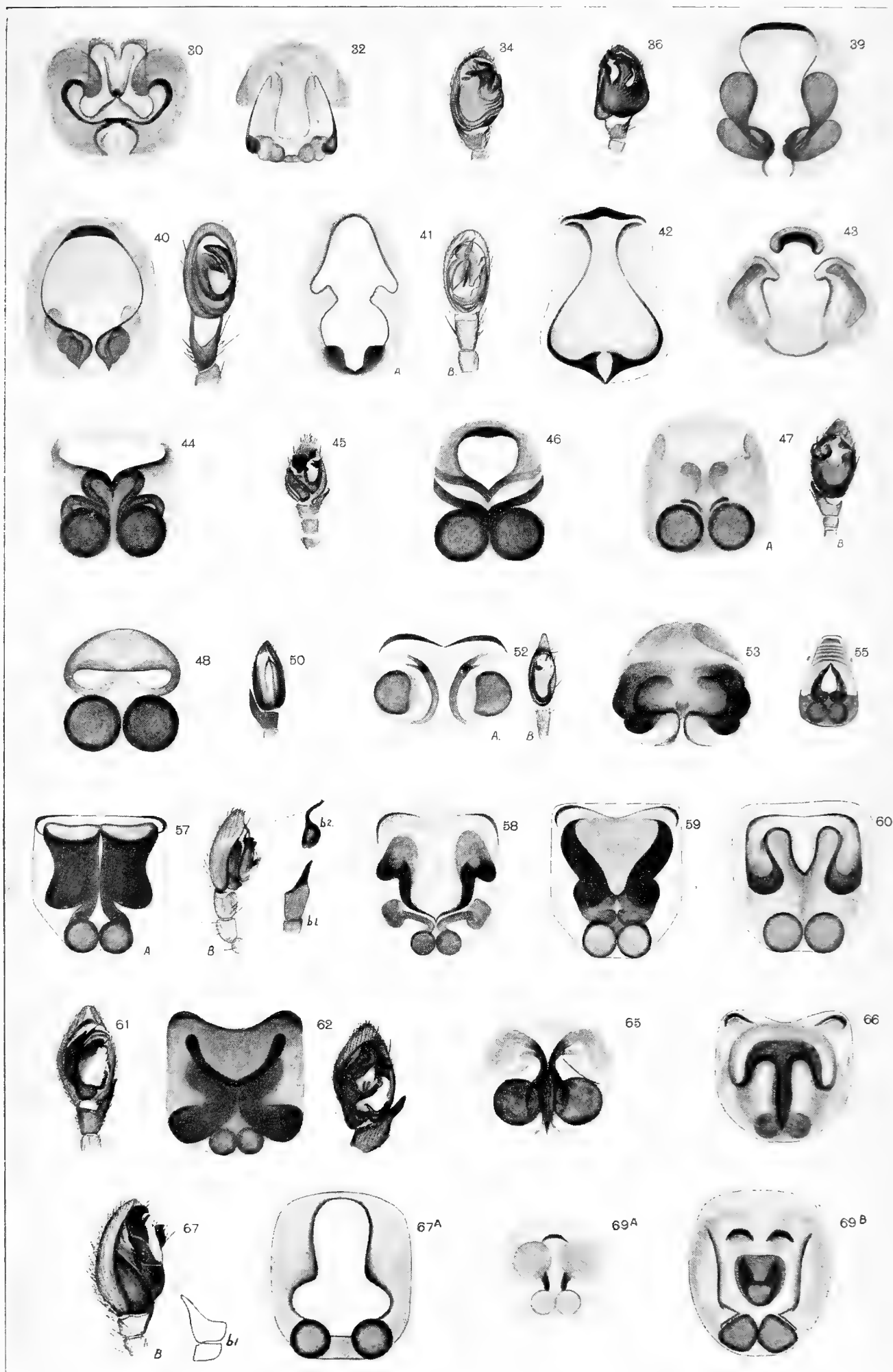




SOUTH AFRICAN DRASSIDAE (ARACHNIDA).

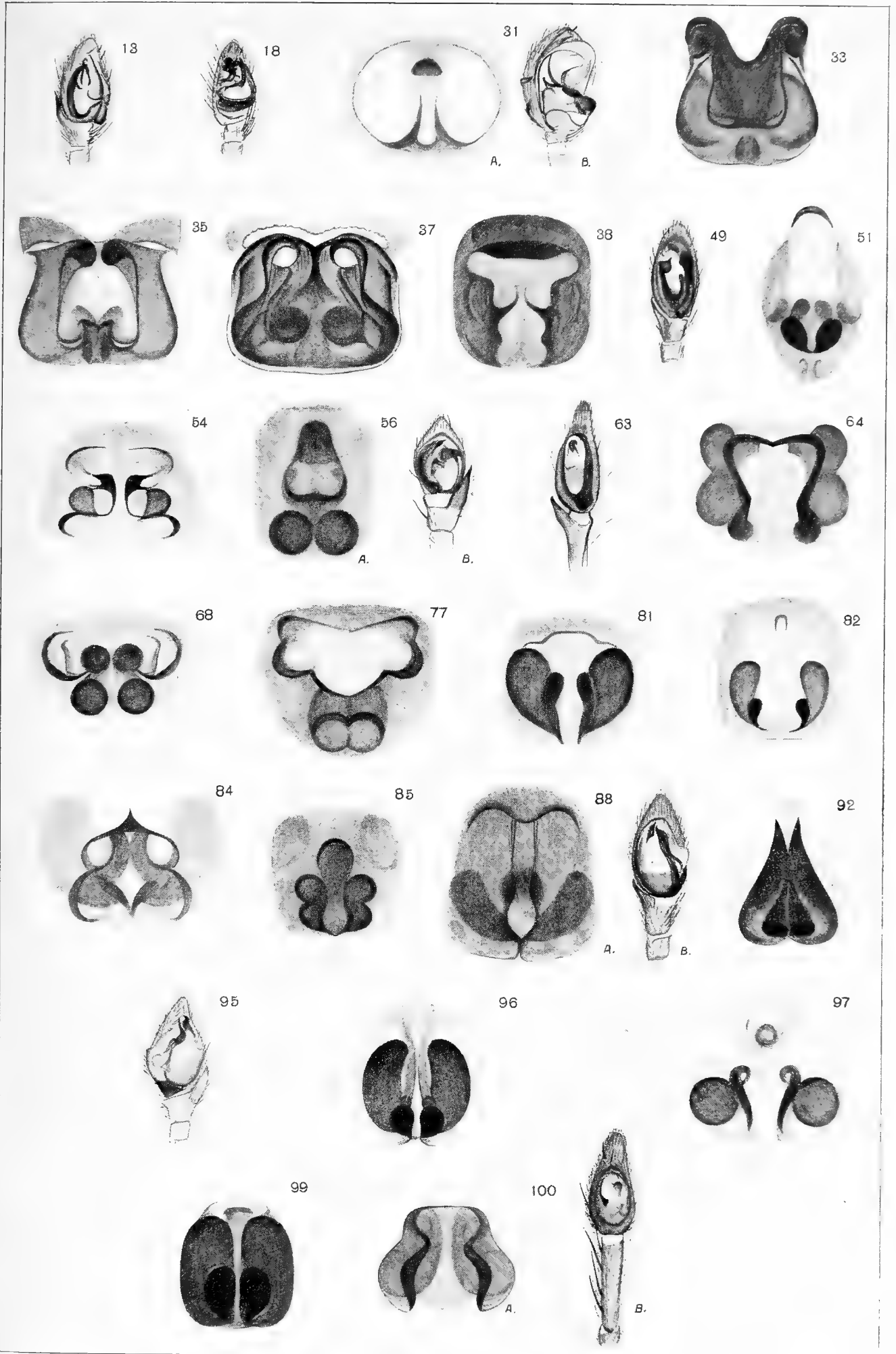






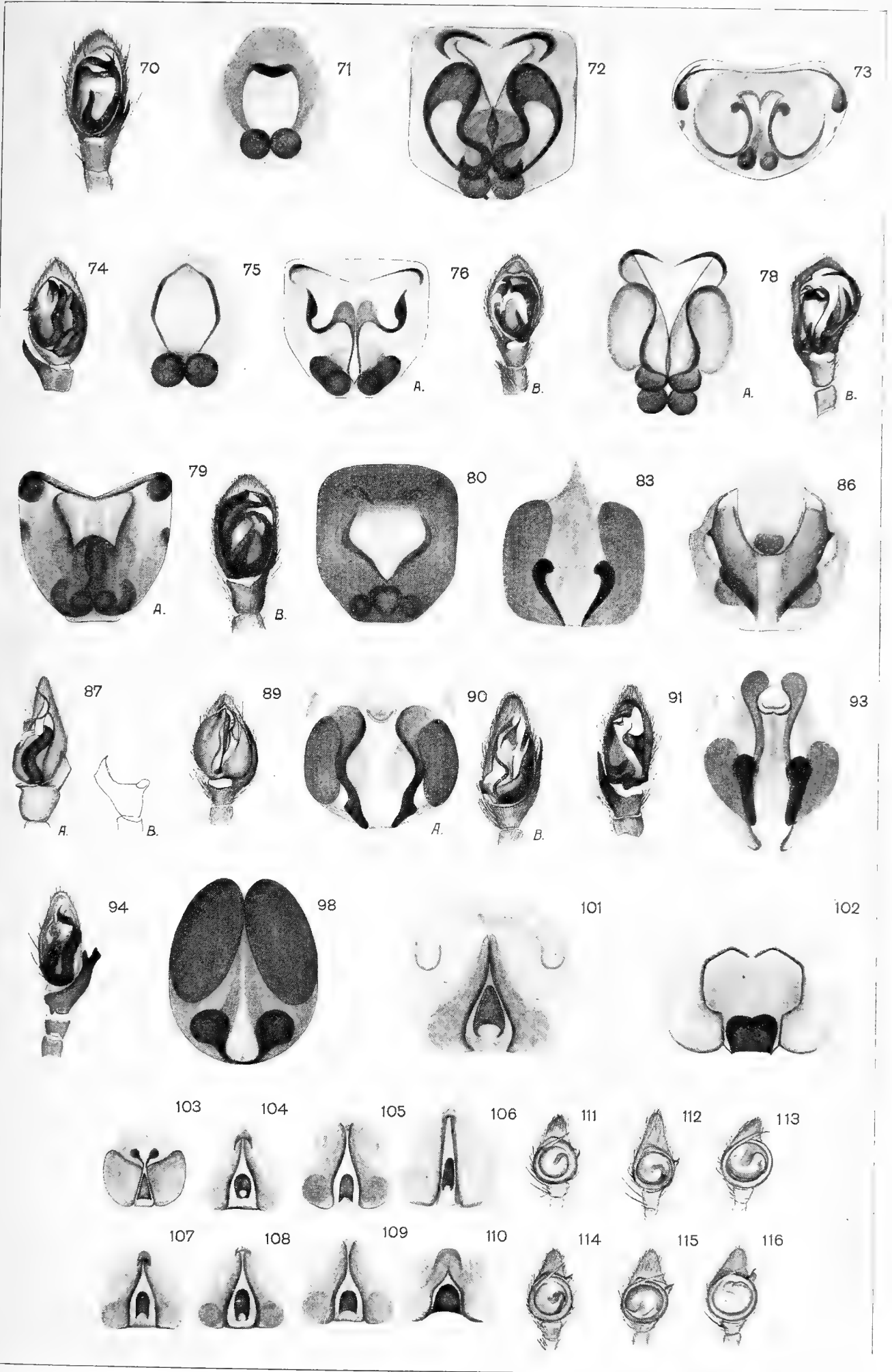
SOUTH AFRICAN DRASSIDAE (ARACHNIDA).





SOUTH AFRICAN DRASSIDAE (ARACHNIDA).





SOUTH AFRICAN DRASSIDAE (ARACHNIDA).



8. *The South and Central African Species of the Genus Synagris Latreille (Hymenoptera).*—By J. BEQUAERT.

THIS is the first of a series of articles in which I shall deal with the diplopterous wasps of South and Central Africa, south of 10° S. lat. The area under consideration includes the south-eastern portion of the Belgian Congo, or the Katanga district, which in its fauna and flora has many points in common with Northern Rhodesia, and differs considerably from the equatorial Congo belt. Since for lack of material the wasps of the Katanga could not be fully treated before, the present paper will supplement my Revision of Congo Vespidae (1918).

The genus *Synagris* contains the largest and most handsome of the African wasps, and is unquestionably one of the striking features of the Ethiopian fauna. Many of its members are common, and their presence is forced upon the attention of the traveller by the conspicuous large mud-nests they build, often in colonies, and frequently within human habitations. An account of the characters and interesting behaviour of the genus will be found in my paper quoted above. The majority of the twenty-four species recognised at present occur in Western and Equatorial Africa. In the region here considered, seven species are known with certainty, of which but five occur south of the Zambesi River. *Synagris maxillosa* and *S. carinata* are apparently restricted to South Africa. The genus seems to be absent from the immediate vicinity of Cape Town, the westernmost record known in the Cape Province being Tulbagh.

Since Maidl has exhaustively treated this genus in a comparatively recent monograph (1914), it will suffice here to give a key enabling the identification of the South and Central African species. The females possess 12 antennal joints and 6 visible abdominal segments; the males 13 antennal joints and 7 abdominal segments. In addition the males frequently exhibit a number of secondary sexual characters on the mandibles, head, clypeus, legs, and 2nd abdominal segment; though the size and shape of these sexual peculiarities vary considerably, even within the limits of one species, they are in themselves good specific characters.

I have called attention elsewhere (1918, pp. 124–127) to the extensive variation shown in the colour markings of certain species in this genus and to the resulting impossibility of correctly identifying specimens without a careful study of structural characters. Some of the species include a number of more or less constant colour races or varieties, while the same colour-pattern may be repeated in different species. Many of the forms, especially in the subgenus *Paragris*, are either almost wholly black, or black with white or orange-red apical segments. Furthermore, a similar colouration is also found in some of the larger forms of *Odynerus*, subgenus *Rygchium*, which, however, differs in having 6-jointed maxillary palpi and 4-jointed labial palpi. In *Synagris* the labial palpi are always 3-jointed and the maxillary palpi 3- to 5-jointed, except in *S. vicaria* where they are 6-jointed.

The length is measured from the centre of the clypeus to the apical margin of the 2nd abdominal tergite (h.+th.+t. 1+2).

#### *Table of Subgenera.*

1. Clypeus pear-shaped, with 2 conspicuous, longitudinal keels on apical  $\frac{2}{3}$ . Mandibles comparatively short, strongly grooved and keeled on external face; inner margin with only 3 slight notches. Postscutellum feebly raised, not hunched. Propodeum without strong, lateral spines, its lateral and inferior ridges irregularly serrulate . . . . . Subgenus *Pseudagris*.  
Clypeus without longitudinal keels, at most with traces of two very short ridges near apex . . . . . 2.
2. Maxillary palpi 6-jointed; labial palpi 3-jointed, but joints very long and thickened. Vertex without hairy fovea. Mandibles and postscutellum as in *Pseudagris*. Propodeum rounded at sides, without spines or ridges, not serrulate. In the male, apical joint of antennae very short, hardly curved, and not folded beneath penultimate joint . . . . . Subgenus *Rhynchagris*.  
Maxillary palpi never more than 5-jointed, often less; labial palpi with 3 slender joints. Postscutellum bidentate or with two rounded protuberances. Propodeum as a rule with lateral spines. In the male, apical joint of antennae folded like a hook beneath preceding joints . . . . . 3.
3. Mandibles more or less grooved or keeled on outer surface; their inner margin in the female with 3 notches, in the male with teeth of variable size and shape; very rarely the mandibles of the male have protuberances near their base (*S. negusi*). Vertex as a rule with hairy fovea. Postscutellum with 2 somewhat spiny protuberances . . . . . Subgenus *Paragris*.  
Mandibles with even, almost smooth, outer surface; inner margin finely serrulate in both sexes; in the male the mandibles frequently bear a protuberance or horn near base. Postscutellum with 2 broadly-rounded protuberances.

*Synagris*, sensu stricto.



SUBGENUS SYNAGRIS, sensu stricto.

This group consists of three (or possibly only two) very closely allied species, the characters of which have been compared in my Revision of the Congo Vespidae.

*Synagris cornuta* (Linné), the best known of these species, occurs in various colour forms throughout the West African Forest Province from Sierra Leone to Uganda and the mouth of the Congo River. In the interior of the continent, the southernmost points from which it is recorded at present are Kondué (4° 55' S., 23° 15' E.) and Kindu (3° S., 26° E.). Lepeletier de St. Fargeau's old indication of this species from the "Cape of Good Hope" is certainly erroneous.

In eastern equatorial Africa *S. proserpina* (Gribodo) replaces *S. cornuta*, from which it differs in having the second abdominal sternite more abruptly sloping on the basal third in both sexes. In the male the apical margin of the clypeus is distinctly truncate, or more or less emarginate (in *S. cornuta* narrowly or broadly rounded, or nearly truncate), and the denticulation of the inner margin of the mandibles is stronger than in *S. cornuta*, especially towards their base. *S. proserpina* agrees with *S. cornuta* in showing on the middle of the tarsal claws a broad triangular edge, in addition to the two apical teeth, a character which is not found in other members of the genus.

In the typical form of *S. proserpina*, which occurs in Tanganyika Territory (ex-German East Africa), the head, thorax, legs, and base of abdomen are entirely, or nearly entirely, brownish red; the remainder of the body is black, with interrupted white bands on the apical margins of abdominal tergites 3 to 5.

The var. *nyassae* (Stadelmann) (syn. : *Synagris flavomaculata*, Meade Waldo) differs from the type in the greater extension of the black on head, thorax, and base of abdomen; the white bands on tergites 3 to 5 are so broadly interrupted on the middle line that they form two rows of lateral spots. Length (h.+th.+t. 1+2): 18-20 mm. This form occurs from the northern end of Lake Nyasa (Manow), through North-East Rhodesia (Fort Jameson and Fwambo) to the Katanga (Lufira River at 3500 ft.; 150 to 200 miles west of Kambove at 3500 to 4500 ft.; Kapiri; and I have seen a male from Lubumbashi, May 22, 1920, and a female from the same locality, January 20, 1921, both taken by Dr. Mich. Bequaert).

It would be interesting to learn in how far the behaviour of *S. proserpina* coincides with the very peculiar habits of its ally *S. cornuta*. The life-history of the latter has been fully investigated by Roubaud

(1910 and 1916), and a résumé of his observations, together with some additional data, will be found in my Revision (1918, pp. 211–214).

### SUBGENUS PARAGRIS, Saussure.

#### Females.

1. Clypeus pear-shaped, slightly longer than broad, covered with minute, more or less distinct, confluent longitudinal striae; its apex comparatively narrow, straight truncate or feebly sinuate. Lateral angles of propodeum forming spiny protuberances, its dorsal areas rugosely reticulate, without distinct transverse striae; the transverse striation on its concavity distinct. Second abdominal sternite feebly convex towards base, not projecting more on middle than on sides, its median line slightly depressed; portion in front of posterior margin with 2 transverse (often inconspicuous) welts. Black; clypeus, antennae, mandibles, and spots on head more or less ferruginous red; in the typical form the 3 apical segments of abdomen orange-yellow; in the var. *emarginata* (Saussure) the 4 apical segments of that colour; in the var. *albofasciata*, Maidl, the 3 apical segments ivory-white. Length (h.+th.+t. 1+2): 18–23 mm. . . . . *S. abyssinica*, Guérin.  
Clypeus either smooth or with scattered punctures, without striation. Lateral angles of propodeum forming spiny protuberances. As a rule the dorsal areas of propodeum, as well as its concavity, are distinctly corrugated. Basal portion of 2nd abdominal sternite more abruptly raised in the middle than on sides, and slightly, although distinctly, flattened or even somewhat sunken behind this raised median part . . . . . 2.
2. Clypeus broadly pear-shaped, with widely truncate and somewhat rounded apical margin; its apical quarter markedly depressed or even slightly sunken. Black; clypeus, antennae, mandibles, parts of head and of fore legs, more or less ferruginous red; the 3 apical tergites of abdomen and part of the corresponding sternites orange-red. Length (h.+th.+t. 1+2): 18–23 mm.  
*S. calida*, Linné.<sup>1</sup>  
Clypeus pear-shaped and convexly swollen throughout or very narrowly flattened into a preapical margin . . . . . 3.
3. Black; clypeus, a few spots on antennae, mandibles, head, and fore legs, ferruginous red; 2 or 3 apical abdominal tergites with more or less extensive white markings. Clypeus rather dull, elongate pear-shaped; its apical, narrow portion comparatively long. Length (h.+th.+t. 1+2): 19–24 mm.  
*S. mirabilis*, Guérin.
- Black, with the 4 apical tergites of the abdomen orange-red . . . . . 4.
4. Clypeus rather dull, elongate pear-shaped, much longer than broad, its terminal narrowed portion constricted at the base and its apex narrow and rather abruptly truncate. Clypeus and parts of antennae and head orange or

<sup>1</sup> *Synagris (Paragris) calida* has been included in the keys, although it is not known with certainty from the region under study. The records of *calida* from the Cape, Natal, and Transvaal are extremely doubtful and probably based on erroneous identifications.

ferruginous red in the typical form; the clypeus black in the var. *nigro-clypeata*, Maidl. Length (h. + th. + t. 1 + 2): 18–21 mm.

*S. analis*, Saussure.

Clypeus glossy, comparatively short pear-shaped, basal broad portion very gradually narrowed towards apex, which is broad and obtusely rounded.

Clypeus, antennae, and a spot on the middle of the face, orange. Length (h. + th. + t. 1 + 2): 20 mm. . . . . *S. maxillosa*, Saussure.

*Males.*

1. Apical margin of clypeus deeply and distinctly emarginate, either bidentate or bifid . . . . . 2.  
Apical margin of clypeus straight or round truncate, or very feebly sinuate, never bidentate. Dorsal areas of the propodeum transversely corrugated 4.
2. Black, with white markings on the 3 or 4 apical tergites of abdomen. Clypeus much broader than long, its apex very deeply and narrowly emarginate, the lateral edges forming 2 broad, blunt appendages. Mandibles with a broad basal half, then distinctly constricted, and with a much narrower apical portion. Second abdominal sternite with or without more or less developed preapical protuberances or spines. Transverse corrugation of propodeum very regular and sharp, extending over its dorsal areas. Length (h. + th. + t. 1 + 2): 20–21 mm. . . . . *S. mirabilis*, Guérin.  
Black, with the 4 or 5 apical tergites of abdomen marked with orange-red. Apical margin of clypeus semicircularly emarginate, its lateral edges short, sharply dentate and widely separate. Dorsal areas of propodeum either transversely corrugated or rugosely reticulate . . . . . 3.
3. Middle femora distinctly flattened and somewhat twisted; anterior face depressed or slightly hollowed towards base. Mandibles of irregular shape, with projecting median tooth in front of middle of inner margin. Clypeus glossy, about as broad as long, very deeply emarginate. Four or five apical tergites of abdomen orange-red. In the var. *bequaerti*, H. Brauns, the 2nd abdominal tergite bears also 2 large, orange-red spots. Length (h. + th. + t. 1 + 2): 18 mm. . . . . *S. maxillosa*, Saussure.  
Middle femora of normal shape, convex on anterior face. Clypeus rather dull, somewhat longer than broad, more shallowly emarginate. Mandibles normal, shaped almost as in the female. Second abdominal sternite with 2 transverse, more or less conspicuous, preapical welts or ridges. In the typical form with 4, in the var. *emarginata* (Saussure) with 5 apical segments of the abdomen orange-red; in the var. *albofasciata*, Maidl, with 4 apical segments white. Length (h. + th. + t. 1 + 2): 16–19 mm. . . . . *S. abyssinica*, Guérin.
4. Middle femora distinctly flattened; anterior face with a feebly oblique, basal depression; lower margin markedly projecting about the basal  $\frac{1}{3}$ . Clypeus as a rule longer than broad, its elongate, terminal portion more or less flattened or slightly depressed on sides; its apical margin straight truncate or feebly sinuate, with rounded, blunt edges. Mandibles variously shaped, often much deformed, but without prebasal tooth along inner margin. Second abdominal sternite sometimes with 2 preapical protuberances. Black; the 5 apical segments of abdomen orange-red. Length (h. + th. + t. 1 + 2): 16–22 mm. . . . . *S. analis*, Saussure.

Middle femora normal, with convex anterior face. Clypeus as broad as, or distinctly broader than, long; its terminal portion very short and broadly truncate; its apical margin either straight or feebly sinuate, with sharp, somewhat keeled, lateral edges, often with a narrow, depressed, terminal lamella. Second abdominal sternite sometimes with preapical protuberances. Mandibles usually much deformed, often with a prebasal tooth along the inner margin. Black; the four apical segments of abdomen orange-red. Length (h. + th. + t. 1 + 2) : 18-23 mm. . . . . *S. calida*, Linné.

SYNAGRIS (PARAGRIS) ABYSSINICA, Guérin.

The typical form of this species extends over the greater part of the East and South African Savannah Region, where it is one of the most common wasps (from Eritrea and the Upper Uele to Grahamstown, Willowmore, and Kowie in the Cape Province, and Gobabis and Windhoek in ex-German South-West Africa). Dr. H. Brauns writes me that this is the only species of *Synagris* at all common near Willowmore. I have seen specimens from the following localities:—

Transvaal : Johannesburg, 1 ♂ (Ross), S.A. Mus.

Orange Free State : Smithfield, 1 ♀ (Kannemeyer), S.A. Mus.

Basutoland : Morija, 1 ♀ (H. Junod).

Natal : Umbilo, 1 ♀ ; Durban, 2 ♀♀ (Amer. Mus. of Nat. Hist.) ;

Mfongosi, 1 ♀ and 1 ♂ (W. E. Jones), S.A. Mus.

Cape Province : Modder River, Kimberley, 3 ♀♀ (T. D. Butler), S.A. Mus.

The var. *emarginata*, Saussure, has, on the whole, a more northern distribution than the type : it occurs in the Lower Congo, the Katanga, Rhodesia, and in East Africa from Nyasaland to Abyssinia and the valley of the Semliki River. I have seen the following specimens:—

Katanga : Kimilololo River, near Elisabethville, 1 ♂, July 3, 1920 ; Lubumbashi, 1 ♀, May 23, 1920 (Mich. Bequaert).

Rhodesia : Bulawayo, 1 ♂, October 29, 1911 (G. Arnold), Rhod. Mus. ; Salisbury, 1 ♀ (Dr. M. Melle Arcturus), S.A. Mus.

The var. *albofasciata*, Maidl, is known only from north of 10° S. lat.

SYNAGRIS (PARAGRIS) ANALIS, Saussure.

This species has much the same distribution as the foregoing and is often equally common. Dr. H. Brauns has occasionally collected it near Willowmore, where, he reports, it is much rarer than *abyssinica*. All the specimens I have seen belong to the typical form:—

Katanga : Panda River, 1 ♀, October 18, 1920 (Mich. Bequaert).

Rhodesia : Victoria Falls, 1 ♀ (W. L. Sclater) ; Salisbury, 1 ♂

(Dr. Melle Arcturus), S.A. Mus. ; Bulawayo, 1 ♀, September 17, 1919 (G. Arnold), Rhod. Mus.

Portuguese East Africa : Lourenço Marques, several ♂♂ and ♀♀ (H. Junod), Coll. Cornell Univ. ; Delagoa Bay, 1 ♀, S.A. Mus.

Transvaal : Barberton, 1 ♂ (H. Edwards), and Acornhoek, 1 ♀ (R. W. Tucker), S.A. Mus.

Natal : Durban, 1 ♂ (O'Neil), S.A. Mus.

Cape Province : Mossel Bay, 1 ♀ (B. Power), S.A. Mus.

There is also in the South African Museum a male of this species from Waterberg, ex-German South-West Africa (R. W. Tucker). According to Maidl, this should be referred to his var. *nigroclypeata*, the male of which, however, does not differ from that of the typical form.

SYNAGRIS (PARAGRIS) MAXILLOSA, Saussure.

This species is apparently restricted to South Africa, but is so rare that its distribution is very imperfectly known. None of the specimens seen by Maidl had exact locality labels, and, curiously enough, of the two specimens (1 ♀ and 1 ♂) in the South African Museum the locality is also unrecorded.

Dr. H. Brauns has discovered in the Cape Province an interesting colour variation, of which he has sent me the following description :—

SYNAGRIS MAXILLOSA var. BEQUAERTI, H. Brauns.

“ *Male*.—This variety has all the morphological characters of typical *maxillosa*, Saussure. It is also the same size. The 2nd abdominal tergite has on each side of the anterior third an oval, orange-coloured, well-defined spot, which does not reach any of the margins and stretches diagonally from near the middle line towards the sides. Scape and flagellum of the antennae yellowish red, with the two penultimate joints and the apex of the preceding joint black. Colouration otherwise as in the typical form. Type : male, taken 16 miles from Willowmore, on the way to Uniondale, Cape Province, October 20, 1919 (Coll. H. Brauns).”

I have seen a male of this variety from Tulbagh, Cape Province (R. M. Lightfoot), in the collection of the South African Museum.

SYNAGRIS (PARAGRIS) MIRABILIS, Guérin.

This beautiful wasp occurs in East Africa from Abyssinia to Natal, and inland as far west as Katanga and Rhodesia. I have seen specimens from the following localities :—

Katanga : Panda River, 1 ♀, September 9, 1920, and Elizabeth-

ville, 1 ♀, April 29, 1920 (Mich. Bequaert). In this district it is to be found as far north as the Lukuga River (about 6° S. lat.).

Rhodesia: Driefontein, 1 ♀, January 1, 1920 (G. Arnold),  
Rhod. Mus.; Salisbury, 2 ♂♂ (Dr. Melle Arcturus), S.A. Mus.  
Transvaal: Maboki, Lydenburg, 1 ♀ (F. J. Kroeger), S.A. Mus.  
Natal: Durban, 1 ♀ (Marley), S.A. Mus.

#### SUBGENUS RHYNCHAGRIS, Maidl.

In this group is included but one species, *Synagris vicaria*, Stadelmann. The typical form is black, with ivory-white spots or incomplete bands on all or some of the 3 (female) or 4 (male) apical tergites of the abdomen; clypeus, mandibles, antennae, parts of the head and of the fore legs more or less indigo-red. In the var. *luteopicta*, Maidl, the 2 or 3 apical tergites of the abdomen are orange-red instead of white. Length (h.+th.+t. 1+2): 16.5 mm.

I have seen a female of the typical form from 10 miles north of Lusaka, Northern Rhodesia, October 1913 (G. Arnold), Rhod. Mus. In this specimen the anal segment is entirely black; the white spots cover the major part of tergites 4 and 5, but are completely separated on the middle line by a black triangle which is much broader on tergite 4.

The typical *S. vicaria* is known only from the Katanga, Tanganyika, Northern Rhodesia, and Nyasaland; the var. *luteopicta* extends as far north as Uganda.

#### SUBGENUS PSEUDAGRIS, Saussure.

This subgenus contains but one species in the region under consideration: *Synagris carinata*, Saussure. Female black; the posterior margin of tergite 3, the 4th to 6th tergites entirely and the corresponding sternites partly, orange-yellow; clypeus, mandibles, antennae, parts of the head and of the fore legs, indigo-red. Length (h.+th.+t. 1+2): 15 mm. The male is unknown.

Until recently this species was known only from the single type, a female (not a male as described by Saussure) from Port Natal. The South African Museum has a female from Durban, Natal, January 1915 (Marley), which was correctly identified as *carinata* by Mr. J. C. Bridwell, and agrees perfectly with Saussure's original description.

I wish to acknowledge my indebtedness to the following gentlemen, who, through the loan of specimens or otherwise, have made the writing of this paper possible: Dr. H. Brauns, of Willowmore; Dr. L. Péringuey, Director of the South African Museum, Cape Town; and Dr. G. Arnold, Curator of the Rhodesian Museum, Bulawayo. My brother, Dr. Michel Bequaert, has sent several of the species recorded from the Katanga. I am also under great obligation to Dr. Péringuey for the publication of this article in the *Annals of the South African Museum*.

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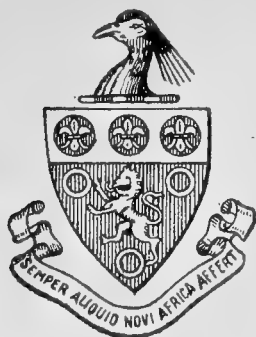


ANNALS  
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VOLUME XIX.

PART III, containing—

9.—*South African Trypaneid Diptera in the Collection of the South African Museum.* By Professor M. BEZZI.  
(Plates XII-XV.)



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9. *South African Trypaneid Diptera in the Collection of the South African Museum.*—By Professor M. BEZZI.

(With Plates XII–XV.)

LOEW, in his classical paper of 1861 on the African Trypaneidae,\* has enumerated 52 species (with exclusion of the *Dacinae*), 30 of which were described and figured; most of the latter were from South Africa. All the species were retained under the single generic name of *Trypeta*.

In a series of papers published by me from 1915 to 1920,† I have differentiated the genera of the *Trypaneidae* of the Ethiopian region, recognising about 216 species; most of them were, however, from Central Africa.

It was thus with the greatest pleasure that I received, through the courtesy of the late Dr. L. Peringuey, the material of the South African Museum, being enabled thereby to extend my knowledge of the family to the South African forms. At the same time I have received extensive collections made at East London by Mr. H. K. Munro; and also some specimens from the Entomological Division of the Department of Agriculture, Cape Town.

All these materials are incorporated in the present work, which gives a good idea of the South African Trypaneid-fauna, and includes descriptions of about 180 species of fruit-flies. The types or paratypes of almost all the new species here described are deposited in the South African Museum.

The fruit-fly fauna of South Africa, in comparison with that of Central Africa, is characterised by the great abundance of *Trypaneinae*, which are even more numerous than the *Ceratitinae*; in the tropical parts of the Continent the species of the former subfamily are almost wanting. This is a character of temperate regions. But the *Dacinae* are also well represented, while the *Adraminae* are very scarce; the aberrant group of the *Rhabdochaetinae* is represented by some peculiar and striking forms, while the true *Schistopterinae* are quite wanting.

\* Ueber die Afrikanischen Trypetrina. Berlin ent. Zeitschr., 1861, v, pp. 253–306, 1 pl.; with additions, 1862, vi, p. 90.

† Bull. ent. Research, 1915, vi, pp. 85–101, 14 figs.; 1917, viii, pp. 63–71, 6 figs.; 1918, viii, pp. 215–251, 3 figs., 1 pl.; 1918, ix, pp. 13–46, 3 figs., 1 pl.; 1919, ix, pp. 177–182, 3 figs.; 1920, x, pp. 211–271, 2 pls.

Of peculiar South African genera may be mentioned *Afrodacus* in the *Dacinae*; *Munromyia* in the *Adraminae*; *Taomyia*, *Afrocneros*, *Xanthanomoea*, *Hermannloewia*, *Zacerata*, *Allotrypes*, *Rivelliomima*, *Rhynchoedaspis*, and *Munroella* in the *Ceratitinae*; *Perirhithrum* and *Eutretosoma* in the *Rhabdochaetinae*; *Platomma*, *Elaphromyia*, and *Afreutreta* in the *Trypaneinae*, which are also characterised by the great number of species in the genera *Spathulina*, *Ensina*, and *Trypanea*.

In another paper, now in the press, I have given a general revision of all the *Trypaneidae* of the Ethiopian region, numbering about 400 species, with the inclusion of those here described. But at present I have come to the conclusion that the classification of the family, adopted by me in that paper, must be changed. It seems, indeed, better to make six subfamilies instead of five only, by splitting that of the *Schistopterinae* in two. Moreover, the arrangement of these subfamilies must be disposed as follows:—

No occipital bristles ; thoracic chaetotaxy incomplete.	}	Second basal cell dilated . . .	1. <i>Dacinae</i> .
		Second basal cell not dilated . . .	2. <i>Adraminae</i> .
Occipital bristles always present ; thoracic chaetotaxy always complete.	{	Occipital bristles typically black, thin, and acute.	{ No costal nick on wings. 3. <i>Ceratitinae</i> .
		Occipital bristles typically whitish, thick, and ob- tuse.	{ Wings with costal nick. 4. <i>Schistopterinae</i> . Praeocellar bristles present. 5. <i>Rhabdochaetinae</i> . No praeocellar bristles. 6. <i>Trypaneinae</i> .

Owing to the great importance of chaetotaxy for the distinction of fruit-flies, in the following tables and descriptions abbreviations are used for indicating the bristles or macrochaetae, as follows:—

a. sa. =anterior supra-alar.	prsc. =praescutellar.
a. sct. =apical scutellar.	prst. =praesutural.
b. sct. =basal scutellar.	p. sa. =posterior supra-alar.
dc. =dorso-central.	pt. =pteropleural.
hm. =humeral.	pvt. =postvertical.
i. or. =inferior orbital.	sa. =supra-alar.
mpl. =mesopleural.	scp. =scapular.
npl. =notopleural.	sct. =scutellar.
oc. =ocellar.	st. =sternopleural.
ocp. =occipital row.	s. or. =superior orbital.
or. =orbital.	vt. =vertical.
poc. =praeocellar.	

The six subfamilies of the African *Trypaneidae* may be distinguished as follows :—

1. (4) Ocp. quite wanting ; thoracic chaetotaxy incomplete, the hm., prst., dc., and st. being always wanting ; poc. always wanting ; front femora without bristles below.
2. (3) Wings with the first three longitudinal veins closely approximated, the anterior cross-vein long and oblique, the second basal cell dilated and always hyaline, and the anal cell drawn out into a very long point ; arista always bare ; abdomen typically short and broad, usually broader than the thorax . . . . . *Dacinae*.
3. (2) Wings with the first three veins not approximated, the anterior cross-vein short and perpendicular, the second basal cell not dilated, and the anal cell with a short point ; abdomen long and linear, narrower than the thorax . . . . . *Adraminae*.
4. (1) Ocp. always present, if even sometimes very few in number ; thoracic chaetotaxy complete, that is the above-named bristles usually present, or at least not all wanting at the same time ; front femora with a row of bristles below.
5. (8) Ocp. thin and acute, usually of a black colour ; poc. always wanting ; in doubtful cases, either the antennal arista is plumose, or the scp. are well developed, or the dc. are placed much behind the suture, or the third longitudinal vein is bristly, or the point of the anal cell is rather long, or the wings are not reticulate, or thorax and scutellum show a striking coloration.
6. (7) Wings with the costa not broadly interrupted at end of the auxiliary vein, and destitute of peculiarly coloured "bullae" on the disc ; oc. usually present ; third antennal joint not subulate, even if sometimes with a point on its upper terminal angle . . . . . *Ceratitinae*.
7. (6) Costa deeply interrupted at end of auxiliary vein, and there with a prominent nick ; wings with strikingly coloured "bullae" on the disc ; oc. wanting ; third antennal joint subulate . . . . . *Schistopterinae*.\*
8. (5) Ocp. strong and obtuse, always of a whitish colour ; in doubtful cases, either poc. are present, or the arista is bare, or the scp. are less distinct or wanting, or the third longitudinal vein is bare, or the dc. are placed very near the suture, or the lower point of the anal cell is very short, or the wings are reticulate, or the coloration of body is much more modest and uniform.
9. (10) Poc. usually present ; oc. broadly separated at base ; third antennal joint subulate ; wings with costal nick and with strikingly coloured "bullae" . . . . . *Rhabdochaetinae*.
10. (9) Poc. usually absent ; oc. approximate at base and diverging ; third antennal joint not subulate ; wings with indistinct costal nick and without strikingly coloured "bullae" . . . . . *Trypaneinae*.

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\* Not yet found in South Africa.

## SUBFAMILY DACINAE.

This tropical subfamily is well represented in South Africa, most of the species being peculiar to the country. The genera may be distinguished as follows :—

1. (6) No prsc. ; wings of male without praeaxillary lobe.
2. (3) Three sa., the anterior one being well developed . . . . . *Tridacus*, Bezzi.
3. (2) Two sa., the anterior one quite wanting.
4. (5) Antennae very elongate, with the first joint as long as the second  
*Tridacus*, p. p.
5. (4) Antennae not so elongate, with the first joint shorter than the second  
*Dacus*, s. str.
6. (1) Prsc. present ; a. sa. wanting ; wings of male with a rather distinct prae-axillary lobe . . . . . *Afrodacus*, gen. nov.

## TRIDACUS, Bezzi, 1915.

The present genus seems to be more Central African in its distribution, being represented in the South only by a few species, which are as follows :—

1. (6) Wings with the brown costal border extended to the middle of the first posterior cell, or even to the fourth vein, or sometimes with a broad apical brown spot extending beyond the fourth vein.
2. (3) First antennal joint as long as the second ; wings with a broad rounded apical brown spot filling almost the whole of the first posterior cell and extending into the upper part of the second posterior cell ; back of mesonotum with three yellow postsutural stripes *lounsburyi*, Coq.\*
3. (2) First antennal joint shorter than the second, wings without such a broad terminal spot or with a much smaller one.
4. (5) Only one yellow hypopleural spot ; wings with yellowish fore border and with a rounded apical brown spot which stops at fourth vein  
*chrysomphalus*, sp. nov.
5. (4) Two yellow hypopleural spots ; wings with a brown fore border extending to the fourth vein, but without rounded terminal spot  
*pectoralis*, Walk.
6. (1) Wings with the brown fore border narrower, not extending beyond the third longitudinal vein, or doing so only at apex ; sometimes the wings are without dark costal border, having only a small dark spot at end.
7. (10) No humeral and no hypopleural yellow spots ; mesopleural yellow stripe very narrow or indistinct.
8. (9) Wings with brown anal stripe ; face with two black spots  
*eclipsis*, Bezzi.

---

\* This species is destitute of a. sa., and might therefore be placed in *Dacus* s. str., but differs from all the others in the antennae.



9. (8) Wings without anal brown stripe; face unspotted . . . *scaber*, Loew.  
 10. (7) Humeral and hypopleural yellow spots present; face unspotted; wings without anal stripe and with an isolated brown spot at end of third vein.  
 11. (14) Only one yellow hypopleural spot.  
 12. (13) Frons with black lateral spots; yellow mesopleural stripe narrow; body black spotted . . . . . *lotus*, sp. nov.  
 13. (12) Frons without black lateral spots; mesopleura with a broad yellow patch which extends to the humeral yellow spots; body entirely reddish, quite unspotted . . . . . *sphaerostigma*, sp. nov.  
 14. (11) Two contiguous yellow hypopleural spots . . . *punctatifrons*, Karsch.

*Tridacus lounsburyi*, Coquillett, 1901.

(Pl. XII, fig. 1.)

This magnificent species of great size was originally described from the Cape, and was subsequently recorded by Fraggatt, by Silvestri, by Enderlein, and by me, and placed in *Tridacus*. But Mr. H. K. Munro has examined paratypes in the Collection of the Entomological Division at Cape Town and has found them without a. sa.; and even all the specimens seen by me are devoid of this bristle.

The species differs from any other South African *Tridacus* or *Dacus* by its convex face and chiefly by its very long antennae, which have the first joint as long as the second; characteristic also is the golden pubescence on the abdomen. In *chrysomphalus* the a. sa. is rather small, while in the allied *sphaeristicus*, Speiser, it is very strong.

I prefer at present to retain the species under *Tridacus*, pending the erection of a new genus for its reception.

One male specimen from East London, 27th March 1923 (H. K. Munro).

*Tridacus chrysomphalus*, sp. nov.

(Pl. XII, fig. 3.)

Near *lounsburyi*, but at once distinguished by minor size, by distinct sa., by broader yellow mesopleural stripe, by the scutellum being only narrowly infuscated basally, and by the wings, which have a much more narrow and less defined dark apical patch. It seems also allied with *fuscovittatus*, Graham, but has only one yellow hypopleural spot. Type ♀, a single specimen from Zululand, M'fongosi, December 1913 (W. E. Jones). Numerous specimens of both sexes from East London (H. K. Munro).

♂♀. Length of body, 8–9 mm.; of wing, 7–8 mm.; of ovipositor, 1.5 mm. Head yellowish; occiput reddish, with a complete yellow

border. Frons broad, less than twice longer than broad, opaque, with a black ocellar dot, three black spots on each side at the insertion of the or., and a narrow blackish band in the middle; lunula shining black. Face less shining, with two broad elongate black spots on the middle, extending with their lower internal corner almost to the mouth border. Antennae rather long, entirely reddish, with the second joint longer than the first and with the third joint twice as long as the second; arista reddish. Parafacialia and peristomialia pale yellowish, the latter with a broad, ovate, blackish spot. Proboscis and palpi dark reddish. All the cephalic bristles black; only two i. or. Thorax entirely reddish, punctulate, with a short, pale yellowish pubescence; on the back there is a narrow, blackish middle stripe, three narrow yellow postsutural stripes, and a blackish patch on each side interiorly to the lateral yellow stripes. Humeri reddish brown, with one yellow spot on front corner. Pleurae reddish, with a narrow yellow stripe at hind border of mesopleura, a little continued above along the suture and with a small sternopleural spot below; on both sides of this yellow stripe the pleurae are blackish; sternopleurae clothed with white dust and below with white hairs; a single broad, rounded, yellow hypopleural spot. Postscutellum and mesophragma entirely reddish, smooth. Scutellum yellow, with a narrow transverse dark band at base. All the bristles black, the a. sa. rather small but always present. Halteres whitish. Abdomen elongate, convex, narrowed at base; coloured, punctulate, and pubescent like the back of mesonotum, with a broad, complete, yellowish band at hind border of second segment, but devoid of any dark markings; third segment of male ciliated; oval patches of the last segment less distinct. Venter reddish brown, with yellowish base; ovipositor shining reddish, with whitish pubescence, a little longer than the last abdominal segment. Legs reddish, whitish pubescent, the femora with broad yellowish base, those of the last pair more broadly; all the praetarsi whitish; tibial spurs black; claws reddish, with black terminal half. Wings (fig. 3) with a faint yellowish tint and with yellowish veins. Second longitudinal vein long, its penultimate section about as long as the terminal one; small cross-vein after the middle of the discoidal cell; last portion of fourth vein sinuous at base; the prolongation of the anal cell is longer than the rest of the anal vein in the female. Stigma dark yellowish; a faint yellowish border not extending below the second vein, dilated at end in a more infuscated, but less definite rounded spot, which stops below at the fourth vein, and interiorly is not prolonged beyond the hind cross-

vein. Anal dark stripe broad, ending before the hind border of wing, in the male dilated distally and in contact with a broad dark spot at end of axillary cell.

*Tridacus pectoralis*, Walker, 1861.

(Pl. XII, fig. 2.)

This is considered only a form of the widely distributed *bivittatus*, Bigot. Originally described from Natal, there is a male specimen from Natal, Bellair, 18th April 1914; and some specimens from Illovo and from East London (H. K. Munro).

*Tridacus eclipsis*, Bezzi.

(Pl. XII, fig. 4.)

Closely allied to *Dacus fuscatus*, Wied., but distinct by the much more reduced wing-pattern, besides the generic character of the well-developed a. sa.

I have described the type ♀ from Durban in the British Museum; and I have seen a male specimen from Port Shepstone, 14th July 1917 (H. K. Munro).

The male is very like the female, but has the third abdominal segment ciliated; the anal brown stripe of the wings (fig. 4) is broader, extending to the hind border and there dilated below into a faintly infuscated spot at the extreme corner of the axillary cell: the prolongation of the anal cell is about three times as long as the rest of the anal vein.

*Tridacus ? scaber*, Loew, 1862.

Originally described from "Caffraria," but never seen subsequently; it is doubtful whether it is a *Tridacus* or a *Dacus*.

*Tridacus lotus*, sp. nov.

Distinct by the unspotted face and by the very reduced wing pattern, even the anal stripe being wanting; from *stylifer* it is distinguished by the short ovipositor, by the spotted frons, and by the narrow yellow mesopleural stripe.

Type ♀, a single specimen from Port Shepstone, 24th July 1917 (H. K. Munro).

♀. Length of body, 7 mm., of wing, 6 mm. Prevailing colour of body dark reddish, with yellow and blackish markings. Occiput rather shining, entirely reddish, unspotted, with a little developed yellowish border. Frons of a dull reddish-yellow colour, with a small black ocellar dot, three pairs of black spots at insertion of the or., and a faintly infuscated, elongate spot in the middle; it is broad, being  $1\frac{1}{2}$  as long as broad; lunula shining black. Face shining yellowish, quite unspotted; the brownish subocular spot is faintly developed. Antennae entirely reddish, with the third joint twice as long as the second, which is longer than the first; arista reddish at base. Palpi and proboscis reddish yellow. Cephalic bristles black; two i. or. Back of mesonotum punctulate, clothed with a short, pale yellowish pubescence; there is a narrow black middle stripe, which begins at the suture and is dilated behind, but stops before reaching the scutellum; there are no yellow stripes at all. Humeral calli entirely yellow, with a reddish border in front. Pleurae with a narrow yellow mesopleural stripe, narrowly prolonged above and below, and margined in front by a broad black stripe, which is continued on the sternopleura; the single hypopleural yellow spot is rounded and broad. Postscutellum reddish; mesophragma black, narrowly reddish in the middle. Scutellum yellow, with the basal half dark reddish. Bristles black, the a. sa. rather weak, but always stronger than the pt. Halteres whitish. Abdomen rounded, convex, narrowed at base, coloured and punctulate like the back of mesonotum; the first segment and the sides of the last three segments are black, the oval patches of the last segment being also blackish; venter reddish. Ovipositor reddish, short, about as long as the last abdominal segment. Legs pale yellowish, with the terminal part of all the femora darkened; tibial spurs black; claws black, with yellowish base. Wings hyaline, with yellowish stigma and with reddish veins; second longitudinal vein short, the penultimate segment of costa being about half as long as the last segment; small cross-vein after middle of discoidal cell; last portion of fourth vein faintly bisinuous; prolongation of the anal cell a little shorter than the remaining portion of the same cell. The pattern is reduced to a faint dark spot at end of third vein; there is no fuscous costal border, and no fuscous anal stripe; the marginal cell is only slightly yellowish, like the base of the submarginal cell; even the usual basal infuscation of the first basal cell is only faintly indicated; the anal cell is slightly yellowish on its upper part.

*Tridacus sphaerostigma*, sp. nov.

(Pl. XII, fig. 5.)

Allied with *scaber* and with *stylifer*, but distinct by the entirely reddish body, which is without any dark markings, and by the perfectly round dark spot at end of third longitudinal vein.

Types ♂ and ♀ from East London, 5th May 1923 (H. K. Munro).

♂♀. Length of body, 6.5 mm.; of wing, 5.5 mm.; of ovipositor, 0.8 mm. Occiput entirely shining reddish, unspotted, with a yellow border below. Frons parallel-sided, reddish yellow, opaque, unspotted, with narrowly shining orbital borders; it is about twice as long as broad, has a very small black ocellar dot and a yellowish lunula. Face entirely shining yellow, without black spots; parafacialia and peristomialia pale yellowish, unspotted. Antennae entirely reddish, distinctly longer than the face. Palpi and proboscis reddish yellow. Vt. dark reddish brown; two i. or., very thin and pale. Thorax entirely reddish, punctulate, with a thin whitish pruinescence on back, without any dark markings, but with broad yellow ones; these are: a rather narrow humeral spot, the front corner of the humeri being reddish; a very broad, subquadrate mesopleural patch reaching the humeral spot with its anterior upper corner; a single, rather small, hypopleural spot. Scutellum reddish, more or less broadly yellow on the disc. Bristles black, except the two set. which are dark reddish. Halteres whitish. Abdomen with parallel sides, not much narrowed basally; it is entirely reddish, without dark markings, with an indistinct yellowish hind border of the second segment in the male; third segment of the male ciliated; oval patches of last segment quite distinct; ovipositor entirely reddish, not longer than the last abdominal segment; venter yellowish. Legs entirely reddish, with the basal part of the femora yellowish. Wings (fig. 5) hyaline, with a faint yellowish tint; stigma more intensively yellowish, marginal cell rather yellowish, submarginal cell not infuscated basally. The pale yellowish stripe just above the second basal cell is faintly developed; anal cell yellowish along the upper border; no trace of anal stripe, or of apical infuscation of the axillary cell in the male; small cross-vein not infuscated. The black terminal spot is broad, perfectly circular and symmetrically placed before the end of the third vein. Last portion of third vein strongly bent downwards, and running parallel with last portion of fourth, which is straight at end. Prolongation of anal cell in the male longer than in the female, as long as the rest of the sixth vein.

*Tridacus punctatifrons*, Karsch, 1887.

This species shows a great resemblance to *Dacus vertebratus* or to *Dacus brevistylus*, but it is at once distinguishable, besides the presence of a strong a. sa., by the shaded small cross-vein and by the dark punctate frons.

Recorded from Central Africa, Zanzibar, and Nyasaland. I have seen some specimens collected at Durban by Mr. v. d. Merwe.

## DACUS, Fabricius, s. str.

This genus, taken in its narrowest sense, is very abundantly represented in South Africa; very characteristic for the fauna are the large species of the *fuscatus*-group, which are very like those of *Tridacus* in stature, wing-pattern, and body-coloration. The numerous species may be distinguished as follows:—

1. (2) Antennae very long, with the first joint as long as the second  
*lounsburyi*, Coq.\*
2. (1) Antennae not so long, with the first joint shorter than the second.
3. (10) Species of greater size, measuring 7–9 mm. in length, with the brown fore border of the wing, or with the terminal dark spots, extending into the first posterior cell or even into the second; yellow mesopleural stripe very narrow.
4. (5) Humeral and hypopleural yellow spots wanting; third abdominal segment of male ciliated; scutellum reddish brown, with yellow hind border . . . . . *fuscatus*, Wied.
5. (4) Two well-developed yellow hypopleural spots.
6. (9) Wings with distinct anal brown stripe, but without broad rounded terminal spot; tarsi blackish at end; third abdominal segment of male ciliated.
7. (8) Humeri entirely reddish or with only a small yellow spot; scutellum broadly reddish-brown at base; the brown costal border of wing extended to the fourth vein . . . . . *subfuscatus*, var. nov.
8. (7) Humeri and scutellum entirely yellow; brown costal border not reaching fourth vein . . . . . *brevistriga*, Walk.
9. (6) Wings without anal stripe, but with a very broad rounded fuscous spot at end, extended into the second posterior cell; humeral calli reddish; tarsi quite yellowish to the end; third abdominal segment of male not ciliated . . . . . *marshalli*, Bezzi.
10. (3) Species of smaller size, usually measuring not over 6 mm. in length, with a very narrow dark costal border, or without any costal border at all.
11. (26) Wings with a distinct anal brown stripe; face with the usual black spots; third abdominal segment of male ciliated.
12. (19) A single yellow hypopleural spot.

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\* See above in the genus *Tridacus*.

13. (14) Facial black spots reduced to small black stripes . *bistrigulatus*, Bezzi.  
 14. (13) Facial black spots rounded as usual.  
 15. (16) Scutellum reddish brown, with a yellow spot on each side ; wings destitute of dark fore border and of dark terminal spot ; prsc. present  
*biguttulus*, Bezzi.\*  
 16. (15) Scutellum yellow ; wings with distinct pattern ; no prsc.  
 17. (18) A fuscous spot below the end of fifth longitudinal vein in the male  
*ciliatus*, Loew.  
 18. (17) No such spot present . . . . . *brevistylus*, Bezzi.  
 19. (12) Two contiguous yellow hypopleural spots.  
 20. (23) Last portions of third and fourth vein distinctly sinuous.  
 21. (22) Terminal dark spot of the wing united with the brown costal border ; species of smaller size . . . . . *vertebratus*, Bezzi.  
 22. (21) Terminal spot isolated ; fore border more yellowish than brown ; species of distinctly greater size . . . . . *marginalis*, Bezzi.  
 23. (20) Tips of the above-named veins nearly straight.  
 24. (25) Terminal dark spot of the wing united with the dark fore border ; species of greater size . . . . . *africanus*, Adams.  
 25. (24) Apical spot isolated ; species of smaller size . . . . . *ficicola*, Bezzi.  
 26. (11) No distinct anal brown stripe on the wings.  
 27. (38) Face destitute of the usual black spots.  
 28. (29) No distinct yellow hypopleural spots . . . . . *scaber*, Loew.†  
 29. (28) Hypopleural spots well developed.  
 30. (33) A single yellow hypopleural spot ; mesopleural yellow stripe very broad ; frons narrow ; third abdominal segment of the male ciliated ; legs entirely yellowish.  
 31. (32) Scutellum entirely red, like thorax and abdomen *rubicundus*, sp. nov.  
 32. (31) Scutellum yellow ; abdomen broadly black at sides *xanthopus*, var. nov.  
 33. (30) Two contiguous yellow hypopleural spots ; mesopleural stripe narrower ; legs partly infuscated.  
 34. (35) Apical dark spot of the wings united with the fuscous costal border ; third abdominal segment of male not ciliated *purpurifrons*, sp. nov.  
 35. (34) Apical spot quite isolated ; third segment ciliated.  
 36. (37) Thorax and abdomen mainly black ; legs partly brown *binotatus*, Loew.  
 37. (36) Thorax and abdomen mainly reddish ; legs paler . *immaculatus*, Coq.  
 38. (27) Face with the usual black spots.  
 39. (42) Thorax and scutellum entirely reddish, quite devoid of any yellow markings.  
 40. (41) Abdomen black spotted . . . . . *apoxanthus*, sp. nov.  
 41. (40) Abdomen without black spots . . . . . *decolor*, var. nov.  
 42. (39) Thorax and scutellum with well-developed yellow markings.  
 43. (50) A single yellow hypopleural spot.  
 44. (47) Wings with a colourless or pale yellowish stigma and with a faintly infuscated apical spot at end of third vein.  
 45. (46) Scutellum entirely yellow ; back of mesonotum dark striped ; third abdominal segment of male ciliated . . . . . *oleae*, Gmel.

\* This species belongs to the following new genus *Afrodacus*.

† Repeated here from *Tridacus*, because its generic position is doubtful.

46. (45) Scutellum reddish brown in the middle ; back not striped ; third abdominal segment not ciliated . . . . . *bigemmatius*, sp. nov.
47. (44) Wings with a blackish stigma and with a more intensively infuscated terminal spot, or even with a narrow blackish costal border.
48. (49) Apical dark spot of wings isolated ; legs entirely yellowish *brevis*, Coq.
49. (48) Apical spot united with a brown costal border ; the four posterior tibiae blackish . . . . . *rufus*, Bezzi.
50. (43) Two yellow hypopleural spots.
51. (52) Body short as usual, with rounded abdomen ; pterostigma blackish ; terminal dark spot of wings distinct . . . . . *ficicola*, Bezzi.\*
52. (51) Body slender and elongated, with more cylindrical abdomen ; wings with pale yellowish stigma and without any distinct pattern.  
*asclepiadens*, sp. nov.

*Dacus fuscatus*, Wiedemann, 1819.

(Pl. XII, fig. 6.)

A robust species of greater size, very distinct on account of lacking all the yellow markings, except a very narrow mesopleural stripe, and a narrow hind border of scutellum. The facial black spots are broad and elongate, extending to the mouth border ; lunula shining black ; eyes in life not iridescent. All the bristles black ; two i. or., middle sep. more or less developed. Abdominal segments partly fused along the middle line ; third segment in the male ciliated ; ovipositor shorter than the abdomen. Front tarsi with the four terminal joints blackened in the male, and distinctly dilated in both sexes. Wings (fig. 6) with the small cross-vein placed beyond middle of discoidal cell ; last portion of fourth vein bisinuous, but parallel with the third ; prolongation of the anal cell in the male much longer than the rest of the anal vein. The brown costal border of the wings, when fully developed, extends equally throughout to the fourth vein, often with a fuscous patch into the last portion of the discoidal cell. Anal brown stripe less intensive, sometimes faintly developed, but the dark spot below the end of the sixth vein is always well developed in the male.

One specimen from Pretoria, 4th February 1915 ; numerous specimens of both sexes from Barberton, Pretoria, and East London, from January to July (H. K. Munro). The puparium of the present species is opaque, whitish, with distinct segmentation.

*Dacus fuscatus*, var. *subfuscatus*, var. nov.

Differing from the type in having distinct yellow hypopleural spots ; but it seems that this character is not regularly developed. Indeed

\* Repeated here because the anal dark stripe is sometimes indistinct.



there is sometimes only one spot, while in other cases the spots are two; it seems that the yellow spots are covered with a reddish incrustation, which is sometimes disappearing. The scutellum is, moreover, more broadly yellow than in the typical *fuscatus*. Sometimes there is even a small yellow spot on the humeri.

Numerous specimens of both sexes from Pretoria, Barberton, and East London (H. K. Munro).

*Dacus brevistriga*, Walker, 1861.

Closely allied to *fuscatus*, from which it is distinguished by the entirely yellow humeri, by the two well-developed yellow hypopleural spots, by the almost entirely yellow scutellum, and by the abbreviated yellow postsutural stripe on back of mesonotum. It is distinct also by the wing-pattern, which is very like that of *Tridacus chrysomphalus*, having a yellowish costal border and the dark terminal spot not reaching the fourth vein; while in *fuscatus* and *subfuscatus* this spot is extended to that vein.

One male from Zululand, M'fongosi, December 1913 (W. Edwards); some specimens of both sexes from Port Shepstone and from East London (H. K. Munro).

*Dacus marshalli*, Bezzi.

(Pl. XII, fig. 7.)

A very distinct species on account of the broad, rounded, fuscous spot on wings (fig. 7), which lack the anal brown stripe.

Described from Natal in the British Museum.

*Dacus bistrigulatus*, Bezzi, 1908.

Distinct from all the others on account of the linear facial black spots.

Described by me from South Africa in the work on Professor Schulze's travel to Kalahari. I have seen some specimens from Uniondale, May 1906, bred from *Asclepias* pods, in the Agricultural Department Collection (Ch. P. Lounsbury).

*Dacus ciliatus*, Loew, 1862.

Described from the Cape; although not found subsequently, it is very probable that it is the same as the following species. I have

indeed seen specimens of *brevistylus* from South Africa in the Agricultural Department Collection, determined by Coquillett as *ciliatus*.

*Dacus brevistylus*, Bezzi, 1908.

(Pl. XII, fig. 9.)

A very common species, which is in all probability the same as the preceding one.

Numerous specimens from Zululand, M'fongosi, April 1916 (W. E. Jones); from Natal, Pretoria, East London, New Hanover, Bloemfontein (H. K. Munro, C. B. Hardenberg); bred from melons; Oudtshoorn, from melons.

*Dacus vertebratus*, Bezzi, 1908.

(Pl. XII, fig. 8.)

Likewise common and widely distributed; distinct from preceding by its two yellow hypopleural spots.

Natal, Estcourt, 1894 (Haviland); S. Rhodesia, Salisbury, May 1917 (R. W. Tucker); Pretoria, Barberton, Port Shepstone, February to July (H. K. Munro); Onambeke, Ovamboland, S.W. Africa, March 1923 (K. H. Barnard).

*Dacus vertebratus marginalis*, Bezzi, 1915.

Slightly differentiated from the preceding, but usually of larger size.

Tzancen, Transvaal, 10th December 1918; New Hanover, June 1913 (H. K. Munro).

*Dacus africanus*, Adams, 1905.

Described from Rhodesia and not found subsequently; it is probably the same as *vertebratus*.

*Dacus ficicola*, Bezzi, 1915.

(Pl. XII, fig. 12.)

Distinct from the three preceding forms by its much smaller size; in the faintly indicated brown anal stripe it is a connecting link with the following group.

Zululand, M'fongosi, December 1913 (W. E. Jones); Krois River, Uitenhage, 4th March 1921; Pretoria and Barberton, March and May 1913 (H. K. Munro); New Hanover, December 1914 (C. B. Hardenberg).

The as yet undescribed female is very like the male; the ovipositor is short, dark reddish, as long as the last abdominal segment; the prolongation of the anal cell is only a little shorter than in the male.

*Dacus rubicundus*, sp. nov.

(Pl. XII, fig. 11.)

Among the species with unspotted face and with non-ciliated third abdominal segment, the present one is distinguished by its entirely red and quite unspotted thorax, abdomen, and scutellum.

Some specimens from East London, 31st May 1923 (H. K. Munro).

♂. Length of body, 5.5–6 mm.; of wing, 4.5–5 mm. Occiput reddish, unspotted, with a yellowish border at sides below. Frons reddish, quite unspotted, with a small black ocellar dot; it is narrower than one eye, about twice as long as broad. Face pale yellowish, quite unspotted; peristomialia narrow, whitish, unspotted. Antennae entirely reddish, distinctly longer than the face. Palpi and proboscis yellowish. Bristles black; two i. or. Thorax entirely reddish, punctulate, with a short, pale pubescence on the disc; the yellow markings are as follows: a spot on hind half of humeri; a broad oblique mesopleural spot not reaching below the sternopleura and ending above at notopleural line; a single hypopleural spot. Scutellum reddish; without yellow markings; mesophragma reddish. All the bristles black. Halteres whitish. Abdomen with fused segments, punctulate, entirely reddish, without any black or yellowish markings; it is elongate and parallel-sided; the third segment of male is not ciliated; the oval patches of the last segment are rather indistinct; venter reddish, unspotted. Legs entirely yellowish, unspotted. Wings (fig. 11) with last portion of fourth vein straight at end and parallel with the third; prolongation of anal cell shorter than the last portion of sixth vein; no distinct praeaxillary lobe. The wings are hyaline, with blackish stigma and blackish marginal cell, continued in a narrow blackish border, which is dilated at end of third vein, but not spot-like, and is prolonged to middle distance between ends of third and fourth vein. Submarginal cell hyaline to the extreme base; no anal stripe, the anal cell being only a little yellowish; no distinct grey spot below end of sixth vein.

*Dacus woodi xanthopus*, var. nov.

This new variety is entirely as the typical *woodi*, Bezzi, from Nyasaland, but differs in having always the submarginal cell only slightly infuscated at the extreme base (while in *woodi* the same cell is intensively infuscated to beyond the small cross-vein). Moreover, it is constantly a little smaller, measuring 4.5–5.5 mm. in length. The frons has a narrow dark band towards the middle. The legs are pale yellowish.

Type ♀ from Zululand, M'fongosi, May 1916 (W. E. Jones); Port Shepstone, July 1917 (H. K. Munro); New Hanover, December 1914 (C. B. Hardenberg).

*Dacus purpurifrons*, sp. nov.

A pretty species of small size, all black and with entirely black legs, characterised by the striking contrast between the purplish frons and the white unspotted face.

Some specimens of both sexes from Barberton, May 1913 (H. K. Munro); one female from Pretoria seems also to belong here, but shows the black terminal spot of the wings quite isolated.

♂♀. Length of body, 4.5–5 mm.; of wing, 4–4.5 mm. Body mainly opaque, black, punctulate. Occiput entirely black, rather shining, with a narrow yellow border, which is less developed above, and with an indistinct dark reddish spot beneath the vertex. Frons narrow, in both sexes of a purplish colour, chiefly on anterior half, and more intensively in the male; a small black ocellar dot and some orbital black dots; lunula shining reddish. Bristles black; two i. or. Face shining white, unspotted, silvery in certain lights; the narrow parafacialia and peristomialia are reddish, the latter with a dark spot. Antennae rather short, reddish, with the third joint infuscated, more than twice as long as the second, which is only a little longer than the first. Palpi broad, bare, pale yellowish; proboscis brownish. Thorax entirely black, opaque on the back, rather shining above the neck and on the pleurae; pubescence very short, whitish. Humeri entirely yellow; a rather broad mesopleural yellow stripe, prolonged triangularly above along the transverse suture to the middle of back, but below not extended on the sternopleura; two contiguous yellow hypopleural spots. Scutellum yellow, with narrow black base; postscutellum and mesophragma entirely black. All the bristles black. Halteres whitish. Abdomen elongate, not very convex, entirely black, punctulate, and pubescent

like the back of mesonotum, but the pubescence is longer, chiefly towards the sides. Second segment with a narrow yellowish hind border; third segment not ciliated; fifth segment dark reddish on hind half, with the anal patches darkened. The segments are fused along the middle. Venter reddish, with black terminal sternites; male genitalia reddish; ovipositor very short, only one-half the length of last segment, very little prominent, reddish brown, whitish pubescent. Coxae brownish; femora shining black, with yellowish base and with reddish-brown end; tibiae and tarsi pale yellowish, the latter with the four terminal joints reddish; in the female specimen from Pretoria even all the tibiae are black. Wings hyaline; small cross-vein placed a little beyond the middle of the discoidal cell; last portion of fourth vein straight and parallel with the third. Veins dark reddish. The pattern is formed only by the blackish stigma and by the infuscation of the marginal cell, from which a very narrow black costal border extends to the apical spot, which is prolonged only a little below the end of third vein. There is no trace of anal brown stripe; and in the male there is no trace of fuscous spot below the end of sixth vein; the infuscation just above the second basal cell is distinct.

*Dacus binotatus*, Loew, 1862.

(Pl. XII, fig. 14.)

A black species, distinguished among those with unspotted face by its two hypopleural yellow spots. The frons is broader than in the other species of this group, being one and one-half times longer than broad. The third abdominal segment of male is ciliated. The ovipositor is short, reddish brown, not longer than the last abdominal segment. The wings (fig. 14) show no trace of anal brown stripe, but the male has the fuscous spot below the end of sixth vein, as recorded by Loew in its original description.

Numerous specimens of both sexes from Pretoria, Barberton, East London, Port Shepstone, Arnoldston, Bloemfontein, from March to July (H. K. Munro). A few of the specimens (2 per cent.) show one black spot, always on left side of the face.

*Dacus immaculatus*, Coquillett, 1901.

Nearly allied with the preceding species, but distinct by being much paler in colour and in having much more lighter legs. The back of mesonotum has only a black middle stripe, which is

broadened behind ; the abdomen is entirely red, except for some black spots on the second segment ; the black basal part of scutellum is broader ; the pterostigma is more reddish.

Pretoria, East London, and Stellenbosch (H. K. Munro) ; bred from the Cucurbitaceous plant *Coccinea quinqueloba*.

*Dacus apoxanthus*, sp. nov.

(Pl. XII, fig. 10.)

Near *bigemmatius*, but distinct from it as well from the allied species by the red humeri and scutellum, and by the complete lack of yellow hypopleural spots.

Some specimens of both sexes from East London, 1st to 10th June 1923 (H. K. Munro).

♂♀. Length of body, 5·5–6 mm. ; of wing, 4·5–5 mm. Occiput entirely shining reddish, unspotted, with a very narrow yellowish border at lower part in the male only. Frons shining reddish, unspotted, with a small black ocellar dot ; it is as broad as one eye, being only  $1\frac{1}{2}$  longer than broad. Face pale reddish, with two black rounded spots below, near the mouth border ; peristomialia reddish, unspotted. Antennae light reddish, distinctly longer than the face. Palpi and proboscis reddish ; bristles black ; two i. or. Thorax entirely reddish, punctulate, with a faint pale dust on the back and three very indistinct dark longitudinal lines ; there are no yellow markings at all, except a very narrow band at hind border of mesopleura, present only in the male ; even the scutellum is entirely reddish. Bristles black. Halteres whitish. Abdomen distinctly oval, with fused segments, reddish, punctulate, with two small black spots on third segment and with two larger ones on fourth segment, and, moreover, with a black middle stripe on last segment, which has the oval patches indistinct ; third segment of male not ciliated ; venter unspotted ; ovipositor reddish, shorter than the last abdominal segment. Legs reddish, with whitish hind praetarsi. Wings (fig. 10) with the last portion of fourth vein straight and parallel with the third ; prolongation of anal cell as long as the last portion of sixth vein in the male, shorter in the female ; no distinct praeaxillary lobe. The wings are hyaline, with yellowish stigma and with an isolated, rather broad, fuscous spot at end of third vein, triangular in shape ; there is no anal brown stripe, and no grey spot below end of sixth vein in the male ; anal cell quite hyaline.

*Dacus apoxanthus decolor*, var. nov.

Answering to the typical form in having no yellow markings on thorax or scutellum; but differs in the complete want of the black paired spots of abdomen, only one of the specimens showing a faint trace of the two spots of the second segment; even the black middle stripe at end of last segment is wanting; the ovipositor is sometimes black below at base. All the legs are very pale yellowish, almost whitish. The terminal spot of the wings, at end of third vein, is very pale and, moreover, is narrower than in the type, being more like a border than a spot; the stigma is pale yellowish.

Two female specimens in Agricultural Department Collection from Grahamstown, 18th April 1904, bred from tomatoes (C. W. Mally). The puparium is white, shining, very thin, almost transparent.

*Dacus oleae*, Gmelin, 1788.

I have seen authentic South African specimens of this Mediterranean species.

*Dacus bigemmatius*, sp. nov.

(Pl. XII, fig. 13.)

A quite reddish species, distinct by the peculiar coloration of the scutellum.

Type ♂, a single specimen from Zululand, M'fongosi, May 1916 (W. E. Jones).

♂. Length of body, 5.5 mm.; of wing, 4.5 mm. Head entirely reddish; occiput rather shining, quite unspotted, without distinct yellow border. Frons  $1\frac{1}{2}$  longer than broad, quite unspotted, rather shining, distinctly yellowish on anterior half; lunula shining reddish. Face shining reddish yellow, with two rounded black spots of small size near the mouth border; no distinct subocular spot. Antennae entirely reddish, the third joint twice as long as the second. Palpi and proboscis yellowish. Bristles black; two i. or. Thorax entirely reddish, without any dark markings; on the back it is punctulate, with very short whitish pubescence and with a broad stripe of whitish dust, divided in the middle by a bare line. Humeri yellow, with the front corner reddish; mesopleural stripe narrow, continued above on the notopleural callosity, and below with a small spot on upper border of sternopleura; a single small, rounded, hypopleural spot. Scutellum reddish like back of mesonotum, with a yellow rounded spot on each side, extended between the bristles at the base.

Mesophragma reddish. All the bristles black; middle scp. as strong as the lateral ones. Halteres whitish. Abdomen elongate, not very convex, punctulate and coloured like back of mesonotum, with the whitish pubescence a little longer on the sides; the fourth segment has a black rounded spot on each side, and the fifth has a middle black stripe, which does not reach the base or the apex of the segment. The segments are fused along the middle; the third segment is not ciliated; the last segment has no distinct oval patches; venter and genitalia reddish. Legs entirely pale reddish, unspotted, with the basal joints of tarsi paler. Wings (fig. 13) hyaline, with pale veins; small cross-vein beyond middle of discoidal cell; last portion of fourth vein straight and parallel with the third; prolongation of anal cell shorter than the rest of sixth vein. Stigma yellowish; marginal cell pale yellowish; a fuscous triangular spot at end of third vein. No anal brown stripe, and no trace of fuscous spot below the end of sixth vein; even the usual infuscation just above the second basal cell is not distinct.

*Dacus brevis*, Coquillett, 1901.

A species with spotted face, with a single yellow hypopleural spot, and with the wings with black stigma and with isolated terminal spot; it is very like *binotatus*.

One specimen from Patentie, 24th August 1921; Port Shepstone and East London (H. K. Munro).

*Dacus rufus*, Bezzi, 1915.

Near the preceding species, but distinct by the presence of a dark costal border on the wings.

Some specimens of both sexes, Port Shepstone and East London, August (H. K. Munro). The as yet undescribed male is like the female; the third abdominal segment is ciliated; the prolongation of anal cell is much longer than the rest of the anal vein, and there is a broad fuscous spot below the end of sixth vein.

*Dacus asclepiadens*, sp. nov.

An elongated species like *longistylus*, distinct by lacking the yellow postsutural spot on back of mesonotum and by the want of any wing-pattern; from *sexmaculatus*, Walker, it differs in having six (not two) black spots on abdomen.



Two female specimens in Agricultural Department Collection from Uniondale, May 1906, bred from *Asclepias* pods (C. P. Lounsbury).

♀. Length of body and wings about 7 mm. ; of ovipositor, 2 mm. Head entirely reddish, grey dusted on the occiput ; facial black spots broad and rounded ; antennae entirely reddish ; frons not spotted, with only a dark praeocellar spot on each side and with a dark ocellar dot ; palpi and proboscis reddish ; all the bristles black. Thorax reddish on back, with a blackish middle stripe, which is interrupted at suture and is dilated before the scutellum, but without yellow spots on middle. Humeri reddish ; praesutural calli yellowish, preceded by a black narrow band in front of the transverse suture. Pleurae black, with the anterior part reddish ; a narrow yellow mesopleural stripe, connected with a small spot on upper border of sternopleura ; two small and contiguous yellow hypopleural spots ; mesophragma black. Scutellum yellow, with the basal part reddish. Halteres whitish. Abdomen shaped nearly as in *longistylus*, with partly fused sutures ; it is reddish yellow, with short whitish pubescence. The first segment is black ; the second is reddish, a little yellowish at hind border, with indistinct dark spots at sides ; third and fourth segment each with a broad black spot on each side ; fifth segment with a smaller black spot on each side ; moreover, the three last segments have a blackish longitudinal stripe along the middle. Venter yellowish ; ovipositor shining reddish, greatly swollen at base, as long as the three last abdominal segments together ; oval patches of the fifth abdominal segment less distinct. Legs entirely yellowish, unspotted, only the tarsi being a little darkened at end. Wings hyaline, with yellowish veins ; last portion of fourth vein only a little curved at base and at end. Stigma pale yellowish. There is no trace of dark costal border or of dark terminal spot, the third vein being only a little darkened at sides near the end ; the marginal and submarginal cells seem to be a little darker than the rest of wing. The anal cell is a little yellowish, but there is no trace of dark anal stripe.

#### AFRODACUS, gen. nov.

I have to erect here this new genus for the following species, formerly placed by me in the genus *Chaetodacus*, Bezzi.

The genus *Afrodacus* agrees with *Chaetodacus* in having well-developed prsc., and in having a distinct praeaxillary lobe in the wings of the male ; these two characters are wanting in all African species of *Tridacus* or of *Dacus*. But it differs from the true *Chaetodacus* in

lacking the a. sa., all the numerous species of this latter genus being Oriental, it seems useful to separate this single Ethiopian species under a different generic name.

*Afrodacus biguttulus*, Bezzi.

Boll. Labor. Zool. Portici, 1922, xv, p. 294 (*Chaetodacus*).

(Pl. XII, fig. 15.)

A small fly of modest appearance, showing a deceptive resemblance to *Dacus oleae*, from which, however, it is at once distinguished beside the presence of prsc. by the peculiar coloration of the scutellum and by the different wing-pattern (fig. 15).

Numerous specimens of both sexes from East London (H. K. Munro) and Pretoria (Ch. P. Lounsbury), bred from fruits of *Olea woodiana* and *Olea laurifolia*.

SUBFAMILY ADRAMINAE.

Only three genera of this subfamily are at present known from the Ethiopian fauna, viz. *Meracanthomyia*, Hendel, and *Sosiopsila*, Bezzi, which have both a plumose arista, and *Munromyia*, Bezzi, in which the arista is quite bare. Only this last genus is found in South Africa.

MUNROMYIA, Bezzi.

Boll. Labor. Zool. Portici, 1922, xv, p. 297.

The main characters of this genus are the elongate antennae with bare arista, the presence of three i. or., the interrupted thoracic suture, the presence of the a. sa. and of four sct., the femora spinose beneath, and the cylindrical form of body.

Only the following very characteristic species is at present known.

*Munromyia nudiseta*, Bezzi.

Boll. Labor. Zool. Portici, 1922, xv, p. 299.

(Pl. XII, fig. 16.)

A strikingly coloured species with a peculiar wing-pattern (fig. 16).

Numerous specimens of both sexes from Kingwilliamstown, bred from fruits of *Olea foveolata* (H. K. Munro).

## SUBFAMILY CERATITINAE.

Among the numerous genera of this subfamily the large tropical forms transitional to the preceding subfamily are almost entirely wanting in South Africa; only the genus *Coelopacidia* is indeed to be found in Natal. Very numerous are the forms to be grouped near the old genus *Ceratitis*, and includes several very striking types. Numerous also are the species to be associated with the old genera *Acidia* and *Aciura*, comprising some very peculiar genera.

The genera found in South Africa may be distinguished as follows:—

1. (2) Only two or three ocp., inserted on the upper part of occipital border; prst., dc., and st. wanting; third longitudinal vein bristly; face very concave . . . . . *Coelopacidia*, Enderl.
2. (1) Ocp. more numerous and forming a complete row; prst., dc., and st. present, or at least not all wanting at the same time; face usually flat or even convex.
3. (28) Third longitudinal vein bristly throughout its whole length, or at least from the base to the small cross-vein; ocp. typically black; arista very often pilose or even plumose; scp. well developed; lower angle of anal cell usually drawn out in a rather long point.
4. (17) Dc. placed on or only a little behind the line of the a. sa., more distant from the scutellum than from the transverse suture.
5. (8) Hind cross-vein placed obliquely outwardly, that is, with its upper end more distant from the base of wing than the lower.
6. (7) Body prevalently black, with yellow or white markings; wings with broad blackish oblique bands . . . . . *Carpophthoromyia*, Austen.
7. (6) Body prevalently yellowish; wings with yellowish, partly infuscated, cross-bands . . . . . *Leucotaeniella*, Bezzi.
8. (5) Hind cross-vein inwardly oblique, its lower end being more remote from the wing-base than the upper.
9. (16) Body prevalently reddish or yellowish, often black spotted; wings with yellowish cross-bands, that passing over the hind cross-vein not united with the others.
10. (11) Frons of the male with conspicuous spathulate appendages; arista with short pubescence . . . . . *Ceratitis*, McLeay.
11. (10) Frons of male without such appendages; arista with longer pubescence or even with short plumosity.
12. (13) Middle legs of male broadly feathered, at least on the tibiae . . . . . *Pterandrus*, Bezzi.
13. (12) Middle legs of male simple.
14. (15) Scutellum rounded, without distinct lateral keels, black spotted; body yellowish, black spotted . . . . . *Pardalaspis*, Bezzi.
15. (14) Scutellum flat, with distinct lateral keels, not spotted; body shining black or shiny red, not black spotted . . . . . *Perilampus*, Bezzi.

16. (9) Body shining black, not black spotted; wings with blackish bands radiating from the base, that of hind cross-vein united with the basal one . . . . . *Trirhithrum*, Bezzi.
17. (4) Dc. placed much behind the line of a. sa., and thus nearer the scutellum than to the transverse suture.
18. (19) Second longitudinal vein distinctly wavy; scutellum with three pairs of bristles; arista with long plumosity; head of male much dilated  
*Themaricteria*, Hend.
19. (18) Second longitudinal vein straight; scutellum with only two pairs of bristles.
20. (21) No prst. and no oc. . . . . *Rhacochlaena*, Loew.
21. (20) Prst. always present; oc. usually present, even if little developed.
22. (25) Small cross-vein near or before the middle of the discoidal cell.
23. (24) Dc. much behind the line of a. sa.; oc. long and strong; wings broadened after the middle, with very short second posterior cell.  
*Taomyia*, Bezzi.
24. (23) Dc. near the line; oc. short and little developed; wings and second posterior cell of usual shape . . . . . *Phorellia*, R.-D.
25. (22) Small cross-vein beyond middle of discal cell; dc. much behind the line; wings narrow and long; oc. thin or even wanting.
26. (27) Two strong mpl.; three i. or.; antennae shorter than the face, with bare arista . . . . . *Afrocneros*, gen. nov.
27. (26) Only one mpl. and only two i. or.; antennae as long as the face, with pubescent arista . . . . . *Ocnerioxa*, Speis., p. p.
28. (3) Third longitudinal vein quite bare or with a few bristles only near the base; ocp. often whitish; arista usually bare or shortly pubescent.
29. (36) Dc. much behind the line of the a. sa.; ocp. always black.
30. (31) Wings narrow and long, with parallel sides, with elongate stigma and with the lower point of the anal cell a little longer than the second basal cell . . . . . *Ocnerioxa*, Speis., p. p.
31. (30) Wings of usual shape, with short stigma and with shorter point of anal cell.
32. (33) Wings with the first vein very short and with the hind cross-vein placed near the middle of wing; frons narrow, much longer than broad  
*Xanthanomoea*, gen. nov.
33. (32) First vein normal and hind cross-vein much beyond middle of wing; frons broad.
34. (35) No prst; ocp. only a few; small cross-vein near middle of discal cell  
*Coelotrypes*, gen. nov.
35. (34) Prst. present; ocp. complete; small cross-vein beyond middle  
*Hermannloewia*, gen. nov.
36. (29) Dc. before or on the line of a. sa., or only a little behind.
37. (42) Anal cell quite rounded outwardly, its lower angle being neither acute nor produced; ocp. entirely or prevalently black.
38. (41) Wings of normal shape; ocp. entirely black.
39. (40) Head broader than the thorax, with a very broad frons; antennae longer than the face . . . . . *Zacerata*, Coquill.
40. (39) Head narrower than the thorax; antennae shorter than face  
*Urophora*, R.-D.

41. (38) Wings narrow and long, with parallel sides; some whitish and thick bristles near the black ocp. . . . . *Elaphromyia*, Bigot.
42. (37) Anal cell with the lower angle acute and more or less produced into a short point.
43. (50) Body mostly yellowish or reddish, with or without black spots.
44. (45) Only one i. or., which is, moreover, very strong and curved behind; ocp. black . . . . . *Allotrypes*, Bezzi.
45. (44) Two or three i. or., which are thin and curved inwardly; ocp. whitish.
46. (47) No oc.; fourth vein curved below before the small cross-vein, which is placed near middle of discal cell . . . . . *Rivelliomima*, gen. nov.
47. (46) Oc. well developed; fourth vein quite straight; small cross-vein beyond middle of discal cell.
48. (49) Eyes narrow, higher than broad; dc. on the line of a. sa.; wings with yellowish longitudinal rays . . . . . *Craspedoxantha*, Bezzi.
49. (48) Eyes rounded; dc. before the line; wings with brown bands or quite hyaline . . . . . *Terellia*, R.-D.
50. (43) Body quite black; thorax and scutellum never black spotted.
51. (54) Small cross-vein very near the hind one and often placed on the same line with it; proboscis long and geniculate.
52. (53) Mouth border very prominent; ocp. whitish; scutellum very convex, with four bristles . . . . . *Rhynchoedaspis*, gen. nov.
53. (52) Mouth border less prominent; ocp. black; scutellum flat above, with two bristles only . . . . . *Munroella*, gen. nov.
54. (51) Small cross-vein at a considerable distance from the hind one; mouth border not or little prominent; proboscis simple.
55. (58) Back of mesonotum more or less shining black; scutellum short, very often with two bristles only.
56. (57) Species of greater size, with a very constant wing-pattern, consisting of two hyaline indentations of fore border and three of the hind border . . . . . *Aciura*, R.-D.
57. (56) Smaller species, with a different wing-pattern . . . . . *Spheniscomyia*, Bezzi.
58. (55) Thorax densely clothed with greyish pollen on the back; scutellum as long as broad, usually with four bristles . . . . . *Tephrella*, Bezzi.

COELOPACIDIA, Enderlein, 1911.

Of this genus, as defined by me in Bull. entom. Res., 1920, x, p. 217, there are two species in tropical Africa, one of which is found in Natal.

*Coelopacidia strigata*, Bezzi, 1920.

(Pl. XII, fig. 17.)

A couple of specimens from East London, May 1923 (H. K. Munro). They are of a somewhat greater size than the type from Nyasaland; there is a white stripe below the notopleural suture, less distinct in the type; the front femora have sometimes two bristles at end; the hind cross-vein is rather broadly infuscated, chiefly below (fig. 17).

## CARPOPHTHOROMYIA, Austen, 1910.

This genus, as restricted by me, includes two South African species, which are distinguishable as follows:—

1. (2) Scutellum with only the tip brown; no yellow hypopleural spots; mesopleural stripe oblique; femora blackish . . . . . *vittata*, Fabr.
2. (1) Scutellum with the apical half brown; two yellow hypopleural spots; mesopleural stripe horizontal; femora reddish . . . . . *dimidiata*, sp. nov.

*Carpophthoromyia vittata*, Fabricius, 1794.

Originally described from Guinea, but recorded also from Natal; I have never seen authentic specimens from South Africa.

*Carpophthoromyia dimidiata*, sp. nov.

(Pl. XII, fig. 19.)

A pretty fly near *vittata*, but at once distinguished by the presence of well-developed, whitish, hypopleural spots like those of *amoena*, Enderl., from which it is distinguishable by the much broader terminal brown spot of the scutellum.

Type ♀, a single specimen from Natal, Durban, July 1921 (R. M. Lightfoot).

♀. Length of body and wing, 6 mm.; of ovipositor, 1.4 mm. Head as broad as the thorax. Occiput dark brown, with a broad whitish border, which is dilated below and extended on the anterior part of the little prominent lower swellings. Frons  $1\frac{1}{2}$  times longer than broad, reddish brown on the basal half, whitish on the apical half, with a reddish transverse band at root of antennae; it is opaque, only the narrow vertical plates being shining. Face flat, whitish, opaque, with a dark spot just below the root of antennae; peristomialia narrow, margined with strong, short, dense, black bristles and destitute of dark subocular spot; parafacialia linear. Antennae a little shorter than the face, entirely reddish; second joint short, little prominent and not spinulose above; third joint about three times as long as the second, attenuated towards the end, but not acute; arista with plumosity of medium length. Palpi and proboscis dark brown. Bristles black; pvt. thin and parallel; inner vt. twice as long as the outer ones; ocp. black; oc. well developed; three strong i. or.; genal bristle strong. Thorax on the back entirely reddish brown, shining, with dark pubescence, but with a curved transverse band of whitish pubescence in front of the suture; humeral calli whitish; pleurae reddish brown, with a whitish narrow horizontal stripe extended from the humeri to

the root of the wings, but not dilated behind, as is the case in *vittata*; two contiguous whitish hypopleural spots. Scutellum whitish, with the hind half reddish brown, the brown part extending to midway between b. and a. set. Mesophragma shining reddish. Halteres with blackish knob. Bristles black and strong; dc. placed on the line of the posterior npl.; two mpl. Abdomen broad, but distinctly narrowed at base; it is shining black, with some segments margined with reddish at hind border, the second more broadly, the third very narrowly, and the fourth and the fifth rather broadly; hairs and bristles black; ovipositor shining black; venter reddish. Legs with reddish femora and whitish tibiae and tarsi; bristles and hairs black. Wing-veins disposed as in *vittata*. Wing-pattern (fig. 19) as in Loew's figure of *vittata*, and thus differing from that of *amoena* in having the hyaline band interrupted at the bend.

LEUCOTAENIELLA, Bezzi, 1918.

Only the following species is known from South Africa:—

*Leucotaeniella grata*, Wiedemann, 1830.

(Pl. XII, fig. 18.)

One female from Zululand, M'fongosi, February 1917 (W. E. Jones); another female from Natal, New Hanover, 29th November 1914 (C. B. Hardenberg).

To Loew's description may be added: Occiput yellowish above, whitish below, infuscated in the middle above the neck. Frons about as broad as long, convex and rather prominent on the anterior half, unspotted. Antennae only a little longer than the middle of the face. Cephalic bristles black; pvt. parallel; inner vt. twice as long as the outer ones; ocp. five to six only and rather long; oc. strong; three strong i. or.; genal bristle strong. Thoracic bristles black; dc. on the line of the a. sa.; sep. well developed, the middle ones approximated; two mpl. Ovipositor shining reddish, with black tip (in Loew's description it is said to be quite black). Hind cross-vein straight and almost perpendicular (fig. 18).

CERATITIS, MacLeay, 1829.

*Ceratitis capitata*, Wiedemann, 1824.

Some specimens from Stellenbosch, March 1895 (L. Peringuey); Uitenhage, 12th October 1922, bred from *Strychnos atherstonei*; Pretoria, 28th February 1913 (H. K. Munro).

## PTERANDRUS, Bezzi, 1918.

The species of the present genus, very easily recognised in the male sex, are as follows :—

1. (6) Wings destitute of oblique dark band across last section of fourth vein ; femora not feathered.
2. (3) Arista with very short pubescence ; back of mesonotum with deep black spots at sides . . . . . *podocarpi*, sp. nov.
3. (2) Arista with rather long plumosity ; back without such lateral spots.
4. (5) Abdomen destitute of distinct black bands . . . . . *rosa*, Karsch.
5. (4) Abdomen with distinct black bands . . . . . *fasciventris*, Bezzi.
6. (1) Wings with a distinct oblique dark streak across the middle of last section of fourth vein.
7. (8) Frontal bristles normal and black ; ocp. black ; legs in part black and with black feathering on tibiae . . . . . *rubivorus*, Coquill.
8. (7) Frons with the s. or. thickened and yellowish ; ocp. pale yellowish ; legs entirely yellowish, with yellowish feathered femora and simple tibiae  
*cornutus*, sp. nov.

*Pterandrus podocarpi*, sp. nov.

(Pl. XII, fig. 22.)

In the feathering of the legs of male this is like *rosa*, but it is distinguished from all other known species in the very shortly pubescent arista and in the black spots at sides of back of mesonotum.

Two female specimens from Uitenhage, 26th October 1922, bred from fruits of the indigenous conifer, *Podocarpus elongata* (D. Garm) ; numerous specimens of both sexes from East London (H. K. Munro).

♂♀. Length of body and wing, 4·5 mm. ; of ovipositor, 1 mm. Occiput yellowish, shining above, whitish below. Frons twice as long as broad, opaque, pale yellowish, with a black ocellar dot. Face whitish ; peristomialia yellowish, unspotted. Antennae entirely yellowish, shorter than the face ; second joint not prominent, never spinulose above ; third joint three times as long as the second, rounded at end, pubescent ; arista with very short pubescence, as in *Ceratitis capitata*. All the cephalic bristles black and normal ; oc. strong ; two i. or. ; genal bristle strong. Palpi and proboscis yellowish. Back of mesonotum opaque, grey in the middle, with three narrow blackish stripes, a rounded sutural spot on each side, and a black praesutural patch on each side, margined with yellowish behind ; on the sides it is shining black, with three broad deep black spots above the notopleural line, one praesutural. Humeri white, with a black



spot above. Pleurae dark yellowish, with a broad white stripe at upper border of mesopleura; two white hypopleural spots. Post-scutellum shining black. Mesophragma white dusted. Scutellum with three broad shining black spots, which are separated by narrow yellow lines. Pubescence on back of mesonotum pale yellowish, on pleurae longer and whiter. Bristles black; dc. on the line of a. sa.; one mpl.; four set. Calypters white. Halteres pale yellowish. Abdomen dark yellowish, with whitish pubescence and with black bristles; second segment with a narrow black hind border, but not in the shape of a definite band; first, third, and fourth segments with a broad complete white band at hind border; ovipositor shining yellowish, narrowly black at the extreme tip, as long as the three last abdominal segments together; venter entirely yellowish, unspotted. Legs entirely yellowish, with black bristles and hairs, and with the femora more or less infuscated, but irregularly; front femora of male with moderate ciliation, the other femora not feathered; middle tibiae with the apical half black and broad, broadly feathered on both sides by black feathers; middle tarsi entirely black. Wings (fig. 22) with a strong costal bristle and with normal venation. The dark basal spots and streaks are blackish; stigma blackish, with the distal third hyaline. Basal band complete, yellowish within the discoidal cell, black in the rest. Marginal band isolated, yellowish, blackened at end, with the usual marginal black dots, disposed in two regular pairs. Cubital band entirely fuscous and isolated; no middle band, but sometimes a faint trace of a dark stripe across the last section of the fourth vein.

*Pterandrus rosa*, Karsch, 1887.

Some specimens of both sexes from Transvaal, Prospect (H. K. Munro).

*Pterandrus rosa fasciventris*, Bezzi, 1920.

Numerous specimens from Stellenbosch (R. M. Lightfoot); Natal, Durban (H. W. Bell-Marley); Pretoria, from guavas; Pretoria, Port Shepstone, and Prospect (H. K. Munro).

*Pterandrus rubivorus*, Coquillett, 1901.

(Pl. XII, fig. 20.)

Some specimens of both sexes from Transvaal, Prospect (H. K. Munro).

*Pterandrus cornutus*, sp. nov.

(Pl. XII, fig. 21.)

Near *rubivorus*, but very distinct by the thickened frontal bristles and by the simple tibiae, only the femora having narrow yellowish feathers near the end; the yellow ocp. are very aberrant.

Type ♂, a single specimen from Natal, Durban, 19th January 1915 (H. W. Bell-Marley).

♂. Length of body and wing, 4.5 mm. Head entirely white, only the occiput being yellowish and rather shining on its upper part. Frons opaque, unspotted, like the face and the peristomialia. Antennae pale yellowish, shorter than the face; third joint rounded at end; arista shortly plumose, the plumosity not broader than the third joint. Palpi and proboscis yellowish. Ocp. pale yellowish, but thin and acute; outer vt. yellowish; inner vt. black, very long, as long as the vertical diameter of head; pvt. yellowish; the s. or. are reddish and thickened, chiefly those of anterior pair, which are only a little shorter than the interior vt.; two i. or. thin and pale yellowish; oc. very strong and reddish, like the s. or.; genal bristle thin and yellowish; the hairs of the lower part of occiput are white. Back of mesonotum dark reddish, grey dusted with pale yellowish pubescence, and adorned with black spots. Humeri whitish, with a black central spot; the sides of back, above the notopleural line, are shining black above and deep black below, interrupted by a narrow yellow stripe at suture; the back has three dark stripes before the suture and two pairs of black spots behind the suture, those of the last pair being more broad, more shining, and with a yellow spot in front of the scutellum. Pleurae yellowish, clothed with yellowish hairs, with a whitish line above at upper border of mesopleura, and with a second one parallel with the first on middle of mesopleura; one broad, whitish hypopleural spot. Scutellum convex, shining yellowish, with three very broad and partly confluent black spots at hind border and, moreover, with two black spots at base; it may be called shining black, with yellowish base and with two narrow yellowish stripes from the base to the a. set. All the bristles black; dc. on the line of the a. sa.; one mpl.; four set.; sep. yellowish. Postscutellum shining black. Mesophragma whitish dusted. Halteres yellowish. Abdomen shining reddish, with yellowish pubescence and with black bristles at end; hind border of first and third segments with whitish dust, forming two bands; genitalia shining reddish; venter grey dusted

and white banded. Legs entirely pale yellowish, quite unspotted; bristles and hairs yellowish, even those of front femora and the feathers of the four posterior femora, only the terminal spur of middle tibiae being black. Ciliation of front femora rather long and dense; middle and hind femora a little feathered at the extreme end, the feathers being less striking because they are yellowish, like the hairs; tibiae not at all feathered. Wings (fig. 21) broad, with yellowish pattern, and with some dark spots and streaks at base; stigma dark yellowish, with hyaline end; costal bristle small and black. Marginal band separated from the basal one. Cubital band not united with the basal one. Fuscous streak on last portion of fourth vein well developed. Marginal band with four black dots, two of which are near the costa and two on the third vein. Axillary cell broadly yellowish in the middle. Small cross-vein on the middle of the discoidal cell.

PARDALASPIS, Bezzi, 1918.

Of this characteristic Ethiopian genus there are rather numerous species in South Africa; they are as follows:—

1. (12) Wings without complete middle band and with isolated cubital band.
2. (5) Scutellum entirely black, with a narrow yellow base; black parts of back of mesonotum more developed than the yellow ones.
3. (4) Pvt. black; occiput above, with broad shining black spots; marginal band of wings united with the basal one . . . *melanaspis*, Bezzi.
4. (3) Pvt. white; occiput only slightly infuscated above; marginal band separated from the basal one . . . *asparagi*, sp. nov.
5. (2) Scutellum yellow, with some black spots; yellow parts of back as a rule more developed than the black ones.
6. (7) Dark species, with shining black sternopleura and with fuscous wing-bands; front legs of male with a striking white and black pattern  
*pedestris*, sp. nov.
7. (6) Paler species, with reddish or yellowish sternopleura and with pale bands on wings; front legs of male without such a pattern.
8. (9) Black spots of scutellum very broad, subquadrate, and closely approximated together . . . *cosyra*, Walk.
9. (8) Black spots of scutellum much smaller and broadly separated.
10. (11) Scutellum with three black spots; wings with the marginal band separated . . . *flexuosa*, Walk.
11. (10) Scutellum with five spots; marginal band united with the basal one  
*quinaria*, Bezzi.
12. (1) Wings with a complete middle band and with the cubital band united with the marginal one . . . *aliena*, Bezzi.

*Pardalaspis melanaspis*, Bezzi, 1920.

(Pl. XII, fig. 23.)

Originally described from Grahamstown, I have seen very numerous specimens from East London, December 1922, bred from fruits of *Maerna pendulosa* (H. K. Munro).

*Pardalaspis asparagi*, sp. nov.

(Pl. XII, fig. 26.)

Near the preceding and likewise with entirely black scutellum, but at once distinguished by the separated marginal band of the wings.

One female specimen from East London, December 1922, bred from maggot in red asparagus berry (H. K. Munro).

♀. Length of body and wing, 4 mm. Head as in *melanaspis*, but with distinctly narrower peristomialia. Occiput without shining black spots above, only a little infuscated. Frons without abbreviated black stripe at ocellar spot; pvt. and another pair of bristles near them white, but the oc. black. Back of mesonotum with shining black pattern of similar shape and extent, but without the white markings of *melanaspis*, and, moreover, with the light parts more greyish than yellowish. St. black; scp. white, not black; pleurae without distinct white band above. Scutellum shining black, with yellowish base; postscutellum shining black. Mesophragma clothed with dense white dust. Halteres yellowish. Abdomen, ovipositor, and legs as in *melanaspis*. Wings (fig. 26) as in *melanaspis*, but with a few additional dark streaks and spots at base; the marginal band is quite isolated, being separated by a rather broad hyaline space just beyond the stigma (but, notwithstanding, the species is almost certainly a *Pardalaspis* and not a *Pterandrus*). Stigma with the distal third quite hyaline, while in *melanaspis* it is yellow to the end, though more intensively in the basal part.

*Pardalaspis pedestris*, sp. nov.

(Pl. XII, fig. 24.)

Distinct from all the other species by the shining black sternopleura, and in the male sex by the striking coloration of the front legs.

Some specimens of both sexes from Natal, Durban, 25th April 1921, and from Transvaal, Pretoria, June–July 1917 (H. K. Munro).

♂♀. Length of body and wing, 4.5–5 mm.; of ovipositor, 1.2 mm.

Occiput yellowish, more whitish below, rather shining and reddish above, with a dark spot on each side below the reddish postvertical spot. Frons parallel-sided, yellowish, opaque, with a black ocellar spot; in the male it is unspotted, in the female it is reddish at vertex and near the root of antennae, irregularly dark spotted in the middle; sometimes even in the male there is a dark spot between the antennae and the eyes. Face creamy white in both sexes. Parafacialia and peristomialia whitish, the latter with a more or less distinct brown spot below. Antennae entirely reddish yellow, a little longer than the middle of face, more reddish in the female and paler in the male; third joint rounded at end; arista shortly pilose, the pilosity being shorter than the third joint. Palpi whitish. Proboscis yellowish. All the cephalic bristles black; two i. or. Back of mesonotum black, broadly greyish in the middle, shining at sides. Humeri shining black, margined with yellow; just behind the suture there is an oval, obliquely placed, black spot on each side; dc. placed on black patches, which are margined with whitish behind. Mesopleura white; pteropleura yellowish; sternopleura shining black, narrowly reddish at upper border. The short pubescence of the back is pale yellowish. The long hairs of mesopleura are white. Scutellum almost entirely shining black. The yellow basal line and those dividing the three spots are narrow, the latter sometimes hardly visible. Mesophragma yellowish, with white dust, like the hypopleural spots. All the bristles black; only one mpl. as a rule. Abdomen reddish, with more or less complete black band on second segment; hind border of first segment and whole third segment white dusted, forming two bands; male genitalia shining reddish; ovipositor reddish with black end, as long as the two last abdominal segments together; venter reddish; bristles black. Legs pale yellowish, the femora more or less reddish on distal half; front femora with numerous black bristles below. In the male the front coxae are shining black, with a white apical spot interiorly; the trochanters are black; the front femora are dark yellowish outwardly, deep black inwardly, and there with a white basal spot and with a broader white praeapical spot; the middle legs have a small black spot at base of femora below and at end of tibiae above, the former being sometimes absent. In the female there is no trace of this striking coloration. Wings (fig. 24) broad and short, rounded, with black dots and streaks at base, with the marginal band united with the stigma and provided with the usual two pairs of dark spots and with fuscous spot at end of third vein; middle band quite wanting; cubital band fuscous and isolated; basal band perpendicular,

extending from the fuscous stigma to before the end of the sixth vein ; it is yellowish from the second to the fifth vein and fuscous in the rest, but in the female it is entirely fuscous, even in the middle.

*Pardalaspis cosyra*, Walker, 1849.

(Pl. XII, fig. 27.)

The typical form is distinct by black cephalic and femoral bristles and by broad black praescutellar spots, which are margined with yellow behind.

One ♀ from Transvaal, Kaapmuiden, 30th October 1918 (W. E. Tucker) ; Barberton, 27th April 1920 (H. K. Munro). From East London and from Wolhuterskop, Transvaal, there is a variety in which the humeri have no black spot, as in the true *silvestrii*, Bezzi.

*Pardalaspis flexuosa*, Walker, 1853.

Described and figured from Cape, but never seen subsequently.

*Pardalaspis quinaria*, Bezzi, 1918.

Recently described by me from Salisbury.

*Pardalaspis aliena*, Bezzi, 1920.

(Pl. XII, fig. 25.)

At once distinguished from all the other species on account of its very peculiar wing-pattern (fig. 25).

Described from Grahamstown, I have seen some additional specimens from East London, 9th May 1923 (H. K. Munro).

PERILAMPSIS, Bezzi, 1920.

Of this Central African genus there is a very characteristic species from Transvaal, the description of which is as follows :—

*Perilampus diademata*, sp. nov.

(Pl. XII, fig. 28.)

A beautiful fly, very like *pulchella*, Austen, from Uganda, but at once distinguishable by the red colour of whole body and by the somewhat different wing-pattern.

A single male specimen from Pretoria, 10th January 1923 (H. K. Munro).

♂. Length of body about 4 mm.; of wing, 4.3 mm. Occiput yellow below, shining reddish above, a little infuscated towards the middle. Frons rectangular, distinctly longer than broad; it is reddish on the basal half, with shining ocellar and vertical plates, opaque, yellow on distal half, and yet reddish brown at root of antennae; lunula small, reddish. Face whitish yellow, with a narrow reddish-brown band below the root of antennae. Peristomialia as broad as the third antennal joint, with a brown spot below the eyes. Antennae entirely reddish, distinctly shorter than the face; third joint rounded at end; arista with very short pubescence. Palpi and proboscis reddish. Cephalic bristles black; oc. long; two i. or. Thorax on the back shining red, but shining black at sides above the notopleural line; the two bands of whitish pubescence are less developed than in *pulchella*; pleurae in part shining red and in part shining black, with a broad oblique yellow band extending from the likewise yellow humeri to the lower hind border of mesopleura. Bristles black; dc. on the line of the a. sa.; only one mpl. Scutellum entirely yellow, with four black bristles. Mesophragma shining black; one small and not very striking yellow hypopleural spot. Calypters dirty brownish; halteres red. Abdomen entirely shining red, with two bands of whitish pubescence at hind border of first and of third segment. Legs yellowish, with more or less darkened femora. Wing as in Austen's fig. 1 on p. 72; but the last portion of fourth vein is strongly S-shaped, and the small cross-vein is placed distinctly before the middle of the discoidal cell. The wing-pattern (fig. 28) is very similar, with a complete middle band and with the cubital band reduced to an infuscation of the hind cross-vein. The difference is in the fact that the basal band, instead of being perpendicular, is oblique and goes from the stigma to the end of the anal cell, filling up completely the base of the discoidal and of the third posterior cell; it is therefore not separated from the infuscation of the base of wing.

#### TRIRHITHRUM, Bezzi, 1918.

Even this peculiar Ethiopian genus is well represented in South Africa, not less than six species being known, as follows:—

1. (4) Back of mesonotum densely grey, tomentose on the disc, with shining black sides; humeri light yellowish; pleurae with yellowish stripes.
2. (3) Face black spotted above; humeri mostly yellowish; length 4 mm.  
*lycii*, Coquill.
3. (2) Face not black spotted; humeri broadly black in the middle; 2 mm.  
*minimum*, var. nov.

4. (1) Thorax entirely shining black, even on disc, humeri, and pleurae, or these latter with a white spot.
5. (8) Scutellum flat above, shining black, with more or less broadly yellow base.
6. (7) Wings with complete middle band and without basal streaks; pleurae entirely black; three i. or. . . . . *nitidum*, v. Röd.
7. (6) Wings with the middle band reduced to a very short tooth and with basal streaks; pleurae with a whitish mesopleural spot; two i. or.   
 *albomaculatum*, v. Röd.
8. (5) Scutellum convex and entirely black even at base.
9. (10) Middle band in the shape of a rather long tooth, extended to the fourth longitudinal vein; only two set. . . . . *bimaculatum*, v. Röd.
10. (9) Middle band reduced to a very short, less distinct tooth; four set. as usual . . . . . *occipitale*, Bezzi.

*Trirhithrum lycii*, Coquillett, 1901.

(Pl. XII, fig. 32.)

Originally described from the Cape, I have seen some specimens from Fisch Hoek, Cape Peninsula, 12th January 1920, in the Collection of the Agricultural Department.

To the original description may be added: Cephalic bristles black; two i. or.; arista bare; thoracic bristles black; only one mpl.; two whitish hypopleural spots; ovipositor shining black.

*Trirhithrum lycii minimum*, var. nov.

Distinct from the preceding in being much smaller and in having a different coloration of face and thorax.

A single female specimen from Grootfontein, 5th March 1916 (B. O. Wohl).

♀. Length of body, 2 mm.; of wing, 2.4 mm. Occiput with a transverse black band above, and with the lower swellings broad and white. Frons more broad than long, opaque, whitish on the basal half, yellowish on terminal half, with a dark transverse band in the middle. Face entirely whitish; peristomialia as broad as the third antennal joint, whitish, unspotted. Antennae entirely yellow, shorter than the face; third joint rounded at end; arista nearly bare. A small blackish dot between antennae and eyes. All the cephalic bristles black; oc. rather short; only two i. or. Thorax black; the back is clothed with dense grey dust in the middle, and is shining on the sides, on a broad suprahumeral patch, on a small rounded spot near the suture, and on two broad praescutellar patches; there are, moreover, two deep black spots on postalar calli and near root of wings; humeri black, with a narrow whitish border; pleurae shining black,



with a broad whitish mesopleural band and two broad white hypopleural spots. Scutellum rounded, swollen, shining black, with a narrow, sinuous, whitish band at base. All the bristles black; dc. near the line of the a. sa.; a. set. decussate. Mesophragma shining black. Halteres pale yellowish. Abdomen shining black, with two whitish bands, one at hind border of first segment, the other covering almost the whole of the third segment; ovipositor shining black, as long as the three last abdominal segments. Legs yellowish, with more or less darkened femora. Wings with regular nervation; second vein straight, long, ending nearer the end of third than to that of second vein; stigma elongate; last portion of fourth vein distinctly S-shaped; small cross-vein placed on the middle of the almost rectangular discoidal cell. Wings with a typical brown pattern, with complete middle band, and with complete cubital band, this latter united with the basal one at the small cross-vein; the marginal cell has a small hyaline border at costa and two dark spots at fore border; the basal streaks and dots are well developed.

*Trirhithrum nitidum*, v. Röder, 1885.

(Pl. XII, fig. 31.)

Described from Delagoa Bay, but not seen subsequently; it is allied with *albonigrum*, Enderlein, in having three i. or. and two mpl.

One male specimen from Natal, Kar Kloof, 1915 (H. W. Bell-Marley).

To the original description of this beautiful fly may be added: Cephalic bristles black; interior vt., oc. and s. or. very strong and long; three strong i. or. Second antennal joint not prominent, never spinulose above. Eyes in side view rather narrow. Pubescence of back of mesonotum dark, but yellowish in front of the suture, thus forming a distinct transverse band. Pleurae more reddish brown, unspotted. Bristles black; dc. placed on the line of the a. sa.; two mpl.; pt. very strong. While the tibiae and tarsi are whitish, the femora are reddish brown. Wings (fig. 31) with complete middle band and with the base broadly black, but with one hyaline indentation in the costal cell. Small cross-vein near middle of discoidal cell. Costal bristle distinct but short.

*Trirhithrum albomaculatum*, v. Röder, 1885.

(Pl. XII, fig. 29.)

Likewise described from Delagoa Bay, and not found subsequently. I have seen one ♀ specimen from East London, 2nd January 1922

(H. K. Munro), and another from Grahamstown, 14th March 1905, in the Collection of the Agricultural Department.

Only the male was described; to the original description is to be added: Occiput reddish above, with two broad white patches on the lower swellings. Frons rather narrow, blackish, with two grey spots in front; arista with very short pilosity (not bare, as described by von Röder). Palpi yellowish; proboscis blackish. Eyes very narrow in side view. Bristles black and not very strong; two i. or. only. Back of mesonotum with black pubescence, but with a praesutural band of whitish hairs, as in the preceding species; dc. on the line of the a. sa.; one mpl. The white mesopleural spot is placed obliquely; mesophragma and hypopleura shining black. The white abdominal bands are on hind border of first and of third segment; ovipositor cylindrical, shining black, as long as the three last abdominal segments. Wings (fig. 29) with the middle band reduced to a very short tooth; the base is black, with one hyaline indentation on the costal cell, and below this with some hyaline streaks; axillary lobe with the external lower angle subhyaline; small cross-vein before the middle of the discoidal cell; costal bristle short, but distinct; anal cross-vein a little sinuous above.

*Trirhithrum bimaculatum*, v. Röder, 1885.

Likewise from Delagoa Bay, but not seen subsequently.

*Trirhithrum occipitale*, Bezzi, 1918.

(Pl. XII, fig. 30.)

Originally described from Nyasaland, I have seen some specimens of both sexes from East London, June 1923 (H. K. Munro).

The as yet undescribed male is very like the female, with more striking coloration of frons and more developed abdominal-pattern; there are sometimes three i. or. In my original description the thorax is said to be yellowish, while it is shining black.

THEMARICTERA, Hendel, 1914.

*Themarictera laticeps*, Loew, 1861.

(Pl. XII, fig. 33.)

Some specimens of both sexes of this striking species of great size from Port Shepstone, 29th August 1920 (H. K. Munro).

The head of the male is usually twice as broad as the already broad head of female.

RHACOCHLAENA, Loew, 1862.

The species of this genus seems to be not rare in South Africa, where the three following have been found :—

1. (4) Arista with short pubescence; ovipositor shorter than the abdomen and reddish.
2. (3) Wings with a broad fuscous subapical band, which includes the broad terminal whitish spot . . . . . *pulchella*, Bezzi.
3. (2) Wings without such a complete band, the whitish terminal spot being free below . . . . . *fasciolata*, Loew.
4. (1) Arista with rather long plumosity; ovipositor as long as the abdomen and quite black or with reddish base . . . . . *major*, Bezzi.

*Rhacochlaena pulchella*, Bezzi, 1920.

(Pl. XIII, fig. 35.)

Originally described from Gold Coast, there is one male specimen from Transvaal, Kaapmuiden, October 1918 (R. W. E. Tucker).

*Rhacochlaena fasciolata*, Loew, 1863.

(Pl. XIII, fig. 34.)

This is the typical common South African species. Kimberley, 1913 (J. H. Power); Pretoria, 16th September 1914; numerous specimens of both sexes from Bloemfontein and Pretoria, March to May (H. K. Munro).

*Rhacochlaena major*, Bezzi.

(Pl. XIII, fig. 36.)

An as yet undescribed species from N.W. Rhodesia, it is allied with *pulchella*, but is distinct by the plumose arista and by the narrower white terminal spot of wings. A couple of specimens from East London, 5th May 1923 (H. K. Munro).

The male is smaller than the type female, measuring only 5.5 mm. in length, but it is otherwise similar. The two black stripes of thorax are complete and placed on the same line with the abdominal ones; genitalia shining black, narrowly yellow at base above, and with a pendulous, whitish appendage below. The female has the ovipositor shorter than in the type, and with reddish base.

## PHORELLIA, Robineau-Desvoidy, 1830.

I place provisionally in the present genus one species, which seems to be allied with *brunithorax*, R.-D., from Mauritius, but differs in some details of the wing-pattern. It is not typical for the genus, having the dc. placed nearer the suture; but the third longitudinal vein is bristly.

*Phorellia peringueyi*, sp. nov.

(Pl. XIII, fig. 37.)

A black and yellow species, distinguished by its peculiarly banded wings.

Type ♀, a single badly preserved specimen from Cape Town, September 1913 (L. Peringuey), named in honour of the collector.

Some female specimens from East London, May–October 1923, bred from *Senecio ruderalis* (H. K. Munro).

♀. Length of body and wing, 4 mm.; of ovipositor, 1 mm. Occiput pale yellowish, with a broad black spot on the upper half above the neck. Frons about as broad as long, entirely yellowish, opaque, with greyish sides, ocellar triangle and lunula. Face and peristomialia whitish, the latter narrow and unspotted. Antennae entirely yellowish, shorter than the face; third joint a little less than twice as long as the second, rounded at end, but a little concave on anterior side; arista with microscopical pubescence. Palpi and proboscis yellowish, the latter short and thick. Ocp. thin, short, acute, black; pvt. yellowish, while all the other bristles are black; oc. long; two i. or. Back of mesonotum black in the middle, densely clothed with opaque dark grey dust, yellowish on humeri and sides; pleurae yellowish, but the sternopleura and the lower part of mesopleura blackish; postscutellum and mesophragma black, grey dusted; scutellum yellowish, with narrow black base. All the bristles black; dc. a little before the line of a. sa.; four set. Halteres yellowish. Abdomen black, rather shining, grey dusted; all the segments at hind border with complete yellowish bands, which are dilated in the middle; moreover, the first segment is broadly yellow at sides; venter likewise black, with narrow yellow hind borders; bristles black; ovipositor shining black, as long as the two last abdominal segments together. Coxae and legs entirely yellowish; front femora with a row of blackish bristles below. Wings with small costal bristle; second vein straight; third vein bristly to beyond the small cross-vein, which is placed after the middle of the discoidal cell; last

portions of third and fourth vein straight and parallel; hind cross-vein about as long as its distance from the small cross-vein; lower angle of anal cell acute and rather produced. The wings (fig. 37) are hyaline, with yellowish veins, which are darkened towards the ends. Stigma entirely yellow. The bands are moderately infuscated, the first perpendicular, beginning in the middle of the second costal cell and ending at sixth vein, after the end of the anal cell. The second band is oblique outwardly, beginning at stigma, including the small cross-vein and ending at fifth vein before the end of the discoidal cell. The third band is oblique inwardly, beginning broadly just before the end of the marginal cell, and ending a little beyond the fifth vein including the hind cross-vein. Between these two last bands there is on the fore border an abbreviated narrow band, extended from the costa to the second vein. The fourth band is formed by the broad terminal spot, which fills up the ends of submarginal and first posterior cell and a very small upper corner of the second posterior cell. These fuscous bands are yellowish on certain parts, e.g. around the basal and small cross-veins, and within the marginal and submarginal cells.

## TAOMYIA, Bezzi, 1920.

*Taomyia marshalli*, Bezzi, 1920.

(Pl. XIII, fig. 38.)

A magnificent species, collected in Natal by Dr. Guy A. K. Marshall.

## AFROCNEROS, Bezzi, 1924.

This new name was recently proposed by me for the species formerly placed in *Ocneros*, and differing from the following genus *Ocnerioxa*, in the more developed chaetotaxy of head and thorax. They are exclusively South African, and may be distinguished as follows:—

1. (2) The hyaline indentation at fore border of wing is extended to the fourth longitudinal vein . . . . . *excellens*, Loew.
2. (1) The above-named indentation stops before reaching the third longitudinal vein.
3. (4) The indentation extends into the submarginal cell; discoidal cell with a hyaline spot at end . . . . . *mundus*, Loew.
4. (3) The indentation stops at second vein; discoidal cell entirely black at end . . . . . *mundissimus*, sp. nov.

*Afrocneros excellens*, Loew, 1861.

(Pl. XIII, fig. 41.)

Not rare : Natal, Durban, 1915 (Bell-Marley) ; M'fongosi, Zululand, February 1914 (W. E. Jones) ; Pretoria and Prospect (H. K. Munro).

*Afrocneros mundus*, Loew, 1863.

(Pl. XIII, fig. 39.)

Considered by some authors as a simple variety of the preceding, and likewise common : Orange Free State, Pietermaritzburg, April 1918 (Miss J. Skaife) ; Maseru, Basutoland (Mrs. Dieterlen) ; Pretoria, Grootfontein, Middelburg (H. K. Munro).

*Afrocneros mundissimus*, sp. nov.

(Pl. XIII, fig. 40.)

About the same as the preceding species, and probably only a variety of it, distinguished by the somewhat different wing-pattern.

Type ♂, a single specimen from Dunbrody, 1899 (Rev. O'Neil).

♂. Length of body, 5.5 mm. ; of wing, 6 mm. Head, its appendages and chaetotaxy exactly as in *mundus*, also the thorax and scutellum. Mesophragma quite shining black, the middle yellowish stripe being almost indistinct. Abdomen more broadly black, even the second segment being black and the third and fourth having only a small yellow spot at hind border. Legs as in *mundus*, also the wings. The rather conspicuous differences in the wing-pattern (fig. 40) are as follows : (a) The hyaline indentation of the costal cell is rather indistinct ; (b) the triangular hyaline indentation just beyond the stigma ends at second vein, without extending into the submarginal cell ; (c) the hyaline indentation of the second posterior cell ends exactly at fourth vein, without extending into the first posterior cell ; (d) there is no hyaline rounded spot within the terminal part of the discoidal cell below the small cross-vein, the discoidal cell being almost entirely infuscated, the hyaline indentation of the third posterior cell extending only a little into its posterior border.

## OCNERIOXA, Speiser, 1915.

In its more extended sense this genus includes the two following species from South Africa, excluding *gracilis*, Loew, which belongs to the genus *Allotrypes*.

1. (2) Base of wing broadly yellowish hyaline ; the fuscous part of wing is divided by a broad hyaline complete band, extending from fore to hind border of wing . . . . . *interrupta*, sp. nov.
2. (1) Base of wing infuscated ; no such hyaline band present ; wings of male with a broad yellowish patch at fore border . . . . . *sinuata*, Loew.

*Ocnerioxa interrupta*, sp. nov.

(Pl. XIII, fig. 42.)

Very distinct from all the other species on account of its reduced and peculiar wing-pattern.

A single specimen, type ♀, from Zululand, M'fongosi, February 1914 (W. E. Jones).

♀. Length of body, 4 mm. ; of wing, 5 mm. Head entirely yellowish ; occiput unspotted, paler below. Frons opaque, broad, about as long as broad, with a small black ocellar dot. Face pale yellowish, unspotted, like the rather broad peristomialia. Antennae entirely yellowish, nearly as long as the face, with the third joint broad, rounded at end ; arista microscopically pubescent. Palpi and proboscis dark yellowish. All the cephalic bristles yellow, but the short and thin ocp. black, like the outer vt. ; no oc. ; only two i. or., and no bristly hairs between them or between the s. or. Thorax yellowish, without any dark pattern, paler on the pleurae, darkened on mesophragma, rather shining on back, and there with short yellowish pubescence. All the bristles yellowish ; dc. much behind the line of the a. sa. ; only one distinct mpl. Scutellum pale yellowish, with four long, dark yellowish bristles. Halteres pale yellowish. Abdomen reddish yellow, rather shining, with slight black spots on sides of first segment and on middle of third and fourth segment ; pubescence and bristles yellowish ; venter reddish ; ovipositor reddish, as long as the three last abdominal segments together, narrowly black at end. Legs entirely pale yellowish, unspotted, with pale pubescence and bristles ; front femora with one or two yellow bristles below, near the end. Wings (fig. 42) narrow and long. The base to the basal and anal cross-veins is yellowish hyaline, quite unspotted. The stigma is as long as the second costal cell, blackish, with a broad hyaline spot at base. The blackish anterior half is extended below only a little beyond the fourth vein, and is divided into two parts by a broad hyaline band, which begins at fore border just beyond the stigma, and is continued across the middle of the submarginal cell and into the base of the first posterior cell, ending broadened at hind border almost on the

whole of the second posterior cell; the hind cross-vein shows thus a broad infuscation, which is quite isolated. In the first basal cell there is a small rounded hyaline dot; the small cross-vein is margined by narrow hyaline streaks. The whole third posterior cell is hyaline, with only a small infuscation at upper extreme base. Third longitudinal vein quite bare; hind cross-vein straight, and about as long as its distance from the small cross-vein. Costal cells entirely yellowish hyaline.

*Ocnerioxa sinuata*, Loew, 1861.

(Pl. XIII, fig. 43.)

Of this species, not noted since the original description, I have seen some specimens of both sexes from Prospect and from East London (H. K. Munro). It is very distinct by the peculiar wing-pattern.

The as yet undescribed male has a wing-pattern (fig. 43) very different from that of the female, because the two hyaline costal spots are less distinct, and there is a broad yellowish patch on anterior half, extended to the hind cross-vein and reaching below the third vein.

This species shows a bristly third longitudinal vein, but has only one mpl. and only two i. or., and is thus better located in *Ocnerioxa* than in *Afrocneros*.

#### XANTHANOMOEAE, gen. nov.

A new genus of the group of *Phagocarpus* (= *Anomoea*), with which it is related in general shape and wing-pattern and venation; but distinct on account of its entirely yellow body colour, its very narrow frons, its very short first longitudinal vein, and its very long last portion of fourth vein.

Head not broader than the thorax, in front view as high as broad. Occiput flat, a little concave above and not swollen below. Frons narrow and long, about three times as long as broad, flat but a little prominent anteriorly. Eyes ovate, bare. Face narrow and much shorter than the frons, with rather shallow antennal furrows and with no prominent mouth border. Antennae inserted below the middle of the eyes, short, not reaching the mouth border; third joint rounded at end; arista microscopically pubescent. Palpi narrow; proboscis short and thick. Ocp. numerous, thin, black; pvt. parallel; inner vt. twice as long as the exterior ones, but not very long and rather thin; no oc.; two s. or. and two i. or., these latter rather distant from each other; genal bristle not distinct. Thorax short and broad, rather flattened above, but convex in front; transverse suture broadly interrupted in the middle, and even on sides



not very distinct. Scutellum triangular, little convex above, one-third as long as the length of back, with four bristles. Thoracic chaetotaxy complete and normal; scp. very small; dc. on the line of the a. sa.; one mpl.; pt. strong; st. weak. Abdomen short, with five visible segments; ovipositor very short. Legs rather short and simple; front femora with the row of bristles below. Wings without costal bristle and with very typical venation. First longitudinal vein short, ending at the first third of the costa; stigma short; second vein straight, like the last portions of third and fourth which are distinctly diverging. Small cross-vein distinctly, but little, before the middle of the very short discoidal cell; hind cross-vein long and very oblique, the lower angle of discoidal cell being acute, placed at middle of the wing; the last portion of fourth vein is very long, being three times as long as the space between the two cross-veins and being considerably longer than the discoidal cell. Sixth vein prolonged to the hind border of wing; lower angle of anal cell acute but not produced and not longer than the rather broad second basal cell. Axillary lobe broad; alula rounded. Wing-pattern of the usual type of *Phagocarpus*.

Type: the following new species.

*Xanthanomoea munroi*, sp. nov.

(Pl. XIII, fig. 44.)

A pretty species, yellow with small black markings, and with very characteristic wing-pattern.

Type ♀, a single specimen from Barberton, 11th October 1919 (H. K. Munro).

♀. Length of body, 3 mm.; of wing, 3.5 mm. Head entirely yellow, with unspotted occiput; sides of frons paler; a small black ocellar dot. Face whitish, like the peristomialia, which are unspotted. Antennae pale yellowish, like the palpi and the proboscis. All the bristles yellowish, only the outer vt. and the ocp. being black. Thorax entirely yellow, rather shining on sides of back and on pleurae; two narrow parallel black stripes extended along the dorsocentral lines from the scp. to the scutellum; a white notopleural stripe from the white humeri to the root of wing; all the bristles and the pubescence yellowish. Scutellum entirely yellow, like postscutellum and mesophragma. Halteres whitish. Abdomen shining yellow, with yellowish pubescence and yellow terminal bristles; second segment with a narrow black band at base interrupted in the middle; a

similar but much smaller band at base of third segment ; fifth segment with a broad black spot on each side at base ; ovipositor yellow, shorter than the fifth abdominal segment ; venter yellow, unspotted. Legs quite pale yellowish, with yellowish hairs and bristles. Wings (fig. 44) hyaline, iridescent, with yellowish veins, which are blackish on the dark parts of the pattern. The wing-base is yellowish in the middle to the small cross-vein and to the middle of the discoidal cell ; the costal cells, the anal cell, and the axillary lobe with the alula are hyaline. The stigma and base of the submarginal cell below it are black, forming thus a single black spot ; at the anterior part of this spot begins a narrow oblique black band which, passing across the small cross-vein and becoming yellowish within the discoidal cell, ends (before reaching hind border) in the middle of the third posterior cell. Another short black oblique band begins at costa some distance beyond the stigma, and ends at third vein. Within the hyaline terminal half of the wings there is a complete narrow, arcuate black band, which begins at hind border at the end of fifth vein and, passing along the hind cross-vein, reaches the end of second vein, from which it continues outwardly along the costa to a little beyond the end of third vein.

#### COELOTRYPES, gen. nov.

This new genus is evidently related to *Coelopacidia*, chiefly on account of the form of head, but differs in possessing a well-developed st., and in having a bare third longitudinal vein. It is quite possible that *C. madagascariensis*, Enderl., belongs here.

Body narrow and elongate. Head broader than the thorax, higher than broad in front view. Occiput rather convex, but with the lower swellings undeveloped. Frons long, very concave ; eyes rounded, in front view prominent above the frons ; in profile the anterior part of frons is prominent, forming an antenniferous prominence. Face short, broadened below, very concave, with prominent mouth border. Peristomialia as broad as the third antennal joint. Antennae very long, longer than the face, inserted towards the middle of the eyes ; third joint linear, three times as large as the second, obtuse at end ; arista basal, in the type species with microscopical pubescence (but in another species from Sudan it is shortly plumose). Mouth opening broad ; palpi dilated at end ; proboscis short. Ocp. four to five, confined to the upper part ; pvt. very short ; the two pairs of or. are of about the same length ; no oc. ; one s. and three i. or. ; frontal vitta bare in the middle ;

genal bristle rather strong. Thorax elongate, about twice as long as broad; transverse suture broadly interrupted in the middle; back convex, but flat in the middle; one hm., no prst., two mpl., one a., and two p. sa.; one prsc. and one dc., this latter very near to the former and thus much behind the line of the a. sa.; four well-developed scp.; one mpl.; one pt.; one st. Scutellum triangular, flat above, only one-fourth of the length of back, with four strong bristles. Abdomen elongate, narrower than the thorax but about as long as it; there are four segments of equal length in the male and five segments in the female, the last shorter than the preceding; ovipositor strong, conical, only a little shorter than the abdomen; male genitalia rounded and prominent; terminal bristles of abdomen well developed. Legs proportionately short and stout; front femora rather swollen, without bristles below, but with a row on upper side; middle tibiae with one spur; hind praetarsi rather elongate, as long as all the other segments together. Wings shorter than the body, rather broad, without costal bristle. First vein long, but the stigma is not elongate; second vein straight; last portions of third and fourth veins slightly curved below and parallel; small cross-vein long, perpendicular, in the middle of the discoidal cell, the first basal cell unusually broad; second basal cell not dilated; hind cross-vein straight and perpendicular, placed very near the hind border of wing; anal cell with the lower angle acute but little produced and shorter than the second basal cell. Third longitudinal vein quite bare; sixth vein reaching hind border. Wing-pattern very simple, consisting of one praeapical dark spot, one broad terminal whitish spot, and an infuscation of the hind cross-vein.

Type: the following new species.

*Coelotrypes vittatus*, sp. nov.

(Pl. XIII, fig. 45.)

A reddish species, with a strikingly vittate thorax.

One female from Tsumeb, S.W. Africa, December 1919 (R. W. Tucker); another female from Salisbury, S. Rhodesia, May 1917 (same collector).

♀. Length of body, 4.5–5.5 mm.; of wing, 3.7–5 mm.; of ovipositor, 1.3–1.6 mm. Occiput reddish yellow, with a yellow postvertical spot, and with two broad, shining black patches above. Frons shining yellowish, with a small black ocellar dot. Face shining yellowish, with a rounded black spot on each side near the mouth border;

peristomialia unspotted. Antennae yellowish, with the third joint blackened at end; arista microscopically pubescent. Palpi and proboscis yellowish. All the bristles black; three i. or. Thorax shining reddish; a black longitudinal line on each side, originating in front as a broad patch near the sep., and continued as a narrow line to the dc.; just beyond the suture in the middle of the back is a broad white stripe, margined by a black line on each side, both continued along the middle of the scutellum and becoming gradually broader towards the end. Humeri white, as is a notopleural stripe, which is narrowly margined with black. Pleurae and mesophragma reddish, unspotted. Scutellum reddish, with the above-described middle stripe. Halteres whitish. Abdomen shining reddish, with two broad black stripes extending from the base to the middle; pubescence and bristles black; ovipositor shining reddish, narrowly black at tip. Venter reddish. Legs entirely yellowish, with black hairs. Wings (fig. 45) hyaline, iridescent, with yellowish veins; stigma blackish. There is a triangular blackish spot at end of second and third veins, filling up the extreme corners of the marginal and submarginal cells, and extending below into the first posterior cell. The whitish apical spot is broad, occupying the end of first posterior cell and extending below into the upper part of the second posterior cell. Hind cross-vein margined with fuscous.

#### HERMANNLOEWIA, gen. nov.

The present genus is named after Hermann Loew, who has contributed so much to the knowledge of the Trypaneid fauna of South Africa. It is distinct from the genus *Notomma*, to which it is related in general appearance and coloration, by the quite bare third longitudinal vein, by the different head, and by the first posterior cell being suddenly dilated outwardly. Type of the genus: *Trypeta jucunda*, Loew, 1861.

Head as broad as the thorax, in front view distinctly higher than broad, not flattened in profile, the eyes being rather round. Occiput a little concave above and rather swollen below, without distinct lateral swellings. Frons flat, broad, gradually narrowed towards the antennae, in profile only a little prominent in front. Lunula broad, free. Face shorter than the frons, broadened below, with little prominent mouth border and with rather deep antennal furrows; peristomialia as broad as the third antennal joint or even a little broader. Eyes banded in life. Antennae inserted at

or a little below the middle of the eyes, shorter than the face; third joint rounded at end; arista bare. Palpi broad; proboscis short. Ocp. numerous, acute, black; pvt. parallel; outer vt. twice longer than the inner ones; oc. short but well developed; one or two s. or. and three i. or.; genal bristle little developed. Thorax flat, about as broad as long, with the suture broadly interrupted in the middle; chaetotaxy complete; scp. strong, those of middle approximated; dc. much behind the line of the a. sa.; two mpl. pt. and st. well developed. Scutellum convex, rounded, with four bristles, the apical ones decussate. Abdomen in the middle as broad as the thorax, with four segments in the male and five in the female; ovipositor short, broad, obtuse; terminal and lateral bristles well developed. Legs short and stout; front femora with the row of bristles below; middle tibiae with one spur; hind tibiae bristly behind. Wings long and narrow, with short costal bristle. First longitudinal vein long; stigma elongate, about as long as the second costal cell; second vein straight; third quite bare; last portion of third vein strongly bent above, while the last portion of fourth is bent below, the first posterior cell being thus dilated outwardly; small cross-vein on the last third of the discoidal cell; hind cross-vein straight, perpendicular, very near the hind border of the wing; lower angle of the anal cell acute and produced, but considerably shorter than the second basal cell, which is not dilated. Sixth vein prolonged to the hind border; alula rounded; axillary lobe broad and short. Wing-pattern consisting of two yellowish longitudinal rays, the inferior one more or less incomplete and sometimes bifurcate, but never recurrent along the hind border, as it is in *Notomma*.

*Hermannloewia jucunda*, Loew, 1861.

(Pl. XIII, fig. 46.)

One female from Pretoria, 25th October 1913, on *Protea* (H. K. Munro); eye in life blue green, with two transverse red bands.

To Loew's careful original description may be added: All the cephalic bristles black, only one s. or., but three i. or.; two mpl.; vt. long and strong, twice as long as the pt. Mesophragma with two shining black spots above, approximated to each other. Bristles and pubescence of abdomen black. Ovipositor reddish brown, with shining black tip. Bristles of legs black. Wing venation very peculiar in the curvature of the last portion of the fourth vein, and thus in the shape of the first posterior cell (fig. 46).

*Hermannloewia dissoluta*, Bezzi.

Of this as yet undescribed species there is one female specimen from Pretoria in the Museum of Budapest. It is distinguished from the preceding one in having two s. or., in having the last portion of fourth vein less curved, and in lacking the dark oblique band across the last portion of that vein.

ZACERATA (Coq.), Aldrich, 1924.

Proc. Ent. Soc. Wash. xxvi, p. 64.

The present genus was named but not described by the late Mr. Coquillett many years ago; as I have seen the original specimens of the type species in the U.S. National Museum at Washington, I can give the following description:—

Head very large, broader than the thorax. Occiput concave above, distinctly swollen at sides below. Frons very broad, broader than long, convex but gently rounded; the lunula is proportionately small, much broader than long. Face very broad, longer than the frons, convex or even tuberculate in the middle; mouth border very little prominent; parafacialia narrow, peristomialia broad. Eyes bare, small, oval, their vertical diameter more than twice the horizontal one. Antennae inserted distinctly above the middle of eyes and rather widely separated at base; they are linear and much longer than the face; the first joint is very long, the second is small and short, the third is linear, obtuse at end; arista bare. Ocp. short, not numerous, black, acute; pvt. diverging; inner vt. very long; oc. well developed; two s. and three i. or. directed inwards. Thorax short and broad, with interrupted suture and with complete chaetotaxy. Scutellum with four bristles. Abdomen with the segments of about the same length; male genitalia large; ovipositor flat, broad, short. Legs short and stout; front femora with a row of bristles below. Wings short and broad, without costal interruption and without costal bristle. Second vein long and straight; third vein bare; small cross-vein a little beyond the middle of the discoidal cell, the portion of fourth vein before it sometimes curved as in *Rivellia*; last portions of third and fourth veins parallel; hind cross-vein curved outwardly, perpendicular, much longer than its distance from hind border, and shorter than its distance from the anterior one. Anal cell short and rounded outwardly, but with the lower angle right; sixth vein reaching hind border; axillary lobe broad; alula rounded. Wing-pattern of banded type.

Type: *Zacerata asparagi*, Coquillett.

The two known species may be distinguished as follows:—

1. (2) Antennae much longer than the face; fourth longitudinal vein bent downwards before the small cross-vein, the basal part of the discoidal cell being thus much narrower than the terminal half; wings hyaline, with brown fore border and three fuscous bands . . . . . *asparagi*, Coquill.
2. (1) Antennae only a little longer than the face; fourth vein quite straight before the small cross-vein, the discoidal cell regular; wings brown, with narrow hyaline indentations at fore and at hind border  
*taomyioides*, sp. nov.

*Zacerata asparagi* (Coq.), Aldrich, 1924.

(Pl. XIII, fig. 47.)

A shining black, grey spotted fly, with very broad head and very long antennae.

Some specimens of both sexes in the Agricultural Department Collection and in the U.S. National Museum, from Worcester, January 1908, bred from asparagus. The species is not unlike some South African species of *Rivellia*, like *latifascia*, Hend., or *tomentosa*, Hendel, from India.

♂♀. Length of body, 4 mm.; of wing, 3 mm.; of ovipositor, 0.6 mm. Occiput shining black, grey dusted below. Frons dark reddish brown, with shining black vertical plates; the orbits are whitish, but interrupted by broad rounded black spots at insertion of the or., forming thus five or six white spots; parafacialia shining white; peristomialia reddish. Face shining black, with a narrow, whitish, black-dotted lateral border. Palpi and proboscis black. Antennae with the basal joints reddish, the third joint black; arista whitish. All the bristles black. Back of mesonotum black, but with eight to ten narrow parallel stripes of grey dust, with small black dots; pleurae greyer, with black dots on the mesopleura. Scutellum and mesophragma shining black. Calypters white; halteres black. All the bristles black. Abdomen black, but grey dusted and black punctulate at hind border of the segments; hairs black; ovipositor and genitalia black. Legs with black coxae and femora, blackish tibiae and reddish tarsi. Wings (fig. 47) whitish hyaline, with blackish pattern. A black marginal band along the fore border from the extreme base to the very small stigma, ending there quite straight; this band is prolonged below to the fourth vein, but includes the whole anal cell. The terminal pattern is formed by three bands; one at small cross-vein, ending

below in the middle of the third posterior cell ; one at hind cross-vein, ending at hind border ; and one along the wing-tip, ending beyond the end of fourth vein ; there is a dark streak in the narrowed base of the discoidal cell. It may be said that the fore half of wing is black, with three hyaline indentations, one at fore border just beyond the stigma and extending to the fourth vein, the other two at hind border, one from the middle of the second posterior cell to a little above the third vein, and the other from the end of the third posterior cell across the end of the discoidal cell to a little above the fourth vein.

*Zacerata taomyioides*, sp. nov.

(Pl. XIII, fig. 48.)

Differing from the preceding species in the wing-pattern, as well as in the shorter antennae and in the straight base of fourth vein ; but agreeing with it in shape of head, antennae, and body. It cannot be located in the genus *Taomyia*, with which it agrees in wing-pattern, on account of its bare third vein and of its rounded anal cell.

A single male specimen in the Entomological Department Collection from Great Brak River, Mossel Bay, on orange tree, 1st April 1906.

♂. Length of body and wing, 4.4 mm. Head entirely black, broader than the thorax. Occiput rather shining, chiefly above and at sides. Frons parallel-sided, very broad, about twice as broad as one eye, only a little longer than broad ; it is shining black at vertex and on the ocellar plate, dark grey dusted at sides, and there with black dots at insertion of bristles. Face much shorter than the frons, broadened below, convex in the middle, but not tuberculate, and with the mouth border not prominent ; it is entirely black, opaque, grey dusted ; antennal furrows directed obliquely outwardly. Lunula broad but short, reddish white. Antennae inserted below the middle of eyes, a little separated at base ; the short first joint and the rather long second joint are reddish ; third joint linear, black, reddish at inner side, longer than the two first joints together, gradually attenuated towards the end, and thus rather acute, a little longer than the face ; arista bare and thin. Palpi dark reddish ; proboscis blackish, short, and thick. Parafacialia linear ; peristomialia narrow and short, reddish brown. Eyes oval, proportionately small. All the bristles black ; ocp. very short, but thin and acute ; oc. strong and long ; three pairs of equally strong i. or., curved inwardly, but not touching each other. Thorax entirely black, a little shining, with reddish brown humeral calli, notopleural sutures,



ptero- and hypopleura ; on the back it is clothed with a faint greyish dust and with short, pale pubescence ; all the bristles are black ; the dc. are placed at middle distance between the line of the a. sa. and the scutellum ; there are two equally strong mpl. Scutellum reddish brown, with only the basal pair of bristles (?). Mesophragma shining black. Squamulae whitish. Halteres pale yellowish. Abdomen elongate, narrowed at base, shining black, with short black pubescence and with black bristles ; the two first segments with a whitish line at hind border ; fourth segment a little longer than the preceding one ; venter shining black ; genitalia black. Legs reddish, with more or less blackened femora, chiefly those of the front pair, which have the usual row of black bristles below ; hind tibiae without posterior row. Wings (fig. 48) narrow in the basal half, broad and rounded in the terminal half. Costal bristle not very distinct ; stigma very short. Second vein rather wavy ; third straight, and parallel with the last portion of the fourth, which is straight before the small cross-vein ; second posterior cell short, as broad as high ; third vein quite bare ; hind cross-vein straight and perpendicular ; lower angle of anal cell not prolonged, rectangular. Wings with *Aciura*-like pattern, being entirely blackish, with five whitish hyaline indentations, but without hyaline discal spots. The first indentation is in the middle of the second costal cell, extending from the costa to the fourth vein and ending there very narrow and acute ; the second indentation is of triangular shape, extending from just beyond the stigma to the fourth vein. The other three indentations are at hind border, and are narrow and long ; the first is within the base of the third posterior cell, extending from hind border to the fifth vein, just below the end of the second basal cell ; the second is before the end of the third posterior cell, across the middle of the discoidal cell and extending with a short point into the base of the first posterior cell, before the small cross-vein ; the third, long and arcuate, is parallel with the terminal border of the wing, extending from before the end of the second posterior cell to the end of the second vein. This last hyaline indentation being more distant from the others, there is a broad rounded blackish patch, recalling that characteristic of the genus *Taomyia*. Small cross-vein before the middle of the discoidal cell.

#### UROPHORA, Robineau-Desvoidy, 1830.

This name is used here in its usual sense, while in my preceding papers the name *Tephritis* was employed for it.

*Urophora indecora*, Loew, 1861.

Originally described from Caffraria, but not found subsequently: it may be distinguished from all the South African Trypaneids on account of its quite hyaline wings, destitute of any pattern, and with a rounded anal cell.

## ALLOTYPES, Bezzi, 1920.

*Allotrypes gracilis*, Loew, 1861(=*brevicornis*, Bezzi, 1920).

(Pl. XIII, fig. 49.)

One ♀ specimen from Zululand, M'fongosi, May 1917 (W. E. Jones), already mentioned by me in the original description of *brevicornis*; one male from East London, 7th January 1923 (H. K. Munro).

The above-quoted synonymy is without doubt; and it is curious that I have not recognised Loew's species before describing my new one.

The as yet undescribed male is very like the female, but the wings (fig. 49) have the hyaline spot in the base of the marginal cell of more whitish colour, with a broad orange spot in the middle. The genitalia are shining reddish, like the whole abdomen.

## RIVELLIOMIMA, gen. nov.

The present new genus is allied to those which have a bare third vein, the dc. placed only a little behind the line of the a. sa., yellowish body, and no oc.; it is distinguished on account of its peculiar venation, the portion of fourth vein before small cross-vein being curved below into the base of the discoidal cell, as in the Ortalid genus *Rivellia*, or in the above-described *Zacerata*. It seems to be allied with the Oriental genus *Acidioxantha*, Hendel, 1914, the type species of which has a likewise black-spotted abdomen; but the wing-pattern is different.

Head in front view about as high as broad, in lateral view rather narrowed above and with prominent lower occipital swellings. Occiput distinctly concave on its upper half. Frons narrow and long, narrower than one eye, with parallel sides, more than twice as long as broad, not at all prominent in profile. Antennae inserted distinctly below the middle of eyes, the face being considerably shorter than the frons; they are extended to the mouth border, have rounded third joint and a microscopically pubescent arista.

Eyes oval, with the vertical diameter one and one-half times as long as the horizontal one. Face with a much prominent middle keel, but the mouth border not prominent; peristomialia narrow. Proboscis short and thick. Ocp. very numerous, but short and dense, all of yellowish colour; inner vt. longer than the outer ones, but not much developed; no oc.; two s. and three or four i. or. Back of mesonotum little convex, one and one-half times longer than broad, with broadly interrupted suture; chaetotaxy complete; dc. placed only a little behind the line of the a. sa.; only one strong mpl., which is as strong as the pt. Scutellum rounded, flat, bare above, with four bristles. Abdomen rounded, shorter than the thorax, with some short bristles at end; genitalia small; ovipositor not longer than the last abdominal segment. Legs rather short and stout; front femora with three or four bristles below; hind tibiae behind with a row of bristly hairs; all the tarsi shorter than their tibiae. Wings rather long, with small costal bristle; stigma normal; second and third veins straight and approximated, only a little diverging outwardly, the latter quite bare; small cross-vein a little beyond middle of discoidal cell. The portion of fourth vein before the small cross-vein is longer than the following one and is curved below into the discoidal cell; the last portion is straight and gradually but little diverging. Hind cross-vein long and straight, placed oblique outwardly, a trifle longer than the terminal portion of fifth vein; discoidal cell very broad at end; anal cell acute below but little produced; sixth vein reaching hind border; axillary lobe short but broad, rounded; alula rounded. The pattern consists of several narrow and oblique, complete, blackish cross-bands.

Type: the following new species.

*Rivelliomima punctiventris*, sp. nov.

(Pl. XIII, fig. 54.)

A quite reddish-yellow fly, with five black spots on abdomen and with three narrow blackish bands on wings.

Some specimens of both sexes from East London, May 1923 (H. K. Munro).

♂♀. Length of body and wing, 4 mm. Occiput pale yellowish, unspotted, more whitish on the lower swellings. Frons entirely yellowish, opaque, unspotted, with shining vertical plates; lunula whitish. Antennae entirely yellowish. Face pale yellowish, with whitish middle keel; peristomialia unspotted. Palpi and proboscis

yellowish. All the cephalic bristles yellowish. Mesonotum shining reddish, unspotted, with a white notopleural stripe from the humeri to the root of wings. All the bristles yellowish, as is the short pubescence of the back. Scutellum yellowish, very shining on the disc, unspotted, with yellowish bristles. Squamulae whitish; halteres pale yellowish; mesophragma shining yellowish, unspotted; no distinct hypopleural spots. Abdomen shining yellowish, with yellowish pubescence and bristles; a broad rounded shining black spot on middle of second segment, and another smaller one on each side of same segment; a similar spot on each side of last segment. Ovipositor very short, shining yellowish. Legs entirely yellowish, unspotted, with yellowish bristles, only those of front femora and the spur of middle tibiae being blackish. Wings (fig. 54) hyaline, iridescent, with yellowish unspotted stigma, and with yellowish veins, which are darkened only in the portions included in the blackish bands. First band narrow, perpendicular, extending from the base of stigma across anal cross-veins to the end of anal cell. Second band narrow, oblique outwardly, extending from the costa at middle of marginal cell across the small cross-vein to the middle of the third posterior cell. The third band is even more oblique, beginning at costa before end of second vein, and going across the hind cross-vein to the hind border of wing at end of third posterior cell, and ending there very near the end of the second band. Moreover, there is a short costal streak from end of marginal cell to a little beyond the end of third vein. At extreme base of wing, across the humeral and basal cross-veins, there is a rather indefinite yellowish band; the second and third bands are also sometimes tinged with yellowish at sides towards the middle.

#### CRASPEDOXANTHA, Bezzi, 1913.

All the South African species of the present genus have two mpl. and a black-spotted scutellum; they may be distinguished as follows:—

1. (4) Scutellum with one or with two black spots; thorax blackish on the back, and with a black triangular spot on lower part of sternopleura.
2. (3) Scutellum with two black spots well separated, even if much approximated  
*marginalis*, Wied.
3. (2) Scutellum with the two spots united into a single black spot  
*unimaculata*, var. nov.
4. (1) Scutellum with four black spots; thorax quite yellowish, without black spots on back or on sternopleura . . . . . *polyspila*, sp. nov.

*Craspedoxantha marginalis*, Wiedemann, 1830.

(Pl. XIII, fig. 50.)

One female from South Rhodesia, Salisbury (D. Dodds); numerous specimens of both sexes from Pretoria, December–January (H. K. Munro), bred from flowers of Composite plant, *Gerbera jamesoni*.

To the original description may be added: Eyes in life light green, with reddish tinge. The black middle spots of the abdomen are at base of fourth and of fifth segment, but they are distinct only in the female, being often concealed below the hind border of the preceding segment; moreover, in the male the last segment has a black basal band and two spots at end.

*Craspedoxantha marginalis unimaculata*, var. nov.

One male specimen from Gt. Winterhoek Mt., Tulbagh, 3800 ft., April 1916 (R. M. Lightfoot). Distinguished from the preceding in being of a distinctly darker colour and with the bristles dark yellowish; the apical spots of scutellum are fused together to form a single broad black spot, which fills up the space between the a. sct.

*Craspedoxantha polypila*, sp. nov.

(Pl. XIII, fig. 51.)

Nearly allied with *marginalis*, but distinct by the quite yellowish thorax, and by the scutellum having two additional black spots at insertion of the b. sct.

Type ♀, a single specimen from Salisbury, S. Rhodesia, May 1917 (R. W. Tucker).

♀. Length of body, 6 mm.; of wing, 5 mm.; of ovipositor, 2 mm. Head yellowish, with quite unspotted occiput; frons of a purplish colour on the basal half; parafacialia with perlaceous reflexions, like the face; peristomialia unspotted, as broad as the third antennal joint. Antennae as long as the face, entirely yellowish; third joint obtuse at end, but with a rather acute and prominent upper external corner; arista bare. Palpi and proboscis yellowish. All the bristles yellowish; three i. or. Thorax entirely yellowish, with no blackish parts on back, and without black spots on pleurae or on breast; on the back there is a short yellowish pubescence; there are some small, deep black, rounded spots, as follows: four disposed in a square at

the insertion of prsc. and dc., two at sides behind the prst., and two near the a. sa., and two on postalar calli, one internal, the other external. Of the four black spots of scutellum, two are smaller and basal, and two a little broader and apical, these latter being distinctly more distant from each other than those of *marginalis*. Postscutellum and mesophragma yellowish, unspotted. All the bristles yellow; scp. not distinct; dc. on the line of the a. sa.; two mpl. Halteres pale yellowish. Abdomen entirely yellowish, opaque, with two pairs of approximated small black spots, two at base of fourth and two at base of fifth segment, in part concealed below hind border of preceding segments. Ovipositor as long as the three last abdominal segments together, yellowish, with a black basal spot on each side and with narrow black tip. Venter yellow, unspotted. Legs entirely yellowish, unspotted; bristles of front femora yellow; spur of middle tibiae dark yellowish. Wings (fig. 51) with same neuration and pattern as in *marginalis*, but the small cross-vein distinctly more oblique.

TERELLIA, Robineau-Desvoidy, 1830.

There are two South African species before me, one of which has banded wings, and thus belongs to the subgenus *Sitarea*, R.-D., the other with unspotted wings, and thus a *Terellia*, s. str. They are as follows:—

1. (2) Wings with two dark bands and with some isolated fuscous spots; scutellum black spotted . . . . . *taeniaptera*, sp. nov.
2. (1) Wings hyaline, quite unspotted; scutellum unspotted *planiscutellata*, Beck.

*Terellia taeniaptera*, sp. nov.

(Pl. XIII, fig. 52.)

Allied with *hysia*, Walker, from Sierra Leone, but distinct by the very different wing-pattern, which is somewhat like that of the European species *ruficauda*, Fabr., and *winthemi*, Meig.

One specimen from Pretoria, August 1916 (H. K. Munro); but the species is known also from East Africa and even from Madagascar.

♂. Length of body and wing, 4 mm. Head entirely yellowish. Occiput opaque, with two broad black spots above, united together above the neck and prolonged in a point to reach the upper inner corner of the eyes. Frons with a black ocellar dot, one and one-half times longer than broad; lunula pale yellowish; face narrow, whitish; peristomialia unspotted, narrower than the third antennal

joint. Eyes ovate, bare. Antennae inserted at middle of eyes, shorter than the face, entirely yellowish; third joint rounded at end, distinctly pubescent; second joint rather prominent and black, spinulose; arista bare. Palpi and proboscis yellowish. Cephalic bristles yellowish, even the long and acute occipital ones; oc. strong; two or three or.; genal bristle strong; lower part of occiput with yellowish bristly hairs. Thorax entirely blackish, with reddish humeri, notopleural region, and root of wings; it is grey-dusted with yellowish pubescence. Bristles yellowish; scp. not distinct; dc. before the line of the a. sa.; one mpl.; pt. as strong as the st. Scutellum triangular, flattened above; it is yellowish, with a broad, triangular black spot in middle; at sides there are four black spots at insertion of the four set., the two apical being a little broader than the basal ones. Halteres pale yellowish. Abdomen blackish, grey-dusted, with pale pubescence and yellowish bristles; hind border of all the segments distinctly yellowish, and, moreover, the first segment with reddish sides; genitalia black, concealed; venter blackish grey, with reddish hind border of the sternites. Legs short and stout, entirely yellowish, the hind femora with a rather indistinct and incomplete dark ring before the end; hairs pale, bristles yellowish, spur of middle tibiae dark yellowish. Wings (fig. 52) with well-developed costal bristle. Veins yellowish, but blackish on the dark parts; last portions of third and fourth veins straight and parallel; small cross-vein beyond middle of discoidal cell; hind cross-vein straight and perpendicular, its distance from the small one being equal to its own length; lower angle of anal cell acute, but not produced. The dark pattern consists of two complete bands and some isolated spots. The first band goes from the end of costal cell across the middle of first basal cell and base of discal and third posterior cells to hind border in middle of axillary lobe. The second band begins at end of marginal cell and goes obliquely across middle of submarginal and first posterior cell to the hind cross-vein and ends at hind border before the end of the third posterior cell. Stigma yellowish, with a black spot at end. An abbreviated band goes from end of stigma to the fourth longitudinal vein, including the small cross-vein. The isolated dark spots are as follows: one in the middle of the marginal cell, extending from costa to the second vein; a broader one at end of submarginal cell and of first posterior cell, forming a triangular patch, which is not extended beyond the fourth vein and is narrowly united with the external oblique band along the third vein; two spots in the middle of the second posterior cell, a smaller one above, near the fourth vein,

and a larger one below at hind border ; one in middle of third posterior cell, in the shape of a short streak beginning at fifth vein. Along the fore border of wing, the spots at end of second costal cell, at end of stigma, at middle and at end of marginal cell, are blacker, and thus more striking than the other dark markings.

*Terellia planiscutellata*, Becker, 1903, var. *australis*, var. nov.

(Pl. XIV, fig. 53.)

A readily recognisable species on account of its quite unspotted, milky wings.

Some female specimens from Barberton and Pretoria (H. K. Munro). I have compared them with paratypes of the type species from Egypt.

This South African variety differs from the Egyptian form in being of a distinctly greater size (3.5-4 mm. in length), and in having a more yellowish, nearly golden pubescence on back of mesonotum, scutellum, and abdomen. Costal bristle well developed ; stigma yellowish ; last portions of third and fourth veins straight and parallel ; hind cross-vein a little curved, its distance from the small one greater than in *planiscutellata*, being equal to or even a little more than its own length (fig. 53).

#### RHYNCHOEDASPIS, gen. nov.

This is the first representative of the *Oedaspis*-group in South Africa, and is distinct from its allies by the form of head and of proboscis, which are similar to those observed in the genus *Gonyglossum* ; that is, depressed head, very prominent mouth border, and very long bent proboscis.

Head more narrow than the thorax, depressed above, obliquely prominent forwards, in front view higher than broad. Occiput distinctly concave above and little prominent below, with undeveloped lateral swellings. Frons very long and narrow, twice as long as broad, with parallel sides, not prominent in profile except a little above root of antennae ; lunula broad, long, and free ; frontal stripe bare. Face narrow, only one-half as long as the frons, with a sharp middle keel and with very prominent mouth border, which is hollowed in the middle above. Parafacialia and peristomialia linear. Eyes bare, narrow, twice as high as broad, placed obliquely. Antennae inserted distinctly below the middle of eyes, as long as the face ; third joint rather narrow, twice as long as the second, rather curved forward at end, but not pointed ; arista bare. Palpi broadened at



end, with some bristly hairs. Proboscis long, bicubitate, with the basal portion a little longer than the already long lower border of head, the terminal portion a little shorter. Ocp. four or five, very long and white, but acute; pvt. parallel and white like the outer vt., only the longer inner vt. being black; sc. black, thin, distant from each other at base; two s. or.; three strong and equidistant i. or. Thorax as long as broad, flattened above, with broadly interrupted suture, clothed on back and pleurae with long, tow-like pubescence; chaetotaxy normal; scp. not distinct; dc. before the line of a. sa.; one mpl.; pt. thinner than the st. Scutellum swollen, rounded, shining black, quite bare, with four bristles. Abdomen elongate, narrower than the thorax, with normal pubescence and with short bristles at sides and at end; in the male there are four segments, and the genitalia are concealed; in the female the segments are five, and the ovipositor is about as long as the entire abdomen. Legs rather stout, front femora with the usual bristles below; middle tibiae with one spur; hind tibiae with little developed posterior row. Wings rather broad, with distinct costal bristle. Stigma short; second vein a little curved in the middle, like the last portion of third and fourth, which are parallel; small cross-vein nearly approximated to the hind one, which is a little curved but placed perpendicularly; anal cell acute below, but little prolonged. Wing-pattern as in *Cecidochoares*.

Type: the following new species.

*Rhynchoedaspis munroana*, sp. nov.

(Pl. XIII, fig. 55.)

A very distinct fly.

Some specimens from Barberton in May, and from Pretoria in October (H. K. Munro).

♂♀. Length of body and wing, 3.5–4 mm.; of ovipositor, 1.5 mm. Occiput black, clothed with dense grey dust above, whitish below and there with white hairs. Frons with yellowish middle stripe and with broad whitish sides; lunula whitish. Face whitish; antennae entirely yellowish, like the palpi; proboscis yellowish, with the basal portion darkened below; the sides of the prominent mouth border with short black hairs. Ocp., pvt., outer vt., and basal s. or. white; inner vt., oc., terminal s. or. and all the i. or. black. Thorax entirely black, dark grey dusted on the back, white dusted on upper half of pleurae and rather shining on lower half; the back and the upper half of pleurae with whitish, tow-like pubescence. Scutellum, post-

scutellum, and mesophragma shining black. All the bristles black. The rather large calypters are white and white fringed; halteres pale yellowish. Hind border of mesopleura with three white bristles below the single black mpl. Abdomen of male quite shining black, that of female a little grey dusted; pubescence and bristles black; venter grey dusted; ovipositor black. Legs with black coxae and femora, these latter with yellowish tips, which are broader on middle pair; tibiae and tarsi entirely yellowish; hairs and bristles black. Wings (fig. 55) with dark bands, the hyaline parts between them being distinctly whitish; veins and costa blackish on the dark parts; yellowish on the whitish parts. There is a blackish spot at extreme base on first costal cell; following this spot a complete basal band, quite isolated from all the others, extending from end of second costal cell and stigma to the hind border in the middle of the axillary lobe; this band is broader at fore border and goes across the extreme base of the discoidal cell and across the ends of anal and second basal cells. On the terminal half of wing there is a peculiar pattern, formed by four dark bands, all radiating from the fore border; the first is parallel with the basal one and goes from the fore to the hind border in the middle of the third posterior cell; the second extends along the hind cross-vein and last portion of fifth vein; the third crosses the base of first posterior and the middle of second posterior cell; the fourth goes along the fore border to below the end of fourth vein. The terminal half of wing may thus be described as black with three hyaline indentations at hind border, the distal of which reaches into the submarginal cell, the middle one to the third vein just along the small cross-vein, and the shorter proximal one extends a little into the terminal part of the discoidal cell. Stigma black, with the external upper corner yellowish.

#### MUNROELLA, gen. nov.

This new genus seems to be allied with *Spheniscomyia*, being distinguished by the prominent mouth border, by the geniculate proboscis, and by both the cross-veins being placed on the same line.

Head a little broader than the thorax, in front view broader than high. Occiput flattened above, without distinct lower swellings. Frons rather broad, not prominent in profile. Face narrow, with a sharp middle keel and with prominent mouth border; peristomialia linear. Eyes bare, rounded; antennae shorter than the face, inserted at middle of eyes; third joint with the upper terminal corner

a little prominent, but not pointed; arista bare. Palpi normal; proboscis shortly geniculate. Ocp. short and black; no oc.; two i. or.; frontal stripe bare. Thorax convex, shining black, as long as broad, with the transverse suture broadly interrupted in the middle; chaetotaxy normal; dc. before the line of the a. sa.; scp. small but distinct; one mpl. Scutellum short, flattened above, with only the basal pair of bristles. Abdomen a little broader than the thorax, with four segments in the male and five in the female; ovipositor as long as the four last abdominal segments together. Legs rather long; front femora with only two bristles below at end; hind tibiae without posterior row. Wings long and narrow, with small costal bristle; stigma rather long, but normal. Second vein straight; last portions of third and fourth veins quite straight and parallel; small cross-vein placed on same line with the hind one, both straight, and placed perpendicularly; lower angle of anal cell acute, but not actually produced. Wing-pattern consisting of some narrow, parallel dark bands.

Type: the following new species,

*Munroella myiopitina*, sp. nov.

(Pl. XIII, fig. 56.)

A small, shining black fly, not unlike some species of the genus *Myiopites*.

Type ♀, from Zululand, M'fongosi, May 1916 (W. E. Jones); numerous specimens of both sexes from Pretoria and Barberton, January–May, on bushes of *Lippia asperifolia* (H. K. Munro).

♂♀. Length of body, 2–2.2 mm.; of wing, 2.3–2.6 mm. Occiput shining black, with dark hairs below. Frons yellowish, with whitish ocellar triangle and with rather broad whitish borders. Face shining yellowish. Antennae quite yellowish; palpi and proboscis likewise yellowish. Eyes in life dull fuscous. All the bristles black. Thorax entirely shining black, with not very distinct blackish pubescence. Scutellum shining black; all the bristles black. Calypters and halteres whitish. Abdomen entirely shining black, with black pubescence, and with short, black bristly hairs at end; ovipositor shining black. Legs with black coxae and femora; tips of these latter, tibiae, and tarsi yellowish, but the hind tibiae black on the basal half; hairs black. Wings (fig. 56) whitish hyaline, iridescent, with pale yellowish veins, which are blackish on the narrow dark bands; stigma yellowish hyaline, with only the extreme corner very narrowly fuscous. The

dark bands are not much infuscated, and are all equally narrow; the first begins at fore border, just before the stigma, and ends a little below the anal cell; the second begins at end of stigma, and goes obliquely to the hind border, reaching it in middle of third posterior cell; the third is straighter, begins at fore border at end of marginal cell, and passing over the two cross-veins ends at hind border at end of fifth vein. There is, moreover, a narrow terminal spot at end of first posterior cell, prolonged above into the lower corner of submarginal cell.

*ACIURA*, Robineau-Desvoidy, 1830.

In the present genus, as it is here limited, are included only species with typical wing-pattern; that is, with two hyaline indentations at fore border and with three at hind border; the remaining species are transferred to *Spheniscomyia*. The former are as follows:—

1. (8) All the bristles of the occipital border whitish.
2. (5) Scutellum with four bristles; halteres black; wings with a costal black stripe at base before the stigma.
3. (4) Femora for the most part black; ovipositor longer than the abdomen  
*tetrachaeta*, Bezzi.
4. (3) Femora and coxae entirely reddish; ovipositor as long as the abdomen  
*haematopoda*, var. nov.
5. (2) Scutellum with two bristles only; halteres whitish.
6. (7) Wings quite cuneiform at base, and there with an isolated oblique black band . . . . . *angusta*, Loew.
7. (6) Wings of usual shape at base, and there with a marginal black stripe.  
*oborinia*, Walk.
8. (1) All the bristles of the occipital border black; four setae; halteres black; wings with a complete costal stripe at base . . . *nigriseta*, sp. nov.

*Aciura tetrachaeta*, Bezzi, 1918.

(Pl. XIII, fig. 57.)

This species, originally described from N.W. Rhodesia, seems to be common in South Africa. Salisbury, May 1917 (R. W. Tucker); Pretoria, Livingstone (M. Powell); Durban, August (C. v. d. Merwe); Pretoria, Bloemfontein, March–June (H. K. Munro).

*Aciura tetrachaeta haematopoda*, var. nov.

About the same as the preceding, but distinct by the entirely reddish legs and by the shorter ovipositor.

Type ♂ and type ♀, without other specimens, from Zululand, M'fongosi, April 1917 (W. E. Jones).

♂♀. Size, coloration, and wing-pattern exactly as in the preceding species; antennae a little shorter. Coxae and femora entirely reddish, only the hind tibiae blackish. Ovipositor not longer than the abdomen.

*Aciura angusta*, Loew, 1861.

(Pl. XIII, fig. 60.)

Very distinct from all the other species on account of the peculiar shape of wings and of the isolated black band in the hyaline base of wing.

Natal, Durban, 1914 (W. Haygarth); E. Transvaal, Komati Poort, November 1918 (R. W. Tucker); Pretoria (H. K. Munro).

*Aciura oborinia*, Walker, 1849.

(Pl. XIII, fig. 59.)

Very well characterised by the broad oval hyaline spot in the first posterior cell.

Natal, Port Shepstone, January 1913 (K. H. Barnard); Port St. John, 1915 (Shortridge); Pretoria (H. K. Munro).

*Aciura nigriseta*, sp. nov.

(Pl. XIII, fig. 58.)

Closely allied with *tetrachaeta*, but distinguished by the quite black bristles of the occipital border and by the more faintly dusted back of mesonotum.

Some specimens from Barberton and from Pretoria (H. K. Munro).

♂♀. Length of body, 4–4.5 mm.; of wing, 4.5–5 mm.; of ovipositor, 3 mm. Head, its appendages and chaetotaxy as in *tetrachaeta*, but all the bristles of the occipital border—that is, ocp., vt., and pvt.—quite black. Thorax, scutellum, halteres, abdomen, ovipositor, and legs as in *tetrachaeta*, but the back of mesonotum distinctly more shining. Wings (fig. 58) with the same pattern; the costal basal stripe broadly united with the stigma; the external of the two hyaline indentations of fore border usually extending into the base of the first posterior cell.

#### SPHENISCOMYIA, Bezzi, 1913.

In the present genus are now placed smallish species which have not the typical wing-pattern of *Aciura*; they have four or very often

only two set. and have usually black ocp. ; but there are some species with whitish ocp., and these belong probably to the genus *Metasphenisca*, Hendel, 1914.

The following species are at present known from South Africa :—

1. (14) All the bristles of the occipital border black.
2. (7) Scutellum with four bristles.
3. (4) Wings with but a single hyaline indentation at fore border  
*sexmaculata*, Macq.
4. (3) Wings with two hyaline indentations at fore border, one approximated to the other.
5. (6) Wings with three rounded hyaline spots in the middle *ternaria*, Loew.
6. (5) No hyaline spots in the middle of wings . . . . . *capensis*, Rond.
7. (2) Scutellum with two bristles only.
8. (9) Halteres black ; wings with only one hyaline indentation at fore border and with two only at hind border, and with the extreme base black  
*compacta*, sp. nov.
9. (8) Halteres whitish ; wings with hyaline base, with two hyaline indentations at fore border, and with four or more at hind border.
10. (11) Fore border of wings with two regular hyaline indentations ; one hyaline spot into the base of discoidal cell . . . . . *neavei*, Bezzi.
11. (10) Fore border with two irregular hyaline spots ; one spot in the discoidal and another in the first posterior cell.
12. (13) Within the hyaline hind border of wing there is but a single fuscous ray reaching the hind margin . . . . . *binaria*, Loew.
13. (12) There are two complete fuscous rays at hind border of wing  
*binaria*, variety.
14. (1) Bristles of the occipital border whitish ; scutellum with two bristles only ; wing-base always hyaline.
15. (16) Femora black ; second hyaline indentation of fore border of wing much smaller than the first one . . . . . *quaternaria*, sp. nov.
16. (15) Femora quite orange ; second hyaline indentation about as long as the first . . . . . *quinaria*, sp. nov.

*Spheniscomyia sexmaculata*, Macquart, 1843.

(Pl. XIII, fig. 61.)

Zululand, M'fongosi, April 1917 (W. E. Jones) ; E. Transvaal, Komati Poort, November 1918 (R. W. Tucker) ; Mafa, Ovamboland, S.W. Africa, February 1921 (K. H. Barnard) ; Andoni, Ovamboland, March 1923 (K. H. Barnard) ; Barberton, August, and East London, June (H. K. Munro).

*Spheniscomyia ternaria*, Loew, 1861.

Described from Caffraria, but not seen subsequently.

*Spheniscomyia capensis*, Rondani, 1863.

Described from Cape, but not found subsequently.

*Spheniscomyia compacta*, sp. nov.

(Pl. XIII, fig. 62.)

A very peculiar, shining black, stout species, which shows a very characteristic wing-pattern.

Type ♀, S. Rhodesia, Salisbury, May 1917 (R. W. Tucker); type ♀, Barberton, 5th May 1913 (H. K. Munro).

♂♀. Length of body, 2.5–2.8 mm.; of wing, 2.7–3 mm.; of ovipositor, 1 mm. Occiput entirely black. Frons only a little longer than broad, reddish, with blackish ocellar dot and with paler sides; the large lunula is reddish, with whitish reflexions. Antennae entirely reddish, only a little shorter than the face. Face, parafacialia, and peristomialia reddish, the latter unspotted, as broad as the third antennal joint; mouth border not prominent. Palpi reddish, with short black bristles; proboscis dirty brownish. All the cephalic bristles black, even those of occipital border; three i. or. Thorax short, about as broad as long, quite shining black; on the back there is no distinguishable dust, and the short pubescence is black; all the bristles are likewise black; scp. not distinct; dc. on the line of the a. sa.; two mpl.; pt. and st. rather strong. Scutellum with only the b. set.; it is shining black, flat above, one-half as long as the back. Halteres quite black. Abdomen shining black, with black pubescence and black bristles; ovipositor shining black, as long as the abdomen, or even longer when the terminal segments are exerted. Legs black, with yellowish tibiae and paler tarsi; hind tibiae more or less, or even entirely black; front femora with a row of four or five black bristles below. Wings (fig. 62) long, with small or indistinct costal bristle; both the cross-veins perpendicular, straight, and approached together, the distance between them being only a little longer than the small cross-vein. They are entirely blackish to the extreme base, with the following whitish hyaline markings, which are broader in the female than in the male: a small rectangular spot in the middle of the second costal cell; a single indentation at fore border, just after the stigma, in the shape of a short triangle, with the vertex a little below the second vein; three spots in the middle, one in the base of first posterior cell, and two in the discoidal cell, one at base and the other placed more obliquely near the end; there is, moreover, a fourth spot in the second basal

cell. At hind border there are only two indentations, one in the second posterior cell and one in the middle of the third posterior cell, this last ending at fifth vein; these two indentations are much broader in the female than in the male; moreover, the base of the axillary lobe and the anterior part of the alula are also hyaline, forming thus a third indentation.

*Spheniscomyia neavei*, Bezzi, 1920.

(Pl. XIII, fig. 63.)

One male of this very distinct species from S. Rhodesia, Salisbury (D. Dodds).

*Spheniscomyia binaria*, Loew, 1861.

(Pl. XIII, figs. 64 and 65.)

Some specimens from Pretoria (H. K. Munro). This species shows two distinct types of wing-pattern. The typical form has only one complete fuscous ray at hind border of wing, as is to be seen in fig. 64; in the variety, as shown in fig. 65, there is a second complete dark ray at hind border; this ray is the more or less developed prolongation of the dark tooth in the middle of third posterior cell, well shown even in Loew's original figure. Even the terminal wing-pattern is somewhat different in the two forms. But I refrain from naming the variety, because it seems to be due to sexual dimorphism, the supernumerary fuscous ray of hind border being developed mostly in female specimens only.

*Spheniscomyia quaternaria*, sp. nov.

(Pl. XIV, fig. 67.)

Distinguished from all the preceding species on account of its whitish occipital bristles. Numerous specimens of both sexes from Pretoria and Barberton (H. K. Munro).

♂♀. Length of body, 2-2.5 mm.; of wing, 2.4-2.8 mm.; of ovipositor, 0.5-0.6 mm. Occiput black, grey dusted. Frons reddish, with dark ocellar area, pale yellowish sides and lunula. Face pale yellowish; peristomialia whitish, unspotted, not quite as broad as the third antennal joint; mouth border more prominent than in the allied species. Antennae entirely reddish; third joint a little shorter than the face, attenuated at end and prominent but not pointed; arista short, bare, thickened basally. Palpi and proboscis yellowish, the latter short and thick. All the cephalic bristles yellowish, those of the occipital border whitish, the long outer vt. darkened; only



two i. or. Thorax shining black, but clothed on the back with rather dense grey dust and with pale pubescence; all the bristles yellowish; no distinct sep.; dc. a little before the line of a. sa. Scutellum shining black, less dusted than the back, rather convex above, with only the basal set. Calypters white; halteres pale yellowish. Abdomen shining black, more or less grey dusted, with pale pubescence; ovipositor shining black, pale pubescent, as long as the three last abdominal segments. Femora black, with yellowish end; tibiae and tarsi yellowish; front femora with only two long, yellowish bristles below on terminal half. Wings long (fig. 67) and narrow, with blackish veins, which are pale yellowish at base; costal bristle short; cross-veins rather distant, the distance between them being about twice as long as the small cross-vein; last portions of third and fourth veins straight and parallel. They are broadly hyaline at base, from the root to the stigma; within the blackish part there are the following hyaline indentations and spots: two at fore border beyond the stigma, the first with the point at third vein, the second reduced to a simple spot ending at second vein; two hyaline rounded spots in the base of the first posterior cell, more or less completely separated from the two hyaline indentations of the second posterior cell; likewise two spots of greater size in the discoidal cell, more or less separated from the indentations of the third posterior cell. Base of axillary lobe and alula whitish hyaline. The hind border of the wing has therefore four irregular indentations, and may be described as hyaline, with four complete fuscous rays, besides the fuscous apex.

*Spheniscomyia quinaria*, sp. nov.

(Pl. XIII, fig. 66.)

Some specimens of both sexes from Pretoria, on the plant *Lippia asperifolia* (H. K. Munro).

♂♀. Same size as the preceding species, and almost identical with it, but certainly distinct by the following characters: (a) The mouth border is less prominent; (b) the front coxae and all the femora are entirely orange, without any trace of black; (c) the second hyaline indentation of fore border is more distant from, and about as long as the first, being prolonged beyond the second vein to reach with its lower point the third longitudinal vein; but these two points of both the indentations may be sometimes separated from the spots of the marginal cell, forming thus two isolated hyaline spots in the submarginal cell (fig. 66).

## TEPHRELLA, Bezzi, 1913.

In the present genus are provisionally placed the species with four sct. and with white ocp., which have a densely grey dusted back of mesonotum, the dc. nearer the line of the a. sa. than to the transverse suture, and an *Aciura*—or *Spheniscomyia*—pattern of wings, with no hyaline apical spot. They are very close to species of *Spathulina*, making thus a connecting-link between Ceratitinae and Trypaneinae. In case the present species should be separated from the typical ones of the Oriental region (which have only two sct.), the name *Metasphenisca*, Hendel, 1914, may be used for them; the type species *gracilipes*, Loew, is indeed the same as my *Tephrella cyclopica*, 1908.

The South African species are as follows:—

1. (2) Second posterior cell quite hyaline, with an isolated fuscous spot at hind border; femora black; wing-pattern of male very different from that of female . . . . . *dispar*, sp. nov.
2. (1) Second posterior cell infuscated, with the usual hyaline indentations; femora orange; both sexes with the same wing-pattern . . . . . *distigma*, sp. nov.

*Tephrella dispar*, sp. nov.

(Pl. XIV, figs. 69 and 70.)

Distinct from the allied species by the black femora and by the wing-pattern being very different in the two sexes (a unique case in the genus).

Several specimens of both sexes from Pretoria (H. K. Munro).

♂♀. Length of body, 3.2–3.6 mm.; of wing, 3.2–3.6 mm.; of ovipositor, 0.6 mm. Occiput black, densely grey dusted, with a narrow complete yellowish border to the eyes. Frons broad and short, scarcely longer than broad, opaque yellowish with greyish sides and lunula, and with darkened ocellar area. Face short, yellowish grey, with distinct middle keel and with a little prominent mouth border; parafacialia and peristomialia paler, the latter unspotted and narrower than the third antennal joint. Eyes in life light green, with purplish or reddish reflections. Antennae considerably shorter than the face, entirely yellowish, with obtuse third joint and bare arista. Palpi whitish, with stout black bristles; proboscis short, dirty yellowish. Ocp. and pvt. white, long, acute; vt., oc., and two or three or., all blackish. Thorax black, densely grey dusted, opaque, clothed with short yellowish pubescence on the back; all the bristles black; no distinct scp.; dc. on the line of a. sa.; only

one mpl. Scutellum triangular, flattened above, grey dusted, bare, with four black bristles, the apical ones long, strong, and decussate. Mesophragma densely grey dusted, opaque. Calypters white; halteres pale yellowish. Abdomen entirely black, opaque on account of the dark grey dust; the short pubescence is black, but that of sides is yellowish, like the bristly hairs. Male genitalia rounded, black; ovipositor shining black, as long as the three last abdominal segments. Coxae and femora black, grey dusted; tips of femora yellowish, especially middle pair; tibiae and tarsi entirely yellowish; front femora below with a row of five to six long blackish bristles. Wings of female (fig. 70) with a more typical pattern; they are blackish, with broad hyaline base, with two broad rectangular (not triangular) hyaline indentations of fore border extended to the third vein, and with two very broad hyaline indentations of hind border, the external of which, occupying the whole of the second posterior cell, extending above into the first posterior cell, and bearing a fuscous isolated spot in middle of second posterior cell, which is to be considered as the rest of the dividing streak of the two normal indentations of this cell; the second, or internal hyaline indentation, extends above the middle of the discoidal cell. Stigma deep black, with the upper external corner narrowly yellow; axillary lobe hyaline, with a fuscous middle patch in continuation of the basal dark band. In the male (fig. 69) the pattern is very different at fore border, because there is no division between the hyaline base and the two hyaline indentations, which are all fused together to form one broad hyaline patch, extending from the base to a little before end of marginal cell; the stigma is yellow, with a black rounded basal spot. The two broad hyaline indentations of hind border are much as in the female, but the isolated fuscous spot in the second posterior cell is shorter, and the axillary lobe has only a fuscous spot above. Costal bristle well developed; distance of cross-veins a little shorter than the length of the hind cross-vein; third vein bare; lower angle of anal cell acute, but little produced.

*Tephrella distigma*, sp. nov.

(Pl. XIV, fig. 68.)

Distinct from all the other species on account of the presence of two rounded hyaline spots in the otherwise entirely black discoidal cell. Type ♂ and type ♀ from S. Rhodesia, Salisbury, May 1917 (R. W. Tucker).

♂♀. Length of body, 3.2–3.5 mm.; of wing, 3.3–3.6 mm.; of ovipositor, 1 mm. Occiput black, opaque, densely grey dusted. Frons narrow, twice as long as broad, opaque yellowish with paler sides. Face pale yellowish; the narrow peristomialia whitish; mouth border a little prominent. Antennae about as long as the face, entirely yellowish, with the third joint rounded at end and with bare arista. Palpi and proboscis yellowish, the latter very short. Ocp. whitish; frontal bristles yellowish; three i. or. Thorax entirely black; on the back it is clothed with dense, opaque grey dust, and with pale yellowish pubescence; the pleurae are less densely dusted, but are always opaque; all the bristles are yellowish; dc. on line of a. sa.; one mpl. Scutellum like back, but less densely dusted, with four yellowish bristles, the apical ones being only a little shorter. Mesophragma like scutellum. Calypters white; halteres pale yellowish. Abdomen shining black, with faint dust and with thin yellowish pubescence; male genitalia black; ovipositor shining black, a little shorter than the abdomen. Legs entirely reddish, even the coxae; bristles and hairs yellowish. Wings (fig. 68) elongate, with small costal bristle; third vein bare; third and fourth veins straight and parallel; distance of the cross-veins a little shorter than the length of the hind cross-vein. Stigma deep black, with a very small yellowish point at upper external corner. Wings blackish, with the following hyaline parts: the base to the stigma and to a little before the anal cross-vein; two equal triangular indentations at fore border with the apex at third vein; two rounded spots in the blackish discoidal cell; four paired indentations at hind border, two into the second posterior cell, the external of which is prolonged above to reach the third vein, while the internal stops at fourth vein, and two into the third posterior cell, both stopping at fifth vein without entering into the discoidal cell, the internal one twice as broad as the external.

*Note.*—The present species seems to be like *Spheniscomyia ternaria*, Loew, but is distinct in having no rounded hyaline spot in the base of the first posterior cell, and in having the external posterior indentation extended into the first posterior cell; moreover, the ocp. are whitish instead of being black.

#### SUBFAMILY RHABDOCHAETINAE.

This subfamily is separated from that of the Schistopterinae on account of the presence of poc. and of the whitish and obtuse ocp.;

moreover, it is characterised by the subulate third antennal joint and by the distinct costal nick of the wings. In the character of the wing-pattern it is related to the Trypaneinae, having, however, strikingly coloured "bullae," peculiar to the group. While the true Schistopterinae have at present not been found either in South Africa or in the Oriental region, the Rhabdochaetinae are represented by all the known genera (one of which, *Rhabdochaeta*, is also Oriental), as follows :—

1. (2) Wings broad and rounded, with bristly first and third longitudinal veins, with the hind cross-vein placed very obliquely and with the anal cell drawn out in a rather long point; no poc. . . . *Perirhithrum*, Bezzi.
2. (1) Wings of normal shape, with bare veins, with the hind cross-vein regular and with the lower angle of anal cell not so produced; poc. always present.
3. (4) Costal nick less developed; a black spot between antennae and eyes; wings with close reticulation and paler apex . . . *Eutretosoma*, Hendel.
4. (3) Costal nick well developed; no black spot near the eyes; wings with radiating streaks and less distinct reticulation.
5. (6) Only two i. or.; scutellum with two or with four bristles; thorax and abdomen normally haired . . . . . *Rhabdochaeta*, De Meij.
6. (5) Two to four i. or.; six sct.; thorax and abdomen with peculiar, erect bristly hairs . . . . . *Rhochmopterum*, Speis.

PERIRHITHRUM, Bezzi, 1920.

A very peculiar and magnificent South African genus, which shows some aberrant characters.

*Perirhithrum marshalli*, Bezzi, 1920.

(Pl. XV, fig. 137.)

Originally described from Natal. I have seen another specimen from Transvaal, from which the present fig. 137 is made, showing the peculiar characters much better than the original photograph of my paper of 1920.

EUTRETOSOMA, Hendel, 1914.

The present genus is now recognised as belonging to the Rhabdochaetinae, with the separation of some heterogeneous elements (*bipunctatum*, Loew, and *frauenfeldi*, Schin.), which are removed to the new genus *Afreutreta* of the Trypaneinae. There are the following South African species :—

1. (4) Very dark or even black species, with black halteres and mainly black legs; wings more intensively infuscated.

2. (3) Tibiae black, with a whitish band ; tarsi in part black . *polygramma*, Walk.
3. (2) Tibiae and tarsi entirely pale yellowish . . . . . *woodi*, Bezzi.
4. (1) Pale reddish species, with whitish halteres, and mainly yellowish legs ; wings paler . . . . . *marshalli*, Bezzi.

*Eutretosoma polygramma*, Walker, 1861.

Described from Natal, but not seen subsequently.

*Eutretosoma woodi*, Bezzi.

(Pl. XV, fig. 134.)

Very distinct on account of the dark coloration of body, legs, and wings.

Described from Nyasaland in British Museum. I have seen some specimens from Pretoria and Barberton, October and November 1923 (H. K. Munro).

*Eutretosoma marshalli*, Bezzi.

(Pl. XV, fig. 133.)

A very pale species, described from Natal in my general paper of 1924 on Ethiopian *Trypaneidae*.

RHABDOCHAETA, De Meijere, 1904.

Only the following species is known from South Africa :—

*Rhabdochaeta marshalli*, Bezzi.

(Pl. XV, fig. 135.)

Distinct from all known species on account of its more robust size, the predominant reddish colour of body, and the very peculiar wing-pattern (fig. 135).

Described by me in my general paper of 1924 as another of the numerous and important discoveries made in South Africa in 1905 by Dr. Guy A. K. Marshall, Director of the Imperial Bureau of Entomology, London.

RHOCHMOPTERUM, Speiser, 1910.

The present genus is doubtfully distinct from the preceding one ; it contains at present two peculiarly coloured species, one of which is described here from South Africa for the first time.

*Rhochmopterum munroi*, sp. nov.

(Pl. XV, fig. 136.)

Closely allied with the type species *neuropteripenne*, Speiser, from Kilimandjaro, but distinct in having the small cross-vein well developed and adorned with only two (not four) white spots at sides, and in having one horn-like orbital bristle.

Some specimens of both sexes from Pretoria in June, and from East London (H. K. Munro).

♂♀. Length of body and wing, 2–2.5 mm.; of ovipositor, 0.6–0.8 mm. Occiput yellowish, with opaque grey dust, and with a black spot in the middle above the neck. Frons about as broad as long, opaque yellowish, infuscated towards the vertex, and with very narrow white orbits; lunula yellowish; a small black dot between the eyes and the root of antennae. Antennae entirely yellowish, as long as the face; third joint very subulate, with a thin, acute point, concave at upper border; arista with a thick yellowish base, but whitish on the rest, bare. Face and peristomialia whitish, unspotted; mouth border rather prominent. Palpi longer than the mouth, pale yellowish; proboscis short and thick. Ocp. white; inner vt. short and thick, dark yellowish; oc. and poc. whitish, parallel, widely separated; three or four i. or., the first of which is black and very thickened, horn-like, while the others are of normal size and dark yellowish in colour. Thorax black on the back, with yellowish humeri and with broad yellowish notopleural stripe; it is densely clothed with opaque, dark grey dust, and shows small black spots at insertion of bristles; mesopleurae yellowish, with a black patch in the middle; sternopleurae black. The chaetotaxy is regular, but besides the usual bristles, which are yellowish with blackish base, there are several erect, whitish, supernumerary bristles, one of which looks like a regular praesutural dc. Scutellum yellowish, with long dark yellowish b. sct. inserted on dark spots, and with two pairs of smaller whitish bristles, the apical ones decussate. Calypters and halteres pale yellowish; mesophragma black, grey dusted. Abdomen entirely yellow, with two rows of dark spots along the middle, and with the last segment shining black in both sexes; male genitalia black; ovipositor a little shorter than the abdomen, shining black, but dark reddish across the middle. The abdominal segments bear at hind border peculiar, erect, whitish bristles. Legs entirely yellowish, but the four posterior femora with two black spots on the underside, forming incomplete basal and subapical rings; the four posterior

tibiae with a small black ring at base; front femora below with four yellowish bristles, and one or two black ones at end. Wings (fig. 136) with deep costal nick, and with double costal bristle; venation of the normal type of *Rhabdochaeta*. They are hyaline, with colourless stigma, which is, however, narrowly black at both ends. The pattern forms a broad reticulation, with long radiating streaks at border; in the middle it is yellowish brown, with two white dots, one before and one behind the small cross-vein, and these two dots are very striking, being bordered with black; there are, moreover, the usual reddish "bullae." In the marginal cell there are two narrow black streaks and another, very characteristic and abbreviated, just beyond the stigma; submarginal cell with three streaks, one basal, one middle, and one terminal, this last being interrupted at base; first posterior cell with a black isolated streak in the middle at end; second posterior cell with three interrupted streaks at hind border; discoidal, third posterior, and axillary cells with a few very broad and uncertain hyaline spots, which are surrounded by fuscous. Second costal cell with a perpendicular black streak in the middle.

#### SUBFAMILY TRYPANEINAE.

This subfamily is abundantly represented in South Africa; a thing of great importance, because it is very scarce, or even almost entirely wanting, in the centre of the Continent.

The genera are at present not well established, being usually based on uncertain characters of the wing-pattern. They are as follows:—

1. (2) Wings with *Aciura*-like wing-pattern, that is, with hyaline indentations at fore and at hind border, and without hyaline spot at end of first posterior cell . . . . . *Tephrella*, Bezzi, p. p.\*
2. (1) Wings with a different pattern, more or less reticulate and typically with hyaline spot at extreme end of first posterior cell.
3. (4) Head much broader than high, considerably flattened and with narrow eyes placed horizontally; wings practically entirely black  
*Platomma*, gen. nov.
4. (3) Head not so shaped, and with rounded eyes; wings with a variegated pattern.
5. (6) Wings very narrow and long, with parallel sides, almost truncate at end, and with obtuse anal cell; ocp. in part black . . . *Elaphromyia*, Big.
6. (5) Wings of regular shape or even sometimes rather broad and rounded, with the lower angle of anal cell acute even if very little produced; ocp. quite whitish.

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\* This genus is repeated here for convenience, but it is placed among the Ceratitinae.



7. (8) Wings rather widened, with numerous and minute hyaline or subhyaline dots on the disc, but not definitely reticulated; frons or face typically with black spots . . . . . *Afreutreta*, Bezzi.
8. (7) Wings not widened, pattern otherwise; or if widened they are reticulate; frons and face not black spotted.
9. (16) Wings with the black pattern more extensive than the hyaline one, the discal hyaline spots being very few in number, and thus the wing not appearing reticulate.
10. (11) Wings with the black pattern distinctly radiating at apex and along the hind border; proboscis short and not geniculate . . . . . *Euaresta*, Loew.
11. (10) Wing-pattern not distinctly radiating.
12. (13) Proboscis short and simple; wings rather broad . . . . . *Pliomelaena*, Bezzi.
13. (12) Proboscis distinctly geniculate; wings of usual shape.
14. (15) Proboscis shorter than the head, with its basal portion longer than the terminal one . . . . . *Spathulina*, Rond.
15. (14) Proboscis longer than the head, with its terminal portion as long as, or longer than, the basal one . . . . . *Ensina*, R.-D., p. p.
16. (9) Wings with the hyaline parts more extensive than the black ones, or appearing reticulate owing to the numerous and broad hyaline discal spots, or having a complete dark band in the middle, or being longitudinally dimidiate, or having a star-shaped terminal pattern.
17. (18) Wings in the middle with a complete dark band, which includes the rather approximate cross-veins; proboscis geniculate . . . . . *Sphenella*, R.-D.
18. (17) Wings without such a pattern and with more distant cross-veins.
19. (20) Head depressed, considerably longer than high, with very narrow peristomialia; if head not so depressed, the proboscis is very long and geniculate, its terminal part being as long as, or longer than, the lower border of head . . . . . *Ensina*, R.-D.
20. (19) Head not so depressed, and proboscis usually short and simple; if the proboscis is geniculate, its terminal part is shorter than the basal one.
21. (26) Wings with a definitely reticulate pattern, extending over all or almost all their surface.
22. (25) Frons flat, and not at all, or little, produced above; ovipositor flat.
23. (24) Frons of usual breadth; antennae rather approximate; wings not at all widened, with the stigma unicolorous or with no more than one hyaline spot . . . . . *Euribia*, Meig.
24. (23) Frons very broad; antennae broadly separated; wings distinctly widened, usually with short, radiating, marginal streaks, and with a bimaculate stigma . . . . . *Campiglossa*, Rond.
25. (22) Frons convex and prominent above; ovipositor conical  
*Camaromyia*, Hend.
26. (21) Wing-pattern not extended over the greater part of surface, but either the hind or the basal part is quite hyaline or very faintly reticulated.
27. (28) Wings longitudinally dimidiate; that is, black or black spotted on fore half, and hyaline or faintly reticulate on hind half, with no radiating streaks at end . . . . . *Acanthiophilus*, Beck.
28. (27) Wings with a star-shaped pattern on the terminal half, or at least with the pattern radiating toward the apex of wing . . . . . *Trypanea*, Schrank.

## PLATOMMA, gen. nov.

This new genus is erected here for *Trypeta lunifera* of Loew, a species which was indicated by its author as being very different from all the others, and as having no allies in the Ethiopian fauna; it is, however, evidently related with the genus *Afreutreta*, being very distinct from it as well as from all the others on account of the very peculiar shape of head. Its type of wing-pattern is also unique among Ethiopian Trypaneids.

Head very compressed, with the eyes placed almost horizontally, their longitudinal diameter being about parallel with the frons; in front view the head is more than twice as broad as high. Occiput concave, with its upper border very sharp, the head being very close to the prothorax; ocelli very near the vertical keel. Frons a little concave, with parallel sides, twice as long as broad, not at all prominent in profile; lunula broad, rounded, free. Face very short, only one-half of the length of frons; peristomialia narrow; mouth border considerably prominent. Antennae short, but extending to the mouth border; third joint obtuse at end; arista bare; mouth opening exceedingly broad and rounded; palpi short; proboscis very short. Ocp. whitish and thick, obtuse; oc. short; two or three or. Thorax flat, about as broad as long, with the transverse suture broadly interrupted in the middle; chaetotaxy apparently complete; dc. before the line of a. sa., very near the suture. Scutellum about one-half the length of back, triangular, flat above, with four bristles. Abdomen of female with five segments, and with flat, rather long ovipositor. Legs rather stout; front femora with the usual row of bristles below; middle tibiae with one spur. Wings short and broad, with distinct costal bristle; stigma short; second vein straight; last portions of third and fourth veins gradually diverging; cross-veins approximated; lower angle of the anal cell acute, but little produced; third vein bare; axillary lobe normal. Pattern consisting in a uniform infuscation of the whole wing, without hyaline spots or indentations, with a whitish terminal lunate border.

Type: *Trypeta lunifera*, Loew, 1861.

*Platomma luniferum*, Loew, 1861.

(Pl. XIV, fig. 71.)

A strikingly characterised species, with very peculiar coloration of body and wings. A single, rather badly preserved female specimen from Otjiwarongo, South-West Africa, February 1920 (R. W. Tucker).

To Loew's good original description may be added: Frontal bristles yellowish; occipital bristles yellowish; halteres yellowish; venter entirely reddish; distance between the cross-veins about as long as, or only a little longer than, the length of the small cross-vein; stigma blacker than the surrounding parts; it is shorter than the second costal cell, and about as long as the first costal cell (fig. 71).

ELAPHROMYIA, Bigot, 1859.

*Elaphromyia adatha*, Walker, 1849.

(Pl. XIV, fig. 72.)

A very peculiar species on account of the body coloration and of the shape and pattern of wings (fig. 72).

A couple of specimens from Zululand, M'fongosi, March and May (W. E. Jones); East London, July (H. K. Munro).

This singular species is widely spread over the Ethiopian region, and seems to be the unique representative of its genus in Africa; but it shows a good deal of variation, and has thus received several other names (*melas*, Big., and *ulula*, Loew). Dr. G. Enderlein of Berlin has recently placed this same species in his genus *Mesanopin*, 1912, among the Ortalids, in Stett. entom. Zeit., 1922, p. 6.

AFREUTRETA, Bezzi, 1924.

This name was proposed by me for the species previously placed in *Eutretosoma*, this last genus belonging to the Schistopterinae, as already stated.

The species have normal head, with perpendicular eyes; broad frons, usually with black spots near the root of antennae; broad or narrow peristomialia; not very broad mouth-opening; short proboscis; ocp. of the trypaneinine type. Thorax with interrupted suture, complete chaetotaxy, with the dc. before the line of the a. sa.; scutellum flat, with four bristles. Abdomen and legs normal. Wings more or less broad, with a broadened second basal cell, but sometimes they are quite normal; they are black, with numerous and small hyaline or subhyaline dots; third longitudinal vein bare; lower angle of anal cell acute, but little produced.

All the species seems to be galligenous in their habits; they are as follows:—

1. (4) Wings distinctly dilated, with broadened second basal cell; frons with black spots at root of antennae.

2. (3) Wings with very numerous hyaline dots on the disc, and even with some hyaline spots within the stigma . . . . . *frauenfeldi*, Schin.
3. (2) Wings with only a few subhyaline dots, but with a broad, yellowish hyaline patch near the middle; stigma entirely black, unspotted; abdomen red  
*discoidalis*, sp. nov.
4. (1) Wings not dilated, with normal second basal cell.
5. (6) Frons with black spots near the antennae; first posterior cell hyaline at end  
*bipunctata*, Loew.
6. (5) Frons without black spots; first posterior cell black at end  
*biseriata*, Bezzi.

*Afreutreta frauenfeldi*, Schiner, 1868.

Described from the Cape, but not seen subsequently.

*Afreutreta discoidalis*, sp. nov.

(Pl. XIV, fig. 73.)

A robust species with dilated wings, with red abdomen and with very peculiar wing-pattern.

Some female specimens from East London, April-June, bred from galls of the Composite plant *Vernonia anisochaetoides* (H. K. Munro).

♀. Length of body, 4.6-5 mm.; of the wing, 5-5.2 mm.; of ovipositor, 1 mm. Head flattened in profile, higher than broad; occiput blackish above, yellowish below. Frons concave, only a little broader than long, not prominent in profile; it is brownish yellow along the middle, paler at sides; lunula broad, rounded, pale yellowish; on each side of the antennae there is a rounded, deep black spot. Face broad, concave, pale yellowish; mouth border a little prominent; peristomialia very broad, about as broad as the length of third antennal joint, pale yellowish, unspotted. Antennae inserted below the middle of the eyes, not extended to the mouth border; third joint rounded at end; arista bare. Mouth opening rather broad; palpi long and spatulate, pale yellowish; proboscis short, thick, dirty yellowish. Ocp. whitish and thick; vt., oc., and or. dark yellowish or blackish; three i. or. Thorax blackish brown, with reddish humeri and root of wings; it is clothed with thick, whitish, tow-like pubescence, which on the upper part of meso- and pteropleura is tuft-like; bristles dark yellowish or blackish; dc. very near the suture; two or three mpl. Scutellum flat, blunt at end, reddish with blackish-brown base, with four bristles, but without tow-like pubescence. Calypters and halteres reddish. Abdomen entirely red,

even on venter; on back there is an ill-defined darkish middle stripe on the first four segments, the extreme base being, moreover, blackish; pubescence thin, not tow-like, reddish, longer at sides. Ovipositor red, narrowly black at end, as long as the two last abdominal segments together; male genitalia red. Legs rather short and stout, entirely reddish even on the coxae; bristles of front femora dark reddish. Wings (fig. 73) broad and rounded, but distinctly longer than broad; costal bristle very small; second vein short; last portions of third and fourth veins gradually, but not much, diverging outwardly; second basal cell considerably dilated, subquadrate, about as broad as the discoidal cell, which is proportionately short and almost rectangular, being only a little broader at end than at base; small cross-vein only a little beyond middle of discoidal cell, its distance from the hind one being only a little longer than the length of the straight and perpendicular hind cross-vein; anal cell broad; with its lower angle acute, but shorter than the second basal cell. Axillary lobe broad. Stigma short, black, unspotted, about one-half as long as the rather dilated second costal cell. The wings are entirely and equally infuscated, with rounded, not very numerous or striking subhyaline spots, extending across all the cells, except the costal and marginal ones; moreover, there is a broad, rounded, yellowish patch, which extends over the basal half of discoidal cell and over the upper part of the third posterior cell; the fifth vein is yellowish on the portion which runs precisely through the middle of this peculiar patch. Even the dilated second basal cell and the anal cell are a little yellowish.

*Afreutreta bipunctata*, Loew, 1861.

(Pl. XIV, fig. 74.)

Some specimens of both sexes from East London, March, bred from galls of the plant *Brachylaena discolor* (H. K. Munro).

To Loew's description may be added: Three i. or.; oc. well developed; dc. very near the suture; four mpl. in one row. Small cross-vein beyond middle of discal cell, its distance from the hind one about as long as the length of the hind cross-vein. The characteristic wing-pattern was already well figured by Loew. The as yet undescribed male is very like the female and shows the same wing-pattern (fig. 74). Abdomen very broad, with the terminal segment one and one-half times as long as the preceding one, margined with black bristles; genitalia blackish, not visible from above.

*Afreutreta biseriata*, Bezzi.

(Pl. XIV, fig. 75.)

Recently described by me from British Museum specimens, collected in Natal by Dr. Guy A. K. Marshall.

## EUARESTA, Loew, 1873.

Three South African species can be provisionally placed in the present genus, as follows:—

1. (4) Scutellum with only two bristles.
2. (3) Abdomen reddish yellow, with strikingly deep black terminal segment; discoidal and third posterior cells mainly hyaline . . . *amplifrons*, Bezzi.
3. (2) Abdomen blackish grey with reddish bands; wings with the above-named cells mainly dark, with hyaline spots . . . . . *lunifrons*, sp. nov.
4. (1) Scutellum with four bristles; abdomen blackish grey; wings with dark, hyaline-spotted discoidal cell, but with mainly hyaline third posterior cell . . . . . *planifrons*, Loew.

*Euaresta amplifrons*, Bezzi, 1920.

(Pl. XIV, fig. 76.)

A very characteristic fly on account of its peculiarly coloured abdomen, and of its rather *Trypanea*-like wing-pattern (fig. 76). Described from Natal.

*Euaresta lunifrons*, sp. nov.

(Pl. XIV, fig. 78.)

Allied with the preceding species in having only two set., but different by the peculiar and more extended wing-pattern.

A single specimen from East London, June 1923 (H. K. Munro).

♂. Length of body, 3.5 mm.; of wing, 4 mm. Head entirely yellowish, but the occiput with a black grey-dusted spot in the middle. Frons opaque, with grey-dusted sides; it is as broad as one eye, being a little longer than broad; lunula very broad, rounded, reddish. Face narrow above, yellowish, white dusted, like the linear parafacialia and the narrow, unspotted peristomialia. Antennae short, extending only a little beyond middle of face, entirely yellowish; third joint rounded at end, but with the upper external corner acute

and a little prominent; arista bare. The palpi, and the short and thick proboscis are pale yellowish. Ocp., outer vt., and pvt. whitish; inner vt. and frontal bristles dark reddish; oc. rather short; three i. or. Thorax black, but densely clothed with opaque grey dust, yellowish along the notopleural line and on the pteropleura; back of mesonotum unspotted, with short, yellowish pubescence; pleurae with longer yellowish hairs; all the bristles dark yellowish, inserted on small black dots; dc. very near the suture; only one mpl. Scutellum like back, with reddish hind border and with only the basal pair of bristles, which are long, yellowish, with black base. Mesophragma black, grey dusted; calypters whitish; halteres pale yellowish. Abdomen reddish, the second and third segment with black grey-dusted base, and the fourth entirely black, grey dusted; pubescence yellowish and terminal bristles brownish; last segment longer than the preceding one; genitalia small, reddish; venter reddish, grey dusted. Legs entirely yellowish, even the coxae; front femora with a row of yellowish bristles below. Wings long and proportionately narrow; veins with pale yellowish base and dark brown end; costal bristle well developed; stigma elongate; second, third, and fourth veins straight, the two latter parallel in their terminal portions, the third quite bare; cross-veins approximated, the distance between them being a little shorter than the perpendicular and straight hind cross-vein; lower angle of anal cell acute, but not produced. The wings are brown, with hyaline base and with numerous hyaline spots and indentations, thus appearing almost reticulate. Stigma entirely brown, unspotted. Marginal cell with two broad approximated hyaline spots in the middle and with a small hyaline dot before the end; submarginal cell with two hyaline spots just below the above-named, another rounded at end just below the end of the second vein, and another larger before the end of the third vein, forming the upper one of the terminal radiating streaks. First basal cell with one in middle and another before the small cross-vein; first posterior cell with one beyond the small cross-vein, another beyond this, and another quite rounded at end; discoidal cell with three small hyaline spots on the basal half, another larger one beyond the middle, and two smaller ones before the end; second posterior cell with three of greater size into the basal part and another terminal one, forming the lower radiating streak; third posterior cell with three larger ones along the hind border and two less-defined ones into the basal part. Axillary lobe grey, with six rounded hyaline spots, three above and three below the axillary vein. Second costal

cell quite hyaline, unspotted; base of first basal, second basal, and anal cells partly greyish. Very characteristic for the present species are the two triangular hyaline streaks, one on each side of the small cross-vein.

*Euaresta planifrons*, Loew, 1861.

(Pl. XIV, fig. 77.)

Distinct from all the others on account of its four set.

PLIOMELAENA, Bezzi, 1918.

The following species have been found in South Africa :—

1. (4) Frons as broad as or broader than one eye; halteres with whitish knob; arista nearly bare; pterostigma with yellowish spot.
2. (3) Abdomen in both sexes entirely shining black . . . *brevifrons*, Bezzi.
3. (2) Abdomen in both sexes mainly reddish, or at least with broad reddish hind borders of the segments . . . *rufiventris*, var. nov.
4. (1) Frons narrower than one eye; halteres with blackish knob.
5. (6) Stigma blackish, with a single hyaline spot at base . . . *strictifrons*, Bezzi.
6. (5) Stigma yellowish, with two hyaline spots . . . *stigmatica*, sp. nov.

*Pliomelaena brevifrons*, Bezzi, 1918.

Described from Natal.

*Pliomelaena brevifrons*, var. *rufiventris*, var. nov.

(Pl. XIV, fig. 79.)

Type male and female, a couple of specimens from Zululand, M'fongosi, February 1917 (W. E. Jones); Pretoria, Arnoldton, and East London (H. K. Munro).

Like the type, and with the same wing-pattern (fig. 79); but the basal hyaline spot of the discoidal cell is more or less completely united with the opposite spot of the third posterior cell. The abdomen, instead of being entirely shining black as in the type, shows in the male broad, reddish hind borders of all the segments; and in the female it is sometimes quite reddish, with a more or less distinct black band at base of each segment. Ovipositor shining black.

*Pliomelaena strictifrons*, Bezzi, 1918.

Described from Natal.



*Pliomelaena stigmatica*, sp. nov.

(Pl. XIV, fig. 80.)

Very distinct from all the other forms on account of its yellowish pterostigma, which shows two hyaline spots.

Type ♂, from Natal, Durban, 1914 (W. Haygarth), and an additional male from the same locality, 1891; some male specimens from Port Shepstone, July–August (H. K. Munro).

♂. Length of body and wing, 5–5.5 mm. Occiput yellowish, with a blackish, grey-dusted spot in the middle. Frons narrow, twice as long as broad, reddish yellow, with darkened ocellar spot and greyish lunula. Face yellowish, white dusted; peristomialia very narrow, unspotted. Antennae entirely yellowish, considerably shorter than the face; third joint rounded at end; arista with rather long pubescence. Palpi and proboscis pale yellowish, the latter short and thick. Ocp. whitish; vt. dark yellowish, two blackish s. or., and three black i. or. Thorax black, densely grey dusted on the back, reddish on humeri, sides of back, and pleurae; all the bristles pale yellowish, inserted on small black dots; scp. small but distinct; dc. a little before the line of the a. sa.; one mpl. Scutellum distinctly reddish at hind border, with the a. set. only a little shorter than the b. set., decussate. Mesophragma black, grey dusted; calypters dirty yellowish; halteres with yellowish stalk and with blackish knob. Abdomen entirely shining black, narrowly reddish at sides near the base; the short pubescence and the bristles are black; venter entirely reddish; genitalia black above. Legs and coxae entirely pale yellowish; front femora with four or five long, dark yellowish bristles below. Wings (fig. 80) long and rather broad, with a well-developed costal bristle; stigma a little shorter than the second costal cell, yellowish, with two broad hyaline spots, that of base larger; second vein straight; third vein bare; last portion of third and fourth parallel, but a little converging at end; small cross-vein beyond middle of discoidal cell, its distance from the hind one almost equal to the length of hind cross-vein, which is straight and perpendicular; lower angle of anal cell acute, but little produced. Base of wing hyaline, with a fuscous spot in middle of the second costal cell; marginal cell with two subquadrate spots at costa, just beyond the stigma, and with a row of six or seven irregular spots along the second vein, but without spot at end; submarginal cell with four rounded spots of about equal size along the second vein, one at base, two close to each other in middle, and one just at end of second vein;

first basal cell with one hyaline dot before the small cross-vein; first posterior cell with one dot at base and with a broad, semicircular spot at end; discoidal cell with only one spot in the middle near the fifth vein; second posterior cell with two larger spots at wing-border and another at upper corner; third posterior cell with three spots at wing-border, two in the middle close together and one at the extreme base. Alula and axillary lobe greyish, unspotted.

#### SPATHULINA, Rondani, 1856.

The species are numerous, and among them I have found the lost *hessii*, Wied. They are as follows:—

1. (10) Scutellum with four bristles, the apical pair sometimes very small.
2. (9) Three i. or.; legs quite orange; abdomen shining black or shining red; wings with terminal hyaline spot.
3. (6) A. set. about as long as the b. set.; stigma without hyaline spot; second posterior cell with three hyaline spots.
4. (5) Abdomen entirely black; bristles dark brownish . . . *semiatra*, Loew.
5. (4) Abdomen broadly red at sides, chiefly in the male; bristles pale yellowish  
*semirufa*, var. nov.
6. (3) A. set. much smaller than the b. set.; stigma with hyaline spot at base.
7. (8) Second posterior cell with five separated hyaline spots *munroi*, sp. nov.
8. (7) Second posterior cell with three elongated hyaline indentations  
*majuscula*, var. nov.
9. (2) Only two i. or.; legs with black femora; abdomen not shining; wings without terminal hyaline spot . . . *anomalina*, sp. nov.
10. (1) Scutellum with only two bristles, the apical pair being quite wanting; only two i. or.; pterostigma always unspotted; first posterior cell with terminal hyaline spot; legs all orange.
11. (12) Second posterior cell with a single hyaline indentation, the whole wing with no more than seven hyaline spots or indentations . . . *peringueyi*, sp. nov.
12. (11) Second posterior cell with two or three hyaline indentations, the wing with more than seven hyaline spots.
13. (24) Second posterior cell with two hyaline indentations.
14. (15) Wings with quite hyaline base and with an isolated black spot at end of third longitudinal vein . . . *parceguttata*, Beck.
15. (14) Wings with fuscous spots or bands in the hyaline base, and without isolated black spot at end of third vein.
16. (17) The hyaline spots at end of submarginal and of first posterior cell are united together to form an arcuate border at wing-tip  
*arcucincta*, sp. nov.
17. (16) The above-named hyaline spots are quite separated.
18. (21) Wings with whitish base, and there with some isolated fuscous spots.
19. (20) Submarginal cell with two hyaline spots at end . . . *elegantula*, sp. nov.
20. (19) Submarginal cell with only one hyaline spot at end . . . *diminuta*, var. nov.
21. (18) Wings with yellowish base, and there with a fuscous oblique band, proceeding from the infuscated anal cell.

22. (23) Third posterior cell with two hyaline indentations . . . . . *hessii*, Wied.  
 23. (22) Third posterior cell with only one hyaline indentation *simplex*, var. nov.  
 24. (13) Second posterior cell with three hyaline indentations.  
 25. (26) Third posterior cell with only one hyaline indentation; base of wing  
 with a fuscous stripe from anal cell to humeral cross-vein  
*hessii euarestina*, var. nov.  
 26. (25) Third posterior cell with two hyaline indentations; wing-base quite  
 hyaline, unspotted . . . . . *biseuarestina*, sp. nov.

*Spathulina semiatra*, Loew, 1861.

All the specimens of this species which I have so far seen belong to the following form.

*Spathulina semiatra*, var. *semirufa*, var. nov.

(Pl. XIV, fig. 81.)

Distinguished by the red abdomen and by the paler bristles.

A couple of specimens from Zululand, M'fongosi, May 1916 (W. E. Jones); one male from E. Transvaal, Komati Poort, November 1918 (R. W. Tucker); Pretoria and Barberton (H. K. Munro).

I think that this form may be the male of Loew's *semiatra*, because in the female the abdomen is only narrowly red at sides near the base, and Loew had only females. All the bristles of head and thorax are pale yellowish; the entire abdomen or the intermediate segments are broadly red at sides (male); the first posterior cell always shows the two small hyaline dots, besides the larger apical hyaline spot (fig. 81).

*Spathulina munroi*, sp. nov.

(Pl. XIV, fig. 82.)

A species with four set., allied with *margaritifera*, Bezzi, from East Africa, but distinguished by the somewhat different wing-pattern (fig. 82). Some specimens of both sexes from Pretoria in March (H. K. Munro).

♂♀. Length of body and wing, 3-3.2 mm.; of ovipositor, 0.8 mm. Occiput grey, narrowly yellowish at vertex and whitish below. Frons one and one-half times longer than broad, yellowish, with greyish sides and lunula; face and peristomialia whitish, the latter narrow and unspotted. Antennae entirely pale yellowish, shorter than the face, with shortly pubescent arista. Palpi whitish; proboscis yellowish, thick but distinctly elongate, with short recurrent flaps. Ocp. whitish; vt. and frontal bristles dark yellowish; three i. or. Thorax opaque, densely clothed with grey dust, the humeri and the

pleural sutures being more or less distinctly reddish; pubescence and bristles pale yellowish; dc. much before the line of a. sa.; one or two mpl. Scutellum like back of mesonotum, with reddish hind border; a. set. decussate and much shorter than the b. set. Calypters white, halteres pale yellowish. Abdomen shining black, with the first segment very narrowly reddish at sides; pubescence and bristles blackish; venter reddish at base; ovipositor shining black, about as long as the two last abdominal segments together. Coxae and legs entirely yellowish; front femora with two or three long yellowish bristles below. Wings (fig. 82) with long costal bristle, distance between the cross-veins shorter than the length of the hind cross-vein. They are entirely brown, with hyaline base; second costal cell with a perpendicular dark band in the middle, stigma with a rather broad, not rounded, yellowish hyaline spot at base. Marginal cell with two broad, rectangular, hyaline indentations and with a small rounded spot at end; submarginal cell with four rounded spots along the second vein, one at base, two in middle (the external one sometimes wanting) just below the two hyaline indentations of fore border and fused with them, and the fourth before the end; second basal cell without hyaline spot. First posterior cell with a rounded spot at base and with another at end, both of equal size and narrower than the space between third and fourth veins, and, moreover, in the middle with one or two smaller dots (one above the other); discoidal cell with two rounded spots near the fourth vein, the basal one broader; second posterior cell with five spots, three at border in the shape of elongate indentations and two at upper corner as rounded spots; third posterior cell with six spots, three at wing-border and three in the middle, the four median spots disposed one above the other and sometimes fused together in the shape of two indentations. Axillary lobe not very distinctly infuscated, with two hyaline indentations, resulting from four spots fused together.

*Spathulina munroi*, var. *majuscula*, var. nov.

(Pl. XIV, fig. 84.)

Described from East Africa.

*Spathulina anomalina*, sp. nov.

(Pl. XIV, fig. 87.)

Distinct from all the other species with four set. in having only two i. or., black femora, and no hyaline terminal spot on wings. This is an

atypical species, perhaps better placed in *Euribia*, like other similar species (*eurymma* and *abyssinica*), which have, however, only two set. ; it seems to be near *Eur. conyzae*, Frauenf., from Egypt, which has also four set. and bicubitate proboscis, but different wing-pattern.

One male specimen from Pretoria, January 1923 (H. K. Munro).

♂. Length of body, 3 mm.; of wing, 3.1 mm. Occiput black, grey dusted, pale yellowish below and narrowly reddish above at vertex. Frons one and one-half times as long as broad, opaque reddish, with whitish sides and with blackish ocellar spot; lunula whitish. Antennae entirely yellowish, as long as the face; third joint with rounded but rather prominent upper corner; arista bare. Face and peristomialia whitish, the latter as broad as the third antennal joint, unspotted; mouth border a little prominent; palpi and proboscis yellowish, the latter elongate, with recurrent but short terminal flaps. Ocp. whitish, but rather thin and acute; frontal bristles black, only two i. or. Thorax black, but densely clothed with opaque grey dust; on the back there are three brownish stripes, the middle of which is less distinct; pubescence whitish; all the bristles black, the dc. very near the suture, much before the line of the a. sa. Scutellum coloured like back of mesonotum, with four black bristles, the apical much smaller than the basal ones. Mesophragma black, grey dusted; calypters white; halteres yellowish. Abdomen black, clothed with opaque grey dust, with two rows of blackish and rather broad spots along the middle; pubescence whitish; genitalia black. Legs with yellowish coxae and blackish-grey femora; tips of femora, tibiae, and tarsi yellowish; front femora with black bristles below. Wings (fig. 87) elongate, with small costal bristle; third vein bare; third and fourth veins straight and parallel; distance between the cross-veins as long as the hind cross-vein; lower angle of anal cell acute and a little produced. They are hyaline, with a blackish pattern and with some isolated fuscous spots, but not definitely reticulated. Stigma black, unspotted. Marginal cell with two broad, irregular hyaline spots, which are separated by a perpendicular dark streak, which ends at third vein and is quite isolated; submarginal cell with a broad hyaline patch in the middle, extending from the second to the third vein, and with a similar broad, rectangular, subapical hyaline spot; first basal cell with two approximated rounded hyaline spots; first posterior cell with a broad spot near the base, a smaller one in the middle, and another pre-apical, this last united with that of the submarginal cell; the end of the first posterior cell is thus without the usual hyaline spot; discoidal cell with more than

the basal half hyaline; second posterior cell mainly hyaline, the upper corner blackish with one hyaline spot, and with an isolated fuscous spot in the middle at hind border; third posterior cell hyaline, with the upper corner blackish with one hyaline spot, and with two fuscous spots in the middle, one at fifth vein and one at end of sixth vein; lower angle of the anal cell with a fuscous spot; axillary lobe quite hyaline, unspotted.

*Spathulina peringueyi*, sp. nov.

(Pl. XIV, fig. 83.)

A small species, distinct by the few hyaline spots of wings, all of rather large size.

Type ♀, a single specimen from Stellenbosch, 1897 (L. Peringuey).

♀. Length of body and wings, 2.2 mm. Occiput black, grey dusted, very narrowly yellowish below. Frons one and one-half times longer than broad, yellowish, with blackish ocellar patch and with broad whitish orbits; lunula whitish; face and peristomialia whitish yellow, the latter unspotted and about as broad as the third antennal joint. Antennae shorter than the face, entirely yellowish, with microscopically pubescent arista. Palpi and proboscis yellowish, the latter with short, recurrent terminal portion. Ocp. whitish; inner vt. and or. black, only two i. or. Thorax entirely black, densely clothed with opaque greyish dust; pubescence whitish, bristles black; dc. much before the line of the a. sa.; one mpl., with some whitish long hairs. Scutellum like back of mesonotum, with only the b. set., which are very long and black. Calypters white; halteres yellowish. Abdomen entirely shining black, with black pubescence and black bristles; ovipositor shining black, short, about as long as the last abdominal segment. Legs all orange, with the front femora a little darkened on the external side and with two yellowish bristles below. Wings (fig. 83) with short costal bristle; distance between the cross-veins shorter than the length of the hind cross-vein. They are entirely blackish, with hyaline base, in which there is a darkish oblique band extending from the anal cell to the humeral cross-vein. Stigma quite black. Marginal cell with a broad hyaline spot just beyond the stigma, forming a single indentation with the subquadrate spot of the submarginal cell, and, moreover, with a small hyaline spot before the end; submarginal cell with a broad hyaline spot at end. First basal cell without terminal spot; first posterior cell with a broad rounded spot near the base and another

at end. Discoidal cell with a single broad spot in the middle, fused with that in the middle of the third posterior cell; second posterior cell with only one broad indentation, extending to the fourth vein; base of discoidal cell with one hyaline spot fused with the hyaline basal portion of wing. Axillary lobe hyaline, unspotted.

*Spathulina parceguttata*, Becker, 1903, var. *parca*, Bezzi, 1913.

(Pl. XIV, fig. 85.)

Well distinguished by the isolated black spot at end of third vein; in this character it agrees with my *acrosticta*, 1918, from Durban, being very probably conspecific with it.

Numerous specimens of both sexes from East London, on the Composite plant *Helichrysum*, sp. (H. K. Munro).

This species, originally described from Egypt, seems to be widely spread over the Ethiopian and Oriental regions, because I now think that my *parca* is only a variety distinct by lacking the hyaline spot in the middle of the first posterior cell (fig. 85).

*Spathulina biseuarestina*, sp. nov.

(Pl. XIV, fig. 88.)

A typical *Spathulina* near *parceguttata*, but distinct by the much richer wing-pattern, which shows three hyaline indentations in the second and two in the third posterior cell.

Both sexes from Pretoria, January 1923 (H. K. Munro).

♂♀. Length of body and wing, 3 mm. Occiput black, grey dusted, narrowly pale below. Frons broad, one and one-half times as long as broad, opaque, dirty yellowish, with whitish sides and lunula, and with blackish ocellar spot. Antennae yellowish, shorter than the face; third joint rounded at end; arista bare. Face and peristomialia whitish, the latter narrow, unspotted; mouth border very little prominent; palpi and proboscis yellowish, the latter elongate, with short recurrent flaps. Ocp. whitish and thick; frontal bristles black; only two i. or. Thorax black, clothed with opaque, light grey dust, not distinctly striped on the back; pubescence whitish; bristles black, but st. and pt. whitish; dc. very near the suture. Scutellum like back, with only the b. set. Halteres pale yellowish. Abdomen shining black, unspotted, a little grey dusted in the male; ovipositor shining black, as long as the three last abdominal segments

together. Legs quite orange. Wings (fig. 88) normal, with the base whitish hyaline, unspotted, with pale yellowish veins; stigma black, with the base narrowly yellowish below. Marginal cell with two hyaline spots just beyond the stigma; submarginal cell with three, one below and in contact with the first of the two above-named, one below the end of second vein, and one just before the apex, its corner extending into the first posterior cell. First basal cell unspotted; first posterior cell with a small spot near the base and another larger at end; second posterior cell with three indentations, the posterior one extending with a point into the first posterior cell, and forming thus the lower ray of the terminal fork; discoidal cell with the extreme base hyaline, with one spot near the end and with another very small at lower corner; third posterior cell with two hyaline indentations, one very large in the middle and another smaller before the end. Axillary lobe almost entirely hyaline, only a little infuscated in the middle, near the sixth vein.

*Spathulina arcucineta*, sp. nov.

(Pl. XIV, fig. 86.)

A pretty species, very distinct from all the others on account of its arcuate hyaline apical band on the wings.

Type, a single specimen without abdomen from Kleinfontein, Cape Province (R. M. Lightfoot).

Length of body and wing, 3 mm. Occiput yellowish, with a black, grey-dusted broad spot above the neck. Frons about as broad as long, reddish yellow, with broad whitish borders, with greyish dark-spotted ocellar triangle and with whitish lunula. Face and peristomialia whitish, the latter unspotted, a little narrower than the third antennal joint. Antennae wanting in the type; there are only the two basal joints, which are yellowish. Palpi and proboscis yellowish, the latter with short, recurrent terminal part. Ocp. whitish; inner vt., oc., and or. black; only two i. or. Thorax black, densely clothed with opaque grey dust, with reddish humeri and pleural sutures; scutellum like back, with only the b. set. Halteres and abdomen wanting. Legs quite orange, the front femora with strong dark yellowish bristles below. Wings (fig. 86) with short costal bristle; second, third, and fourth veins gradually diverging towards the end: distance between the cross-veins shorter than the length of the hind cross-vein. They are completely black to the extreme base, the black of the base being separated from the rest by a



rather narrow hyaline band, extending from the second costal cell to the base of the discoidal cell. Stigma black. Marginal cell with a broad rounded hyaline spot just beyond the stigma, fused with an equally broad spot in the submarginal cell, and with another much smaller spot near the costa. Submarginal cell, besides the above-named spot, with the extreme base hyaline and with narrowly hyaline end; first basal cell without spot at end. First posterior cell with a broad rounded hyaline spot near the base, and with a narrow terminal hyaline streak, which forms the terminal hyaline arcuate band in union with the similar spot at end of submarginal cell. Discoidal cell with a small spot at extreme base, another broad rounded one in the middle, and a smaller one on the lower external angle. Second posterior cell with two hyaline indentations, a smaller narrow terminal one, and a larger basal one, resulting from two spots fused together. Third posterior cell with a broad rounded spot in the middle, just below the equally large spot of the discoidal cell. Axillary lobe greyish hyaline, unspotted. The whole wing has only ten spots or indentations.

*Spathulina elegantula*, sp. nov.

(Pl. XIV, fig. 89.)

Closely allied with *hessii*, but distinct by the whitish base of the wings bearing some isolated fuscous spots.

Type ♀, a single specimen from Matroosberg, Ceres Division, 3500 ft., January 1907 (R. M. Lightfoot).

♀. Length of body and wing, 3 mm.; of ovipositor, 0.8 mm. Occiput black, dark grey dusted, narrowly yellowish below and at sides. Frons about as broad as long, but distinctly narrowed in front; it is reddish yellow, with broad whitish sides and ocellar triangle, this latter with a dark spot at base. Face and peristomialia whitish, the latter unspotted. Antennae entirely yellowish, shorter than the face; third joint with prominent upper terminal corner; arista with short pubescence. Palpi and proboscis reddish yellow, the latter with rather long terminal flaps. Ocp. whitish; inner vt., oc., and or. black; only two i. or. Thorax black, with reddish humeri and sutures, densely clothed with opaque, bluish grey dust and with whitish pubescence; bristles black; dc. much before the line of the a. sa.; scutellum like back, with only the b. set., which are very long and diverging. Calypters and halteres whitish. Abdomen shining black, with black pubescence and black bristles; ovipositor likewise, about as long as the two last abdominal segments

together. Coxae and legs quite orange, the front femora with dark yellowish bristles below. Wings with short costal bristle; third and fourth veins parallel at end; distance of cross-veins shorter than the hind cross-vein. Base broadly whitish hyaline, with three isolated fuscous spots, one at humeral cross-vein, one darker in the middle of the second costal cell, and one at base of the basal cells. Stigma black. Marginal cell with two hyaline spots at costa, that just beyond the stigma broader and fused with a small rounded spot of the submarginal cell. Submarginal cell with two hyaline spots at end, that at end of second vein much smaller. First basal cell without hyaline terminal spot. First posterior cell with one rounded spot near the base and another at end, this latter forming a radiating *Euaresta*-like pattern. Discoidal cell with one spot at base, another larger one in the middle, and a smaller one in the lower outer corner. Second posterior cell with two hyaline indentations, the smaller external one prolonged as a hyaline spot into the first posterior cell. Third posterior cell with only one rounded spot in the middle; axillary lobe whitish, unspotted.

*Spathulina elegantula*, var. *diminuta*, var. nov.

(Pl. XIV, fig. 90.)

Very much like the preceding, distinct only by lacking the upper terminal hyaline spot of submarginal cell, below the end of second longitudinal vein (fig. 90). This character is equally developed in both sexes.

Type ♂♀, a single couple of specimens from Matroosberg, Ceres Division, 5000 ft., November 1917 (R. M. Lightfoot).

*Spathulina hessii*, Wiedemann, 1819.

(Pl. XIV, fig. 92.)

A characteristic species, somewhat variable in wing-pattern, distinct by the yellowish hyaline base of wing.

Two female specimens from Hottentots Holland Mts., 4000 ft., Caledon Division, January 1916 (K. H. Barnard); one ♀, Kimberley, 1912 (J. H. Power).

To Wiedemann's original description may be added: Occiput black, grey dusted, yellowish below and at border. Frons only a little longer than broad, with sides and lunula whitish; face and peristomialia pale yellowish, the latter unspotted. Antennae shorter than the face; third joint with prominent upper corner; arista

with short pubescence. Proboscis with rather long and recurrent terminal part. Ocp. whitish; inner vt., oc., and or. black; only two i. or. Thoracic bristles black, but pt. and st. pale yellowish; dc. much before the line of a. sa.; one mpl. Scutellum with only the b. set., which are long and diverging. Halteres pale yellowish. Abdomen shining black, with black pubescence and bristles; ovipositor shining black, as long as the whole abdomen. Front femora with numerous dark yellowish bristles below. Wings (fig. 92) with short costal bristle; third and fourth veins parallel; distance between the cross-veins shorter than the hind cross-vein. Stigma black. Base with an oblique dark band, extending from the third posterior cell to the humeral cross-vein; second costal cell with a fuscous band in the middle. Pattern very like that of *elegantula*; submarginal cell with two hyaline spots at end; third posterior cell with two hyaline indentations, the external one narrower and fused with the hyaline spot at lower outer corner of the discoidal cell. Axillary lobe hyaline. Sometimes there are small spots at end of first basal cell and two small hyaline dots, one above the other, in the middle of the first posterior cell, and one hyaline dot near upper outer corner of discal cell.

*Spathulina hessii*, var. *simplex*, var. nov.

(Pl. XIV, fig. 91.)

Differs from type form in lacking the outer hyaline indentation of the third posterior cell and in having the ovipositor shorter than the abdomen. The wing-pattern (fig. 91) is more reduced, lacking the additional hyaline spots of first posterior and of discoidal cell.

One ♂, one ♀. Hottentots Holland Mts., 4000 ft., Caledon Division, January 1916 (K. H. Barnard).

*Spathulina hessii*, var. *euarestina*, var. nov.

(Pl. XIV, fig. 93.)

Distinct from the two preceding forms in having three hyaline indentations in the second posterior cell. It is also very like the type species of the genus (*tristis*, Loew) from South Europe, even this last being perhaps a form of *hessii*.

Type ♀, a single specimen from Bethulie, O.F.S., April 1918 (H. K. Munro).

♀. Length of body and wing, 3.5 mm.; of ovipositor, 1 mm.

Head, its appendages and chaetotaxy as in *hessii*; thorax, scutellum, halteres, abdomen, and legs likewise. Wing-pattern (fig. 93) the same, but there is a third hyaline indentation in the second posterior cell, between the two of the preceding forms; third posterior cell without terminal hyaline indentation. No additional hyaline spots in first basal, first posterior, or discal cells. *S. tristis*, which has also three hyaline indentations of the second posterior cell, is different in having two hyaline indentations and one hyaline spot in the third posterior cell; the femora are, moreover, distinctly darkened, almost blackish.

SPHENELLA, Robineau-Desvoidy, 1830.

Even this genus is an artificial one, being distinguished mainly on wing-pattern from the following one. I have omitted reference to it in my previous papers, having overlooked the species published by myself in Denkschrift. med.-naturwiss. Ges. Jena, 1908, xiii, p. 193. The South African species are as follows:—

1. (4) Face, antennae, and femora quite yellowish.
2. (3) Pterostigma with a yellowish spot at end; apical fuscous patch with a tooth-like prolongation at third vein . . . . . *marginata*, Fall.
3. (2) Wings with entirely black stigma and without the above-named prolongation  
*melanostigma*, Bezzi.
4. (1) Face and antennae quite black; femora with broadly black base  
*nigricornis*, sp. nov.

*Sphenella marginata*, Fallén, 1820.

(Pl. XIV, fig. 94.)

This European species is widely spread over the whole Ethiopian region.

Cape Town, September 1913 (L. Peringuey); Cedarbergen, Clanwilliam Dist., 4000–5000 ft., September 1923 (K. H. Barnard); E. Transvaal, Acornhoek, November 1918 (R. W. Tucker); Knysna, Cape Province, October 1916 (L. Peringuey); Durban, September 1920 (C. v. d. Merwe); Gt. Winterhoek, Tulbagh Division, 3800 ft., April 1916 (R. M. Lightfoot); East London, Bloemfontein, Peddie, May–December (H. K. Munro).

*Sphenella melanostigma*, Bezzi, 1908.

(Pl. XIV, fig. 95.)

Probably only a variety of the preceding species, distinguished by the quite black unspotted stigma, by the wing-bands destitute of hyaline spots, and by the single fuscous spot along the fifth vein.

From *indica*, Schiner, it is distinguished by lacking the fuscous tooth at the apical fuscous patch of the wings (fig. 95).

Described by me in the female sex from Namaland. I have seen a female specimen from Pretoria, November 1917 (H. K. Munro).

*Sphenella nigricornis*, sp. nov.

Very distinct from all the other species on account of the black antennae and of the black base of femora, the wing-pattern being very like that of *melanostigma*.

Type ♂, a single specimen from N. Transvaal, Messina, December 1918 (R. W. Tucker).

♂. Length of body and wing, 3 mm. Occiput reddish, but more pale yellowish below. Frons twice as long as broad, distinctly narrowed in front, entirely reddish, opaque, with dark ocellar spot; lunula infuscated. Face narrow, blackish, with little prominent mouth border; parafacialia and peristomialia narrow, pale yellowish, unspotted. Antennae a little shorter than the face, entirely black; third joint truncate at end, but with the upper outer corner acute; arista bare. Palpi and proboscis yellowish, the latter with the terminal recurrent part a little shorter than the basal one. Ocp. whitish; oc. and or. blackish; only two i. or. Thorax black, opaque, dark grey dusted, but the humeri and the pleural sutures reddish; pubescence whitish, bristles black. Scutellum entirely yellowish, with four equally strong black bristles. Calypters white; halteres pale yellowish. Abdomen black, grey dusted, opaque, the last segment reddish behind; it is clothed with rather thick yellowish pubescence; genitalia reddish, black spotted above at base. Legs with blackish-grey coxae and femora; tips of the latter, tibiae, and tarsi yellowish. Wings with small costal bristle; last portions of second, third, and fourth veins quite straight and parallel; third vein bare; cross-veins approximated, their distance apart being less than the length of the small cross-vein. They are hyaline, with blackish, unspotted stigma; costal cells infuscated; middle band complete, equally extended from the costa to the hind border of wing, quite unspotted; marginal apical patch isolated, entire, without projecting tooth, and quite unspotted. Lower angle of anal cell acute and rather produced.

ENSINA, Robineau-Desvoidy, 1830.

An artificial agglomeration of species, chiefly based on the prolongation of the proboscis, which has the terminal portion longer,

or at least as long as the basal one. We have seen the following numerous species from South Africa :—

1. (2) Head depressed, much longer than broad, with very broad parafacialia ; four equally strong setae ; wing-pattern *Aciura*-like *barnardi*, sp. nov.
2. (1) Head not so depressed, and with much narrower parafacialia ; wings without such a pattern.
3. (8) Scutellum with two bristles only ; two i. or. ; wings with faint and scattered reticulation.
4. (5) Head depressed and elongate ; femora yellowish, with more or less broad black base . . . . . *sororcula*, Wied.
5. (4) Head not so depressed, nor so elongate ; femora black, with tips narrowly yellow, even those of the front pair.
6. (7) Femora rather broadly yellow at tip ; hind tibiae yellowish ; ovipositor as long as the body ; length 3 mm. . . . . *gladiatrix*, Bezzi.
7. (6) Femora almost entirely black ; hind tibiae broadly black ; smaller species, not over 2 mm. in length . . . . . *liliputiana*, sp. nov.
8. (3) Scutellum with four bristles.
9. (20) A. setae much smaller than the b. setae ; palpi rather narrow and of usual shape ; frontal stripe usually entire.
10. (11) Wings quite hyaline, without any dark pattern, only the stigma being pale yellowish ; proboscis about as long as the entire body ; femora black . . . . . *hyalipennis*, sp. nov.
11. (10) Wings with a well-developed dark pattern.
12. (17) Wings distinctly more banded than reticulate ; discoidal cell almost entirely hyaline.
13. (16) No hyaline spot at end of first posterior cell ; wing-bands well marked.
14. (15) Marginal cell with three hyaline spots . . . . . *anceps*, Loew.
15. (14) Marginal cell with two spots only, the terminal one quite wanting or very faintly developed . . . . . *fasciolata*, var. nov.
16. (13) One hyaline spot at end of first posterior cell ; wing-bands less differentiated . . . . . *myiopitoides*, Bezzi.
17. (12) Wings more reticulate than banded ; discoidal cell with more extended dark pattern ; all the femora black, with yellowish tips.
18. (19) Stigma unspotted . . . . . *ignobilis*, Loew.
19. (18) Stigma with a broad, yellowish hyaline spot . . . . . *plebeja*, var. nov.
20. (9) A. setae about as long as the b. setae ; palpi unusually developed, very broad ; frontal stripe divided by a whitish line.
21. (26) Wings with numerous, rather broad hyaline spots.
22. (25) The fuscous part of wing in the shape of two distinct broad bands, one in middle, the other at end ; only a few hyaline dots along the second vein.
23. (24) Stigma black, with narrow yellowish irregular spot at end ; second costal cell black, with only one hyaline spot at end . . . . . *dubia*, Walk.
24. (23) Stigma black, with regular hyaline spot at end ; second costal cell with two rounded hyaline spots . . . . . *magnipalpis*, Bezzi.
25. (22) No differentiated dark bands ; very numerous hyaline dots along the second vein . . . . . *hieroglyphica*, sp. nov.
26. (21) Wings with not numerous and very small hyaline dots in the middle, and with some broader spots along the border . . . . . *cribripennis*, Bezzi.

*Ensina barnardi*, sp. nov.

(Pl. XIV. fig. 96.)

A robust species, very distinct from all the others in shape of head and in wing-pattern; probably requiring the erection of a new genus.

Type ♀. Narebis and Otjikoto, South-West Africa, February 1921 (K. H. Barnard); named in honour of its discoverer.

♀. Length of body and wing, 5 mm.; of ovipositor, 1 mm. Head very depressed and elongate, in side view about twice longer than high; eyes proportionately small, rounded. Occiput black in the middle above the neck, yellowish at sides and below. Frons very elongate, with parallel sides, about three times longer than broad, flat, but in profile prominent on the distal third; it is reddish along the middle in the apical half, greyish at sides and on basal half, entirely opaque, with small black ocellar dot; lunula of very large size, elongate, greyish red. Face narrow and short, whitish; mouth border exceedingly prominent, channel-like; parafacialia whitish, unusually broad, about as broad as the third antennal joint, peristomialia whitish, narrow, unspotted; lower border of head very long. Antennae as long as the face, entirely yellowish, with the third joint acute and prominent at upper outer corner; arista bare. Palpi whitish, flattened but narrow, and not spathulate; proboscis yellowish, very long, about as long as the entire body, with the terminal part as long as the basal. Ocp. whitish and thick; oc., vt., and or. dark yellowish; three i. or. Thorax elongate, entirely black, dark grey dusted, opaque, with reddish humeri and wing-root; pubescence whitish; all the bristles pale yellowish; dc. near the suture; one mpl. Scutellum entirely blackish grey, with four equally strong pale yellowish bristles. Mesophragma grey; calypters whitish; halteres yellowish. Abdomen entirely black, dark grey dusted; ovipositor shining black, as long as the two last segments. Legs entirely yellowish, but the front femora blackish grey on the basal half. Wings (fig. 96) with distinct costal bristle; first posterior cell distinctly narrowed at end, the last portion of third vein curving downward towards the end; third vein bare; cross-veins parallel and approximated, the distance between them being about equal to the length of the small cross-vein; lower angle of anal cell acute, but little produced. They are whitish hyaline, with a black, *Aciura*-like pattern; veins blackish at end, pale yellowish near the base. The wing-base is broadly hyaline to the stigma and quite unspotted;

stigma entirely black. Just beyond the stigma there are two equal, triangular, hyaline indentations, with their rounded apex at third vein; moreover, there is a rounded hyaline spot before the end of the marginal cell and another before the end of the submarginal cell. First basal cell unspotted; first posterior cell with two hyaline rounded spots in the middle, nearer the fourth vein, the internal one twice as broad as the external; second posterior cell with three broad, parallel, obtuse, hyaline indentations, the middle one extending to the fourth vein. Discoidal cell with a broad, rounded hyaline spot near the base, extending from fourth to fifth vein, and one or two smaller other spots, of which the middle one is often of an elongate shape; third posterior cell with two broad hyaline indentations, in part fused together, and having an isolated brown spot between them, and, moreover, with a rounded hyaline spot at end, just below the hind cross-vein; the small cross-vein and the upper end of the hind cross-vein are narrowly margined with yellowish hyaline.

*Ensina sororcula*, Wiedemann, 1830.

(Pl. XIV, fig. 97.)

Numerous specimens of both sexes of this common and widely spread species, Salisbury, S. Rhodesia, May 1917 (R. W. Tucker); Onambeke, Andoni, Tamansu, S.W. Africa, March 1923 (K. H. Barnard); East London, July 1914 (R. M. Lightfoot); Natal, Durban, July 1921 (R. M. Lightfoot); Gaub, S.W. Africa, December 1919 (R. W. Tucker); Durban, August 1920 (C. v. d. Merwe); East London, Prospect, Pretoria, Barberton, Irene, Peddie (H. K. Munro).

*Ensina gladiatrix*, Bezzi, 1920.

(Pl. XIV, fig. 98.)

Distinguished from preceding species in the form of head, which is not depressed, and in the black femora, which have only the extreme tip yellow, even those of the front pair.

One male specimen from Gt. Winterhoek (Tulbagh Division), 3800 ft., April 1916 (R. M. Lightfoot); East London, July 1922 (H. K. Munro).

The as yet undescribed male is like the female; the third antennal joint is not infuscated; the abdomen has two longitudinal rows of broad, blackish spots; the genitalia are black, of proportionately great size and rather prominent.



*Ensina liliputiana*, sp. nov.

(Pl. XIV, fig. 99.)

Nearly allied with the preceding, but of much smaller size, with darker legs and with shorter ovipositor.

Some specimens of both sexes from Prospect, C.P., October 1922 (H. K. Munro).

♂♀. Length of body and wing, 1.8–2 mm.; of ovipositor, 0.7 mm. Head not depressed, with short lower border. Occiput entirely black, dark grey dusted. Frons about as broad as long, distinctly narrowed in front, reddish opaque, with whitish sides and with blackish ocellar spot; lunula small. Face pale yellowish; the linear parafacialia and the peristomialia are whitish, unspotted. Antennae entirely yellowish, only a little shorter than the face; third joint with acute upper outer corner; arista short, bare. Mouth border not prominent; palpi and proboscis yellowish, the latter with the terminal part about as long as the basal. Ocp. whitish; vt., oc., and or. blackish; two i. or. Thorax black, grey dusted, opaque; on the back there are three narrow postsutural dark stripes, fused together to form a praescutellar patch; pubescence pale yellowish; bristles black; dc. much before the line of a. sa. Scutellum entirely black, grey dusted, with only the b. set. Halteres pale yellowish. Abdomen black, grey dusted, with pale yellowish pubescence; male genitalia black; ovipositor shining black, about as long as the whole abdomen. Legs with black coxae and femora, the latter with very narrowly yellow tips; tibiae and tarsi yellowish, but the hind tibiae broadly blackish in the middle. Wings the same as those of *sororcula*, and with about the same faint pattern; stigma black; lower angle of anal cell less acute (fig. 99).

*Ensina hyalipennis*, sp. nov.

Distinct from any other known species on account of its quite hyaline wings, which lack any dark pattern; in the allied species *evanida*, Bezzi, from Abyssinia, and *siphonina*, Bezzi, from British East Africa, the wing-pattern is always distinct, even if more or less faintly indicated.

Type ♀, a single specimen from Cape, Cedarbergen, Clanwilliam, 4000–5000 ft., September 1923 (K. H. Barnard).

♀. Length of body and wing, 2.5 mm.; of ovipositor, 0.7 mm. Head a little depressed and rather elongate; occiput black, with dark

grey dust. Frons parallel sided, a little narrowed in front, not quite twice as long as broad; it is yellow in the middle, white near the eyes, grey at vertex, with a black ocellar spot; lunula white. Face yellowish, with much prominent mouth border; parafacialia and peristomialia narrow, whitish; lower border of head long. Antennae yellow, as long as the face; third joint obtuse at end, with blackish, bare arista. Palpi very long and narrow, whitish, nearly bare; proboscis as long as the body, pale yellowish, its basal part much longer than the palpi, twice as long as the head, the terminal part about as long as the basal; ocp., pvt., and outer vt. white; inner vt. and or. blackish; two i. or. Thorax black, but densely clothed with opaque grey dust, which is paler on pleurae; the pubescence whitish; bristles black; dc. at suture; one mpl., black, pt. whitish. Scutellum like back, but yellowish at hind border, with four black bristles, the apical pair decussate and much smaller than the basal. Halteres pale yellowish. Abdomen black, grey dusted, with rather long, pale yellowish pubescence; ovipositor shining black. Legs with black coxae and black femora; tips of femora, tibiae, and tarsi yellowish; bristles of front femora pale yellowish and thin. Wings hyaline, quite unspotted, even the stigma being very faintly yellowish. Costal bristle small; stigma longer than broad. The veins are yellowish, only the costa and the ends being darkened. Last portions of third and fourth veins straight and parallel; hind cross-vein straight and perpendicular, its distance from the small one about as long as its own length; small cross-vein beyond the middle of the elongate discoidal cell; lower angle of the anal cell acute, but little produced; sixth vein reaching the hind border; third vein quite bare.

*Ensina anceps*, Loew, 1861.

Wanting in the present collection, all the specimens belonging to the following form.

*Ensina anceps*, var. *fasciolata*, var. nov.

(Pl. XIV, fig. 100.)

Distinguished from the type by the want of the third hyaline spot in the marginal cell, or sometimes with only a small dot at its place (fig. 100).

One male specimen, Krantzkop, Natal, November 1917 (K. H. Barnard); both sexes, Matroosberg, Ceres Division, 3500 ft., and

Oudebosch, Caledon Division, November–December (R. M. Lightfoot); Prospect, Grootfontein (H. K. Munro).

*Ensina myiopitoides*, Bezzi, 1908.

(Pl. XIV, fig. 101.)

Allied with the preceding, but with less differentiated wing-bands, and with a hyaline spot at end of first posterior cell. In this last character it agrees with the following species, of which it is perhaps a variety with reduced and variable wing-pattern (fig. 101).

One female from Cape, determined by Bigot as *Tephritis hottentot*, an unpublished name; Gt. Winterhoek, Tulbagh Division, 4500 ft., November, Matroosberg, Ceres Division, 3500 ft., November (R. M. Lightfoot); Hottentots Holland Mts., 4000 ft., Caledon Division, Zonder End Peak, 4600 ft., French Hoek, 2500–3600 ft., December (K. H. Barnard); Narebis, South-West Africa, February 1921 (K. H. Barnard).

*Ensina ignobilis*, Loew, 1861.

The typical form, with quite unspotted pterostigma. Gt. Winterhoek, Tulbagh, 3800 ft., April 1916 (R. M. Lightfoot); Matroosberg, Ceres Division, 3500 ft., November 1917 (R. M. Lightfoot); Cedarbergen, 4000–5000 ft., September 1923 (K. H. Barnard).

*Ensina ignobilis*, var. *plebeja*, var. nov.

(Pl. XIV, fig. 102.)

Distinguished by the yellowish hyaline spot of pterostigma; but the character is variable, one wing having sometimes the spot, while in the same specimen the other wing is without it. Even the Indian species *lyncea*, Bezzi, 1913, is allied.

Cape Town, 1915 (L. Peringuey); Table Mt., February 1919 (R. W. Tucker); Cedarbergen, September 1923 (K. H. Barnard); East London, Pretoria (H. K. Munro).

*Ensina dubia*, Walker, 1853.

(Pl. XV, fig. 103.)

Very distinct by the characteristic wing-pattern. Cape Town, January 1913 (R. M. Lightfoot); Table Mt., 2500 ft., December 1918 (K. H. Barnard); Oudebosch, Caledon Division, December 1920 (K. H. Barnard).

To Loew's good description must be added: Only two i. or.; dc. at suture; one mpl.; a. sct. as strong as the b. sct.; pleurae light grey, brown at upper border of mesopleura, thus forming a

stripe. Last abdominal segment reddish behind; ovipositor reddish, narrowly black at tip, as long as the two last abdominal segments together; male genitalia reddish. Front femora with a row of six or seven whitish bristles below. Last portions of third and fourth vein parallel; distance between the cross-veins less than the length of hind cross-vein; lower angle of anal cell acute, but little produced. Costal cells wholly infuscated, with a hyaline spot of irregular shape at end; only a few hyaline dots along the second longitudinal vein (fig. 103). Halteres yellowish.

*Ensina magnipalpis*, Bezzi, 1920.

(Pl. XV, fig. 104.)

Nearly allied with the preceding, but with a somewhat different wing-pattern (fig. 104). One female specimen, Kimberley, 1912 (J. H. Power); originally described from Durban.

*Ensina hieroglyphica*, sp. nov.

(Pl. XV, fig. 105.)

Distinct from both the preceding species in the more numerous hyaline spots of wings.

Type ♀ from Cape, without precise locality; some specimens of both sexes from East London, July 1921 (H. K. Munro).

♂♀. Length of body and wing, 4 mm.; of ovipositor, 0.6 mm. Head, its appendages, and chaetotaxy exactly as in *dubia*; thorax, scutellum, and abdomen likewise. Legs with more broadly darkened femora. Wings (fig. 105) with the same venation, but with a different pattern. The broad ocellar spots are more numerous and closer together, the two dark bands of *dubia* being thus not differentiated. The stigma has one definite, rounded, hyaline spot before the end. The costal cells show some hyaline spots along the costa, two of which are larger, and, moreover, a row of small dots along the first vein. Characteristic are the numerous and closely placed hyaline dots, disposed in two irregular rows on each side of the second longitudinal vein.

*Ensina cribripennis*, Bezzi, 1924.

(Pl. XV, fig. 106.)

Distinct from the three preceding species in having the hyaline spots of the wing much smaller and scattered (fig. 106).

Recently described from a specimen from East London in the Paris Museum.

## EURIBIA, Meigen, 1800.

The generally accepted name for the present genus is that of *Tephritis*, but I have followed Professor Hendel in retaining *Euribia*. The following are the species at present known from South Africa, including those previously placed in *Oxyna* by some authors:—

1. (2) Pterostigma very small, shorter than high; wing-pattern radiating at end; only two scutellar bristles . . . . . *tuckeri*, sp. nov.
2. (1) Pterostigma of normal shape, longer than high; wing-pattern not radiating at end; four set.
3. (4) Wings with quite black stigma and with a broad black border, in which are included a few sharply defined hyaline marginal spots  
*praetexta*, Loew.
4. (3) Wings not so patterned, and with spotted stigma.
5. (6) Stigma with one hyaline spot in the middle; back of mesonotum cinereous, with a broad brown stripe along the middle *peringueyi*, sp. nov.
6. (5) Stigma with yellowish base; back not at all striped, or with three narrow stripes.
7. (8) No hyaline spot at end of first posterior cell . . . . . *lightfooti*, sp. nov.
8. (7) A hyaline spot at end of first posterior cell.
9. (10) Wings with a distinct dark band across the middle and with the terminal hyaline spot of the first posterior cell proportionately small  
*caffra*, Loew.
10. (9) Wings with a diffuse reticulation in the middle and with the above-named spot much larger . . . . . *dissoluta*, Loew.

*Euribia tuckeri*, sp. nov.

(Pl. XV, fig. 107.)

A remarkably distinct species on account of its very short stigma, which is unique among the species of the present genus. On account of this character and of the radiating pattern, one would place the species in the genus *Trypanea*, but the fuscous reticulation is extended to the base.

Type ♂, a single specimen from E. Transvaal, Komati Poort, November 1918 (R. W. Tucker); named in honour of the discoverer. But I have seen the species also from Madagascar, and thus it seems to be widely spread.

♂. Length of body and wing, 3.6 mm. Occiput pale yellowish, blackish grey towards the middle. Frons very broad, flat, even broader than long, entirely whitish yellow, opaque, with a small black ocellar dot and with lighter sides; lunula short but broad, whitish. Antennae pale yellowish, a little shorter than the face; third joint about as long as the second, rounded at end, but with the

upper outer corner distinctly acute; arista bare. Face and peristomialia whitish, the latter narrow and unspotted. Palpi whitish; proboscis yellowish, short, and thick, with the terminal part not prolonged. Ocp. whitish; vt., oc., and or. yellowish; only two i. or. Thorax entirely black, but densely clothed with light grey opaque dust, without any pattern; bristles yellowish, darkened at base, while the short pubescence is whitish; dc. near the suture; one mpl. Scutellum like back, with only the b. sct., which are yellowish. Halteres pale yellowish. Abdomen entirely black, but densely grey dusted like the mesonotum. Coxae and legs entirely pale yellowish; front femora with a row of three yellowish bristles below. Wings (fig. 107) proportionately short, with small costal bristle; second vein a little wavy in the middle; last portions of third and fourth veins gradually diverging; third vein bare; cross-veins approximated, their distance apart being less than the length of the small cross-vein, which is placed on the distal fifth of the discoidal cell; lower angle of the anal cell acute, but not produced; hind cross-vein curved outwardly. Stigma very short, being about as long above as high; it is yellowish on basal part, blackish on terminal part. Veins yellowish, darkened outwardly. Base of wing hyaline to the basal cross-veins, with only one dark spot in middle of the second costal cell. Marginal cell with three broad hyaline spots at base, one following the other and the middle one being larger; moreover, there is a smaller hyaline spot just before the end. Submarginal cell broadly hyaline at base, with a rounded hyaline spot in the middle, just above the small cross-vein, and with two spots at end, the superior one larger. First basal cell with three, partly confluent, rounded hyaline spots of greater size. First posterior cell with two small spots in middle, one above the upper end of the hind cross-vein, the other in the middle, followed by two spots of greater size placed one above the other, and, moreover, with a broad terminal spot, the blackish pattern being thus radiating; discoidal cell with three broad hyaline spots; second posterior cell with three broad spots at border and with two smaller ones in the middle; third posterior cell with one before the end, and several others, in part confluent, at base. Axillary lobe hyaline, with a brown spot in middle at sixth vein.

*Euribia praetexta*, Loew, 1861.

(Pl. XV, fig. 108.)

Very distinct from all the other species on account of its very characteristic wing-pattern. Some specimens of both sexes from

Salisbury, S. Rhodesia, May 1917 (R. W. Tucker); same locality (D. Dodds).

To Loew's original description may be added: Ocp. whitish; vt., oc., and or. blackish; two i. or. Peristomialia unspotted, as broad as the third antennal joint; frons distinctly longer than broad. Dc. near the suture; one mpl.; a. sct. about as long as the b. sct.; mesophragma black, grey dusted. Ovipositor shining red, dark pubescent, about as long as the entire abdomen. Front femora with four or five yellowish bristles below. Marginal cell with two or three hyaline spots, the middle one often wanting; second posterior cell with two or three small hyaline spots, besides the three larger marginal ones. Second costal cell black, with one terminal and often with another basal hyaline spot at wing-border (fig. 108).

It is possible that *cyana*, Walker, 1849, may be the present species.

*Euribia peringueyi*, sp. nov.

(Pl. XV, fig. 109.)

A small, elegant species, distinct by the peculiar coloration of the back of mesonotum.

Type ♀, a single specimen from Cape Town, September 1913, L. Peringuey, in whose honour it is named.

♂. Length of body, 2.5 mm.; of wing, 3 mm. Occiput black, grey dusted, narrowly yellowish at border of eyes. Frons broad, flat, about as long as broad, entirely and uniformly pale yellowish, opaque. Antennae reddish yellow, shorter than the face; third joint rounded at end, but with the upper corner rather acute; arista bare. Face and peristomialia whitish yellow, the latter narrow, unspotted. Mouth opening broad; palpi pale yellowish, proboscis yellowish, with short terminal flaps. Ocp. whitish; vt., oc., and or. blackish; two i. or. Thorax short and broad, subquadrate, convex, entirely black, but densely clothed with light grey opaque dust; along the middle of back there is a broad, brown stripe, as broad as the space between the dc., extending equally from in front, a little above the not dusted postcephalic patch, to the scutellum, and continued also on this latter; the short pubescence is pale yellowish on the back, white on the pleurae; bristles black, the dc. near the suture. Scutellum narrowly grey at sides, with four bristles, but the apical much smaller than the basal ones. Mesophragma convex, densely grey dusted. Halteres blackish. Abdomen narrower than, but about as long as, the thorax; it is entirely black, grey dusted, opaque, with

two blackish stripes formed by confluent spots ; pubescence whitish ; terminal bristles black, venter and genitalia black. Legs rather short and stout ; coxae and femora black, grey dusted ; tips of femora, tibiae, and tarsi yellowish ; front femora with two or three blackish bristles below. Wings long (fig. 109), with small costal bristle ; last portions of third and fourth veins straight and parallel ; small cross-vein beyond the middle of the discoidal cell, its distance from the hind one being a little longer than the hind cross-vein ; lower angle of anal cell acute but little produced. Veins black, narrowly yellowish at base ; third vein bare. Stigma elongate, black, with a rounded, yellowish hyaline spot in the middle. The dark reticulation is rather faint and diffuse. Wing-base hyaline ; marginal cell with three hyaline spots, the basal one larger ; submarginal cell with six spots, the two last formed by two confluent spots ; first basal cell with three confluent spots ; first posterior cell with eight spots in two rows and, moreover, with a small one at end ; second posterior cell with three marginal spots and another larger at inner corner ; discoidal cell with five spots, one basal, the others in two confluent pairs ; third posterior cell with five or six indefinite and partly confluent spots.

*Euribia lightfooti*, sp. nov.

(Pl. XV, fig. 110.)

Distinct by having a broad fuscous patch at end of wing, without the usual hyaline spot at end of first posterior cell.

Type ♂ and type ♀ from East London, July 1914 (R. M. Lightfoot), and named in his honour ; some additional specimens from Barberton, May 1914 (H. K. Munro).

♂♀. Length of body and wing, 3.5–3.6 mm. ; of ovipositor, 1 mm. Occiput yellowish, with a black spot in the middle, above the neck. Frons a little longer than broad, entirely reddish, opaque ; ocellar dot black ; lunula whitish. Face and peristomialia yellowish, the latter unspotted. Antennae entirely yellowish, shorter than the face ; third joint about as long as the second, obtuse at end ; arista bare. Palpi short, whitish, with yellowish end ; proboscis yellowish, elongate, but with short terminal portion. Ocp. whitish ; vt., oc., and or. dark yellowish ; two i. or. Thorax black, grey dusted, opaque, with yellowish humeri and pleural sutures ; pubescence pale yellowish ; bristles dark yellowish or blackish ; dc. much before the line of the a. sa. Scutellum yellowish, narrowly darkened at sides near the base, with four bristles, all dark yellowish, the apical pair a little smaller.



*Mesophragma* black, grey dusted; halteres pale yellowish. Abdomen yellowish, with two rows of broad, black, grey dusted spots, which extends almost on the whole of the dorsal surface; pubescence pale yellowish; terminal bristles dark yellowish; genitalia and venter yellowish; ovipositor broad, flat, as long as the two last abdominal segments, reddish, with black tip. Coxae and legs entirely yellowish, unspotted; front femora below, with a row of three or four yellowish bristles. Wings (fig. 110) long, with very small or indistinct costal bristle; second vein straight, third bare, last portions of third and fourth straight and parallel; small cross-vein beyond middle of discoidal cell, its distance from the hind one being a little longer than the hind cross-vein; lower angle of the anal cell acute but little produced. Stigma black, with yellowish hyaline base. The fuscous reticulation is complete; base yellowish hyaline, with some faintly infuscated spots. Marginal cell with hyaline base, with two larger hyaline spots beyond the stigma and with another smaller rounded one before the end; submarginal cell with hyaline base and with eight hyaline spots, two of which are before the end, one above the other; first basal cell with three spots; first posterior cell with two larger spots at base and with six others in two rows in the middle, the lower ones broader, entirely black at end; discoidal cell with five or six spots, the terminal ones disposed in two rows; second posterior cell with three or four spots along the border and with one or two, often confluent, in the middle; third posterior cell with five to seven faint and partly confluent spots; axillary lobe with four or five less distinct spots.

*Euribia caffra*, Loew, 1861.

(Pl. XV, fig. 111.)

Distinct by the two differentiated fuscous bands of the wing, and from the preceding one by the small hyaline spot at end of first posterior cell (fig. 111).

One male specimen from Bulawayo; same specimens from Pretoria, November 1917 (H. K. Munro).

To Loew's description may be added: Eyes in life light brown, with greenish tinge. Occiput black in the middle, densely grey dusted, with yellowish border; two i. or.; frons one and one-half times longer than broad; lunula short, whitish yellow. Back of mesonotum with three narrow dark stripes, evanescent behind, the middle one less developed; dc. not much before the line of the a. sa.; one mpl.; a. sct. only a little smaller than the b. sct. *Mesophragma* black, with

a whitish dusted transverse band in the middle. Halteres whitish. Abdomen with the hind borders of the segments often yellowish at sides; the blackish dorsal spots are small. Ovipositor broad, flat, shining reddish, with black base and black tip, as long as the two last abdominal segments together. Front femora with four or five blackish bristles below. Veins yellowish; last portions of third and fourth straight and parallel; distance between the cross-veins less than the length of the hind cross-vein; lower angle of anal cell acute and rather produced.

*Euribia dissoluta*, Loew, 1861.

I have never succeeded in finding what could be this species, though I think that my *tristrigata* from Central Africa may be a form of it. Even the Indian *spiloptera*, Bezzi, 1913, seems to be very nearly allied.

CAMPIGLOSSA, Rondani, 1870.

*Campiglossa perspicillata*, Bezzi, 1918.

(Pl. XV, fig. 114.)

One female specimen, Gt. Winterhoek, Tulbagh Division, 3000 ft., April 1916 (R. M. Lightfoot); Prospect, C.P., October 1922 (H. K. Munro).

CAMAROMYIA, Hendel, 1914.

*Camaromyia helva*, Loew, 1861.

(Pl. XV, fig. 113.)

One female specimen, Krantzkop, Natal, November 1917 (K. H. Barnard); Cape Flats, December 1900 (C. P. Lounsbury).

The ovipositor is short and flattened, but the shape of head and the wing-pattern are typical. To Loew's description may be added: Frons about as broad as long; two i. or. De. much before the line of the a. sa.; one mpl., but below this there is another bristle shorter and whitish; a. sct. about as long as the b. sct.; halteres pale yellowish. Front femora with six or seven yellowish bristles below. Second vein quite straight; last portions of third and fourth veins parallel; the distance between the cross-veins is about equal to the length of the hind cross-vein. Lower angle of anal cell acute but not produced (fig. 113).

ACANTHIOPHILUS, Becker, 1908.

There are only two South African species of this "genus," very easily distinguished by their very different wing-pattern.

*Acanthiophilus ochraceus*, Loew, 1861.

(Pl. XV, fig. 112.)

One specimen from Peddie, December 1921, and another from Pretoria, January 1923 (H. K. Munro). To Loew's description may be added: Two i. or.; proboscis with the terminal part shorter than the basal one. Mesonotum short and broad, nearly quadrate; dc. before the line of a. sa. Front femora with three or four yellowish bristles below. Wing-pattern (fig. 112), with faint reticulation, but with three blackish spots in the marginal cell, and with a broad apical spot, without hyaline dots, extending across the ends of submarginal and of first posterior cell. Third and fourth veins parallel; distance between the cross-veins less than the length of hind cross-vein; lower angle of anal cell acute and rather produced. Stigma black, narrowly hyaline yellowish at the base, while Loew says that it has a middle hyaline spot, well shown in the figure.

*Acanthiophilus muiri*, Bezzi, 1924.

(Pl. XV, fig. 115.)

Some specimens from East London, March 1923, bred from galls on *Brachylaena elliptica*, Less.

The male is like the female; the last abdominal segment is not bristly, only with whitish hairs; genitalia blackish, concealed. Back of mesonotum not striped. Characteristic is the hyaline streak along the costa just beyond the stigma, very like that observed in *Afreutreta bipunctata*, Loew. The hyaline dots at base of first posterior cell vary in number from one to two. The faint reticulation in the third posterior cell and in the axillary cell is always distinct (fig. 115).

TRYPANEA, Schrank, 1795.

There are in South Africa very numerous species and forms of this genus, distinguishable as follows:—

1. (8) Pterostigma very short, higher than long, or nearly as long as high.
2. (3) Proboscis long and bicubitate; pterostigma black, and united with the black terminal pattern . . . . . *rivularis*, sp. nov.
3. (2) Proboscis short and not bicubitate.
4. (7) Pterostigma not united with the terminal pattern; basal hyaline spot of the first posterior cell broad.
5. (6) Discoidal cell with a faintly infuscated band across the middle  
*peregrina*, Ad.

6. (5) Discoidal cell without such a band . . . . . *mundella*, var. nov.
7. (4) Stigma united ; basal hyaline spot narrow, fuscous reticulation extending to the basal cross-veins . . . . . *tuckeri*, Bezzi.\*
8. (1) Pterostigma of usual shape, distinctly and usually two or three times longer than high.
9. (20) Pterostigma usually black, and always united with the terminal black pattern, even if it is hyaline ; hyaline spot at base of first posterior cell always small.
10. (15) The black pattern is extended towards the base of wing to the second basal cell and below into the discoidal cell ; only two sct. ; proboscis bicubitate.
11. (14) Wings of male with a "bulla" in the first posterior cell ; pterostigma hyaline.
12. (13) Dark stripe of the discoidal cell narrow, not extending to the middle of the cell ; first basal cell unspotted . . . . . *bulligera*, sp. nov.
13. (12) The above-named stripe extended beyond the middle of discoidal cell ; first basal cell with hyaline spot . . . . . *bullosa*, var. nov.
14. (11) Male wings destitute of "bulla" ; stigma infuscated along fore border . . . . . *euarestina*, sp. nov.
15. (10) Black terminal pattern of wings ending much before the second basal cell.
16. (17) Proboscis short and simple ; four sct. ; a tooth-like black stripe in the first basal cell along the third vein . . . . . *dentiens*, sp. nov.
17. (16) Proboscis long and bicubitate.
18. (19) Only two sct. ; no black stripe in the first basal cell . . . . . *confluens*, Wied.
19. (18) Four sct. ; a black stripe into the first basal cell . . . . . *auguralis*, Bezzi.
20. (9) Pterostigma always hyaline or at most pale yellowish, not united with the black terminal pattern ; proboscis always short and simple.
21. (30) Four sct. ; apical dark fork of wings usually present.
22. (27) Wings with the usual dark terminal fork.
23. (26) There is a yellowish patch around the small cross-vein ; basal half of wing quite hyaline.
24. (25) End of discoidal cell with two fuscous rays ; submarginal cell with rounded hyaline spot just above the small cross-vein . . . . . *lutescens*, sp. nov.
25. (24) End of discoidal cell without fuscous rays ; submarginal cell with no rounded complete spot . . . . . *arrhiza*, var. nov.
26. (23) No yellowish patch around the small cross-vein ; basal half of wing with faded reticulation . . . . . *furcatella*, var. nov.
27. (22) Wings without complete terminal fork, the lower ray only being present ; basal hyaline spot of first posterior cell broad.
28. (29) Basal half of wing with a faded reticulation ; abdomen reddish at base . . . . . *pulchella*, sp. nov.
29. (28) Basal half of wing quite hyaline ; abdomen not red . . . . . *mutila*, sp. nov.
30. (21) Only two sct. ; apical fork incomplete or quite wanting.
31. (32) Lower ray of apical fork complete ; a black spot at end of third vein . . . . . *superdecora*, sp. nov.
32. (31) Lower ray quite wanting or very abbreviated, never extended to the wing-border ; no black spot at end of third vein.

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\* Repeated here for comparison ; see in the genus *Euribia*.

33. (36) Terminal fuscous spot much reduced, sending no fuscous rays into the second posterior cell . . . . . *bisreducta*, sp. nov.  
 34. (33) Terminal spot sending two fuscous rays into the second posterior cell.  
 35. (36) Species of greater size, with a peculiar pattern into the terminal half of the discoidal cell; bristles black . . . . . *diversa*, Wied.  
 36. (35) Smaller species, without such a pattern at end of discoidal cell and with yellowish bristles . . . . . *decora*, Loew.

*Trypanea rivularis*, sp. nov.

(Pl. XV, fig. 116.)

Very distinct among the species with shortened stigma, on account of its long and bicubitate proboscis and of its peculiar wing-pattern.

Type ♂, Matroosberg, Ceres Division, 5000 ft., November 1917; type ♀, Gt. Winterhoek, Tulbagh Division, 4500 ft., November 1916 (R. M. Lightfoot).

♂♀. Length of body, 2.5–2.8 mm.; of wing, 2.8–3 mm.; of ovipositor, 0.8 mm. Head as depressed as in *Ensina* s. str.; occiput pale yellowish, with a rounded, black patch in the middle. Frons flat, very broad, gradually narrowed in front, about as broad as long; it is opaque yellowish, with whitish orbits and with a small, whitish ocellar triangle bearing a blackish dot; lunula whitish. Face short, whitish, with very prominent mouth border; peristomialia narrow, white, unspotted. Antennae entirely yellowish, short, but as long as the face; third joint with sharp, prominent upper corner; arista bare, with thickened base. Lower border of head long; eyes elongated, with the greatest diameter horizontal; mouth opening broadly oval; palpi whitish; proboscis yellowish, elongate, its basal part a little longer than the mouth, the terminal part a little shorter than the basal one. Ocp. white; inner vt., oc., and or. dark yellowish; two i. or. Thorax black, densely clothed with opaque, cinereous dust; humeri and notopleural sutures a little yellowish; pubescence pale yellowish; bristles dark yellowish; dc. much before the line of a. sa. Scutellum like back, with reddish hind border and with only the b. set., which are inserted on small black dots. Halteres whitish. Abdomen cinereous, with pale yellowish pubescence; hind border of the segments narrowly reddish in the female; last segment of the male as long as the two preceding segments; ovipositor shining black, only a little shorter than the abdomen. Legs slender, entirely pale yellowish; front femora with three or four yellowish bristles; spur of middle tibiae yellowish. Wings (fig. 116) with small costal bristle and with very short stigma,

which is twice as high as long; second vein short and turned up at end; third and fourth veins very divergent at end, the third being upturned at end, and bare; distance between the cross-veins a little shorter than the length of the hind cross-vein; lower angle of anal cell acute but not produced. Terminal pattern black, elongate, with very long black rays; basal half of wing quite hyaline, with a dark spot at extreme base of first basal cell and with a rounded dot at lower end of anal cell; stigma black and united with the black pattern by a black curved stripe, which is as broad as the breadth of the base of submarginal cell. Marginal cell entirely black, with three hyaline spots along the costa, two just beyond the stigma, the first of which is of much greater size, and a smaller one at end; submarginal cell black, with two hyaline spots at end, the upper one smaller; the apical fork is formed by two narrow, very long, diverging black rays, each of which includes a small hyaline spot near the base. Second posterior cell with three perpendicular black rays, the basal one running along the hind cross-vein; discoidal cell with two dark rays, one of which is near the end and extends to hind border forming sometimes a hyaline rounded spot, the other, near the middle, ending in the third posterior cell. First posterior cell with a rounded hyaline spot at base, in contact with the fourth vein, but above not reaching the third vein. First basal cell hyaline, only a little blackened before the small cross-vein, which is narrowly yellowish hyaline.

*Trypanea peregrina*, Adams, 1905 (= *urophora*, Bezzi, 1918).

(Pl. XV, fig. 117.)

Among the species with short stigma, this is distinct by having the first posterior cell broadly hyaline at base, the small cross-vein being thus not included in the terminal black patch and being usually not margined with fuscous (fig. 117).

Some specimens from Prospect, November 1922 (H. K. Munro).

*Trypanea peregrina*, var. *mundella*, var. nov.

(Pl. XV, fig. 118.)

Differing from the preceding only in the complete want of the fuscous band across the middle of the discoidal cell, even as a spot on the fifth vein.

Some specimens of both sexes from Prospect and from Pretoria, December 1922 and January 1923 (H. K. Munro).

*Trypanea bulligera*, sp. nov.

(Pl. XV, fig. 119.)

A species of proportionately greater size, distinct by the characteristic wing-pattern and by the peculiar, prominent "bulla" near the end of the wing in the male sex.

Type ♂ and ♀, a couple of specimens from Gt. Winterhoek, Tulbagh Division, 4500 ft., November 1916 (R. M. Lightfoot).

♂♀. Length of body and wing, 4 mm.; of ovipositor, 1 mm. Occiput pale yellowish, with a triangular blackish spot above, extending from the neck to the vertex. Frons flat, but rather prominent in profile near the root of antennae, one and one-half times longer than broad, opaque reddish, with whitish sides and blackish ocellar spot; lunula whitish; face and peristomialia yellowish, the latter unspotted. Antennae entirely reddish, shorter than the face; third joint rounded at end; arista bare. Mouth border prominent, but the lower border of head short; mouth opening broad; palpi and proboscis yellowish, the latter elongate, its basal part longer than the mouth, the terminal part shorter than the basal. Eyes rounded, their longest diameter being the vertical one. Ocp. whitish; inner vt., oc., and or. black; two i. or. Thorax entirely black, clothed on the back with a bluish cinereous dust, and on the sides and pleurae with dark grey, but on the sternopleura again bluish cinereous; the short pubescence is whitish; bristles black; dc. placed much before the line of a. sa. Scutellum like back, with only the b. set.; mesophragma like back. Halteres yellowish, with darkened knob. Abdomen broad, coloured like back of mesonotum, but more shining blackish in the female; pubescence in both sexes whitish; ovipositor shining black. Legs entirely reddish yellow; front femora with a row of yellowish bristles below. Wings (fig. 119) elongate, with small costal bristle; second vein long and straight; third vein bare, straight in the female, curved below just beyond the peculiar "bulla" in the male, but in both parallel with the last portion of the fourth vein; cross-veins closely approximated, chiefly in the male, their distance apart being less than the length of the small cross-vein; lower angle of anal cell rectangular, not at all acute. Stigma hyaline, distinctly longer than high. The blackish pattern is characterised by the broad prolongation to the basal cross-veins; the costal and marginal cells and the stigma are hyaline, forming a hyaline costal stripe, which is broader in the male than in the female; moreover, the marginal cell has a

triangular, hyaline indentation before the end. The dark middle stripe of wing is extended only a little below into the discoidal cell, without reaching its middle. In the male the black, rounded "bulla" is a little before the middle of the first posterior cell, near the third longitudinal vein, and extending below not beyond the middle of the cell; this "bulla" is concave on upper surface of wing and prominent on lower surface, and is, moreover, more intensively black than the surrounding parts. There is a small hyaline spot in the submarginal cell just below the end of the second vein. Apical fork complete; in the middle of the second posterior cell there are two perpendicular dark rays, another along the hind cross-vein, and one in the discoidal cell, prolonged in the male to the hind border of wing, but not in the female. A small hyaline spot at base of first posterior cell, just above the upper end of hind cross-vein. First basal cell entirely black to the end.

*Trypanea bulligera*, var. *bullosa*, var. nov.

(Pl. XV, fig. 120.)

One male specimen from Hottentots Holland Mts., 4000 ft., Caledon Division, 1916 (K. H. Barnard).

♂. Differs from the above description as follows: The hyaline stripe along the fore border of wing is interrupted by a black, oblique band just beyond the stigma. The first basal cell has a rounded hyaline dot before the small cross-vein, symmetrically placed with that in the base of first posterior cell. The black rays at hind border are broader. The black middle stripe of wing is much broader, extending below into the discoidal cell beyond the middle of the cell, and in the basal part reaching even the fifth vein. The "bulla" is as in the preceding (fig. 120).

*Trypanea euarestina*, sp. nov.

(Pl. XV, fig. 121.)

Very like the preceding *bulligera*, but at once distinguishable in the male sex by the complete want of the "bulla."

Type ♂, a badly preserved specimen from Hottentots Holland Mts., 4000 ft., Caledon Division, 1916 (K. H. Barnard). I have seen also a male from Willowmore in the Museum of Budapest, collected by Dr. H. Brauns.

♂. Length of body and wing about 4 mm. and more. Occiput



black in the middle, pale yellowish at sides and below. Frons a little longer than broad, opaque reddish on anterior half, greyish on posterior half, with whitish sides and dark ocellar spot; lunula yellowish. Face and peristomialia yellowish, the latter unspotted; mouth border a little prominent. Antennae entirely reddish; third joint obtuse at end; arista bare. Palpi and proboscis reddish, the latter short and thick. Ocp. white; inner vt., oc., and or. black; two i. or. Thorax and scutellum and their chaetotaxy as in *bulligera*; halteres pale yellowish. Abdomen shining black on terminal half, dusted like back of mesonotum on basal half. Legs entirely reddish. Wings (fig. 121) as in *bulligera*, but quite destitute of the prominent "bulla" of the first posterior cell, and thus the last portion of third vein is quite straight. Even the pattern is very similar, but the stigma is infuscated along the costal border; the dark stripe in the discoidal cell is narrow; the end of the marginal cell is more intensively black than the surrounding parts.

*Trypanea dentiens*, sp. nov.

(Pl. XV, fig. 122.)

Distinct from the three preceding species by the black wing-pattern being more shortened basally, and by the four set.

Some male specimens from Pretoria, November to January (H. K. Munro).

♂. Length of body and wing, 3.5 mm. Occiput black, grey dusted, with pale yellowish border, and more broadly whitish below. Frons a little longer than broad, opaque, with reddish yellow anterior half, with greyish basal half, and with whitish sides; lunula pale yellowish; face and peristomialia yellowish, the latter narrow and unspotted. Antennae entirely yellowish, shorter than the face; third joint with prominent upper corner, but rounded at end; arista bare. Mouth border a little prominent; palpi broad, yellowish; proboscis short and thick, yellowish. Ocp. white; inner vt., oc., and or. black; two i. or. Thorax black, but densely clothed with bluish grey opaque dust, and darker grey on the pleurae; humeri reddish; bristles black; pubescence whitish; dc. much before the line of a. sa.; one mpl. Scutellum like back, with four black bristles, the apical ones only one-half as long as the others. Mesophragma like back; halteres pale yellowish. Abdomen like back of mesonotum, with whitish pubescence; male genitalia reddish below. Legs entirely reddish; front femora with a row of yellowish bristles

below. Wings (fig. 122) with elongate stigma and with small costal bristle; last portions of third and fourth veins quite straight and parallel; distance between the cross-veins less than the length of the hind cross-vein; lower angle of anal cell acute and a little produced. The black pattern stops at stigma, with which it is broadly united, and is characterised by the presence of an acute black tooth in the first basal cell, running along the third vein. The stigma is black, with narrowly yellowish base. Just beyond the stigma there are in the marginal cell two hyaline elongate streaks, the anterior of which is larger; submarginal cell with a small hyaline spot just below the end of second vein and with another broader one at end. All the five fuscous rays are narrow and complete, two forming the long terminal fork, two parallel and perpendicular across the middle of the second posterior cell, and one along the hind cross-vein; moreover, there are two abbreviated rays in the terminal part of the discoidal cell, the basal one more long and oblique, not reaching the fifth vein, on which there is, however, an isolated dark spot. The basal part of the wing is whitish hyaline and quite unspotted; the hyaline spot in the first posterior cell is small.

*Trypanea confluens*, Wiedemann, 1830.

(Pl. XV, fig. 123.)

Of smaller size than the four preceding species, and at once distinguished by the long, bicubitate proboscis and by the dark middle stripe on back of mesonotum.

One male from Cape Province (without precise locality); very numerous specimens of both sexes from Pretoria and Prospect, November to January (H. K. Munro).

To Loew's redescription may be added: Frons a little longer than broad; only two i. or., dark yellowish, like all the frontal bristles; occiput blackish grey above the neck. Back of mesonotum bluish, pleurae dark grey; the dark middle stripe is always present, and is very characteristic; bristles dark yellowish; dc. much before the line of a. sa.; only one pair of sct. Wings (fig. 123) with the stigma twice as long as high; second longitudinal vein ending midway between ends of first and of third; third and fourth diverging towards the end; distance between the cross-vein about equal to the length of small cross-vein; sixth vein shortened; lower angle of anal cell acute but not produced.

*Trypanea auguralis*, Bezzi, 1908.

(Pl. XV, fig. 124.)

Distinguished from the preceding by the presence of a small pair of a. sct.

Originally described from East Africa, there are a few specimens from Bloemfontein and East London (H. K. Munro).

*Trypanea lutescens*, sp. nov.

(Pl. XV, fig. 125.)

Among the species with hyaline pterostigma and with four sct., the present one is distinguished by the yellowish patch around the small cross-vein.

One male specimen from Pretoria, December 1916 (H. K. Munro).

♂. Length of body and wings, 4.5 mm. Occiput pale yellowish, with a black, grey-dusted spot in the middle above the neck. Frons very broad, not longer than broad, reddish opaque, with greyish sides and ocellar area; lunula broad, reddish. Face and peristomialia whitish, unspotted. Antennae entirely yellowish, short, extending only a little beyond the middle of face; third joint with the upper corner acute but not produced; arista bare. Mouth border very little produced; mouth opening broad and rounded; palpi and proboscis yellowish, the latter short and thick. Ocp. white, the other bristles yellowish; two i. or. Thorax black, densely grey dusted, opaque; humeri and notopleural line yellowish; pubescence pale yellowish; bristles yellowish; dc. much before the line of a. sa.; one mpl. Scutellum like back, with four yellowish bristles; mesophragma grey. Halteres pale yellowish. Abdomen like back of mesonotum, with narrow reddish hind border of the segments. Legs entirely reddish; front femora with a complete row of yellowish bristles below. Wings (fig. 125) with distinct costal bristle and with elongate stigma; last portions of third and fourth veins straight and a little diverging outwardly; distance between the cross-veins less than the length of hind cross-vein; lower angle of anal cell acute but not produced. The stigma is pale yellowish, and not united with the terminal pattern, which is brown, with a yellowish patch around the small cross-vein. A hyaline triangular indentation before the end of marginal cell; submarginal cell with two hyaline rounded spots, one in the middle just above the small cross-vein, the other, smaller, just below the end of second vein, and, moreover,

with a terminal triangular indentation; a small hyaline spot at base of first posterior cell. The two apical rays of the fork have a rounded hyaline spot in their base; second posterior cell with three indentations and one rounded spot on upper internal corner, the two usual dark rays being thus sinuous; end of discoidal cell on its upper terminal part with two rounded hyaline spots, which are incomplete below, forming thus two abbreviated rays. More than the basal half of wing is hyaline; but in the third posterior cell there are two faintly infuscated, small spots, one in the middle, the other at wing-border before the end.

*Trypanea woodi*, Bezzi, 1924, var. *arrhiza*, var. nov.

The type species is from Nyasaland, distinguished by the four setae, by the hyaline isolated pterostigma, and by the yellowish patch around the small cross-vein. The variety is distinct in lacking the fuscous ray in the end of the discoidal cell (while *woodi* has one and *lutescens* two of these rays).

Some specimens of both sexes from Toise River, East London, December 1923 (H. K. Munro).

*Trypanea subcompleta furcatella*, var. nov.

(Pl. XV, fig. 126.)

Almost the same as the species *subcompleta*, Bezzi, 1921, from British East Africa, but much smaller and with more faint basal reticulation of wings.

East London, July–August (H. K. Munro).

♂♀. Length of body, 2 mm.; of wing, 2.2 mm. Perfectly answering to the description, but one-half smaller; the reticulation of the basal half of wing (fig. 126) is less indicated; a. set. much smaller than the b. set.; abdomen entirely black, grey dusted, with no distinct yellowish hind border of the segments.

*Trypanea pulchella*, sp. nov.

(Pl. XV, fig. 127.)

Closely allied with the preceding form, but distinct by the broadly reddish base of abdomen and by the complete want of the upper ray of the apical fork of wings.

Some specimens of both sexes from Bloemfontein and from Pretoria, November–January (H. K. Munro).

♂♀. Length of body, 2.2–2.4 mm.; of wing, 2.3–2.5 mm.; of

ovipositor, 0.6 mm. Occiput pale yellowish, with a black middle spot above the neck. Frons narrow, but only one and one-half times longer than broad, opaque, reddish yellow, greyish on the basal half, with paler sides; lunula yellowish. Face and peristomialia whitish, the latter narrow, unspotted. Antennae a little shorter than the face, entirely reddish; third joint with the upper corner acute but not produced; arista bare, thickened basally. Mouth border very little prominent; proboscis short and thick, reddish like the palpi. Ocp. whitish, the other bristles yellowish; two i. or., but sometimes a third, smaller, is present anteriorly. Thorax densely clothed with opaque, pale yellowish grey dust, with reddish humeri; bristles yellowish, those of back inserted on small black dots; scutellum broadly yellowish at hind border, with four yellowish bristles, the long b. sct. on black dots, the a. sct. much shorter and decussate. Mesophragma grey; halteres whitish. Abdomen in both sexes with the basal half reddish, the apical half grey; pubescence pale yellowish; ovipositor shining black, about as long as the three last segments. Legs entirely reddish; front femora with a row of pale yellowish bristles below. Wings (fig. 127) with small costal bristle and elongate stigma; second, third, and fourth veins straight and gradually diverging outwardly; distance between the cross-veins less than the length of hind cross-vein; lower angle of anal cell acute and distinctly produced; sixth vein reaching hind border. Stigma pale yellowish. Wing-pattern as in *furcatella*, and likewise with a very faint basal reticulation; characteristic for the species is the incomplete apical fork, the upper ray of which is quite wanting.

*Trypanea mutila*, sp. nov.

(Pl. XV, fig. 128.)

Among the species with hyaline elongate pterostigma and with four sct., the present one is distinct by the incomplete rays of the star-shaped spot and by the quite hyaline basal part of wing.

One specimen from East London, August 1922 (H. K. Munro).

♀. Length of body, 3 mm.; of wing, 3.2 mm.; of ovipositor, 0.5 mm. Occiput pale yellowish, with a blackish-grey spot above the neck. Frons one and one-half times as long as broad, opaque yellowish, with pale greyish orbits; lunula whitish. Antennae shorter than the face, reddish yellow; third joint rounded at end; arista bare. Face and peristomialia whitish, unspotted; mouth border very little prominent; proboscis and palpi pale yellowish, the former short.

Ocp. whitish, the other bristles dark yellowish; three i. or. Thorax opaque, with yellowish grey dust on the back and with dark grey dust on the pleurae; bristles dark yellowish, those of back on small black dots; dc. much before the line of a. sa. Scutellum with yellowish hind border and with four yellowish bristles, the b. set. longer and inserted on black dots. Mesophragma grey; halteres pale yellowish. Abdomen like back of mesonotum; ovipositor shining black, shorter than the two last segments. Legs entirely yellowish; front femora with a row of whitish bristles below. Wings (fig. 128) with small costal bristle and with elongate stigma; second, third, and fourth veins straight and gradually diverging outwardly; distance between the cross-veins less than the length of hind cross-vein; lower angle of anal cell a little produced; sixth vein complete. Veins yellowish at base, blackish on the rest. Wings quite hyaline, with a small and incomplete, blackish, star-shaped, terminal spot; stigma pale yellowish. Upper ray of the terminal fork indicated only by a small spot at end of third vein, lower ray complete; of the two usual rays of the second posterior cell, the first is narrowed in the middle and the second is interrupted in the middle; the ray along the hind cross-vein is faintly developed; base of first posterior cell broadly hyaline, with a small rounded hyaline spot just above the hind cross-vein; hyaline spots and indentations of fore border as usual, but the hyaline spot just below the end of second vein is very small. Small cross-vein completely free, not margined with fuscous.

*Trypanea superdecora*, sp. nov.

(Pl. XV, fig. 129.)

A species with only two set., distinct from *decora* in having the lower ray of the terminal fork complete, and, moreover, with a black spot at end of third vein.

Both sexes from Barberton, May 1913 (H. K. Munro).

♂♀. Length of body and wing, 2.5–2.6 mm.; of ovipositor, 0.6 mm. Occiput pale yellowish, with a blackish grey bilobate spot above the neck. Frons reddish or yellowish, opaque, with whitish sides and ocellar spot; lunula whitish. Face and peristomialia yellowish, the latter very narrow and unspotted. Antennae a little shorter than the face, entirely reddish; third joint with the upper corner acute and rather prominent; arista bare. Mouth border hardly prominent; proboscis short and thick, reddish like the palpi. Ocp. white, the other bristles yellowish; three i. or. Thorax black,

clothed on the back with dense bluish dust, and with darker grey dust on the pleurae; pubescence whitish; bristles dark yellowish, those of back inserted on small black dots; dc. much before the line of the a. sa. Scutellum like back, with only the b. set. Mesophragma grey; halteres pale yellowish. Abdomen like back of mesonotum, with the base distinctly reddish in the male; pubescence pale yellowish; ovipositor shining black, only a little longer than the two last segments. Legs entirely orange; front femora with a row of yellowish bristles below. Wings (fig. 129) with elongate stigma and small costal bristle; second, third, and fourth veins straight and gradually diverging outwardly; distance between the cross-veins less than the length of hind cross-vein; sixth vein complete; lower angle of anal cell acute and distinctly a little produced. Stigma very faintly yellowish; basal part of wing quite hyaline; veins yellowish, darkened at end. Apical star-shaped pattern as in *decora*, with the following differences: there is a broad, isolated black spot at end of third vein; the lower ray of the terminal fork is complete; the hyaline indentation between the above-named ray and the first ray of the second posterior cell is extended into the first posterior cell (while in *decora* it stops at fourth vein); all these rays are broader; the small cross-vein is margined with fuscous.

*Trypanea bisreducta*, sp. nov.

(Pl. XV, fig. 130.)

Distinct from all the other species in having the apical dark pattern of wing reduced to a small rounded spot, destitute of radiating streaks.

Type ♀, a single specimen from Modderpoort, 30th October 1919 (J. C. Faure).

♀. Length of body and wing, 3.5 mm.; of ovipositor, 1 mm. Occiput pale yellowish, with a blackish-grey spot above the neck. Frons as broad as long, opaque yellowish, with whitish orbits and with grey ocellar spot; lunula pale yellowish. Antennae wanting. Face and peristomialia yellowish; proboscis short. Ocp. white, the other bristles yellowish; two i. or. Thorax and scutellum bluish grey, with dark yellowish bristles; scutellum with only the b. set. Halteres pale yellowish. Abdomen like back of mesonotum; ovipositor shining black, as long as the three last segments. Legs entirely reddish. Wings (fig. 130) with elongate stigma and with small costal bristle; nervation as in the preceding. They are quite hyaline, with pale yellowish stigma; the apical spot is blackish, and is without

any ray, even without the anterior one, extending inferiorly only a little over the fourth vein with a rudimentary tooth; neither of the cross-veins are margined with fuscous, or only the upper end of the hind cross-vein is a little infuscated. There is a small, rounded hyaline spot below the end of second vein and two small hyaline spots above the fourth vein.

*Trypanea diversa*, Wiedemann, 1830.

(Pl. XV, fig. 131.)

Among the species of the present group it is very distinct on account of its greater size, of its long ovipositor, and of its peculiar pattern in the terminal part of the discoidal cell.

Two male specimens from Oudebosch, Caledon Division, December 1920 (K. H. Barnard).

To Loew's redescription may be added: Ocp. whitish, the other bristles black; three or four i. or.; ocellar spot blackish; lunula reddish; frons one and one-half times as long as broad; proboscis short and thick, but distinctly cubitate. Dc. before the line of a. sa.; a. set. wanting. Front femora with a row of blackish bristles below. Wings (fig. 131) with normal nervation; stigma twice as long as high.

*Trypanea decora*, Loew, 1861.

(Pl. XV, fig. 132.)

Probably only a variety of *amoena*, from which it is distinguished by the complete want of the fuscous band issuing from the pterostigma.

One male from Zululand, M'fongosi, February 1914 (W. E. Jones); numerous specimens from Bloemfontein, East London, Arnoldton, Kingwilliamstown, in part bred from *Senecio ruderalis* (H. K. Munro).

To Loew's original description may be added: The male is like the female. Occiput with the usual bilobate black spot above the neck. Frons only a little longer than broad; ocp. white, the other bristles dark yellowish; three to five i. or. Thoracic and scutellar bristles dark yellowish; front femora with yellowish bristles below. Stigma (fig. 132) twice as long as high; third and fourth veins parallel; distance between the cross-veins less than the length of the hind cross-vein; lower angle of anal cell acute but little produced; sixth vein complete. The dark spot on the middle of fifth vein is sometimes wanting. The second dark ray in the second posterior cell is sometimes interrupted in the middle.



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All wings enlarged, partly schematic.

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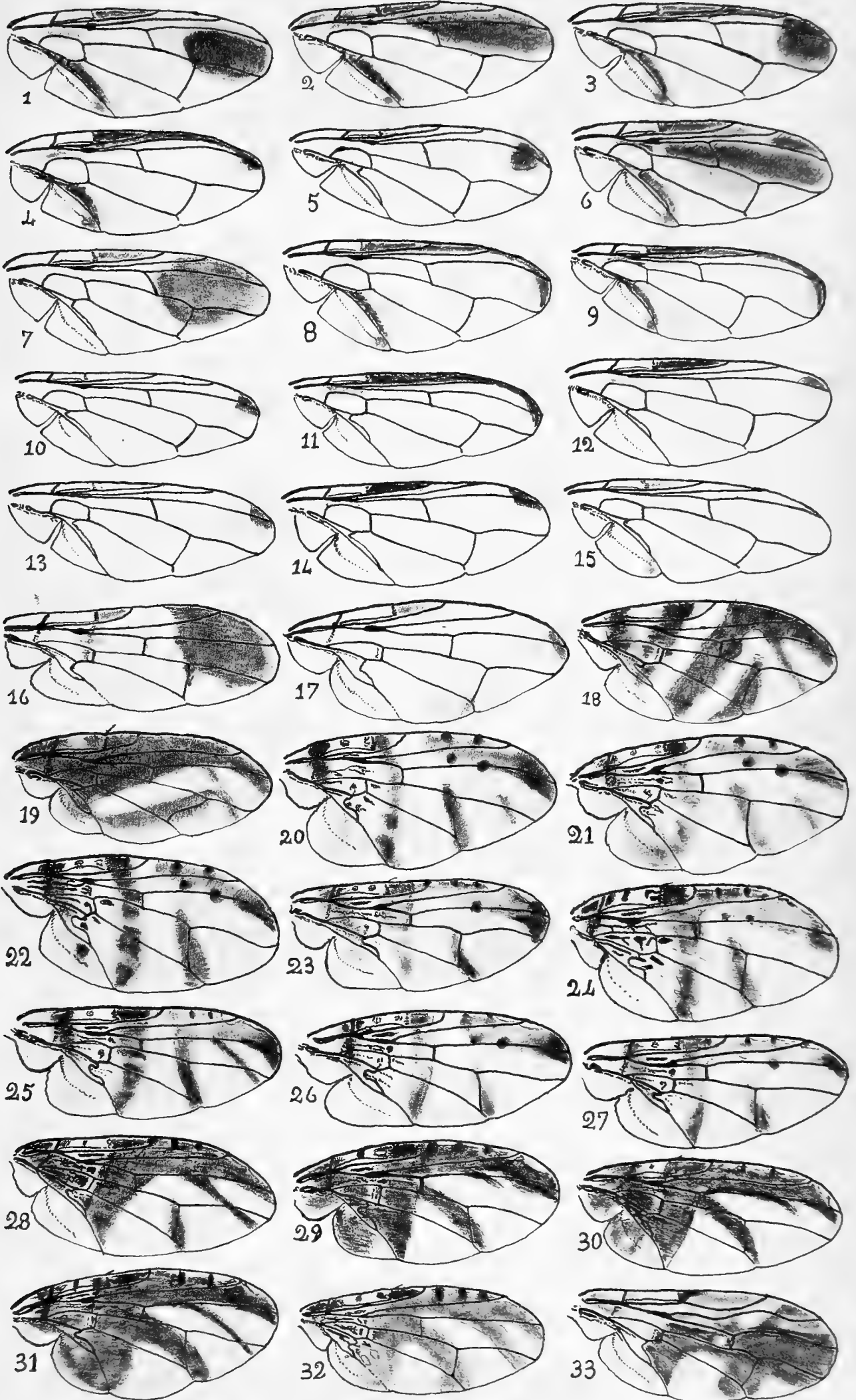
PLATE XIV.

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|---|---|
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PLATE XV.

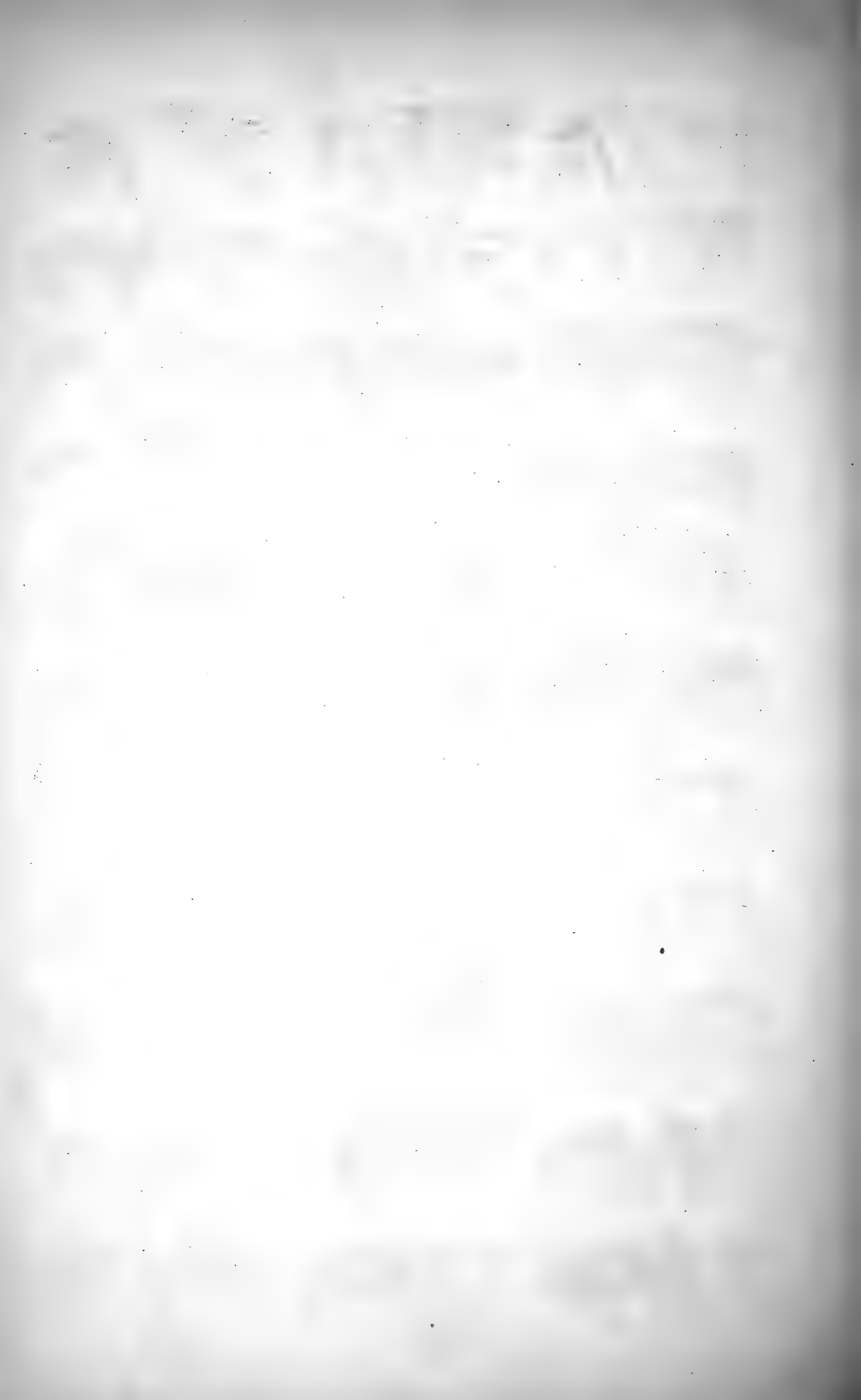
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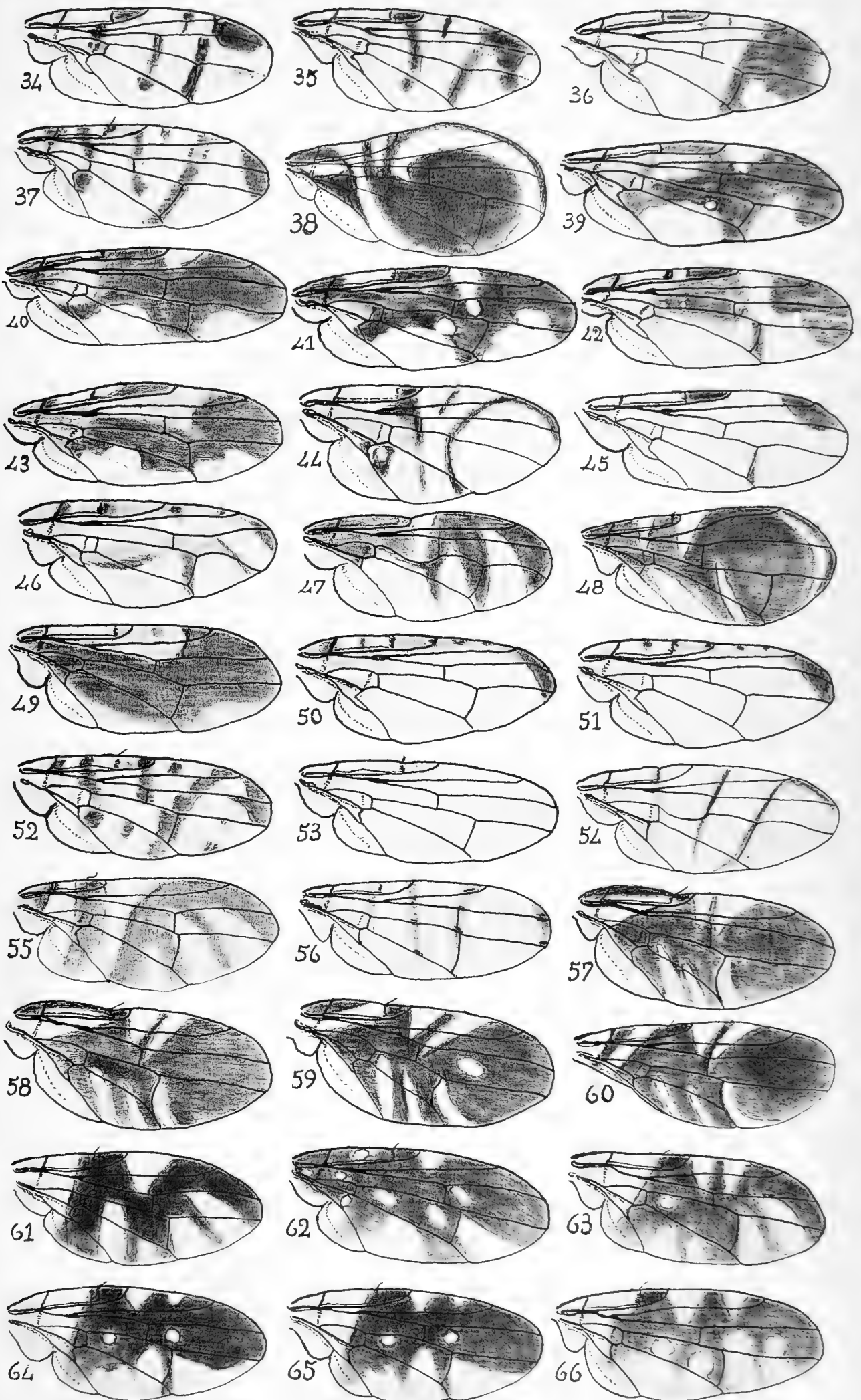


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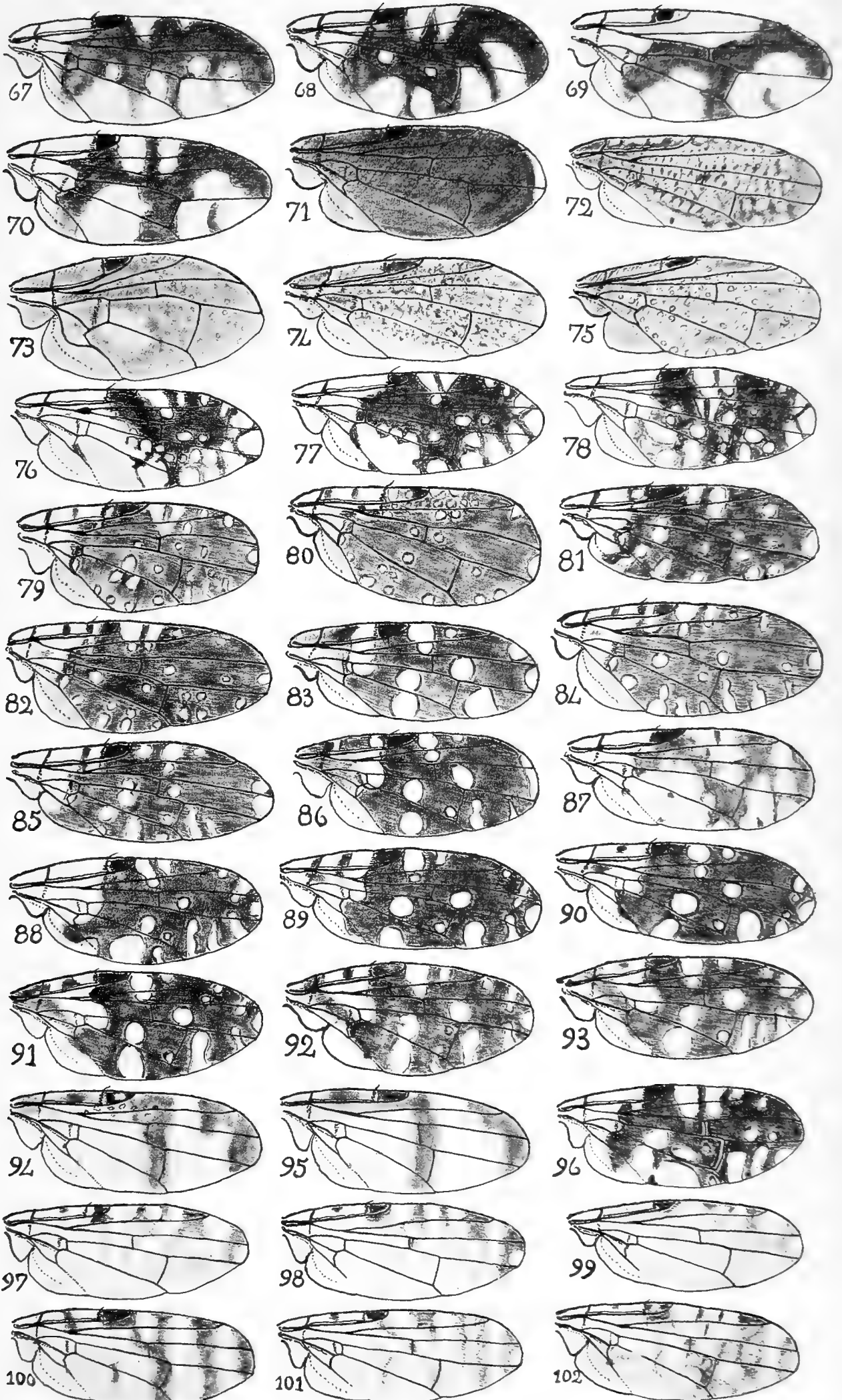




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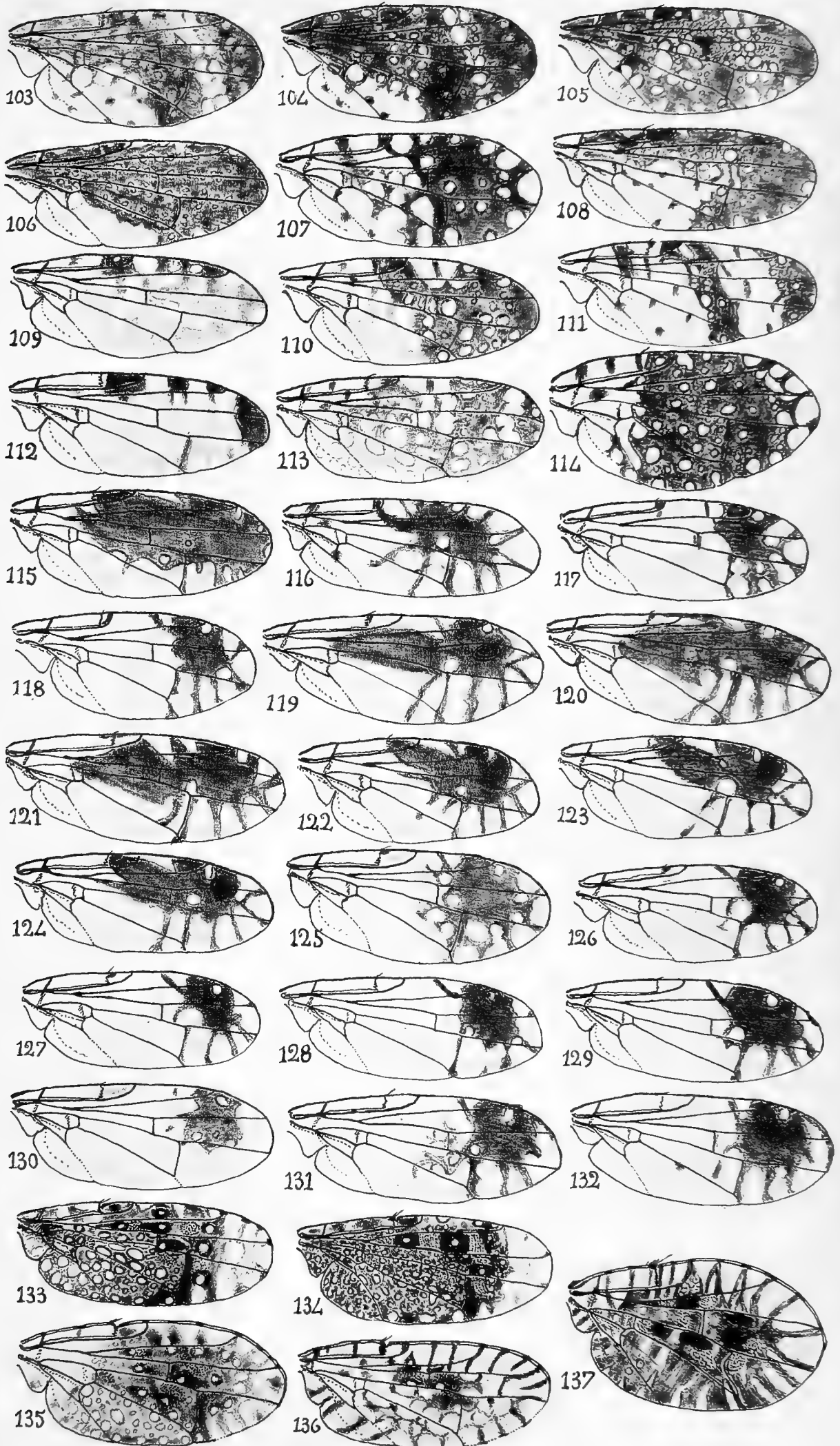




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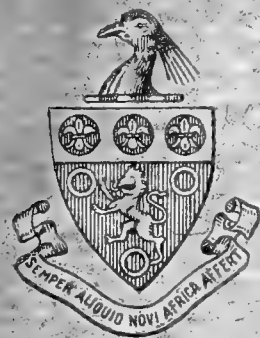
ANNALS  
OF THE  
SOUTH AFRICAN MUSEUM

VOLUME XIX.

PART IV, containing—

10. *New Species of Geometridae (Lepidoptera) in the Collections of the South African Museum.* By LOUIS B. PROUT, F.E.S. (Plates XVI, XVII.)
11. *Mycetophilidae and Bibionidae (Diptera) in the Collections of the South African Museum.* By F. W. EDWARDS, B.A., F.E.S. (Three Text-figures.)

Title Index, etc. to Volume XIX.



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10. *New Species of Geometridae (Lepidoptera) in the Collections of the South African Museum.*—By LOUIS B. PROUT, F.E.S.

(With Plates XVI and XVII.)

THE species and forms here first made known have been accumulating since the publication of my last paper in these Annals (Vol. XVII, pp. 47–77, 1917). The types—excepting *Perizoma artifex basutensis*—and all other material unless otherwise specified, are in the South African Museum. Specimens mentioned as being in the author's collection have been kindly presented by the Museum.

The present opportunity is taken to figure also the species of which we were not able to provide the plate contemporaneously with that memoir; in some cases the type specimens have been sent to Miss Prout for this purpose, in others a paratype or other specimen determined by the author has served as model. Only *Eupithecia subconclusaria* and a few subspecies are now left unfigured. *Obolcola cacotenes* Prout (Ann. S. Afr. Mus., XVII, 73) must rank as purely a synonym, as a very serious blunder was committed; it transpires on re-examination that the specimen is a ♀, with the bristles of the frenulum extraordinarily fused and the abdomen lost, and evidently nothing but a large specimen of the variable *O. ferrorubrata* Walk.

SUBFAM. HEMITHEINAE.

1. *NEROMIA STRIGULOSA* sp. nov.

(Plate XVII, fig. 10.)

♂, 27 mm. ; ♀, 34 mm. Face rose-pink. Palpus white, with strong rosy admixture. Vertex white. Occiput narrowly green. Antennal shaft white, in ♂ stout and furnished with rudimentary pectinations about as in *clavicornis* Prout (Nov. Zool., xxii, 319), in ♀ somewhat tapering. Thorax and abdomen above concolorous with wings, marked with a yellow-white dorsal line or slight ridge as in *rubripunctilla* Prout; pectus white, with a pink tinge in front. Fore and middle legs strongly pink on upper and outer side; hindleg more weakly tinged with pink.

Wings shaped about as in *rubripunctilla*. Forewing with SC<sup>1</sup> free,

R<sup>1</sup> about connate, M<sup>1</sup> closely approximated to R<sup>3</sup>; light yellow-green, brighter and more yellowish than in the allies; the white irroration more strong, more regularly forming transverse strigulae than in the allies; costal margin white; antemedian line obsolete; postmedian faint, from about two-thirds costa, almost parallel with termen; fringe white.—*Hindwing* with SC<sup>2</sup> well stalked in the ♂, scarcely in the ♀, M<sup>1</sup> closely approximated to R<sup>3</sup>; similar to forewing, postmedian line rather more proximal, very slightly sinuate inward in the middle.—Underside rather paler, costal margin more yellowish, line obsolete.

S.W. Africa: Gaub, December 1919 (R. W. Tucker). Allotype ♀ in coll. L. B. Prout.

## 2. MICTOSHEMA SWIERSTRAI TUCKERI subsp. nov.

(Plate XVII, fig. 11.)

*Forewing* with distal margin slightly more curved anteriorly than in *S. swierstrai* Prout (Ann. Transv. Mus., viii, 153), cell slightly longer; SC<sup>1</sup> connected by a very short bar with C, R<sup>1</sup> not stalked; more variegated than the name-type, the median and terminal areas being more blackish, their white boundary lines more decided, some rather conspicuous light-brown shades proximally to the subterminal and (though less defined) near base; antemedian line less excurved between M and SM<sup>2</sup>.—*Hindwing* with termen slightly more convex about R<sup>3</sup>-M<sup>1</sup>; M<sup>1</sup> just separate; similarly differentiated.—Underside with the submarginal band well developed on both wings.

S.W. Africa: Otjituo, June 1920 (R. W. Tucker), 1 ♂.

I provisionally treat this as a subspecies, but it may prove either an aberration or a related species.

## 3. HEMISTOLA (?) EREUTHOPEZA sp. nov.

(Plate XVII, fig. 17.)

♀, 20 mm. Head whitish, becoming red around the eye and at base of antenna. Palpus short and slender, strongly mixed with red. Tongue vestigial. Antenna bipectinate (only the stumps remaining). Thorax whitish, tinged in front with ochreous (discoloured from green?), otherwise with pink. Abdomen white. Legs predominantly red, especially the first two pairs.

*Forewing* with costal margin straight except at base and near apex, termen oblique, gently curved; DC<sup>3</sup> deeply incurved, SC<sup>1</sup> anastomos-

ing at a point with C, SC<sup>2</sup> not anastomosing, R<sup>1</sup> very shortly stalked, R<sup>2</sup> from very near R<sup>1</sup>, M<sup>1</sup> from very near R<sup>3</sup>; yellow-green; costal edge red, separated from the ground-colour by an ochreous shade; fringe flushed with pink.—*Hindwing* with costal margin rather long, apex and termen rounded; DC<sup>3</sup> and R<sup>2</sup> as on forewing; SC<sup>2</sup> well stalked, M<sup>1</sup> well stalked; white, with a tinge of ochreous.—*Forewing* beneath whitish-green at apex and hind margin and narrowly at termen, otherwise strongly suffused with red; fringe as above. *Hindwing* beneath nearly as above, but slightly more greenish, at least costally.

Orange Free State: Petrusburg, 19th April 1918 (Miss J. Skarp).

#### SUBFAM. STERRHINAE.

#### 4. SCOPULA MONOTROPA sp. nov.

(Plate XVII, fig. 24.)

♀, 25–27 mm. Head and body white, with fine brown-grey irroration, the palpus, pectus and fore- and middle-legs slightly browner, the collar narrowly brownish ochreous. Palpus fairly strong, rather longer than diameter of eye. Tongue rather long and strong. Antenna minutely serrate.

Wings appreciably more elongate than in *phyletis* Prout (Ann. Transv. Mus., iii, 197, t. xii, f. 34) recalling the shape of *Leucoxena*\* *lactea* Warr. (Nov. Zool., vii, 94).—*Forewing* white, with a faint tinge of brown and with fine and sparse brown-grey irroration; cell-dot black, minute; lines brown-grey, the antemedian and postmedian strong except at costa, the median weaker; antemedian from costa near middle, almost straight to three-eighths hind margin or rather beyond; median well beyond cell-dot, postmedian about 2 mm. from termen, both slightly incurved to costa and still more slightly excurved to hind margin, otherwise parallel with termen; a weak brownish shade just beyond postmedian, a still weaker one at termen, the sub-terminal line between them ill-defined, fairly broad; terminal line dark brown, slightly interrupted, marked with fine black interneural dots, at least anteriorly; fringe concolorous with termen.—*Hindwing*

\* Warren referred that genus to the "Astheninae," but it is scarcely more than a subgenus of *Scopula*, with stronger (though variable) anastomosis of vein C of hindwing—perhaps connected by intergrades. Fawcett (Proc. Zool. Soc. Lond., 1916, p. 731) treats it as equivalent to (*Scopula* Sect.) *Induna* Warr., which is quite near the mark.

rather purer white; antemedian wanting; cell-dot minute; median extremely fine and weak, apparently touching the cell-dot; postmedian strong except at costa, rather less curved than termen, slightly approaching termen posteriorly; distal shades obsolete; terminal line nearly as on forewing; fringe white.—Underside rather more brownish white, weakly marked; antemedian wanting; median just discernible; postmedian stronger, on hindwing nearer termen and parallel therewith; terminal line and dots not strong.

S.W. Africa: Windhoek, January 1920 (R. W. Tucker). Paratype in coll. L. B. Prout.

Several specimens, including both sexes, have just now come to hand from other localities in the same region (Tsumeb, Gaub, Nuragas, Otjituo). The ♂♂ are slightly more brownish in tone and very feebly marked; antenna bipectinate, with very long branches (the longest about 10 times diameter of shaft); hindleg long and slender, but without spurs.

#### 5. SCOPULA PALLEUCA sp. nov.

(Plate XVII, fig. 19.)

♂, 24 mm.; ♀, 22 mm. Antenna-group of the preceding; the wings—at least in the ♂—appearing slightly less elongate costally and the face perhaps slightly flatter. Head and body white, the palpus sandy ochreous, the femora and tibiae and especially the forecoxa tinged with the same; collar white, postorbital rim tinged with ochreous. Hind tibia of ♂ with a pair of rather long terminal spurs; of ♀ with the proximal spurs placed at just beyond three-fourths (in *monotropa* before three-fourths).

*Forewing* with cell over one-half (slightly longer than in *monotropa*); white, with scarcely perceptible whitish-sandy irroration; cell-dot sandy grey (more blackish in the ♀); a postmedian line very faintly indicated, rather nearer to cell-dot than to termen, about parallel with the latter, slightly thickened on SM<sup>2</sup>; no terminal line.—*Hindwing* white, with dark grey cell-dot, in the ♀ also with faint traces of curved postmedian.—Forewing beneath more smoky (very strongly so in the ♂); both wings with traces of cell-dot and postmedian line.

S.W. Africa: Tsumeb, December 1919 (R. W. Tucker). Allotype ♀ in coll. L. B. Prout.

A ♂ from N'Gami Country (F. D. Lugard) has long stood unnamed in coll. Brit. Mus.

## 6. SCOPULA PALPIFERA sp. nov.

(Plate XVII, fig. 26.)

♂, 28 mm.; ♀, 34 mm. Face brown. Palpus long for the genus ( $1\frac{3}{4}$ ); brown or somewhat sandy, beneath white. Vertex white. Antenna in ♂ pectinate, with long branches; in ♀ pubescent and with small tufts of suberect scales. Collar whitish. Thorax and anterior part of abdomen white; abdomen posteriorly apparently with dorsum infuscated (? discoloured). Legs white. (Hindlegs of ♂ lost.)

*Forewing* slightly elongate; cell scarcely over one-half; SC<sup>1</sup> from areole (♂ type) or shortly stalked (♀); white, beyond the postmedian line with an extremely faint suggestion of grey; cell-dot brownish, minute, very faint; lines pale grey, very faint, especially the first two, which appear to be parallel with the postmedian; median line beyond cell-dot; postmedian curved anteriorly, then parallel with termen feebly waved; no terminal line.—*Hindwing* with costa slightly elongate, apex and termen rounded; as forewing, without first line, postmedian a little less curved than termen.—Underside slightly greyer (irrorated), especially costa of forewing and distal area of both wings; cell-dots and the markings beyond present.

S.W. Africa: Otjiwarongo, January 1921 (J. S. Brown). Allotype ♀ in coll. L. B. Prout.

Possibly nearest to the white forms of *curvimargo* Warr. (Nov. Zool., vii, 92), but with considerably longer palpus, hindwing not bent at R<sup>3</sup>, etc.

## 7. SCOPULA CARNOSA sp. nov.

(Plate XVII, fig. 25.)

♂♀, 23 mm. Face black. Palpus short; black above, ochreous beneath. Vertex white, anteriorly with a fleshy tinge. Antenna fleshy whitish; ciliation in ♂ rather longer than diameter of shaft. Collar brownish ochreous. Thorax flesh colour. Abdomen above paler flesh colour, the segments posteriorly edged with whitish; beneath fleshy whitish. Legs tinged with flesh colour, the anterior with brown and grey; hind tibia of ♂ slightly longer than femur, not appreciably dilated, without spurs, tarsus rather longer than tibia.

*Forewing* with termen smooth; cell one-half or very slightly over; deep flesh colour, without dark irroration; cell-dot minute, black-grey; first two lines almost entirely obsolete, faintly indicated in deeper reddish, the antemedian curved at nearly one-third, the median

from well beyond midcosta, very gently curved anteriorly, then oblique to middle of hind margin; postmedian at 2 or 2.5 mm. from termen, very slender and faint, but marked with minute grey dots on the veins, very slightly sinuate inward in the usual positions; termen with minute black-grey or red-grey interneural dots, strongest in anterior half; fringe concolorous.—*Hindwing* with termen bluntly angled at  $R^3$ ; similar to forewing, first line wanting, median well proximal to cell-dot, gently curved, obsolete in front of SC, postmedian with rather deeper sinus between the radials.—Underside glossy ochreous whitish, in places with a fleshy tinge, forewing with some slight irroration, especially in and near the cell; both wings with cell-dot, terminal dots and an indistinct postmedian.

Transvaal: Potgieters Rust (G. M. Melle), February 1920 (type ♂), December 1919 (allotype ♀ in coll. L. B. Prout).

Pinker than *pudens* Warr. (Nov. Zool., xii, 35), the cell apparently a trifle longer, termen of hindwing rather less crenulate, markings weaker, postmedian straighter, forewing beneath greyer.

#### 8. PTYCHOPODA FUMILINEA f. CONFRACTA form. nov.

(Plate XVII, fig. 7.)

♂♀, 18 mm. Ground-colour ochreous whitish instead of reddish, only with costal margin of forewing and termen of both wings narrowly (with fringes) brighter ochreous; dark irroration very much more sparse, median shade of forewing tending towards obsolescence or incompleteness.

Cape Colony: Montagu, October 1919 (K. H. Barnard), type ♀ in coll. S. Afr. Mus., a pair in coll. L. B. Prout; Cape Town (P. C. Keytel), 2 ♂♂ in the same collections. Also occurs in Natal (Rietviel, coll. A. J. T. Janse; Estcourt, coll. Brit. Mus.).

#### 9. PTYCHOPODA PLESIOSCOTIA sp. nov.

(Plate XVI, fig. 21.)

♂, 14 mm. Face and palpus black. Vertex whitish. Antenna evenly ciliated, the cilia scarcely as long as diameter of shaft. Thorax and abdomen concolorous with wings. Hind tibia slender, scarcely longer than femur; hind tarsus slender, rather longer than tibia.

*Forewing* with costa slightly arched, apex rounded, termen strongly oblique; areole rather small,  $SC^1$  stalked beyond its apex; glossy

pale stramineous, with some scattered blackish atoms; costal edge blackish from base to antemedian line; cell-dot black, large; first two lines fine, blackish, arising from strong costal spots, otherwise indistinct and interrupted, becoming somewhat better defined and V-shaped (angulated outward) at SM<sup>2</sup>; median sinuous, placed near antemedian, well proximal to cell-dot; postmedian arising from a narrower blackish costal mark; sinuous, about midway between cell-dot and termen; fringe with a row of somewhat elongate blackish dots near base, opposite the veins.—*Hindwing* rather narrow, apex moderately pronounced, termen very slightly sinuate inward in posterior half; costal area slightly paler; lines feeble, best marked in abdominal region; cell-dot and fringe as on forewing.—Forewing beneath more infuscated, except in the distal half of costal region, costal edge rather broadly blackish from base to median line; median and postmedian lines present, not reaching hind margin; cell-dot indicated; fringe less strongly spotted than above. Hindwing beneath rather paler, with conspicuous cell-dot and fine, weak lines.

Cape: Dunbrody, May 1915 (Rev. A. Vogt).

I do not think this can be a local form of *squamulata* Warr. (Nov. Zool., vii, 93), which has also the long and slender hindleg; apart from the very different aspect (large cell-dots, absence of dark marginal shades, etc.), the antenna, though not in perfect condition, appears to differ markedly, the joints scarcely projecting and the ciliation being shorter (in *squamulata* 1½ or 2, somewhat fasciculate). Costa of forewing more arched than in *macrostyla* Warr. (Nov. Zool., vii, 92), ground-colour less sandy, distinguished further by the cell-dots and by having less weak markings (except the postmedian).

#### SUBFAM. LARENTIINAE.

##### 10. ORTHOLITHA ALUMNA sp. nov.

(Plate XVII, fig. 9.)

♂, 31–34 mm. Closely related to *O. africana* Warr. (Ann. S. Afr. Mus., X, 22), scarcely differing in structure, though the palpus may be slightly shorter. Body above darker. Wings darker, more glossy, slightly narrower, at least the hindwing, which has the costal margin relatively somewhat longer.

*Forewing* with basal and median bands blacker and more solid, without brown admixture; a narrow fulvous-brown band, on the other hand, developed more or less strongly midway between these

areas ; similar, but more interrupted, brown shading between median band and subterminal line ; subterminal in anterior half broken into interneural white dots, in posterior half slender and less deeply lunulate than in *africana*.—*Hindwing* with cell-mark stronger than in *africana*, especially on underside, where it is appreciably elongate.—*Forewing* beneath much more smoky than in *africana*, becoming pale at anal angle and with a slight pale-ochreous costal spot distally to the postmedian line. *Hindwing* beneath recalling in its purple-grey tone that of *O. epiperona* Prout or of *Larentia inaequata* Walk. ; a rather indistinct, rather thick postmedian line, strongly curved near costa, thence pretty straight, passing just outside the posterior angle of cell ; a still more vague subterminal band.

Cape Town : Table Mountain, March 1918 (K. H. Barnard). Paratype in coll. L. B. Prout.

#### 11. ORTHOLITHA CRENULIMARGO sp. nov.

(Plate XVII, fig. 12.)

♂, 34 mm. Head and body predominantly concolorous with wings, palpus darkened on outer side, legs in part darkened, metathoracic crest dark, abdomen dorsally with first segment somewhat ochreous, the rest with dark belts at ends of the segments. Antenna bipectinate nearly to apex, with moderate branches. Abdomen rather slender, with last few segments tufted laterally.

*Forewing* with apex round-pointed, termen weakly crenulate ; glossy brown-grey or reddish-grey, with the basal and median areas darker and more red-brown, the coloration reminiscent of *Pelurga comitata* ab. *moldavinata* Caradja ; basal area bounded by a yellow-white line, which arises at about one-fourth costa and runs obliquely inward to about one-fifth hind margin, faintly sinuate inward in cell, otherwise straightish ; lines in succeeding area very ill-defined ; median band 6 mm. wide at costa, 5 mm. at hind margin, its proximal yellow-white boundary line only well expressed at costa, behind M making an angular projection into the band, then running obliquely baseward to hind margin ; cell-dot small, black, slightly elongate transversely ; some wavy lines discernible in the distal part of the band, the one midway between cell-dot and postmedian strongest ; the whitish line which limits the band distally moderately well defined, rather strongly indented between the radials and more gradually between R<sup>3</sup> and SM<sup>2</sup>, leaving a blunt tooth at R<sup>3</sup> ; proximal dark



shading of subterminal line moderate in anterior half (where the subterminal itself is finely indicated in white, thickening into three dots between SC<sup>4</sup> and R<sup>2</sup>), appreciably developed again near hind margin, almost obsolete between; a slight oblique dark mark from termen close to apex; terminal line weak, interrupted at the veins; fringe feebly mottled.—*Hindwing* with termen markedly crenulate; paler than forewing, with a shadowy grey tinge as far as the postmedian line; cell-dot and lines between it and the postmedian faintly indicated; postmedian pale line bisinuate inward, more deeply near abdominal margin than at radials, at abdominal margin accompanied proximally by a slight dark mark; subterminal with weak proximal grey interneural spots, at least in anterior half; terminal line fine and weak, but not interrupted; fringe as on forewing.—*Forewing* beneath more weakly marked, the basal and median bands hardly darkened; a conspicuous dark costal spot between them; cell-dot very small but well defined; a fine dark postmedian line, strongest at costa, where it curves proximally; subterminal markings of anterior half nearly as above, of posterior part obsolete. *Hindwing* beneath more sharply marked than above, bearing a strong cell-dot, rather strong dark postmedian line and nearly complete dark proximal subterminal shade.

Cape Province: Hottentots Holland Mountains, Caledon 4,000 feet, March 1919 (K. H. Barnard), type; Table Mountain, February 1919 (K. H. Barnard); a ♂ in coll. L. B. Prout.

## 12. PERIZOMA (?) ARTIFEX sp. nov.

(Plate XVII, fig. 6.)

♀, 16–17 mm. Head and palpus dark fuscous, spotted with white; palpus about twice as long as diameter of eye, its proximal part white beneath. Thorax dark fuscous, mixed with white, especially posteriorly; abdomen dark fuscous, irrorated with white and with narrow white belts at ends of segments.

*Forewing* rather narrow, termen oblique, slightly waved; fuscous, irregularly irrorated with blackish fuscous and with a few whitish scales; basal area blackish anteriorly, bounded distally by a strongly excurved whitish line, which touches the pale antemedian in the middle; succeeding area predominantly blackish, especially posteriorly; proximal boundary of central fascia double, proximally pale buff, distally white with slight suffusions of the ground-colour, the fine dividing-line dark fuscous; central fascia fairly broad, its

proximal edge curved anteriorly, otherwise nearly direct, the central part (between two ill-defined wavy dark lines, the outer of which is partly white-edged distally) clouded and containing a large black cell-spot, its distal edge slightly indented opposite the cell, slightly incurved at  $M^2$  and with a strong outward projection in cellulae 3 and 2, reaching its extreme point in the former and slightly incurved at  $M^1$ ; subterminal line white, sharpest at costa, otherwise interrupted, the area proximal to it darker than the distal. The latter containing a triangular area of white irroration at apex (bounded posteriorly by an oblique dark subapical dash) and with a white spot in cellule 3, both extending on to the fringe; terminal dark line interrupted by buff dots on the veins; fringe predominantly fuscous in proximal half, with dark spots opposite the veins, the distal half with a proximal white line and fuscous tips.—*Hindwing* narrow, costal margin elongate; more blurred, without dark admixture except along abdominal margin and termen, the markings of the underside feebly reproduced.—*Forewing* beneath with all the white lines sharply marked anteriorly, blurred posteriorly. *Hindwing* beneath very sharply marked, white with coarse fuscous irroration (especially in proximal half) and with dark fuscous antemedian, postmedian, and subterminal bands (the first two narrow, scarcely more than lines), cell-spot and interrupted terminal line; the third white area bisected with strong fuscous irroration, the fourth (last) clearer white proximally than distally.

Cape Town, April 1918 (K. H. Barnard). Paratype undated, in coll. L. B. Prout.

A large race (19–20 mm.), altogether whiter—face whitish, median area of forewing much mixed with white, the lines which bound it broadened, subterminal broad, diffused distally almost to termen, hindwing above whitish with shadowy markings, beneath with the white bands broader and clearer, the dark ones less sharp—may be named ***Perizoma artifex basutensis* subsp. nov.**, Machacha, 10,000 feet, Basutoland, 29th January 1902 (R. Crawshay), 3 ♂♂ in coll. Brit. Mus. ♂ antenna lamellate, with teeth as long as diameter of shaft, bearing tufts of short cilia.

### 13. *HORISME PALLIDIMACULA* sp. nov.

(Plate XVII, fig. 5.)

♂, 27–28 mm. In shape, structure and general facies near *obscurata* Prout (Ann. Transv. Mus., iii, 205, t. xii, f. 21), distinguished as follows: Abdominal crests relatively larger.

*Forewing* with both areoles narrowed; rather darker than the ♂ of *obscurata*, more uniform in tone than the ♀, except for an elongate pale blotch or streak in front of  $M^1$  from the outer rivulet band nearly to the termen; median area projecting less between the radials.—*Hindwing* with postmedian line projecting less between the radials; a pronounced whitish dot in the (otherwise inconspicuous) subterminal line between  $R^3$  and  $M^1$ .—Underside much more sharply marked than in *obscurata*, more suggestive of *Camptogramma natalata* Walk., though less strongly darkened distally; discal dots enlarged; hindwing, as well as forewing, with the pale distal blotch or streak.

East Transvaal: White River, 18th September 1909 (A. T. Cooke). Paratypes in coll. Brit. Mus. et coll. L. B. Prout.

#### 14. EUPITHECIA LIGHTFOOTI sp. nov.

(Plate XVII, fig. 2.)

♀, 21 mm. Near *emmeles* Prout (Ann. Transv. Mus., viii, 163). Face and upper side of palpus more black-mixed. Thorax and abdomen above more tinged with slate-colour, the irregular belts of pale olivaceous buff more sharply contrasted; a double black-grey metathoracic crest; the small abdominal crests pale buff.

Wings darker.—*Forewing* with termen less oblique; cell-mark broader; median band rather broader (probably individually variable); subterminal line finer and more dentate.—*Hindwing* with postmedian line straighter, its accompanying white band more sharply defined distally.—Both wings beneath with the white subterminal line obsolete.

Cape Town, March (R. M. Lightfoot).

Belongs to the *perizomoides*-group, which—by the ampler hindwing, scarcely developed abdominal crests, etc.—will probably require separation from true *Eupithecia*. Perhaps an off-shoot of *Epirrhoe*?

#### 15. EUPITHECIA LICITA f. VEPALLIDA form. nov.

♂, 23–24 mm. Larger and whiter than name-typical *licita* Prout (Plate XVI, fig. 10; Ann. S. Afr. Mus., XVII, 55).—*Forewing* with median band more definitely broken up into a broader proximal and a narrower distal band, leaving a narrow clear one between, on which is placed the cell-dot.—*Hindwing* with distinct indications of postmedian line and tornal spot.—Underside more shaded (especially forewing), leaving white postmedian and terminal bands.

Cape Province : Knysna, October 1916 (L. Péringuey). Paratype in coll. L. B. Prout.

16. *LITHOSTEGE SESQUIFASCIA CANESCENS* subsp. nov.

(Plate XVII, fig. 3.)

Differs from *sesquifascia sesquifascia* Prout (Ann. Transv. Mus., iii, 202, t. xii, f. 31) in having the forewing greyer (less strongly irrorated with brown), its costal margin hardly noticeably browner than the ground-colour; bands olive-fuscous, generally rather weak, never bright brown, the white lines which bound them slender, the line proximal to the outer band less straight, forming an appreciable though always slight curve or bend inwards between  $R^1$  and  $M^1$ ; the bands variable in width, the proximal half band being broad in the ♀ aberration from Nuragas. Hindwing and underside much less brown than in *sesquifascia sesquifascia*.

S.W. Africa : Otjiwarongo, May 1921 (J. S. Brown), type and paratype ♂, the latter in coll. L. B. Prout; Tsumeb, June 1920 (R. W. Tucker), a ♀ in coll. L. B. Prout; Nuragas, December 1919 (R. W. Tucker), a strongly marked ♀ ab. in coll. S. Afr. Mus.

SUBFAM. GEOMETRINAE.

17. *DREPANOGENIS ATHROÖPSEGMA* sp. nov.

(Plate XVII, fig. 15.)

♂, 33 mm. Head and body concolorous with wings. Palpus slender, scarcely reaching beyond frons. Antennal pectinations blackish, slender, the longest about 5 times diameter of shaft. Abdomen rather slender.

*Forewing* with apex not produced, termen slightly curved, subcrenulate, not gibbous in middle; cell not extremely long; whitish grey, with a tinge of ochreous brown and with copious brown and black irroration, mostly confluent into fine transverse strigulae; a part of the median area between  $M^2$  and  $SM^2$  more sparsely irrorated, a subterminal band almost clear; cell-spot large, oblong, black; lines blackish, rather thick, not very sharply defined; antemedian from costa at three-tenths, nearly straight to submedian fold, thence oblique inward, postmedian from just beyond three-fourths costa, very faintly incurved between  $R^2$  and hind margin; a rather less

distinct, band-like line shortly beyond, interrupted from  $R^3$  nearly to  $R^1$ .—*Hindwing* with termen subcrenulate, a slightly deeper excision between the radials; rather less strongly irrorated than forewing, especially towards costa, the irroration rather less striguliform; a cell-dot feebly indicated; postmedian line represented but rather finer and weaker than on forewing.—Both wings beneath more sparsely irrorated, the forewing slightly suffused except at costal and distal margins; forewing with cell-spot reduced, antemedian line obsolescent, postmedian strongest at costa, the line beyond obsolescent; hindwing with postmedian slightly better marked than above, especially anteriorly.

Cape Province: Ceres, April 1913 (R. M. Lightfoot).

Build and antennal pectinations more slender than in the other notably strigulated species, *strigulosa* Prout (Nov. Zool., xxiii, 280); perhaps nearer to *incondita* Warr. (Nov. Zool., xi, 476, as *Dyscia*), but with shorter cell of forewing, considerably shorter pectinations, etc.

#### 18. EUPAGIA ROBERTSONI sp. nov.

(Plate XVII, fig. 14.)

♂, 38 mm. Head grey, on outer side red-brown. Frontal tuft not strong. Palpus with second joint shorter than typical, loosely haired; mostly red-brown, dark mixed. Antenna light brown; pectinations rather less long than in *determinata* Walk. Thorax and abdomen grey, the pectus in front mixed with rufous. Legs spotted with rufous and blackish.

*Forewing* with termen waved, not crenulate, rather more oblique and more regular than in *determinata*; glossy grey, in places—especially costally and terminally—tinged with brown; some sparse black irroration; costal edge light brown; antemedian line black, oblique outward from about one-fourth costa, recurved in cell, then obsolete; cell-dot black, minute; a reddish-brown, densely black-irrorated shade between this and the postmedian, becoming narrow and ill-defined behind, scarcely suggested in posterior half of wing; postmedian rather near termen, fairly direct, consisting of black dots on the veins with very faint, very shallow lunules inward between; shadowy grey subterminal spots; fringe tinged with brown.—*Hindwing* with termen feebly crenulate anteriorly and scarcely so posteriorly; paler than forewing, with a minute cell-dot and with traces in posterior part of wing of a fine, distally pale-edged postmedian

line ; fringe tinged with brown.—Forewing beneath rather pale grey ; costal margin light brownish, spotted with dull, dark rufous ; cell-dot and anterior part of postmedian line indicated. Hindwing pale, in places whitish, with some rather coarse irroration, especially costally.

Cape Peninsula : Kalk Bay, May 1921 (Robertson).

A slightly larger ♂ from Stellenbosch, 30th March 1921 (Ch. K. Brain), has subsequently been submitted to me for determination by Prof. Janse.

#### 19. EUPAGIA CANILINEA sp. nov.

(Plate XVII, fig. 16.)

♂, 39–41 mm. Structure nearly as in the preceding, wing-shape slightly intermediate towards that of *determinata* Walk. Head and body brown, with a good deal of blackish admixture ; face, palpus, tegulae and tarsi predominantly dark.

*Forewing* brown, with a fleshy or reddish tinge and with copious, coarse, olive-blackish irroration, which condenses to form the not very sharply defined lines and oval cell-spot ; antemedian line at about one-third, bent outward behind cell, then inward, marked with some hoary scales ; postmedian from about three-fourths costa, irregularly lunulate, slightly excurved anteriorly, incurved between R<sup>3</sup> and M<sup>2</sup>, accompanied distally by a tolerably complete line of hoary or glaucous-whitish scaling ; fringe weakly spotted opposite the veins.—*Hindwing* with first line and cell-spot obsolete, postmedian similar to that of forewing, slightly farther from termen.—Underside similarly coloured, becoming whitish at hind margin of forewing ; both wings with rather blurred dark postmedian line, the pale scales distally to it weaker than above.

Cape Peninsula : Kalk Bay, January 1921 (Robertson), 2 ♂♂, the paratype in coll. L. B. Prout.

Both this and the preceding species are in some measure transitional towards *Derrioides* (= *Eulasia*), which will perhaps have to be regarded as a section of *Eupagia*.

#### 20. ECTROPIS PARACOPA sp. nov.

(Plate XVII, fig. 18.)

♂, 43 mm. Exceedingly like *E. sublimbata* Warr. (“*Myrioblephara*”). Larger, rather more slenderly built, the markings less

heavy. Antenna with the typical structure of *Ectropis* (short paired processes bearing fascicles of cilia, whereas *sublimbata* has developed short fasciculate pectinations), the cilia longer than diameter of shaft.

*Forewing* with cell only one-half (in *sublimbata* over one-half); antemedian line apparently less deeply outbent; postmedian slightly farther from discal ocellus, anteriorly parallel with termen (in *sublimbata* curving appreciably inward costally); subterminal with longer teeth outward between  $R^3$  and  $M^2$ .—*Hindwing* with postmedian line less strongly incurved in posterior half than in *sublimbata*; beneath without the dark longitudinal streak in cell which is often developed in that species.

Cape Province: Hottentots Holland Mountains, 4,000 feet, Caledon Division, January 1916 (K. H. Barnard).

The type is worn, but quite recognisable. The three species *sublimbata* Warr., *simplex* Warr. (“*Idiotephra*”), and *paracopa* form a closely related group, which looks as though it should be well separable generically from true *Ectropis*, but unfortunately seems connected therewith by various intergrades in respect of the taxonomic characters at present used. All three have the face smooth, the palpus very short (usually less than diameter of eye), the wings rather elongate, almost smooth-margined (smoothest in *simplex*), the first two subcostals of the forewing coincident, the fovea wanting, the hind tibia not dilated. In Warren’s two species the ♂ antenna bears pairs of true pectinations (he is hardly accurate in treating these as mere pedicels in *simplex*, for they are rather longer than the diameter of the shaft) and the cell of the forewing more than one-half. Whatever may be the ultimate fate of *Ectropis* as a genus, it is pretty certain that *Myrioblephara* must be merged in it; and *sublimbata* has not even the structure of typical *Myrioblephara*.

## 21. TEPHRINA EXERRARIA sp. nov.

(Plate XVII, fig. 20.)

♂♀, 22–25 mm. Like *deerraria* Walk., but smaller, with the postmedian line of forewing gently excurved in anterior part (in *deerraria* straight), generally rather thicker but often less sharply defined, accompanied distally by a more conspicuous brown shade than in *deerraria*; proximal half of distal area generally rather strongly dark-clouded; in addition, the median shade, which in *deerraria* is

generally placed distally to the cell-spot (though very variable), seems in *exerraria* to be always proximal, browner, often obsolescent, anteriorly only marked in fuscous as a spot on hind margin.

Cape Province: Clanwilliam, a long series in coll. South African Museum et coll. L. B. Prout.

This was submitted to my inspection by the Museum some years ago and passed over as a dwarf race of *deerraria*, though the constancy of its size arrested my attention; on account of the postmedian line I think it must be a separate species, or possibly a local race of *disputaria* Guen.

## 22. TEPHRINA (?) DIARMODIA sp. nov.

(Plate XVII, fig. 21.)

♀, 26 mm. Face prominent, rounded, without projecting cone. Palpus moderate (antennae lost). Head and body concolorous with wings, the pectus, anterior part of abdomen beneath and greater part of the legs whitish, with only very sparse irroration.

*Forewing* with apex rather more pointed than in the *disputaria* group; SC<sup>1.2</sup> coincident, touching SC<sup>3.4</sup> at a point; very pale sand-colour, with darker sandy irroration and markings; costal edge dark-spotted, especially in proximal half; some black irroration at base; antemedian line from just beyond one-third costa, oblique outward, behind SC strongly bent, thence about parallel with termen at the bend and at hind margin slightly thickened; cell-spot oval, darkened anteriorly; median shade excurved just beyond cell-spot, very gently incurved posteriorly, from M<sup>2</sup> thickened and irrorated with black; succeeding space scarcely irrorated; postmedian line about 3 mm. from termen, still more gently curved than median; a slightly sinuous-edged band beyond, about 1.5 mm. broad, its distal half irrorated with black; subterminal shade indicated by sparseness of irroration; terminal line interrupted; (fringe wanting).—*Hind-wing* with termen slightly waved; nearly as forewing, paler proximally; cell-spot smaller, median shade fine, just proximal thereto; postmedian more proximal than usual—placed and shaped almost as in *Semiothisa alternata* Warr. (Nov. Zool., vi, 306); praesubterminal dark band far beyond the postmedian, continuing the distal half of the forewing band, and curving slightly so as to reach hind margin close to tornus; slight macular shading midway between postmedian line and this band; pale subterminal shade broadening posteriorly.—



Underside with no black irroration, cell-marks weak, lines almost obsolete; both wings with ill-defined praesubmarginal band.

Cape Province: Upington, January 1919 (Father R. Solier).

23. HYOSTOMODES EXTRUSILINEA sp. nov.

(Plate XVII, fig. 22.)

♂♀, 25–27 mm. Head, body and legs mostly ochreous brown, the thorax above, especially in front, shaded with grey, the abdomen slightly paler dorsally than ventrally. Frontal prominence with the vertical suture strong, the knob below undeveloped. Antennal ciliation in ♂ scarcely as long as diameter of shaft.

*Forewing* with termen perhaps even more faintly sinuate in anterior half than in *nubilata* Warr.; ochreous light-brown, rather strongly irrorated with grey, which forms an appreciable, though not sharply-defined, darker triangular cloud distally, commencing in a point at termen close behind SC<sup>5</sup>, at hind margin occupying half the wing-length; costal margin slightly less irrorated, the commencement of the lines here showing as outwardly oblique brown marks, the median nearer to the postmedian than to the antemedian; markings otherwise almost entirely obsolete; a faintly dark, somewhat elongate cell-mark indicated, also a slight pale shade from apex, bounding the grey border proximally, and an ill-defined dark spot or streak between R<sup>3</sup> and M<sup>1</sup> on the proximal edge of the grey border; a weak dark terminal line; fringe slightly mottled, traversed by two fine whitish lines, the stronger one at base, the slighter in middle.—*Hindwing* less strongly irrorated; a small blackish cell-dot; a brown postmedian line from about two-thirds costa, projecting outward to a point at R<sup>1</sup>, then slightly sinuous to hind margin at three-fifths, where it is marked by a dark, distally white-edged dot; distal dark shade weak and narrow; termen and fringe nearly as on forewing.—*Underside*, especially of hindwing, more ochreous, on the forewing becoming whitish-mixed posteriorly and with the grey terminal shade indicated anteriorly and continuing very narrowly to SM<sup>2</sup>; both wings with a slightly reticulated appearance and with a moderately conspicuous dark cell-dot (on forewing slightly elongate), termen and fringe as above.

South Rhodesia: Umvuma (Rev. Neville Jones). Paratypes in coll. A. J. T. Janse et coll. L. B. Prout. A long series in coll. Brit. Mus. from Salisbury, collected by Mr Guy A. K. Marshall.

An obscure little species but with a characteristic feature in the markedly projecting line of the hindwing.

## 24. SEMIOTHISA BRONGUSARIA EXOSCIODES subsp. nov.

♂, 28 mm. Slightly narrower-winged than typical *brongusaria* Walk., hindwing appreciably more bent at R<sup>3</sup>, showing an approach towards the shape of *S. parallacta* Warr. (Nov. Zool., iv, 112), etc. Ground-colour as in the least ochreous (more whitish) *brongusaria*, with grey irroration which leaves a paler area on the forewing proximally to the postmedian line and forms on both wings a rather definitely darkened distal area. Forewing with median line crossing the cell-dot; oblique pale subapical streak narrow, the two dark dots in front of the angle of the postmedian line (before and behind SC<sup>5</sup>) rather strong, the pale tornal patch small and ill-defined, the dark spot proximal to it not strong, divided into two by the submedian fold. Hindwing with the dark border traversed by a fairly distinct whitish subterminal line.

S.W. Africa: Grootfontein (R. W. Tucker).

On the strength of a single specimen, the status of this form is largely conjectural; differences of shape, even when only slight, are very generally specific, while on the other hand they may conceivably prove only teratological. On the whole, it seems best to regard the specimen as representing a form of the extremely variable *brongusaria*, with which it agrees in venation, non-dilated hind tibia, etc., and which is abundant in the Cape Province and S.E. Africa.

It has unfortunately been decided that the name *Semiothisa* Hüb. is prior to *Macaria*.

## 25. OBOLCOLA PULVEREA (Prout) ab. SCOTOZONA ab. nov.

This species, doubtfully described by me from a ♀ with rather exceptional venation as an aberrant *Sicyodes* (Ann. S. Afr. Mus., XVII, 64) and now figured (Plate XVII, fig. 23) proves to be an *Obolcola*; ♂♂ from the type locality (March and April) agree with it except in their smaller size and more sharply expressed cell-dots. Among them is a remarkable aberration with the cell-spots enlarged (that of forewing ocellated) and with a continuous subterminal dark band above and beneath, strongest and most solid on forewing above: ab. *scotozona* ab. nov.

The present occasion may be taken to correct an unfortunate erratum (*tom. cit.*, p. 65). The paragraph at the end of No. 25 (*Sicyodes subochrea*), commencing "A damaged ♀" is out of place and belonged at the end of No. 24, *pulverea*, though I now think the

specimen in question is more likely to belong to *petronaria* ab. *aliena* Prout—really too worn to make out.

#### ADDENDUM.

##### 26 (8A). SCOPULA EUCHROA sp. nov.

♂, 28 mm. Face black. Palpus black, pale beneath and on inner side. Vertex and antenna pale flesh-colour; ciliation slightly longer than diameter of shaft. Thorax and abdomen flesh-colour. Fore coxa and femur largely black. Hind tibia with both pencils; tarsus almost as long as tibia, 1st joint fully twice as long as 2nd.

*Forewing* with costa scarcely arched, apex moderately acute, termen moderately oblique, slightly curved; areole moderate, SC<sup>1</sup> stalked just beyond it; whitish ochreous, almost entirely suffused with flesh-colour; costal edge narrowly browner; sparse and minute blackish irroration; cell-dot small, but sharply black; lines pink, not very strong; antemedian obsolete; median fairly thick, very oblique, arising near costa at about four-fifths (very near postmedian), scarcely curved, reaching hind margin at about three-fifths; postmedian 2 mm. from termen, fine, weakly lunulate inward between the veins; subterminals very feebly indicated; faint traces of a brown terminal line, with minute greyer interneural dots; fringe concolorous.—*Hindwing* with termen moderately rounded; a minute black cell-dot; median shade curved, passing just outside it; postmedian nearly 3 mm. from termen; proximal subterminal nearly as well indicated as postmedian; termen as on forewing.

Underside without the fleshy suffusion. Forewing heavily suffused with black-grey as far as the oblique line, near base almost black; oblique line and postmedian black-grey, distinct. Hind margin and hindwing much paler; hindwing almost unmarked, except for cell-dot.

Cape Province: Witte River, Wellington, 1,500 feet, November 1922 (R. Laurence).

Larger than *carnosa* (*supra*), paler, the outer lines less obsolescent, terminal black dots undeveloped, underside distinctive, structure of hindleg different.

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EXPLANATION OF PLATES.

PLATE XVI.

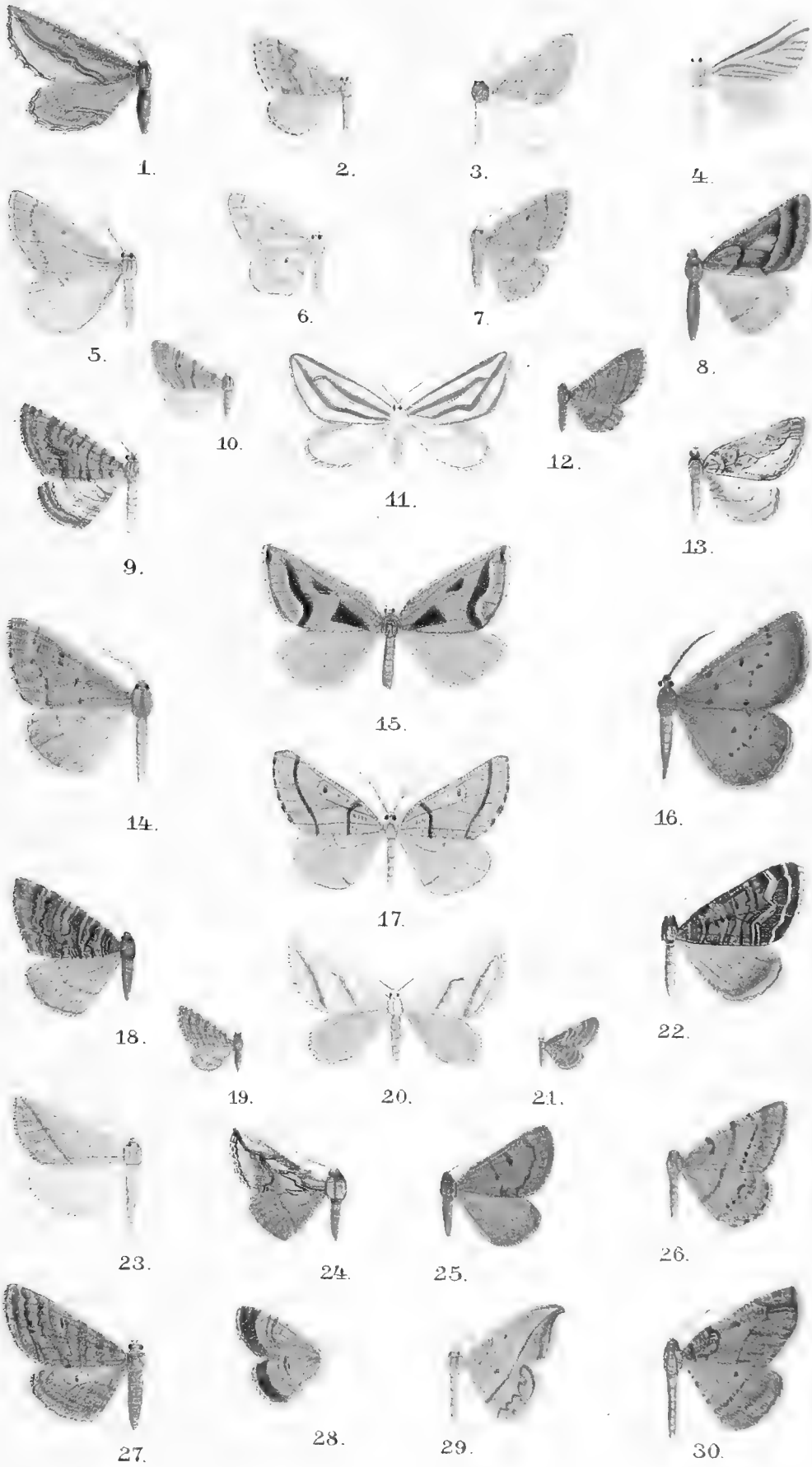
FIG.			
1.	<i>Hebdomophruda crenilinea</i> Prout,	Ann. S. Afr. Mus., XVII,	60.
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8.	<i>Drepanogynis pero</i> Prout,	" "	62.
9.	<i>Ortholitha punctiscripta</i> Prout,	" "	52.
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11.	<i>Conchylia lamellata</i> Prout,	" "	58.
12.	<i>Eupithecia subcanipars</i> Prout,	" "	55.
13.	<i>Hebdomophruda errans</i> Prout,	" "	61.
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15.	<i>Pseudomaenas oncodogramma</i> Prout,	" "	60.
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1. *Peridela birecta* Prout, Ann. S. Afr. Mus., XVII, 70.
2. *Eupithecia lightfooti* sp. nov.
3. *Lithostege sesquifascia canescens* subsp. nov.
4. *Tephrina abnormata* Prout, Ann. S. Afr. Mus., XVII, 71.
5. *Horisme pallidimacula* sp. nov.
6. *Perizoma* (?) *artifex* sp. nov.
7. *Ptychopoda fumilinea* f. *confracta* form. nov.
8. *Pareclipsis onus* Prout, Ann. S. Afr. Mus., XVII, 73.

FIG.

9. *Ortholitha alumna* sp. nov.
10. *Neromia strigulosa* sp. nov.
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24. *Scopula monotropa* sp. nov.
25. *Scopula carnosa* sp. nov.
26. *Scopula palpifera* sp. nov.



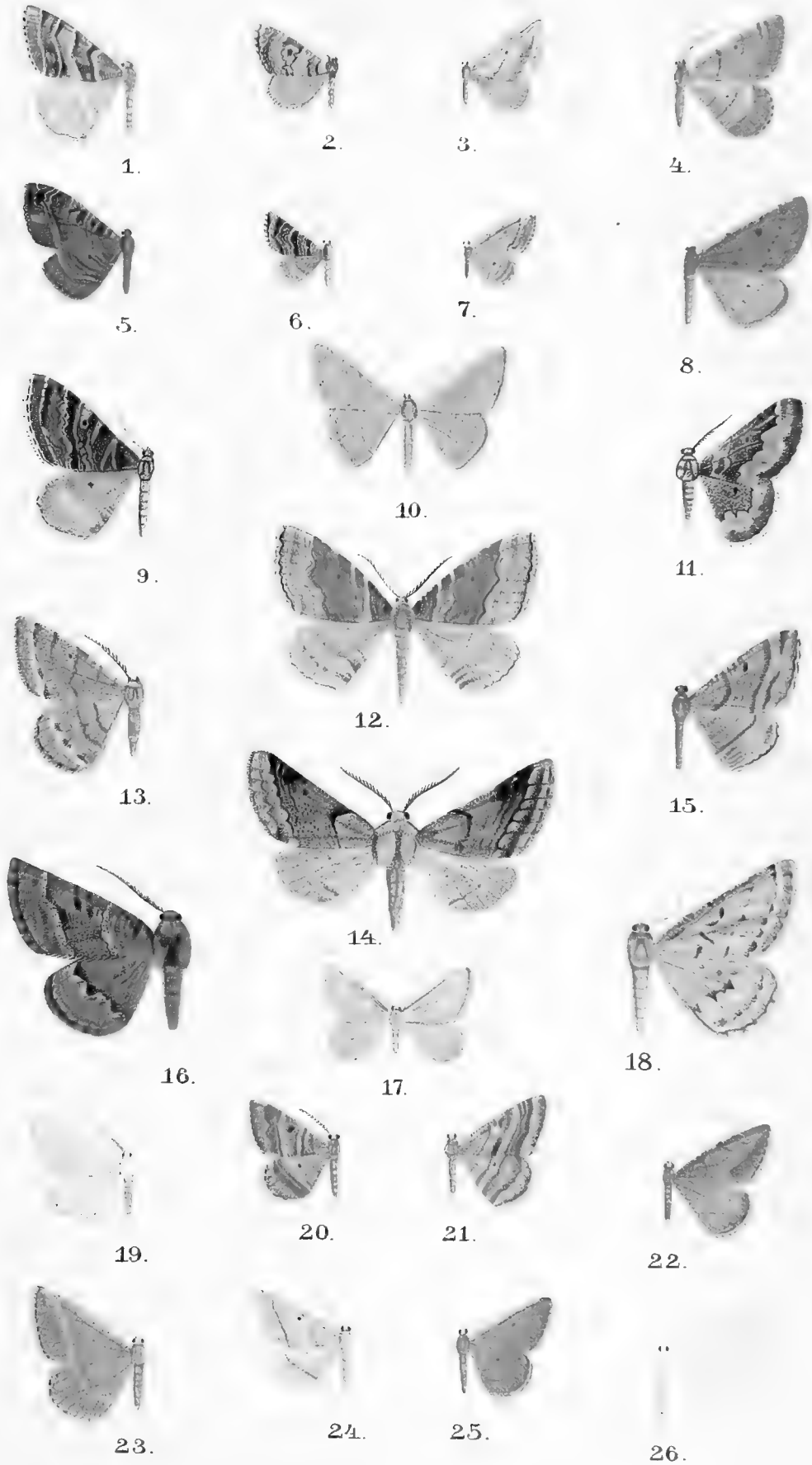
A. E. Prout ad nat. del.

P. W. M. Trap chr.

SOUTH AFRICAN GEOMETRIDAE.



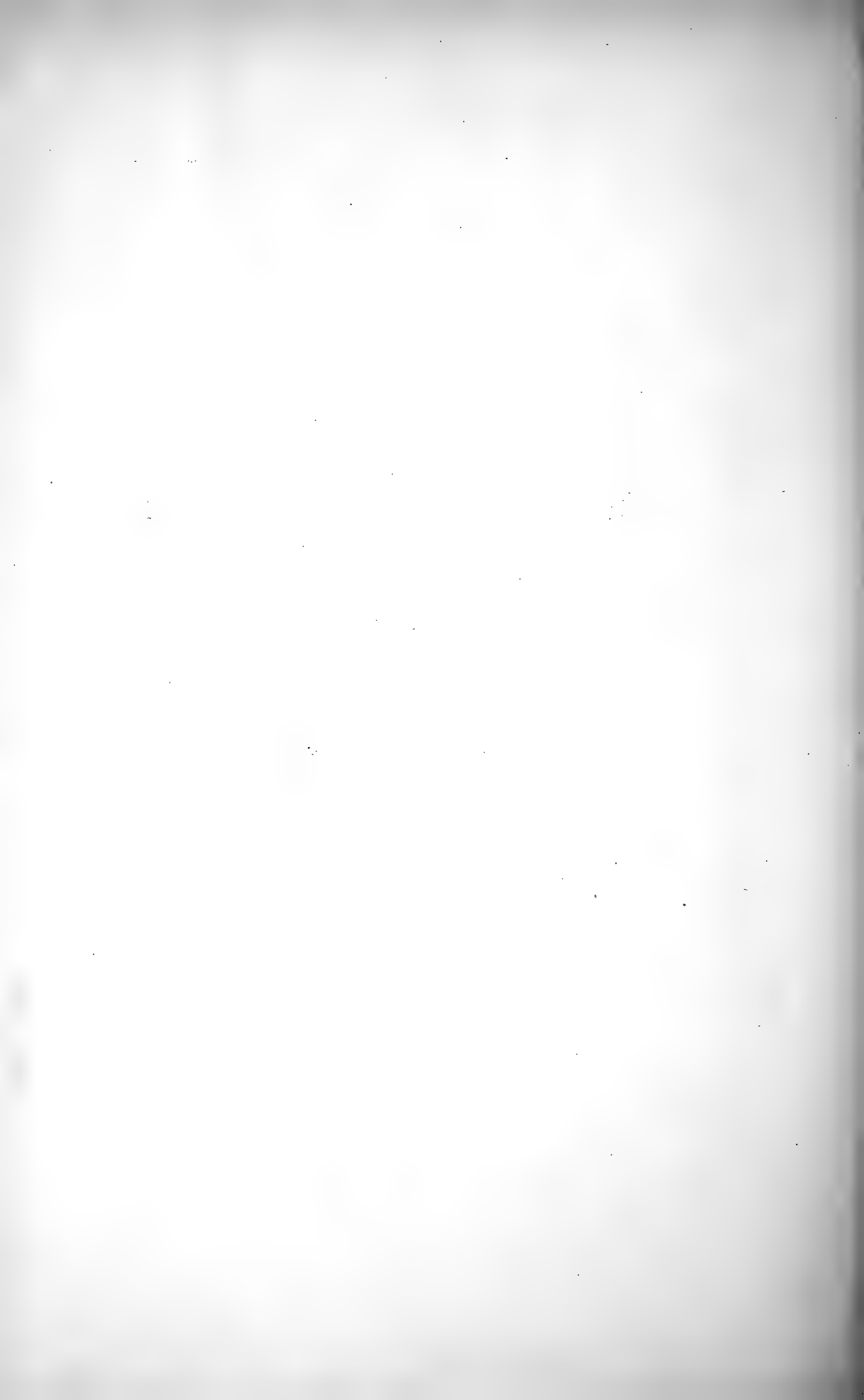




*A. E. Prout ad nat. del.*

*P. W. M. Trap chr.*

SOUTH AFRICAN GEOMETRIDAE.



11. *Mycetophilidae and Bibionidae (Diptera) in the Collections of the South African Museum.*—By F. W. EDWARDS, B.A., F.E.S.

(With 3 Text-figures.)

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THE material dealt with in the present paper was sent for determination by the late Dr. L. Péringuey, who kindly allowed the writer to retain duplicates (where available) for the British Museum. Although small, and not in the best preservation, the collection has proved remarkably interesting, and the results of its study lead one to hope that future collecting in the Cape Province will reveal many more new and interesting forms. The occurrence of a species of the genus *Heterotricha*, hitherto known only from Baltic Amber, is worthy of special note. The genera *Dziedzickia* and *Acrodicrania* are also recorded from Africa now for the first time.

FAMILY MYCETOPHILIDAE.

SCIARA Mg.

*Sciara stigmatopleura*, sp. n.

M'fongosi, Zululand (W. E. Jones); 6 ♂, 1 ♀ (cotypes).

Also the following material in the British Museum: Mossel Bay, Cape Province, ii.1922 (R. E. Turner); 5 ♀. Mlanje, Nyasaland, 21.iii.1913 (S. A. Neave); 2 ♀. Dowa District, Nyasaland (Dr. J. B. Davey); 1 ♀. Belgian Congo (R. Mayne); 1 ♀. Bende, Nigeria, 22.v.1910 (J. J. Simpson); 2 ♀. Obuasi, Ashanti, 21.vi.1917 (Dr. W. M. Graham); 1 ♀.

♀. *Head* yellowish, somewhat shining; a black spot between the ocelli, which are rather close together, in a subequilateral triangle. Eyes distinctly pubescent, touching above the antennae. Palpi blackish brown, the three segments equal in length and each a little over twice as long as broad. Antennae with the scape yellowish, flagellum black, except for the base of the first segment. First flagellar segment nearly four times as long as broad, the remaining segments subequal, each a little over twice as long as broad. *Thorax*

somewhat shining light reddish ochreous, the pleurotergites (lateral sclerites of postnotum, behind and below base of wing), with a large round dull black spot; no other thoracic markings. Mesonotal setae short, scanty and black; scutellum with about six short black marginal setae. *Abdomen* with the tergites dark brown, their apical margin narrowly pale; tergites 7 and 8 or 6-8 often paler than the rest; sternites light brown, their apical margins broadly pale. Pleural membrane ochreous. Lamellae of ovipositor black, the second segment almost round. *Legs* with the coxae and femora reddish ochreous; trochanters marked with black on the under side; tibiae brownish ochreous; tarsi blackish. Tibial spurs barely twice as long as the diameter of the tibiae. First segment of front tarsi slightly over half as long as the tibiae. Fourth tarsal segment slightly shorter than the fifth. Hind tibiae without a definite apical comb. Claws simple; empodia and pulvilli equally well developed, over half as long as the claws. *Wings* with a slight and uniform brownish tinge. Costal cell not widened. *Sc* reaching just beyond the base of *Rs*; *R1* very slightly longer than *R*; costa reaching nearly three-fourths of the distance from the tip of *Rs* to the tip of *M1*; tip of *R1* a little beyond the level of *fM*; *Rs* and *M2* ending at the same level; *Cu* half as long as the basal section of *M*. Branches of *M* and *Cu* with fine macrotrichia. Halteres dark brown, base of stem yellowish.

♂. Differs from the ♀ as follows:—Antennae not much shorter than the whole body, the flagellar segments three to four times as long as broad, and clothed with pubescence which is as long as the diameter of the segments. Vertex much more extensively dark. Mesonotum with three broad and more or less confluent blackish-brown stripes, though the scutellum and postnotum remain entirely ochreous. Hypopygium ochreous, except for the extreme tips of the claspers, which are black. Claspers very large, oval, constricted on the inner side immediately before the tip, which has a dense tuft of short black bristles facing inwards.

Length of body, 4-4.5 mm.; wing, 4-4.8 mm.

This distinctively coloured species is nearly allied to *S. flavoscutellata* Edw. (East Africa), which has the postnotum as well as the scutum black in both sexes.

*Sciara capensis*, sp. n.

Cape Town Museum Grounds; 1 ♂, 5 ♀, reared from larvae collected 11.vi.1914, pupated 4.vii.14, flies emerged 12.vii.14 (K. H. Barnard).

♀. *Head* of the ordinary size. Vertex somewhat shining, black,

considerably swollen. Face greyish. Ocelli equal in size, in a sub-equilateral triangle. Eyes moderately pubescent, separated by about the width of one facet; bridge four facets wide in the middle, but narrowed to a single facet in width close to the main portion of the eyes. Palpi short, black, the three visible segments practically equal in length and scarcely twice as long as broad. Antennae uniformly black, with short pale pubescence; flagellar segments all equal in length and a little over one and a half times as long as broad. *Thorax* shining black, the humeral angles, a small area round the prothoracic spiracles, the sternopleural suture and the metapleura (hypopleura) ochreous. Marginal bristles of scutum distinct, black, dorso-central and acrostichal bristles minute, only just discernible under a magnification of 80, in single irregular rows. Scutellum covered with short bristles over almost its entire surface, none of the marginal ones differentiated. Pleurae bare. *Abdomen* black, somewhat shining, with short black pubescence. Pleural membrane ochreous. Hind margins of tergites narrowly pale. Sixth and seventh segments well developed. Ovipositor black, second segment of lamellae oval. *Legs* rather stout, blackish brown, front coxae and femora somewhat lighter. Tibial spurs blackish, about twice as long as the tibial diameter and about one-third as long as the first tarsal segments. First tarsal segment on front legs one-half, on hind legs one-third as long as the tibia. Hind tibia without apical comb. Claws simple; empodia and pulvilli short. *Wings* with strong smoky tinge, cells *C* and *R1* blackish. *Sc* not quite reaching base of *Rs*. Branches of *M* and *Cu* bearing macrotrichia. *R1* ending exactly above *fM*, of the same length as *R*. Median fork as long as its faint petiole. Base of *Cu1* faint. *Cu* about half as long as the first section of *M*. *M2* ending slightly beyond the level of the tip of *Rs*. Halteres with ochreous stem and black knob.

Length of body, 4 mm.; wing, 4 mm.

♂. Antennae as in the ♀. Hypopygium very large, almost as large as the thorax and not much shorter than the remainder of the abdomen. Side pieces dark brown, twice as long as broad. Claspers black, nearly as long and nearly as thick as the side pieces; a large median projection on the inner side bearing a few stiff bristles, tip with a dense crown of short black bristles facing inwards. Wings only about twice as long as the thorax. *R1* slightly longer than *R* and ending slightly before *fM*. Macrotrichia on *M* confined to the tips of the branches. *Cu1* with the apical half obsolete, the basal half faint.

Length of body, 2.5 mm.; wing, 2.2 mm.

This is a rather well-marked species, on account of the unusually narrow ocular bridge, and the reduced venation of the male. Although the latter feature may not be constant, it is paralleled by *S. semialata* Edw. (England) and *S. biformis*, Lundbeck (Greenland).

*Sciara barnardi*, sp. n.

Hottentots Holland Mts., Caledon side, 4,000 ft., Jan. 1916 (H. K. Barnard); 2 ♀.

♀. *Head* unusually small, not more than half as broad as the thorax. Vertex dull black, very much swollen. Ocelli close together in a flattened triangle. Eyes densely hairy; the narrow portions just touching, four facets wide. Labium black, slightly more produced than usual. Palpi entirely black and rather long; the first two of the visible segments each about twice as long as broad, the third nearly four times as long as broad. Antennae entirely black; flagellar segments subequal, not quite twice as long as broad; pubescence very short. *Thorax* entirely dull black, with a slight grey shimmer in some lights, three narrow lines of intenser black on the scutum. Mesonotal bristles distinct, black; acrostichal in about two rows, dorso-central in about four rows. Scutellum with short black bristles, about six on the margin rather longer than the rest. Pleurae bare. *Abdomen* dull black, with rather long and conspicuous black pubescence. Sixth and seventh segments well developed. Terminal lamellae of ovipositor rather elongate oval. *Legs* entirely black, the coxae dusted with grey. Tibial spurs reddish, very short, hardly longer than the diameter of the tibiae. First tarsal segment on all the legs about two-fifths as long as the respective tibia. Hind tibia with a distinct black apical comb. Empodia and pulvilli well developed, not much shorter than the claws. *Wings* blackish, somewhat darker towards the anterior margin. Costal cell distinctly broadened in the middle. *Sc* fading out gradually, fairly distinct to about the middle of *R*. *R1* a trifle shorter than *R*, and ending almost directly above *fM*. Branches of media parallel, slightly shorter than the fairly distinct petiole. No macrotrichia on *M* or *Cu*. *Cu* scarcely half as long as the first section of *M*. *M2* ending below the tip of *Rs*. Halteres black, the extreme base of the stem lighter.

Length of body, 4.5 mm.; wing, 5.2 mm.

In some respects, notably the small head, the slightly produced labium, the widened costal cell, and the distinct hind tibial comb, this species shows a distinct approach to the South American genus

*Rhynchosciara*. I am unable to identify it with any of the recorded African species, several of the descriptions of which are entirely inadequate. A third specimen, taken at the same place and time is rather smaller, and has the abdomen dark brown instead of black, but almost certainly belongs to the same species.

## HETEROTRICHA Lw.

*Heterotricha* (?) *relicta*, sp. n. (fig. 1).

Montagu, Cape Province, x.1917 (E. P. Phillips) ; 3 ♂, 1 ♀.

♂♀. *Head* dull dark greyish, pollinose, clothed with a rather long and coarse whitish pubescence. Eyes large, emarginate, with a

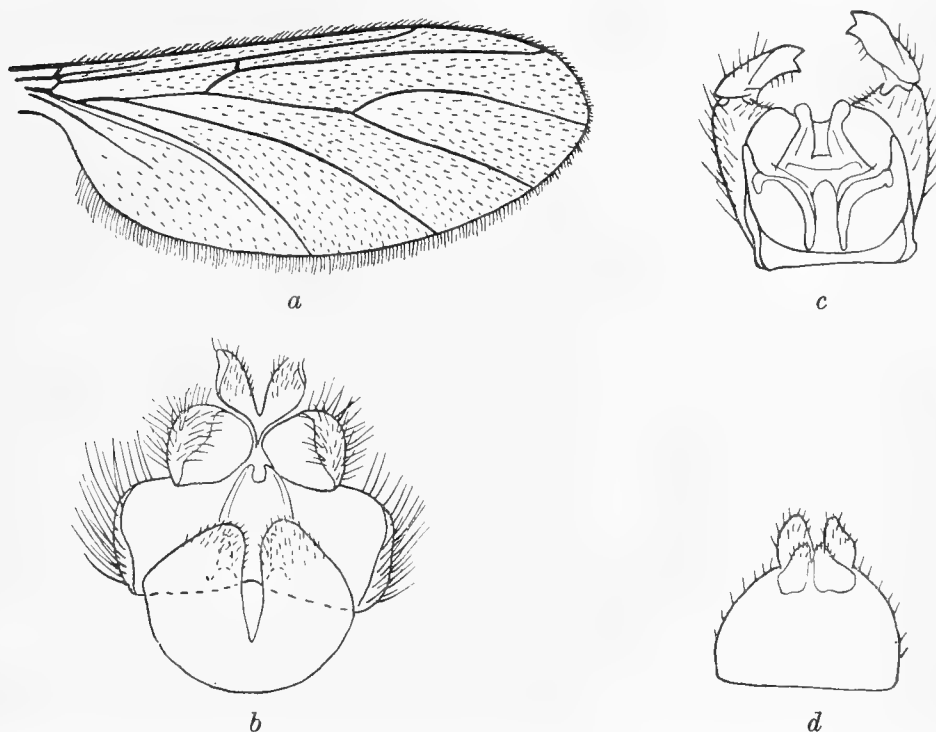


FIG. 1.—*Heterotricha relicta*, sp. n. *a*, wing ; *b*, ovipositor from beneath ; *c*, hypopygium from above, ninth tergite and anal segment removed and shown separately (*d*).

narrow supra-antennal portion 3–4 facets wide, the pair of narrow projections not forming a complete bridge, but separated by about the width of two facets. Ocelli equal in size, separated by nearly twice their breadth, in a very flat triangle. Palpi rather dark brownish, slender, of three distinct segments (apart from the palpiger) each segment a little over three times as long as broad, the terminal one rather longer and more slender than the others. Antennae with the scape and most of the first flagellar segment ochreous, remainder

dark brown. Flagellar pubescence dense, even, about half as long as the diameter of the segments. First flagellar segment about five times as long as broad, the succeeding segments each a little shorter than the last; penultimate about twice as long as broad, terminal rather longer, bluntly pointed. Antennae of ♀ slightly shorter than those of ♂. *Thorax* dull dark grey, heavily pollinose; mesonotum with coarse pale yellowish pubescence, mixed with some longer pale hairs and arranged in definite acrostichal, dorso-central and lateral stripes. Scutellum with similar clothing to that of the mesonotum. Pleurae bare, the sutures between the different portions scarcely indicated. Pleurotergites flat, not prominent as in most Mycetophilidae, with about ten long pale hairs. *Abdomen* blackish, paler ventrally, faintly shining, rather densely clothed with pale yellowish pubescence. Seventh and eighth segments shortened, but not retracted, the membrane separating them from the sixth and ninth quite short. Hypopygium small and inconspicuous; ninth tergite rather large and rounded; claspers simple, notched apically. Ovipositor also short and inconspicuous, turned downwards and largely hidden beneath the ninth tergite; no chitinous spermathecae. *Legs* with the coxae and femora pale ochreous, trochanters black-marked, tibiae brownish, tarsi blackish. Coxae and femora pale haired. Tibial spurs black, two to three times as long as the diameter of the tibiae; all tibiae with short setae, about half as long as the tibial diameter. Hind tibiae with a rather indefinite apical comb. First segment of front tarsi about three-fifths as long, of hind tarsi one-half as long as the respective tibia. Coxae moderately short, the front pair as long as the others. Empodia broad and almost as long as the short simple claws. *Wings* hyaline, veins all dark; venation as figured. Membrane with numerous curved macrotrichia, which are uniformly distributed over practically the whole surface, but more densely crowded just round the tip. Microtrichia very minute, only just perceptible under a magnification of 80. Halteres ochreous, knob somewhat darkened.

Length of body, 3 mm.; wing, 3.5 mm.

The genera *Heterotricha* Lw. and *Palaeoheterotricha* Meunier are both very imperfectly known, each being based on a single fossil species from Baltic Amber. Since no living representative of the group has hitherto been described, the discovery of one existing in South Africa is of no little interest. According to the information provided by Meunier, in the fossil *Heterotricha* R1 ends before the level of the base of the median fork, the costa extends far beyond the



tip of *Rs*, and *r-m* is long, whereas in *Palaeoheterotricha* the costa stops short at the tip of *Rs*, *R1* ends well beyond the level of the base of the median fork, and *r-m* is very short. In the new species *R1* is long, as in *Palaeoheterotricha*, the costa extends slightly beyond the tip of *Rs*, and *r-m* is long, as in *Heterotricha*. The living form therefore appears to be intermediate between the two fossil forms, and suggests that all three might be included within the same genus; the important character common to all three being the origin of *Cu1* from *M* instead of from *Cu2*.

Meunier referred *Heterotricha* to the Sciaridae, though Enderlein, in his later paper on the classification of this group, considered it as belonging to the Mycetophilinae. In the character of its eyes, however, as well as in the general features of its venation, the recent form certainly seems to be closer to the Sciaridae, and could not, in my opinion, be included in the Mycetophilinae. The form of the genitalia, however, especially those of the female, differs from that of most of the Sciaridae; and the vestiture of the thorax and abdomen, as well as the abbreviated costa, is reminiscent of the Lestremiinae, from which group it would be excluded by the strongly developed tibial spurs.

#### DZIEDZICKIA Joh.

##### *Dziedzickia nitida*, sp. n.

Cape Town, viii.1916 (R. M. Lightfoot); 1 ♀.

♀. *Head* shining black, almost bare. Ocelli in a straight line, rather more widely separated from one another than the lateral pair are from the eye-margins. Eyes very slightly emarginate above the level of the base of the antennae. Palpi short, dark brown. Antennae blackish, scape light brown. First flagellar segment slightly over twice as long as broad, second a trifle shorter, third rather shorter than the second, fourth and following segments each a little broader than long. *Thorax* shining black dorsally, pleurae ochreous brown. Mesonotum with black bristles, those at the sides rather long, those forming the usual three dorsal rows shorter. Scutellum with six bristles, rather slender and irregularly arranged. *Abdomen* ochreous brown, somewhat shining, the posterior margins of the tergites dark brown; cerci short, slender, brown. *Legs* with the coxae, trochanters and femora uniformly ochreous, tibiae brownish ochreous, tarsi dark brown; tibial spurs pale. On the front legs the first tarsal segment is about three-fifths as long as the tibia and twice as long as the second segment; the tarsi are not or only very indistinctly thickened. The

fine tibial setae not arranged in definite rows ; spines black, about as long as the diameter of the tibiae. Hind tibiae without apical comb. Empodia well developed. *Wings* with a slight and uniform brownish tinge. Venation as in *D. marginata*, except that *Rs* is slightly more curved and rather nearer to *R1*, and the base of the fork of *Cu* is only very slightly before the base of *r-m*. Halteres with pale stem and brown knob.

Length of body, 4 mm. ; wing, 4 mm.

The occurrence of this rather distinct European and North American genus in South Africa is of considerable interest. The new species is obviously closely allied to the European form, but differs in the shining head, colour of abdomen and halteres, and in the form and proportions of the front tarsal segments.

#### MYCOMYIA Rond.

##### *Mycomyia* (s. str.) *lightfooti*, sp. n. (fig. 2).

Oudebosch, Caledon Division, xii.1920 (R. M. Lightfoot) ; 1 ♂.

♂. *Head* blackish grey, scarcely shining, with fine dark pubescence. Palpi short, blackish. Antennae with the three basal segments brown, the remainder black. First flagellar segment a little over twice as long as broad, next five segments each about half as long again as broad, remaining eight segments from twice to three and a half times as long as broad, gradually becoming more slender towards the tip of the antenna. *Thorax* uniformly dull blackish brown dorsally, humeri and pleurae ochreous. Mesonotum with three double rows of bristles on the disc, these bristles mostly fine and short. Scutellum with only two strong bristles, which are very widely separated and placed quite near the sides on the apical margin. *Abdomen* uniformly blackish brown above, lighter below. Hypopygium with two pairs of rather elongate appendages, one very slender, slightly hairy throughout, the other broader, hairy only on the slightly expanded tips. *Legs* light brownish, trochanters, tibiae and tarsi darkened. As in all members of the genus known to the writer the fine tibial setae are arranged in conspicuously regular longitudinal rows, the hind tibiae have a distinct apical comb, and the empodia are absent. Tibial spurs black. Front legs long and slender, the first tarsal segment slightly longer than the tibia. Middle coxae with a slender, forwardly projecting curved spine, which is not quite half as long as the coxa itself. Hind coxae with a conspicuous posterior row of long bristly hairs. *Wings*

with a slight and uniform greyish tinge, devoid of markings. Venation: *Sc* ending in the costa just before the apex of the small cell, which is almost rectangular and about twice as long as broad. Stem of median fork about one-fourth shorter than the lower branch. Base of cubital fork slightly beyond base of the stem of the median fork. Anal vein reaching to middle of cubital fork. Halteres with pale stem and brown knobs.

Length of body, 4 mm. ; wing, 4 mm.

This species differs from all those at present described from Africa in its entirely unmarked wings. In this respect, and in the possession of

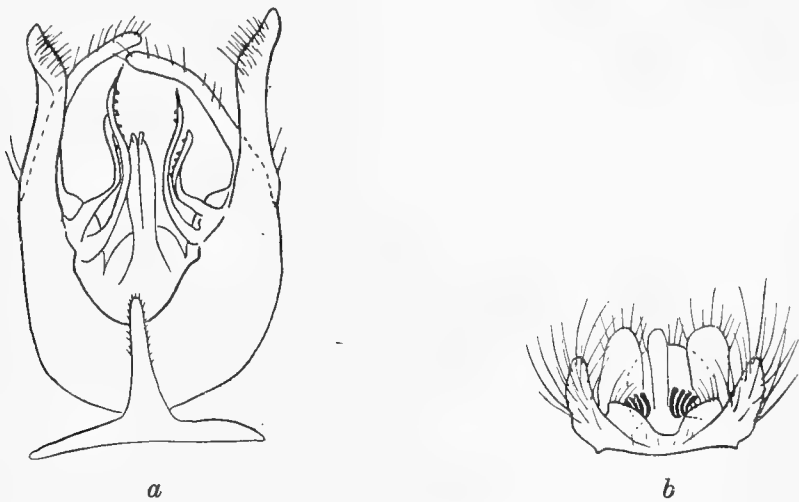


FIG. 2.—*Mycomyia lightfooti*, sp. n. *a*, hypopygium from beneath ; *b*, ninth tergite and anal segment from above.

mid-coxal spines (a secondary sexual character of the male) it resembles a large group of European species. The genus is evidently well developed in Africa, the British Museum possessing at least a dozen undescribed species.

ACRODICRANIA Skuse.

*Acrodicrania africana*, sp. n.

Cape Town, 1915 (L. Péringuey) ; 2 ♂, 1 ♀.

*Head* dark brown with black bristles. Antennae with the first three segments ochreous, the remainder blackish ; flagellar segments in both sexes approximately equal in length and about as long as broad. Palpi and the rather broad flat labella pale yellowish. Ocelli equal in size, in a straight line, the laterals almost but not quite touching the eye-margins. *Thorax* dull ochreous brown, scarcely

shining, the mesonotum with faint indications of three darker stripes; pubescence pale, bristles blackish. Scutellum with four long black bristles, the middle pair a little further from one another than from the lateral pair. Pleurotergites (lateral lobes of postnotum) with a patch of long black hair. *Abdomen* ochreous brown; tergites 2 and 3 with dark brown apical bands, broadened at the sides; tergites 4-6 almost entirely blackish brown, at least in the male. Hypopygium ochreous, the claspers densely set with short black spiny bristles. *Legs* uniformly ochreous, only the tarsi somewhat darkened; tibial spurs pale; spines black, not very regularly arranged, averaging twice the diameter of the tibiae in length. Mid tibiae with two long spines almost ventrally placed, hind tibiae with none. No hind tibial comb. Eupodium distinct, about as long as the claws. *Wings* with a slight brownish tinge, somewhat darker round the tip, and with a slight brown shade beneath the curve of *Cu2*. Venation almost exactly as figured by Skuse for *A. atricauda*, the only noticeable difference being that *Sc2* is a trifle further from the tip of *Sc1*. Halteres light ochreous.

Length of body, 3-3.5 mm.; wing, 3-3.5 mm.

This is the first African species to be discovered of this genus, which proves to have a wide distribution, species having been reported from India and South America as well as from Australia. The position of the ocelli in the Australian species is not clearly indicated by Skuse; if his expression "in a straight line on the front" means that the laterals are well removed from the eye-margins, this will constitute a rather important distinction between the Australian and African species.

LEIA Mg. (*Leiomyia* Edw.).

*Leia stigmatica*, sp. n. (fig. 3).

Cape Town, Sept. 1913 and 1915 (R. M. Lightfoot and L. Péringuey); 2 ♂, 3 ♀; also 1 ♂ without data.

*Head* mostly shining black, the face and a small area above the base of the antennae brownish ochreous. Antennae of ♀ as long as the head and thorax, basal flagellar segments about one-third longer than broad, remainder as long as broad; antennae of ♂ slightly longer than those of the ♀. Scape ochreous, flagellum blackish brown. Palpi brownish. Bristles black. Lateral ocelli narrowly separated from the eye-margins. *Thorax* light ochreous; the mesonotum with a pair of very large oval shining black patches, laterally placed on the

posterior two-thirds, somewhat approximated behind and fading out just before the scutellum, the ochreous area between them about half the width of the scutellum; some specimens also show traces of a double median brown stripe extending from the front margin of the mesonotum to about the middle. Scutellum ochreous; postnotum brownish, darker posteriorly, the prominent pleurotergites shining black. Mesonotal bristles black, those on the lateral margin very stout; in the disc are some rather long pale hairs mixed with the bristles. Scutellum with four strong black marginal bristles, almost equidistant. Pleurae ochreous, with a slight whitish shimmer in some

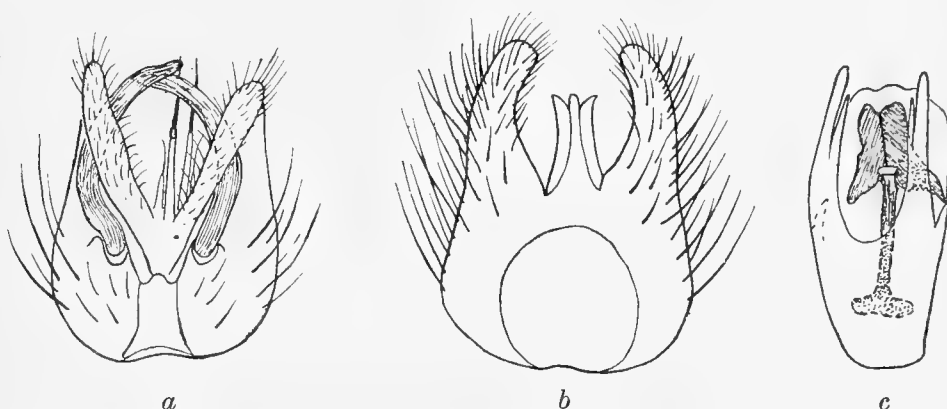


FIG. 3.—*Leia stigmatica*, sp. n. *a*, hypopygium from above; *b*, from beneath; *c*, aedeagus.

lights; subalar knob dark. *Abdomen* with tergites 1–4 mostly ochreous brown, with broad but rather ill-defined lateral blackish-brown stripes, which in some specimens tend to broaden out just before the apices of the segments and may form narrow transverse subapical dark lines. Sternites 1–4 uniformly ochreous. Segments 5 and 6 almost uniformly blackish brown; hypopygium and ovipositor ochreous. *Legs* ochreous, unmarked, only the tarsi darkened. Tibial spines black, spurs brownish. Hind tibia with a rather indefinite comb of black bristles. *Wings* with a slight uniform brownish tinge, without markings; veins dark brown; *r-m* equal to *R1* in length or very slightly longer. *Halteres* very short, pale ochreous.

Length of body, 4–5 mm.; wing, 4–5 mm.

This species is nearly allied to *L. notabilis* Edw. (British East Africa), differing in the markings of the abdomen and the unmarked hind femora. The British Museum possesses another (undescribed) species of the same group from Natal, also representatives from the Oriental and Neotropical regions.

*Leia (Rhymoleia) maculicoxa* (Enderlein).

East London, July 1914 (R. M. Lightfoot); 1 ♀.

The discovery of this species in South Africa, assuming it to be correctly determined, forms an interesting extension of its known range; previous records have been from the Seychelle Is. (Enderlein) and Ceylon (Brunetti and Edwards). In the Cape specimen there is no trace of a dark subapical wing fascia, and the branches of the media are rather less convergent apically than in the other specimens I have examined. It is unfortunate that a male is not available from the Cape at present; possibly the structure of the hypopygium might prove it to be distinct.

## MYCETOPHILA Mg.

*Mycetophila lineola* Mg.

Cape Town, 1915 (L. Péringuey); 1 ♂.

This common European species has already been recorded by me from East Africa. The present specimen agrees in hypopygial structure and in all other respects with typical British examples of the species.

## DELOPSIS Skuse.

*Delopsis seychellensis* (Enderlein).

M'fongosi, Zululand (W. E. Jones); 1 ♀.

The abdomen is lighter in colour than in Enderlein's types, but this is a variable character in several species of this group, and until a male is obtained this specimen can only be referred to *D. seychellensis*. The second abdominal segment shows the two long ventral bristles characteristic of the genus. This is the second species of the genus to be recorded from the African continent.

## FAMILY BIBIONIDAE.

## BIBIO Geoffr.

*Bibio melanogaster* Wiedemann.

Krantzkop, Natal, xi.1917 (K. H. Barnard); 2 ♂, 1 ♀.

I identify these specimens with some doubt, owing to certain small

divergences from Wiedemann's description. The pubescence is not entirely greyish, but is pale only on the under side of the head, the sides of the thorax, the whole abdomen and the front and mid femora ; while it is black on the eyes of the male, the mesonotum in both sexes, the hind femora, and all the tibiae and tarsi. In the female the pronotum and scutellum are black, as well as the pleurae, but the mesonotum shows no trace of the median blackish line mentioned by Wiedemann. All the tibial spurs are reddish in both sexes, those on the hind legs being rather slender, the tips somewhat rounded. The smaller spine of the front tibiae is well developed, about half as long as the larger one.

*Bibio birudis* Walker.

Illovo, 14.vi.1919 (H. W. Bell-Marley) ; 3 ♂.

Krantzkop, Natal, xi.1917 (K. H. Barnard) ; 1 ♀.

♂. The males agree well with Walker's type in the British Museum, and exhibit the following characters :—Colour uniformly black, except for the usual pale brownish marks on the humeral angles, above the roots of the wings, and on each side of the scutellum. Pubescence of head, thorax and abdomen rather long, dense and black, that of the legs also all black. Hind femora moderately swollen (less so than in *B. melanogaster*), their greatest diameter rather less than the greatest diameter of the much swollen hind tibiae. Venation practically as in the allied *B. hortulanus* Linn.

♀. This sex has not hitherto been described. The specimen recorded above, which probably but not quite certainly belongs to this species, resembles *B. afer* Lw. and *B. pyrrhonotus* Speiser in having a red mesonotum and black legs, but differs from the former in its black abdomen and from both in its red pleurae. Head narrow, but not particularly elongate, shining black. Pronotum reddish brown, marked with black in the middle and at the sides. Mesonotum with fine reddish pubescence (not black as in the ♂, and in both sexes of *B. melanogaster*). Scutellum black, with short reddish pubescence. Abdominal pubescence mostly black, but mixed with some paler, especially at the sides and beneath. Coxae and tibial spurs dull reddish, the hind tibial spurs rather stouter than in *B. melanogaster*, and bluntly rounded at the tips, the inner slightly longer than the outer. Hind tibia not swollen. Wings dark brown, darker towards the anterior margin, the stigma still darker. Venation as in *B. melanogaster*.

*Bibio longirostris* Rondani.Syn. *B. monacanthus* Loew.

Cape Town, Sept. 1913 (G. Péringuey); 4 ♀.

There is no statement in Rondani's short diagnosis which conflicts with Loew's more detailed description, and I therefore suggest the above synonymy and adopt the earlier name. It is worthy of note that the hind tibial spurs are very broad, rounded at the tips, and equal in length; the costa is produced conspicuously beyond the tip of *Rs*, much more so than in the *hortulanus* group.

*Bibio lightfooti*, sp. n.

Kraaifontein, Cape Province (R. M. Lightfoot); 4 ♂, 2 ♀.

♂. Uniformly shining black, except for the reddish tibial spurs and the yellow halteres. Pubescence of eyes black, of thorax, abdomen and legs uniformly whitish; moderately long but not very conspicuous. Rostrum scarcely produced beyond the lower margin of the eyes. Femora somewhat swollen, especially the front pair. Tibiae all slender, the front pair with only one distinct spine. Spurs of hind tibiae equal in length, slender, the tips somewhat rounded. Hind tarsi slender, the first segment about half as long again as the second. Wings milk white; anterior veins brown; stigma pale brown; posterior veins milky. Venation: costa reaching considerably beyond the tip of *Rs*; *m-cu* oblique and placed well beyond the fork of *M*. Hypopygium very small.

♀. Head shining black, scarcely longer than broad, the rostrum and labium together being shorter than the eyes; ocellar tubercle prominent and close to the neck. Eyes distinctly hairy. Pronotum black in the middle, its sides and also the proepimera ochreous. Mesonotum with short pale pubescence, shining black, the sides rather broadly yellow. Scutellum black; postnotum blackish brown. Pleurae ochreous; mesosternum black. Abdomen blackish brown above, pale beneath, with short pale pubescence. Legs bright ochreous; femora darkened at the tips on the upper surface; mid and hind tibiae with rather narrow black apical rings; tarsi black except on the basal half of the first segment. Hind tibial spurs broader than in the ♂. Wings as in the ♂. Halteres pale yellow.

Length of body, 3-4.5 mm.; wing, 4.5 mm.

Apparently nearly allied to *B. breviceps* Lw., differing in the faint stigma and the light-coloured legs of the ♀.



*Bibio turneri*, sp. n.

Mossel Bay, Cape Province, vi.1921 (R. E. Turner); type ♀ in the British Museum.

Cape Town, ix.1913 (R. M. Lightfoot); paratype ♀ in the South African Museum.

♀. Differs from *B. lightfooti* as follows:—Head longer, almost twice as long as its greatest breadth across the eyes, the increase in length being chiefly in the basal part. Ocellar tubercle less prominent and distinctly removed from the neck. Eyes less conspicuously hairy. Pleurae darker. Hind femora dark above for quite half their length. Stigma rather dark brown and quite conspicuous, especially in the type.

In spite of the conspicuous difference in the shape of the head, I am not altogether satisfied that this is not a mere variety of *B. lightfooti*, and it is indeed possible that both may be forms of *B. breviceps*. Further collecting will solve the problem.

PLECIA Wied.

*Plecia ruficollis* Fabr.

M'fongosi, Zululand (W. E. Jones); 2 ♂, 2 ♀.

DILOPHUS Mg.

*Dilophus capensis*, sp. n.

Cape Town, on bones of whale skeleton oozing with oil; 8 ♂ (cotypes).

Cape Town, 1913 (G. Péringuey); 1 ♂.

Stellenbosch, 1919 (R. M. Lightfoot); 1 ♀.

Camps Bay, Cape Peninsula, ix.1920 (R. E. Turner); 2 ♀ in the British Museum.

♂. Body and legs entirely shining black, with rather scanty whitish hair. Eyes rather scantily hairy. Labium slender, when fully extended longer than the head. Front tibiae with a rather irregular and oblique row of four spines slightly beyond the middle; eight or nine apical spines. Hind tibiae and tarsi slender, the first tarsal segment nearly twice as long as the second. Wings milk white, stigma conspicuous and dark brown, costal cell also slightly darkened. Anterior veins dark brown, posterior veins milk white. Venation as in *D. febrilis*. Halteres with brownish stem and black knob.

♀. Head shining black, nearly twice as long as its greatest breadth, the rostrum (excluding the labium) about as long as the bare eyes. Ocelli well separated, not placed on a distinct tubercle. Thorax shining black, pleurae blackish brown, propleurae and sides of pronotum conspicuously orange. Abdomen shining blackish. Legs with the coxae and femora orange, trochanters and tibiae brownish orange, tarsi almost black. Front coxae extremely large, both longer and stouter than the femora. Front tibiae with the four spines placed slightly before the middle of the tibia, larger and stouter than those of the male, and also more regularly and less obliquely placed. Wings with the stigma larger and darker than in the male, the membrane on the basal two-thirds slightly clouded with brown. Venation and halteres as in the male.

Length of body, 4-4.5 mm. ; wing, 3.5-4 mm.

Allied to the European *D. albipennis* Mg. and the East African *D. disagra* Speiser.







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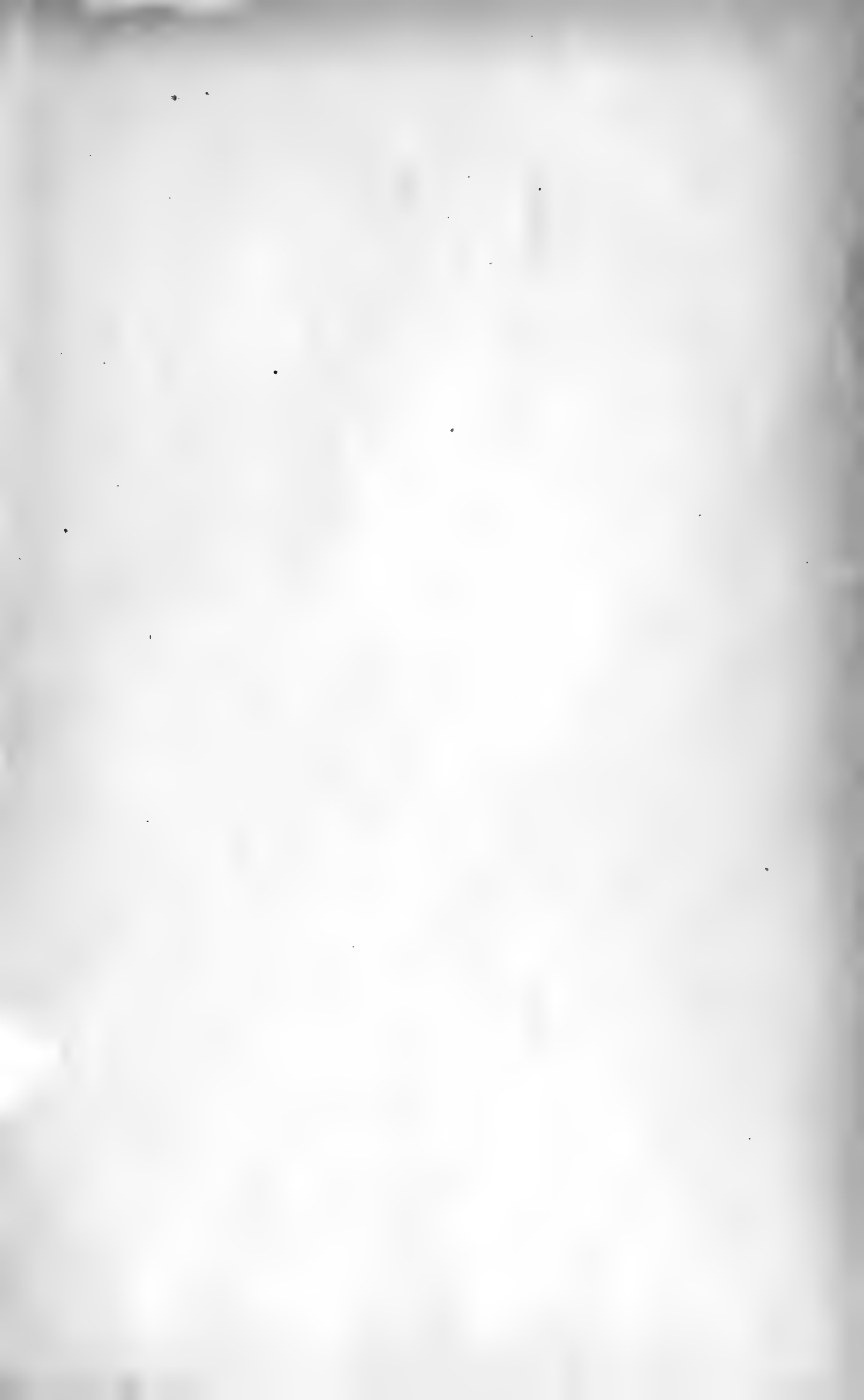
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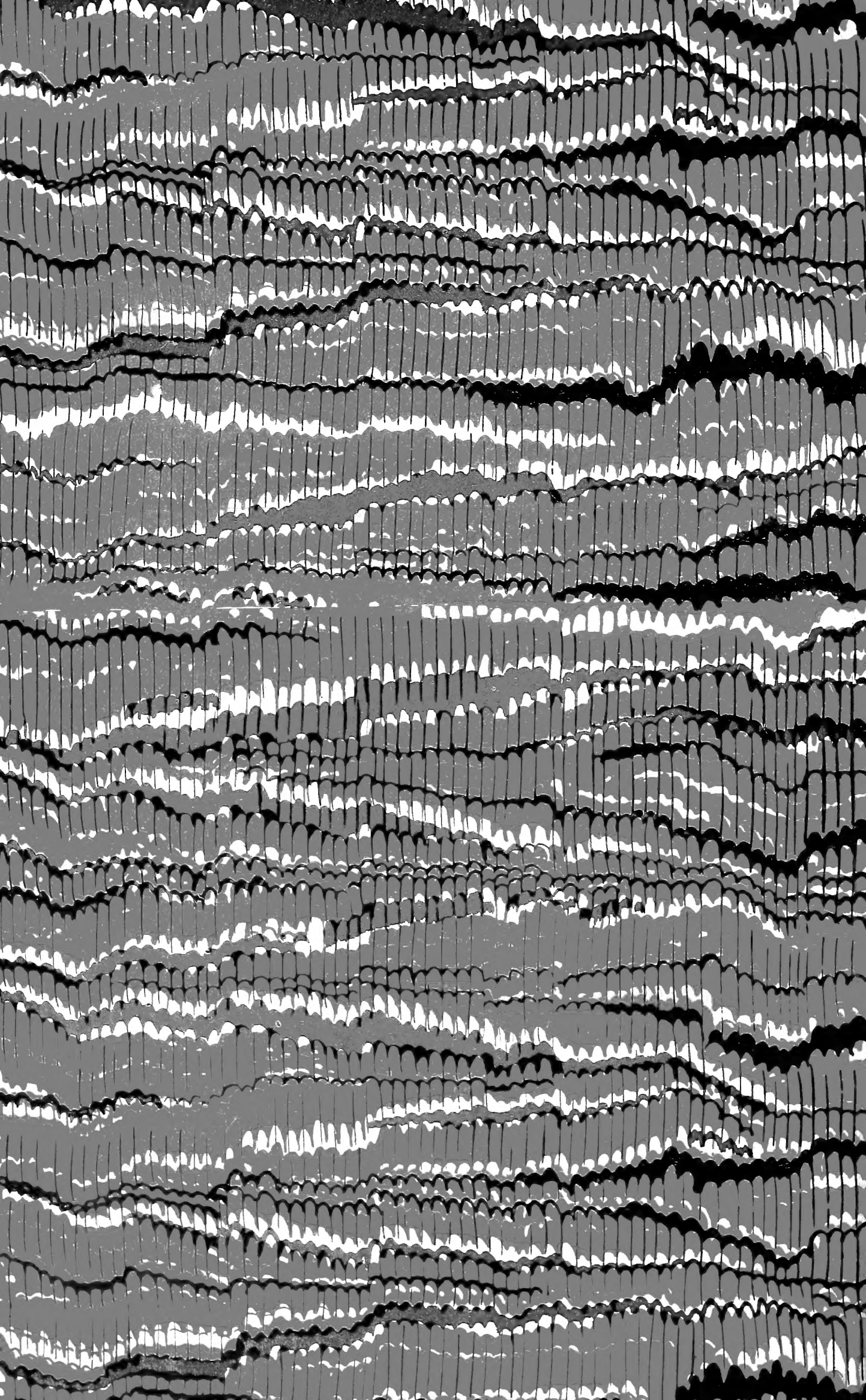


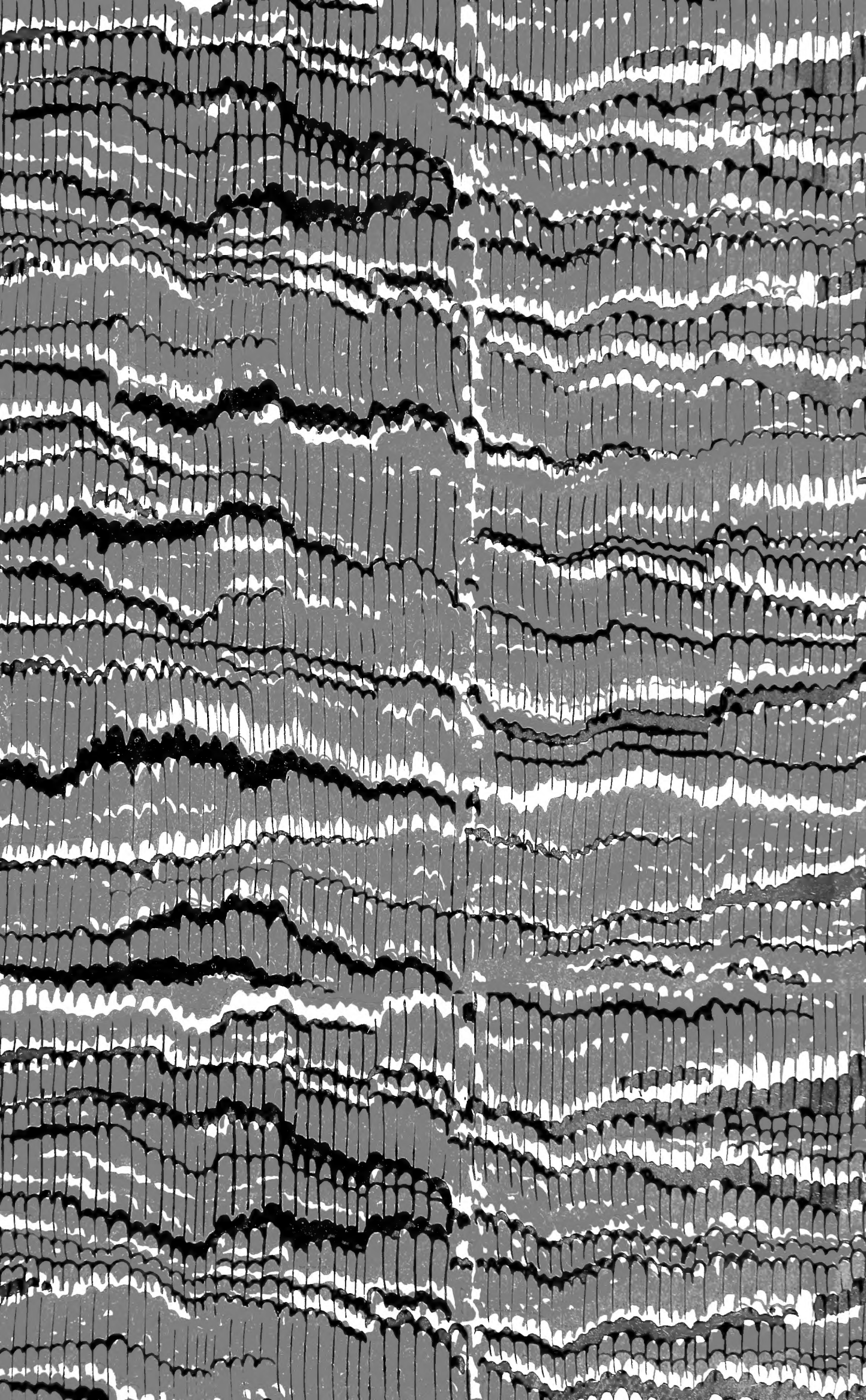












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