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OF THE
TRANSVAAL MUSEUM

INDEX TO VOL. II.

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VAN HET
TRANSVAAL MUSEUM

BLADWIJZER VAN DEEL II.

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DESCRIPTIONS OF TRANSVAAL MICRO-LEPIDOPTERA.

By E. Meyrick, B.A., F.R.S.

The specimens here described are mainly from Pretoria and the surrounding district, and were collected by Mr. A. J. T. Janse, except where otherwise indicated. I am greatly indebted to Mr. Janse for the opportunity of studying this interesting material. The types are all in Mr. Janse’s collection.

PTEROPHORIDAE.

Trichoptiltus conglajalis Walk.

Pretoria, in February.

Trichoptiltus vivax, n. sp. (Plate I, fig. 1).

Male, 15 mm. Head and thorax ochreous-brown. Palpi yellow-brownish, towards base suffused with white, second joint suffused with dark fuscous beneath a white apical ring, terminal joint dark fuscous with tip white. Antennae white, lined with black. (Abdomen broken.) Forewings cleft from somewhat before middle, segments linear; ochreous-brownish, costal third and both segments suffused with blackish irrotation; a black dot in disk at ¼, followed by a small spot of white suffusion; strong white bars on first segment at ¼ and ⅔ of its length, and some white suffusion on second segment indicating continuation of these; some white scales towards apex of both segments; cilia ochreous-brown becoming dark fuscous towards tips, white towards base of cleft, on lower margin of first segment with two white bars posteriorly, second preceded by a slender black scale-projection, on upper margin of second segment somewhat mixed with white and black posteriorly, on dorsum with five small black scale-projections, and patches of white suffusion beyond each of these except third. Hindwings cleft firstly from ¼, secondly almost from base; dark fuscous; cilia grey, on dorsum with a small well-marked black scale-projection slightly beyond middle of third segment.

Pretoria, in March; one specimen.
Trichoptilus varius, n. sp. (Plate I, fig. 2).

Female, 9 mm. Head and thorax whitish irrorated with fuscous, thorax posteriorly white. Palpi white, apex of second joint fuscous. Abdomen reddish-fuscous mixed with white, towards base suffused with white. Forewings cleft from before middle, segments linear; light reddish fuscous sprinkled with darker, somewhat whitish-tinged anteriorly; a blackish dot in disk at $\frac{1}{3}$, and one above cleft; a broad band of white suffusion on first segment at $\frac{1}{2}$, and a narrow one at $\frac{3}{4}$, first continued less broadly on second segment; cilia greyish, with irregularly scattered black scales, with patches of white suffusion on first band and towards tips of segments. Hindwings grey sprinkled with dark fuscous; cilia grey, on dorsum with a moderate projection of black scales at $\frac{2}{3}$ of third segment.

Pretoria, in January; one specimen.

Trichoptilus maceratus, n. sp. (Plate I, fig. 3).

Male, 12 mm. Head and thorax pale greyish-ochreous. Palpi greyish banded with white. Abdomen ochreous-grey mixed with white. Forewings cleft from before middle, segments linear; ochreous grey; minute black dots near base and in disk before $\frac{1}{3}$; a blackish dot above cleft; very indistinct narrow bars of whitish suffusion on first segment at $\frac{1}{2}$ and $\frac{3}{4}$ of its length; cilia ochreous-grey irregularly mixed with white scales, on lower margin of first segment with a large patch of black scales in middle and a small black scale-projection before apex, on upper margin of second segment with projecting black scales from before middle to near apex, on dorsum with a small projection of black and white scales before cleft, a moderate projection of blackish scales at $\frac{1}{3}$ of segment and a small one towards apex. Hindwings cleft firstly from $\frac{1}{4}$, secondly from near base; grey irrorated with dark fuscous; cilia fuscous, on dorsum with a well-marked small triangular black scale-projection beyond middle, and one or two black scales before apex.

N.E. Pretoria District (Rietfontein No. 54), in September; one specimen.

Platyptilia molopias Meyr.

N.E. Pretoria District, in January; also Camperdown and Howick, Natal, in March and April (Leigh); and Nairobi, British East Africa, in August. African specimens are sometimes rather large, ranging up to 22 mm., but otherwise not different from Indian and Ceylon examples.

Platyptilia sabia Feld (Plate II, fig. 1).

(Mimeseoptilus sabius Feld. Reis. Nov. pl. CXL, 60.)

Male, 28 mm. Head ochreous-whitish, frontal tuft moderate. Palpi long, fuscous, above white. Thorax whitish-ochreous. Abdomen whitish-ochreous, with dark fuscous lateral stripe. Forewings cleft from before $\frac{2}{3}$, segments broad, first acutely pointed, second with termen slightly sinuate, rather strongly oblique; light brown; a streak of darker suffusion along costa, containing a slender streak of blackish iroration with a few whitish scales from base to beyond middle; a few black specks placed longitudinally in disk at $\frac{1}{4}$; a black diskal dot near before cleft; cilia pale-brownish, on termen with an interrupted blackish antedian shade, round base-
of cleft with some black specks, on dorsum with two or three undefined groups of blackish specks. Hindwings cleft firstly from before middle, secondly from \( \frac{1}{4} \); pale fuscous, thinly and irregularly sprinkled with dark fuscous; cilia pale-brownish, round apex of segments with an antemedian line of dark fuscous points, on dorsum with a thick sub-basal shade of fuscous black-tipped scales from base becoming gradually thinner to \( \frac{3}{4} \), thence little marked to apex.

Bultfontein, N.E. Pretoria District, in January; one specimen.

I have described this, as no proper description of the species has been published, and Felder's figure is very coarse and poor; I have no doubt, however, of its correct identification.

**Pterophorus colubratus**, n. sp. (Plate I, fig. 4).

Male, 19 mm. Head fuscous, between antennae white. Palpi very short, slender, white. Thorax yellowish-white. Abdomen whitish-yellowish, longitudinally streaked with white. Forewings cleft from beyond middle, segments acutely pointed, first moderate, second narrower; white; a faint streak of pale yellowish suffusion beneath costa from base to cleft, and a similar sub-dorsal streak from base to \( \frac{1}{4} \), a blackish dot in disk at \( \frac{2}{3} \), and another on base of cleft, connected by an indistinct fuscous line; some pale brownish suffusion beginning from first dot and gradually expanded so as to cover all first segment except a narrow costal streak not reaching apex, and a streak along upper margin of second segment, latter marked with a line of dark fuscous scales; minute blackish dots on extremities of veins 2, 3, and 7; cilia whitish. Hindwings cleft firstly from \( \frac{3}{4} \), secondly from \( \frac{1}{2} \); segments narrow; rather dark grey; cilia light ochreous-grey.

Pretoria, in March; one specimen. Very similar to adumbratus Wals., described as an Aciptilus (Alucita), but doubtless also a Pterophorus; differs by dark streak along upper margin of second segment and absence of dark spot on costa beyond cleft, besides other details.

**Pterophorus verax**, n. sp. (Plate I, fig. 5).

Male, 20 mm. Head pale whitish-ochreous. Palpi moderate, white, lined with dark fuscous. Thorax whitish-yellow. Abdomen white, longitudinally streaked with pale yellow, with fuscous lines on sides. Forewings cleft from before \( \frac{2}{3} \), segments moderate, pointed, ochreous-whitish; costal edge fuscous, suffused beneath with brownish, from \( \frac{2}{3} \) to cleft, the brownish colour extending more or less widely over disk; a rather broad subdorsal streak of brownish suffusion from base to \( \frac{1}{4} \), becoming dorsal towards base; first segment suffused with reddish brown except a whitish streak near its lower margin becoming more distinct and terminal towards apex; lower half of second segment suffused with reddish-brown; cilia brownish with a white bar at apex of each segment. Hindwings cleft firstly from middle, secondly from before \( \frac{1}{4} \); segments moderate; fuscous, third segment dorsally tinged with whitish towards middle; cilia whitish-grey tinged with reddish.

Tweefontein, N.E. Pretoria District, in January; two specimens.

**Pterophorus ammonias**, n. sp. (Plate I, fig. 6).

Female, 18 mm. Head and thorax white mixed with reddish fuscous. Palpi rather long, white, with a reddish fuscous lateral
line. Abdomen brownish-ochreous mixed with white, with a fine dark fuscous line on each side of back. Forewings cleft from \( \frac{2}{3} \), segments moderate, pointed; rather light reddish fuscous, sprinkled with darker towards apex of segments; costa rather broadly suffused with white from about \( \frac{1}{4} \) to \( \frac{3}{4} \); some white irroration towards apex of first segment; a narrow white subdorsal streak from \( \frac{1}{2} \) of wing to base of second segment, thence continued along upper margin of second segment to its tip; cilia pale red-brownish, on dorsum ochreous-whitish anteriorly to cleft. Hindwings cleft firstly from \( \frac{2}{5} \), secondly from \( \frac{1}{5} \), segments narrow; rather dark grey; cilia rosy-grey-whitish.

Bultfontein, N.E. Pretoria District, in January; one specimen.

*Pterophorus crepuscularis*, n. sp. (Plate II, fig. 2).

Male, 21 mm. Head and thorax whitish irrorated with fuscous. Palpi moderate, whitish, with lateral line of fuscous irroration. Abdomen ochreous-whitish irrorated with fuscous, streaked on sides with dark fuscous. Forewings cleft from \( \frac{2}{3} \), segments pointed, first moderately broad, second narrower; grey, towards base with a few black specks; a dot of black irroration in disk at \( \frac{3}{4} \), and a patch of darker suffusion sprinkled with black before cleft; cilia light fuscous, base whitish, on dorsum with six groups of two or three blackish scales each. Hindwings cleft firstly from \( \frac{3}{5} \), secondly from \( \frac{2}{5} \), segments narrow; rather dark grey; cilia grey towards base of dorsum with several scattered hair-scales with black points.

Warmberg, Zoutpansberg District, in December; one specimen.

*Agdistis malitiosa*, n. sp. (Plate II, fig. 3).

Male, female, 25-27 mm. Head and thorax fuscous irrorated with whitish, forehead with very short cone. Palpi rather short, rough-scaled, fuscous mixed with white and dark fuscous. Abdomen fuscous suffused with whitish and sprinkled with black. Forewings with apex somewhat pointed, termen faintly sinuate beneath apex, rather strongly oblique; fuscous, irrorated with dark fuscous, slightly sprinkled with whitish, on costal and dorsal areas; a small suffused dark fuscous spot at inverted apex of triangular area, and others beneath its lower margin at \( \frac{2}{3} \) and midway between this and first; cilia fuscous, basal half mixed alternately with whitish and dark fuscous. Hindwings fuscous, towards tornus mixed with whitish and dark fuscous; cilia as in forewings.

Pretoria, in March; one specimen; and five others from Nairobi, British East Africa, in August.

**Orneodidae.**

*Orneodus certifica*, n. sp. (Plate II, fig. 4).

Female, 10 mm. Head and thorax white. Palpi long, porrected, terminal joint minute, concealed in scales of second, white, on lower half tinged with fuscous and sprinkled with dark fuscous. Abdomen whitish. Forewings white; markings whitish fuscous, sprinkled
with dark fuscous and edged with blackish iroration; three small semi-oval spots on anterior half of costa; a moderately broad straight fascia beyond middle, suddenly contracted to a narrow spot on first segment; a small quadrate spot on first segment at 3; a rather narrow straight subterminal fascia; a black dot at apex of each segment; cilia white, on fasciae tinged with fuscous. Hindwings white; post-median and subterminal fasciae faintly tinged with fuscous and edged with fuscous iroration on first five segments, obsolete on sixth, first moderately broad, second narrow, broader on first segment; apical dots and cilia as in forewings.

Warmberg, Zoutpansberg District, in March; one specimen.

Macrembola forésis Wals.

Pretoria, in January; one specimen. The genus Macrembola is characterized by the forewings cleft only to middle, and very long palpi.

Phaloniidae.

Pharmacis stigmatica Meyr.

Pretoria, in January and March.

Pharmacis assecula, n. sp. (Plate II, fig. 5).

Female, 18 mm. Head, palpi, and thorax deep yellow. Abdomen pale grey. Forewings elongate, costa slightly arched, apex obtuse, termen slightly rounded, oblique; deep yellow, strewn with small silvery-glistening paler spots; a suffused deep ferruginous-brown streak along costa from base to 3, and extreme costal edge beyond this spotted with dark fuscous iroration; an elongate deep ferruginous-brown spot beneath disk before middle, and some slight ferruginous suffusion extending from this to tornus, the silvery spots in or adjacent to these partially edged or marked with purplish fuscous; some dark fuscous scales about transverse vein; a ferruginous-brown line along lower 3 of termen, interrupted with silvery; cilia light ferruginous, towards base tinged with whitish. Hindwings light grey, extreme apex whitish; cilia yellow-whitish, with a sub-basal line of dark grey points.

Pretoria, in December; one specimen.

Tortricidae.

Epichorista Meyr.

This genus, described in a paper now in process of publication in the Proceedings of the Linnean Society of New South Wales, is distinguished from Tortrix by the separation of veins 3 and 4 of hindwings; veins 6 and 7 of hindwings are sometimes stalked. Type E. hemionana, from New Zealand.

Epichorista geraeas, n. sp. (Plate II, fig. 6).

Male, 19 mm.; female, 23 mm. Head, palpi, and anterior margin of thorax grey irroutered with blackish and whitish, rest of thorax light ochreous-yellowish. Abdomen grey. Forewings elongate, rather narrow, costa hardly arched, in male without fold; apex tolerably pointed, termen faintly sinuate, very oblique; light
ochreous-yellowish; cilia concolorous. Hindwings with 6 and 7 stalked; dark grey; cilia whitish-yellowish, with grey sub-basal shade.

Pretoria, in October and November; two specimens.

**Epiclorista tectoma Meyr.**

This species, described as a *Tortrix*, is correctly referred here.

**Epiclorista ionepela Meyr.**

Pretoria District, in December; one large male, 22 mm. Described as a *Proselena*, in which genus *Epiclorista* has hitherto been included.

**Tortrix pharetrata, n. sp.** (Plate II, fig. 7).

Female, 17 mm. Head whitish-ochreous, tinged on crown with light brownish. Palpi whitish-ochreous, slightly brownish tinged towards middle. Thorax light ochreous-yellowish. Abdomen whitish-grey. Forewings elongate, costa gently arched near base, thence straight, apex round-pointed, termen slightly sinuate, rather strongly oblique; light ochreous-yellowish; costa slenderly white from base to \( \frac{3}{4} \); a short sub-costal streak of ferruginous suffusion from base; veins in disk and posteriorly slightly indicated by scattered ferruginous-brownish and dark fuscous scales, especially vein 8 and anterior half of 7; a brown dot mixed with dark fuscous on lower angle of cell; cilia pale ochreous-yellowish, between apex and tornus suffused with light ferruginous. Hindwings pale grey; cilia grey-whitish.

Pretoria, in December; one specimen.

**EUCOSMIDAE.**

**Ancylis halisparta, n. sp.** (Plate II, fig. 8).

Female, 16 mm. Head grey-whitish, face suffused with brownish-ochreous. Palpi whitish-grey with two grey bands. Thorax brownish-ochreous, patagia grey irrorated with whitish. Abdomen fuscous. Forewings elongate, costa gently arched, apex falcate; ochreous-grey finely irrorated with white and sprinkled with dark fuscous; costa shortly strigulated with white and blackish; a broad streak beneath costa from base to \( \frac{3}{4} \) suffused with white, marked with fine dark lines on veins, and somewhat mixed with fuscous posteriorly; some black scales tending to form longitudinal streaks on veins in disk, especially on submedian fold; apical projection dark, edged anteriorly by a blackish mark; dorsum somewhat marked with blackish; cilia white on termen, towards tornus mixed with grey. Hindwings with 3 and 4 stalked; fuscous darker posteriorly; cilia grey-whitish with grey sub-basal shade.

Warmberg, Zoutpansberg District, in December; one specimen.

**Eucosma tremula, n. sp.** (Plate III, fig. 1).

Female, 10 mm. Head, palpi, and thorax grey irrorated with whitish. Abdomen light grey. Forewings elongate, rather narrow, somewhat dilated posteriorly, costa slightly arched, apex obtuse, termen straight, oblique; grey, with tips of all scales whitish, appearing finely striated; costa marked with short fine blackish strigulae; basal patch ochreous-tinged, limited by an angulated
fascia of ochreous suffusion; central fascia moderate, oblique, ochreous, very narrow on costa, posterior margin angularly indented below middle; ocellus narrow, ochreous, margined laterally by two silvery streaks, and containing two round black dots; apical area beyond this ochreous, containing a transverse silvery mark before apex, margined with a few black scales; cilia grey mixed with white, basal third sprinkled with black points. Hindwings with 3 and 4 stalked; light grey; cilia grey-whitish.

Pretoria, in October; one specimen.

**Eucosma monitrix**, n. sp. (Plate III, fig. 2).

Male, 12 mm. Head grey, collar grey-whitish, forehead black. Palpi white. Thorax pale ochreous, anterior third dark fuscous, behind middle with a grey-whitish band. Abdomen dark grey. Forewings elongate, rather narrow, posteriorly slightly dilated, costa slightly arched, without fold, apex obtuse, termen oblique, slightly retuse above middle; dark fuscous, towards dorsum and posteriorly with tips of scales pale yellowish, forming fine striae; basal patch marked by three leaden striae partially edged with whitish; central fascia formed by two thick oblique blue-leaden striae rising from pairs of small whitish costal stigulae, becoming broader and confluent below middle, suddenly reduced to small spots on dorsum; a thick silvery metallic erect streak from tornus reaching half across wing, edged anteriorly with a white line and posteriorly by an irregular white streak containing three or four variable black dots; three small whitish costal stigulae beyond middle, central one sending a blue-leaden oblique stigma to apex of tornal streak; three more conspicuous white costal stigulae about \( \frac{3}{4} \), whence a blue-leaden stigma runs to near termen beneath apex; cilia grey mixed with white, especially towards tornus, round apex and upper part of termen pale ochreous with a thick dark grey sub-basal line and tips blackish. Hindwings with 3 and 4 stalked; light grey, thinly scaled towards base, termen suffused with dark fuscous, more broadly towards apex; cilia grey-whitish, with grey sub-basal shade.

Pretoria, in October; one specimen.

**Eucosma insolens** Meyr.

Pretoria, in December; one specimen.

**Eucosma symboila**, n. sp. (Plate III, fig. 3).

Male, 12 mm. Head and thorax dark fuscous. Abdomen grey.

Forewings elongate, posteriorly slightly dilated, costa slightly arched, with short fold, apex obtuse, termen sinuate, somewhat oblique; dark fuscous; costa between \( \frac{1}{2} \) and apex, with five pairs of whitish stigulae, and two single ones; and irregular acute triangular whitish blotch on dorsum beyond middle, reaching more than half across wing, containing two or three dark fuscous marks; two oblique purplish-leaden stigulae from first two pairs of costal stigulae to above apex of this blotch; beyond an irregular zigzag line from beyond middle of costa to before tornus, the ground colour of posterior area is fulvous, with blackish costal stigulae between the others, crossed by two angulated bluish-leaden stigulae, from third and fifth pairs of stigulae, with a blackish parallel mark between them above middle,
and two or three short black dashes or dots in ocellus; cilia leaden-grey, with a blackish basal line. Hindwings with four absent; grey; cilia pale grey with darker sub-basal shade.

Van der Merwe Station, Pretoria District, in December; one specimen.

**Eucosma isogramma** Meyt.

Pretoria, in November and May; three specimens.

**Eucosma calliarma**, n. sp. (Plate III, fig. 5).

Male, 14 mm.; female, 16 mm. Head white. Palpi white, with two fuscous spots. Thorax white with a blackish mark on each shoulder, and four small blackish spots posteriorly. Abdomen grey. Forewings elongate, somewhat dilated posteriorly, costa slightly arched in male without fold, apex obtuse, termen sinuate, oblique; white; costa with small spots and strigulae of black and ferruginous; basal patch mixed with ferruginous, grey, and black, including a white dorsal spot, outer edge oblique, obtusely angulated in middle; central fascia beyond middle, rather narrow, oblique, irregular, ferrugineous-ochreous edged with grey anteriorly and towards costa posteriorly, attenuated or somewhat interrupted above middle, with some black scales in middle; ocellus edged laterally with pale leaden-grey and containing two black marks, posterior margin continued as a sinuate stria to costa and preceded by two or three other black marks; apical space and terminal streak beyond this ferruginous, including two short white costal strigulae; cilia grey mixed with whitish, basal third bluish-shining, above apex with blackish sub-basal line. Hindwings 3 and 4 stalked; grey; cilia grey-whitish, with grey sub-basal line.

Pretoria; Camperdown, Natal (Leigh); in March, two specimens.

**Eucosma marmara**, n. sp. (Plate III, fig. 6).

Male, 11-12 mm. Head and palpi whitish, sometimes partially tinged with pale grey. Thorax whitish, variably spotted with ochreous and fuscous. Abdomen light grey, anal tuft whitish. Forewings elongate, posteriorly slightly dilated, costa gently arched without fold, apex obtuse, termen almost straight, oblique; ochreous-white; basal patch covering more than \( \frac{3}{4} \) of wing, irregularly striated with fulvous and grey, and more or less marked with black, outer edge irregular, prominent below middle; space between basal patch and central fascia more or less strigulated with fulvous and grey on upper half but forming a clear white blotch on lower half, marked with one or two dark grey strigulae on dorsum; mixed with leaden-grey on upper half and marked with black towards dorsum; posterior area with irregular thick alternate leaden-grey and fulvous striae, with two or three short black marks in ocellus and some irregular black marking above this; cilia whitish with a blackish sub-basal line, outer half pale fulvous spotted with grey. Hindwings with 3 and 4 connate or short-stalked; grey, paler towards base; cilia grey-whitish with dark grey sub-basal shade.

Pretoria, from November to January; three specimens.

**Bactra sicella** Walk.

Pretoria District, in January and February.
Laspeyresia

Female 13-15 mm. Head ochreous-whitish. Palpi 2½, densely haired, ochreous-whitish, partially tinged with grey. Thorax ochreous-whitish, with some dark fuscous strigulae. Abdomen light-grey. Forewings elongate, somewhat dilated posteriorly, costa gently arched, apex obtuse, termen straight, oblique; light greyish-ochreous, costa and dorsum strigulated with blackish and whitish irroration, outer edge sometimes tolerably defined, angulated in middle; space between basal patch and central fascia more or less suffused with whitish and strigulated with dark grey; central fascia darker, very undefined, oblique, narrow, posterior edge with acute prominences above and below middle, sprinkled with dark grey or blackish in disk; a large rounded patch of white suffusion following this in disk; some short black lines on veins towards termen, two in ocellus especially distinct, followed by a transverse leaden mark; more or less grey irroration towards termen; cilia greyish-ochreous irrorated with white and some blackish points. Hindwings grey; cilia whitish-grey, with darker sub-basal shade.

Pretoria, in December and January; two specimens.

**Polychrosis spissana Z.**

Pretoria District, in January.

**Polychrosis primaria, n. sp.** (Plate III, fig. 8).

Female, 14 mm. Head, palpi, thorax, and abdomen grey. Forewings elongate, posteriorly slightly dilated, costa gently arched, apex obtuse, termen straight, somewhat oblique; fuscous; costa with about ten pairs of short whitish strigulae, separated by darker spots; basal patch mixed with dark fuscous, outer edge ill-defined, angulated in middle, indented near dorsum; central fascia narrow, oblique, dark fuscous, anteriorly suffused, posterior edge well defined, very irregular; several obscure oblique leaden strigae from posterior half of costa; ocellus margined by two thick leaden-metallic marks, containing three large black dots touching posterior margin; cilia leaden-fuscous. Hindwings fuscous, darker posteriorly; cilia light fuscous, with dark fuscous sub-basal line.

Tweefontein, Pretoria District, in January; one specimen.

**Argyroplece wahlbergiana Z.**

Pretoria, in January. I do not maintain *Eccopsis Z.* as a distinct genus.

**Argyroplece brevibasana Wals.**

Pretoria, in November; three specimens showing some variability.

**Laspeyresia halmyrs, n. sp.** (Plate III, fig. 9).

Male, 12 mm. Head and thorax light fuscous irrorated with whitish. Palpi fuscous-whitish. Abdomen grey. Forewings elongate, posteriorly somewhat dilated, costa slightly arched, apex obtuse, termen slightly sinuate, little oblique; fuscous, in disk and towards dorsum suffusedly striated with white, posteriorly irrorated with white; costa dark fuscous, marked with ten pairs of white strigulae, third to eighth pairs emitting oblique blue-leaden strigae, third, fifth, and seventh interspaces prolonged into oblique dark
fuscosus strigae; ocellus margined laterally with leaden-metallic and containing three black dots; cilia light grey irrorated with white, with dark fuscosus sub-basal line. Hindwings with dorsal cilia thickened and somewhat curled; grey, darker posteriorly; cilia whitish-grey, with dark grey sub-basal line.

Pretoria, in October; one specimen.

GELECHIADAE.

Paltodora melantracta Meyr.

Pretoria, in October; one specimen.

Paltodora operosa, n. sp. (Plate IV, fig. 1).

Male, 18-22 mm. Head whitish-ochreous irrorated with fuscosus. Palpi ochreous-whitish, second joint irrorated with dark fuscosus, terminal joint with anterior edge dark fuscosus. Thorax brownish irrorated with dark fuscosus and whitish. Abdomen greyish irrorated with darker, apex whitish. Forewings elongate, very narrow, long-pointed, acute, termen slightly sinuate beneath apex; brown, irrorated on margins and veins with dark fuscosus and whitish, but this irroration sometimes extends over most of wing, except longitudinal streaks in disk and along fold, sometimes tinged with yellowish; stigmata represented by small suffused dark fuscosus spots, plical very obliquely before first diskal; similar spots near base in middle, beneath costa at \( \frac{1}{3} \) and \( \frac{3}{4} \), and on fold between these; cilia brownish with two dark fuscosus shades, towards base mixed with whitish and dark fuscosus. Hindwings grey; cilia whitish-ochreous tinged with grey.

Pretoria, in December and March; two specimens.

Paltodora iospila, n. sp. (Plate IV, fig. 2).

Male, 16 mm. Head white. Palpi white, second joint externally ferruginous sprinkled with dark grey except apex, with short triangular tuft, terminal joint sprinkled with grey anteriorly. Thorax whitish partially tinged with ferruginous. Abdomen grey, sides dark grey posteriorly. Forewings elongate, very narrow, costa hardly arched, apex acute, termen faintly sinuate, extremely oblique; whitish tinged with ferruginous; ferruginous spots on costa at base and \( \frac{3}{4} \), former connected beneath with a fuscosus transverse mark; two small ferruginous spots beneath fold rather obliquely beyond these respectively; costa suffused with grey irroration from \( \frac{1}{3} \) to \( \frac{3}{4} \); a small ferruginous spot beneath costa at \( \frac{3}{4} \); stigmata represented by small ferruginous spots, plical very obliquely before first diskal; a suffused grey streak sprinkled with dark grey along fold beneath diskal stigmata; a fascia of ferruginous suffusion along termen, preceded by some grey suffusion; cilia whitish, basal half sprinkled with blackish-grey. Hindwings pale grey; cilia pale whitish-ochreous tinged with ferruginous.

Albert Mine, Pretoria District, in January; one specimen.

Sitotroga celyphodes, n. sp. (Plate IV, fig. 3).

Female, 12-13 mm. Head white. Palpi white, lower half of second joint fuscosus. Thorax white, shoulders brownish. Abdomen whitish. Forewings narrow, costa hardly arched, apex pointed,
termen extremely obliquely rounded; white; plical and second diskal stigmata blackish; some ferruginous-brownish suffusion forming undefined patches above plical stigma and on costa at \( \frac{3}{4} \), and an undefined fascia just before termen throughout, touching second diskal stigma beneath; cilia whitish. Hindwings with 4 and 5 approximated towards base; whitish; cilia yellow-whitish.

Van der Merwe Station, Pretoria District, in December and February; two specimens.

Anacampsis nenteria Meyt.

Pretoria, in May; one specimen. Common in India and Ceylon; the larva feeds on the ground nut (Arachis hypogaea).

Telphusa probata, n. sp. (Plate IV, fig. 4).

Male, female, 11-12 mm. Head and thorax blackish sprinkled with whitish. Palpi white, second and terminal joints each with base and two bands black. Antennae blackish. Abdomen grey. Forewings elongate, narrow, costa slightly arched, apex round-pointed, termen extremely obliquely rounded; dark fuscous; a broad direct white fascia before middle, posterior edge rather convex, followed by two small indistinct blackish spots surrounded by brown, perhaps representing first diskal and plical stigmata; second diskal stigma represented by a similar spot with an additional spot beneath it; some brown suffusion and slight whitish sprinkling towards apex; cilia fuscous, round apex sprinkled with blackish and whitish. Hindwings grey; cilia light grey tinged with ochreous.

Pretoria, in November; two specimens.

Telphusa lathridia, n. sp. (Plate IV, figs. 5-6).

Male, female, 14-16 mm. Head and thorax fuscous mixed with blackish, finely whitish-sprinkled. Palpi fuscous mixed with blackish, indistinctly banded with whitish irroration. Antennal ciliations in male, one. Abdomen in male pale whitish-ochreous, in female grey with some ochreous suffusion on segment 2. Forewings elongate, narrow, costa gently arched, apex acute, termen extremely obliquely rounded; dark fuscous, tips of scales finely whitish, more or less sprinkled with blackish; in one specimen two ochreous dots near base; a more or less marked irregular oblique transverse blackish streak about \( \frac{1}{4} \), in male obsolete, in female sometimes posteriorly edged with whitish-ochreous suffusion on upper half, towards dorsum forming an irregular ridge of raised scales; stigmata raised, blackish, in female more or less edged with pale brownish-ochreous, plical beneath first diskal, an additional dot beneath second diskal; in one female some indistinct pale ochreous suffusion towards costa at \( \frac{3}{4} \); cilia fuscous finely sprinkled with whitish, towards base mixed with dark fuscous. Hindwings grey, paler towards base, especially in male; cilia light greyish.

Pretoria, in September and February; three specimens (one male, two females).

Telphusa zymotis, n. sp. (Plate IV, fig. 7).

Female, 15 mm. Head and thorax fuscous mixed with ferruginous-brownish and whitish-ochreous. Palpi whitish-ochreous irrorated with blackish, terminal joint shorter than second. Abdomen grey. Forewings elongate, narrow, costa gently arched, apex pointed,
termen extremely obliquely rounded; fuscous irregularly mixed with ferruginous-brownish and sprinkled with dark fuscous; a blackish mark beneath base of costa, and one on fold towards base, each followed by longitudinal white-ochreous suffusion, latter streak extending to second diskal; suffused white-ochreous oblique costal and dorsal opposite marks about \( \frac{3}{4} \), not meeting; cilia light fuscous; towards base sprinkled with dark fuscous. Hindwings grey; cilia light grey.

Warmberg, Zoutpansberg District, in October and December; two specimens.

Gelechia mesacta, n. sp. (Plate IV, fig. 8).

Male, 16 mm. Head pale reddish-ochreous. Palpi dark fuscous sprinkled with blackish, apex of second and base of terminal joint whitish-ochreous. Antennae dark fuscous. Thorax pale reddish-ochreous, patagia dark fuscous. Abdomen ochreous-whitish, three basal segments light yellow. Forewings elongate, narrow, costa slightly arched, apex pointed, termen extremely obliquely rounded; dark fuscous, suffused with reddish-brown towards dorsum; a short streak of blackish suffusion on base of dorsum; a blackish streak along fold from near base to beyond \( \frac{3}{4} \); diskal stigmata rather approximated, blackish, connected by red brownish suffusion, beneath which adjacent to each is an additional less defined group of blackish scales; a narrow undefined slightly angulated red-brownish fascia about \( \frac{3}{4} \); cilia grey, on basal half suffused with pale rosy and mixed with dark fuscous. Hindwings and cilia light grey.

Pretoria, in October; one specimen.

Gelechia peronectis, n. sp. (Plate IV, fig. 9).

Male, 26 mm. Head and thorax ochreous-whitish sprinkled with grey, shoulders suffused with dark fuscous. Palpi whitish, second joint rosy-tinged, basal and apical thirds of second and terminal joints suffused with dark fuscous iroration, terminal joint longer than second. Antennae dark grey, ciliae nearly one. Abdomen fuscous. Forewings elongate, rather narrow, costa hardly arched, apex obtuse-pointed, termen straight, rather strongly oblique; fuscous sprinkled with dark fuscous and towards dorsum with whitish; some black and whitish scales on vein 12; a thick black medium longitudinal streak from base to end of cell, obliquely interrupted before middle of wing, both sections edged posteriorly with white; streaks of blackish scales on veins 5 and 6, and some scattered blackish scales on other veins posteriorly; cilia light fuscous sprinkled with darker. Hindwings grey; cilia light fuscous.

Eersteling, Zoutpansberg District, in September; one specimen.

Stegasta variana Meyr.

Pretoria, in January and February; occurs in India and Australia.

Gnorimoschema synecta, n. sp. (Plate IV, fig. 10).

Male, female, 10-11 mm. Head white tinged with ochreous. Palpi whitish, second and terminal joints each with two wings of black iroration. Thorax whitish-ochreous, shoulders irrorated with dark fuscous. Abdomen grey-whitish. Forewings narrow, long-pointed, acute; 7 and 8 out of 6 in male fuscous irrorated with
dark fuscous, in female whitish-ochreous irrorated with blackish; pale ochreous spots beneath costa at $\frac{1}{2}$ and $\frac{3}{4}$, between which are traces of an oblique bar of somewhat darker suffusion; base of dorsum whitish-ochreous and some ochreous markings about fold towards base; stigmata dark fuscous surrounded with rather deep ochreous, plical rather obliquely before first diskal, second diskal somewhat below middle; whitish-ochreous spots on tornus and costa opposite; cilia pale whitish-ochreous sprinkled with black points. Hindwings pale grey; cilia pale whitish-ochreous.

Pretoria, in August and October; two specimens. Very close to two Australian species, \textit{pyrrhanthes} and \textit{bucolica}, and intermediate between them, but differs from both by the stalking of 6 with 7 and 8 in forewings. Notwithstanding this structural distinction, the relationship is undoubtedly real and intimate.

\textbf{Paristhmia, n.g.}

Head with appressed scales; ocelli small; tongue developed. Antennae $\frac{4}{5}$, in male shortly ciliated, basal joint moderate, without pecten. Labial palpi long, recurved. second joint thickened with dense appressed scales, terminal joint as long as second, slender, acute. Maxillary palpi very short, filiform, appressed to tongue. Posterior tibiae clothed with hairs above. Forewings with 2 and 3 stalked, 7 and 8 stalked, 7 to apex. 11 from middle. Hindwings 1, trapezoidal, apex pointed, termen sinuate, oblique, cilia 1; 2 and 3 stalked from much before angle, 4 from angle, 5 somewhat approximated at base, 6 and 7 stalked.

Allied to \textit{Brachmia}, from which it differs by the peculiar structure of veins 2 and 3 of hindwings; this may perhaps be modified in female.

\textbf{Paristhmia barathrodes, n. sp. (Plate V, fig. 1).}

\textbf{Male, 12 mm.} Head and thorax whitish-ochreous, face and sternum dark fuscous. Palpi whitish-ochreous, second joint dark fuscous except apex. Abdomen light grey. Forewings elongate, narrow, costa slightly arched, apex obtuse, termen abliquely rounded; whitish-ochreous tinged with brownish; a black dot on base of costa and one on fold before $\frac{4}{5}$; an oblong transverse blackish blotch in disk before middle representing plical and first diskal stigmata; second diskal stigma black; an undefined fascia of light fuscous suffusion just beyond this, extremities blackish; three or four undefined fuscous dots on termen; cilia whitish-ochreous. Hindwings with a furrow beneath cell and vein 2 containing a grey hairpencil; grey; cilia light grey, base ochreous-tinged.

Pretoria, in January; one specimen.

\textbf{Encolpotis xanthoria Meyt.}

Pretoria, in February and April.

\textbf{Brachmia maculata Wals.}

\textit{(Lecithocera maculata} Wals. Trans. Ent. Soc. Lond. 1881, p. 276, pl. xi, fig. 18.)

One male; antennae $\frac{4}{5}$ (therefore not a \textit{Lecithocera}, thick, pale ochreous-yellowish; forewings with 8 and 9 out of 7, 7 to apex; dark
purplish-fuscous; stigmata whitish-ochreous surrounded with black, plical beneath first diskal, both small, second diskal large. Hind-wings grey.

Pretoria District, in January.

Brachmia lamprostoma Z.

(Gelechia zulu Wals. Trans. Ent. Soc. Lond. 1881, p. 261, pl. xii, fig. 30.)

Afterwards identified by Lord Walsingham with lamprostoma Z., and referred to the genus Anacampsis; it is, however, certainly a Brachmia, having 2 and 3 of forewings stalked, and 7 and 8 stalked, 7 running to apex. It varies very much in development of white and ferruginous-brown markings; one male has crown of head fuscous, forewings with median fascia not reaching costa, and no white scales on termen; another has much more ferruginous-brown suffusion anteriorly; diskal stigma large, white-edged.

Pretoria, in March.

Brachmia malacogramma, n. sp. (Plate V., fig. 2).

Female, 14 mm. Head and thorax yellow-whitish, patagia brownish-tinged. Palpi yellowish-white, basal fuscous tinged. Antennae fuscous, beneath whitish. Abdomen whitish-ochreous. Forewings elongate, rather narrow, costa gently arched, apex obtuse, termen obliquely rounded; 7 and 8 stalked, 7 to apex; whitish-yellowish; a rather broad brownish median stripe from base to apex, darker brown towards apex, including traces of a pale line on internal vein, and a more distinct one on vein 6; undefined narrow brownish streaks between veins towards costa and posteriorly; stigmata blackish, first diskal minute, indistinctly whitish-ringed, second diskal whitish-edged posteriorly, plical larger, obliquely before first diskal; a suffused brownish spot beneath second diskal, touching median stripe; cilia whitish-yellowish, basal half faintly barred with pale brownish. Hindwings pale whitish-grey tinged with ochreous; cilia pale whitish-ochreous.

Pretoria, in January; one specimen. Allied to the Indian arotrea.

Polyhymno pausimacha, n. sp. (Plate V, fig. 3).

Female, 15 mm. Head pale shining grey, sides of crown whitish. Palpi dark fuscous, posteriorly white. Antennae dark fuscous. Thorax dark fuscous, patagia white except shoulders. Abdomen grey. Forewings elongate, narrow, costa hardly arched, apex falcate, acute, termen oblique; dark purplish-fuscous mixed with blackish; a rather broad white median streak from base, broadly interrupted about middle, posterior extremity attenuated, not reaching termen; beneath the posterior segment are a cloudy white streak on fold to tornus, and an irregular cloudy white streak between these mixed with fuscous in middle and extending upwards to beyond apex of median streak; a slender white oblique streak above apex of median; a silvery-metallic acutely angulated line from 3 of costa to tornus, passing round these; a brownish-ochreous streak running from near costa immediately beyond this to apex; three white oblique wedge-shaped marks on costa towards apex; a whitish terminal line not reaching apex or tornus; cilia grey, on costa dark fuscous with
oblique white marks, on central portion of termen with a patch of white suffusion towards base containing three black dots. Hindwings grey, darker posteriorly; cilia light greyish tinged with ochreous.

Lekkerwater (Rietfontein No. 70), Zoutpansberg District, in September; one specimen.

**Polyhymno palinorsa**, n. sp. (Plate V, fig. 4).

Male, 13 mm. Head white. Palpi white, second joint with a fuscous lateral line except at apex, terminal joint with anterior edge dark fuscous. Antennae dark fuscous, towards base white above. Thorax white with four dark fuscous stripes. Abdomen grey, sides and apex whitish. Forewings elongate, narrow, costa slightly arched, apex falcate, acute, termen very oblique; dark fuscous; a moderate white median longitudinal streak from base to termen, becoming linear posteriorly: a fine white line immediately beneath costa from near base to middle, thence running obliquely into median streak near termen; a white sub-dorsal line from near base almost to tornus; a white line along submedian fold posteriorly almost rising out of median streak; a white somewhat upwards-oblique streak lying between posterior half of this and median streak; an oblique white line from costa about \( \frac{3}{4} \) to apex of median streak, extremity greyish; a pale ochreous-yellowish streak running from above posterior portion of this to apex; cilia grey, on costa white with several irregular dark fuscous bars, at apex with a dark fuscous bar, on upper part of termen with a patch of whitish suffusion containing a dark fuscous basal line and a black dot beyond this at each extremity. Hindwings grey; cilia whitish-grey tinged with ochreous.

Pretoria, in December; one specimen.

**Polyhymno paracma**, n. sp. (Plate V, fig. 5).

Female, 13-14 mm. Head white. Palpi white, anterior edge of terminal joint dark fuscous. Antennae grey, towards base white. Thorax white with three ochreous-fuscous stripes. Abdomen grey, segmental margins whitish. Forewings elongate, rather narrow, costa slightly arched, apex falcate, acute, termen very oblique; ochreous-fuscous; a broad shining white sharply-defined median streak from base to beyond \( \frac{3}{4} \), apex acute, lower margin prominent beyond middle of wing and sending a fine branch along fold almost to tornus; a narrow shining, white sub-dorsal streak from base to tornus; a whitish line along costa from about \( \frac{1}{2} \) to middle, thence obliquely to above apex of median streak; an oblique white striga from costa about \( \frac{3}{4} \) to near termen, apex leaden-grey; a suffused leaden-grey mark along upper part of termen; cilia grey, on costa white, with several irregular oblique dark fuscous bars, round apex mixed with blackish, on middle of termen with a basal patch of white suffusion, above which is a short black basal line. Hindwings grey; cilia light grey.

Pretoria, in November and December; two specimens.

**Polyhymno eurydoxa**, n. sp. (Plate V, fig. 6).

Male, 13 mm. Head ochreous-white, crown more ochreous-tinged. Palpi white, anterior edge of terminal joint dark fuscous. Antennae grey. Thorax pale shining whitish-ochreous, patagia
white. (Abdomen broken.) Forewings elongate, rather narrow, costa slightly arched, apex very long-produced, acute-falcate, termen oblique; dark fuscos; a broad shining white stripe covering median third from base to near termen, sharply defined above, beneath suffused into a pale yellow-brownish stripe which covers dorsal third extreme edge; a fine suffused whitish-ochreous streak along costa from \( \frac{1}{4} \) to \( \frac{2}{3} \), sending a branch from middle to above apex of median stripe; an oblique dark fuscos line splitting apex of median stripe; five white wedge-shaped marks on posterior third of costa, partly in cilia, first two more oblique and slender, first terminating in a short fine metallic mark; apical area beneath these suffused with ferruginous-yellowish, which extends also along terminal area, except a leaden-metallic terminal streak; cilia grey, on termen whitish with a dark fuscos sub-basal line and three black dots beyond it, beneath apex with two blackish hooks, on costa with dark fuscos bars between white marks. Hindwings grey; cilia grey, round apex suffused with ochreous-whitish except towards base.

Bultfontein, Pretoria District, in January; two specimens.

**Semodictis, n. g.**

Head with appressed scales; ocelli present; tongue developed. Antennae \( \frac{4}{5} \), in male simple, basal joint elongate, without pecten. Labial palpi very long, recurved, second joint with double or single projecting tuft beneath, terminal joint longer than second, acute, with two scale-projections posteriorly. Maxillary palpi very short, filiform, appressed to tongue. Posterior tibiae clothed with long hairs above. Forewings with 2 from towards angle, 6 to apex, 7 and 8 stalked, 11 from middle. Hindwings 1, elongate-trapezoidal apex obtuse, termen oblique, not sinuate, cilia almost 1; 3 and 4 approximated at base, 5 rather approximated, 6 and 7 stalked.

Type S. tetraptila. To this genus is also referable Chelaria albogrisea Wals.

**Semodictis tetraptila, n. sp.** (Plate V, fig. 7).

*Male, female, 16-17 mm.* Head and thorax pale grey mixed with whitish. Palpi grey irregularly mixed with dark grey and whitish, second joint with two separate tufts. Abdomen grey, suffused with ochreous-whitish towards base. Forewings elongate, narrow, widest at \( \frac{1}{4} \), thence gradually narrowed, costa with scales rather prominent beyond middle, apex rounded, termen very obliquely rounded; light grey mixed with whitish, with some scattered blackish scales; several small blackish-grey spots on basal fourth; a blackish-grey trapezoidal blotch in disk before middle, broadest beneath, preceded by some brownish suffusion; an irregular dark fuscos spot extending along costa from \( \frac{1}{4} \) to middle almost confluent with this; apical \( \frac{2}{3} \) of wing irregularly marked with grey, suffusedly mixed with blackish, with a more defined dark spot on costa at \( \frac{1}{4} \), and a black mark at apex; cilia light greyish, irroration with whitish, towards base indistinctly barred with blackish irroration. Hindwings grey, paler towards base; cilia light greyish.

Kranspoort, Pretoria District, in December; two specimens.

**Nothris rhyodes, n. sp.** (Plate V, fig. 8).

*Male, 17 mm.* Head and thorax white, shoulders suffused with fuscos. Palpi white, second joint with very long dense triangular
tuft, externally fuscous except along apex, terminal joint with anterior edge dark fuscous. Antennae dark fuscous. Abdomen grey-whitish. Forewings elongate, narrow, costa slightly arched, apex round-pointed, termen extremely obliquely rounded; light fuscous, suffusely mixed throughout with whitish; veins in disk and two or three towards costa posteriorly partially indicated by series of scattered blackish scales; similar series along termen and posterior part of costa; cilia ochreous-whitish, sprinkled with fuscous towards base. Hindwings light grey; cilia ochreous-whitish tinged with grey towards base.

Rietfontein No. 57, Pretoria District, in September; one specimen.

Notiris (?) pycnodes, n. sp. (Plate V, fig. 9).

Male, 21-22 mm. Head and thorax whitish-ochreous tinged with brownish, beneath wings with patches of flat expansible scales. Palpi whitish-ochreous irregularly mixed and suffused with fuscous, second joint with moderate rough rounded tuft beneath, terminal joint thickened with scales except on apex. Abdomen whitish-ochreous suffused with fuscous. Forewings elongate, rather narrow, costa gently arched, apex rounded, termen obliquely rounded; fuscous; an indistinct blackish dot beneath costa near base, stigmata blackish, partially edged with light greyish-ochreous, plical larger, obliquely before first diskal; costa somewhat suffused with pale greyish-ochreous towards middle; a suffused pale greyish-ochreous spot on costa about ⅜, with faint traces of a curved transverse line rising from it; cilia light greyish-ochreous suffused with fuscous. Hindwings grey, becoming paler and tinged with whitish-ochreous towards base; cilia pale whitish-ochreous, with light fuscous subbasal shade.

Pretoria District, in January; two specimens. The thickening of terminal joint of palpi is an unusual character in the genus.

Trichotaphe claviculata, n. sp. (Plate V, fig. 10).

Female, 16 mm. Head and thorax fuscous-grey, face whitish-fuscous. Palpi dark fuscous, second joint with dense expanded scales towards apex above and beneath, extreme apex whitish, terminal joint longer than second, whitish except anterior edge. Abdomen light fuscous. Forewings elongate, rather narrow, costa gently arched, apex obtuse, termen rounded, rather strongly oblique; glossy fuscous-grey, sprinkled with black, especially towards margins; costal edge whitish-ochreous on anterior half, with a black basal dot; a slightly curved slender black bar in disk at ⅜ representing plical and first diskal stigmata; a very small whitish-ochreous spot on costa at ⅜; cilia light grey. Hindwings grey; cilia light grey.

Pretoria; one specimen bred in July. [Only one caterpillar of 1 in. long, very thin, and of a green colour, was found feeding on the leaves of Combretum (A. J. T. J.).]

Trichotaphe ironica, n. sp. (Plate VI, fig. 1).

grey. Forewings sub-oblong, rather narrow, costa gently arched, apex obtuse, termen rather obliquely rounded; dark purplish-fuscous; stigmata cloudy, blackish, plical beneath first diskal, a similar less distinct spot midway between first diskal and base; a cloudy pale ochreous dot on costa at \( \frac{3}{4} \); some blackish lunate marks on termen; cilia fuscous, with basal spots of pale ochreous suffusion on these marks. Hindwings rather dark grey; cilia whitish-grey, with grey sub-basal shade.

Warmberg, Zoutpansberg District, in December; one specimen.

**Ypsolophus tephrodes**, n. sp. (Plate VI, fig. 2).

*Female*, 17 mm. Head dark grey sprinkled with whitish. Palpi dark fuscous, scale of second joint expanded above and in a triangular apical tuft beneath, irrorated with white along apex, terminal joint white posteriorly. Thorax ochreous-brownish, centrally suffused with grey. Abdomen rather dark grey. Forewings elongate, rather narrow, costa gently arched, apex obtuse, termen obliquely rounded; ochreous-brownish, more ochreous towards costa anteriorly; costal edge blackish towards base; stigmata moderate, dark fuscous, diskal approximated, plical obliquely before first diskal; posterior portion of wing slightly infuscated, with an indistinct curved transverse shade of ground colour about \( \frac{1}{2} \); cilia ochreous-brownish. Hindwings rather dark grey; cilia grey.

Warmberg, Zoutpansberg District, in March; one specimen.

**COSMOPTERYGIDAE.**

**Cosmopteryx oxyglossa**, n. sp. (Plate VI, fig. 3).

*Male*, 10 mm. Head blackish, crown with white central and lateral lines. Palpi white, lined with black. Antennae dark grey ringed with whitish (imperfect). Thorax black with three white lines. Abdomen light bronzys-ochreous. Forewings narrowly lanceolate, apex very slenderly long-produced, caudate; blackish; a white sub-costal streak from base to near \( \frac{3}{4} \); a short white median line beneath extremity of this; a white sub-dorsal line starting at \( \frac{1}{4} \) and running into an acute orange median projection of band; a broad orange band hardly beyond middle, anterior edge marked with two golden-metallic spots, upper followed by two or three black scales, lower somewhat posterior, posterior edge also marked with two golden-metallic opposite spots preceded by a few black scales, between which is a short orange projection, whence a sinuate white line proceeds along termen to apex; cilia dark grey. Hindwings and cilia grey.

Pretoria, in December; one specimen.

**Cosmopteryx scaligera**, n. sp. (Plate VI, fig. 4).

*Male*, 14 mm. Head dark fuscous, crown with white central and lateral lines, face whitish-bronzy. Palpi white, lined with black. Antennae with basal half white lined with black, apical three joints whitish, then four dark fuscous, one white, one dark fuscous, rest white with dark fuscous apical rings. Thorax dark fuscous with three white lines. (Abdomen broken.) Forewings narrowly lanceolate, apex very slenderly long-produced, caudate; dark fuscous; costal edge white from \( \frac{1}{4} \) to band; fine white sub-costal, median, and sub-dorsal lines all reaching from base to band; tips pale yellowish; a moderate pale ochreous-yellow median band, narrowed
towards dorsum, anterior edge marked with two pale golden-metallic spots, upper followed by a large black dot, lower markedly posterior, posteriorly edged by a pale golden-metallic entire streak, beyond which a streak at first pale yellow and broad but soon becoming narrow and white extends along termen to apex; cilia pale grey tinged with ochreous, on costa white. Hindwings light grey; cilia pale grey tinged with ochreous.

Kranspoort, Pretoria District, in December; one specimen.

**Stagmatophora narcissa** n. sp. (Plate VI, fig. 5).

Female, 18 mm. Head white, with a light pinkish-fuscous stripe on crown. Palpi whitish, second joint pale brownish, terminal joint with fuscous line internally. Antennae whitish. Thorax light pinkish-fuscous, with a white stripe on each side of back. Abdomen ochreous-whitish. Forewings very narrow, apex slenderly long-pointed, acute, termen sinuate; pinkish-fuscous, lighter posteriorly and towards dorsum; costal edge whitish towards middle; two whitish streaks from base to tornus, first along fold, with a black dot beneath it in middle of wing, second almost dorsal; an undefined line of dark grey suffusion from disk at \( \frac{3}{4} \) to apex; a whitish line along termen throughout; cilia whitish-ochreous tinged with brownish. Hindwings grey; cilia whitish-ochreous tinged with grey.

Albert Mine, Pretoria District, in January; one specimen.

**Stagmatophora tripnlia** n. sp. (Plate VI, fig. 6).

Male, 11-12 mm. Head ochreous-whitish, crown tinged with red-brownish. Palpi ochreous-whitish, second joint with basal and median bands, terminal joint with a median band of faint pale red-brownish suffusion and a black sub-apical ring. Antennae ochreous-whitish dotted with blackish. Thorax red-brownish, partly edged with ochreous-whitish. Abdomen blackish-grey, anal tuft ochreous-whitish. Forewings very narrow, widest near base, gradually narrowed, acute-pointed; red-brownish; a line of blackish and whitish iroration along fold from base to first fascia; a slender ochreous-whitish almost straight direct transverse fascia at \( \frac{3}{4} \), on costa enlarged and including a black sub-costal dot, anteriorly edged with black in disk, posteriorly edged with dark grey iroration which is also produced into a short streak above middle; a narrow grey streak irorated with blackish proceeding from dorsum in middle of wing obliquely outwards to costa, thence along costa to \( \frac{3}{4} \); a slender ochreous-whitish streak along termen, lower half irorated with dark grey, upper half edged posteriorly with blackish, more or less tending to be connected in middle with posterior extremity of preceding; cilia light red-brownish, towards tornus suffused with dark grey, at apex with two rather indistinct blackish hooks. Hindwings dark grey; cilia grey.

Preotria, in January and February; two specimens. Allied to *spodochtha* from Ceylon, but differing in details of marking and without the dark bands towards apex of antennae.

**Stagmatophora sclerodes** n. sp. (Plate VI, fig. 7).

Male, 8 mm. Head dark fusous. Palpi fusous, anterior edge blackish, apex of second joint whitish. Antennae dark fusous, apical fourth white. Thorax blackish-fuscous, posterior extremity ochreous-whitish. Abdomen fusous mixed with whitish. Forewings...
lanceolate, acute; blackish-fuscous; markings ochreous-whitish; a moderate fascia almost at base; a roundish blotch in disk slightly beyond middle, almost touching dorsum; a small costal spot about \( \frac{1}{4} \), and a dorsal dot opposite; cilia blackish-fuscous, towards tornus grey. Hindwings grey; cilia light grey.

Pretoria, in October; one specimen.

**Stigmatophora phalacra**, n. sp. (Plate VI, fig. 8).


Van der Merwe Station, Pretoria District, in December; one specimen.

**Limnoecia neurogramma**, n. sp. (Plate VI, fig. 9).

Female, 27 mm. Head whitish, crown with two dark fuscous stripes. Palpi dark fuscous mixed with white, especially towards middle of second joint, terminal joint with some loosely projecting scales towards apex posteriorly. Antennae fuscous. Thorax fuscous, suffused anteriorly with dark fuscous with a whitish stripe on each side of back. Abdomen fuscous. Forewings rather broad lanceolate; fuscous strongly streaked with blackish between veins; costal edge white from \( \frac{1}{4} \) to \( \frac{3}{4} \); a white sub-costal streak from base to beyond middle; a white streak almost along dorsum from base to tornus, thence continued along termen to apex; margins of cell and internal vein marked with strong white streaks; other veins partially indicated with whitish; cilia light fuscous; basal half mixed with blackish, at apex with a white bar. Hindwings rather dark fuscous; cilia light fuscous.

Warmberg, Zoutpansberg District, in December; one specimen.

This, and the next species, which are obviously allied together, both show peculiarities in the scaling of the palpi, but the known species of *Limnoecia* already show much diversity in this respect.

**Limnoecia eretmota**, n. sp. (Plate VI, fig. 10).

Male, 20 mm. Head white, sides of face dark fuscous. Palpi white, second joint above with rough projecting scales diminishing to apex, beneath rough-scaled towards apex, externally mixed with dark fuscous, terminal joint slender, with anterior edge dark fuscous. Thorax white, shoulders and a narrow dorsal stripe becoming obsolete posteriorly dark fuscous. Abdomen whitish-yellowish. Forewings lanceolate; light fuscous, marked with dark fuscous lines between veins, and in cell mixed with dark fuscous; costa narrowly white from near base to \( \frac{3}{4} \); costal area with suffused white streaks between the dark lines; a narrow whitish streak along dorsum; a strong white streak beneath middle from base to termen, posteriorly broken up into several branches beneath along veins; cilia light fuscous mixed with whitish (imperfect). Hindwings grey; cilia pale whitish-ochreous.

Pretoria, in January; one specimen.
Mompha quinquecristata Wals.

20-22 mm. Palpi white with black bands. Forewings with a small white inwardly oblique mark on costa at \( \frac{1}{4} \), and a white linear dot at extreme apex (these are indicated in Lord Walsingham's figure but not in his description); the scale tufts, though not truly metallic, have yet in certain lights a strong golden iridescence.

Pretoria, in December.

Stathmopoda trichodora, n. sp. (Plate VII, fig. 1).

Male, 16 mm. Head whitish-ochreous (partly defaced). Palpi whitish-ochreous. Antennae ciliations fasciculate \( 1\frac{1}{2} \). Thorax whitish-ochreous, spotted with dark fuscous. Abdomen whitish-ochreous banded with ferruginous, with lateral series of blackish spots, anal segment ochreous-orange with blackish apex. Posterior tibiae and basal joint of tarsi clothed with very long rough projecting blackish and whitish bristly scales. Forewings lanceolate, acute; whitish-ochreous; markings dark grey mixed with black; a narrow costal streak from base to middle, with a short projection near base; an elongate spot on base of dorsum; an elongate blotch extending over costal half of wing from \( \frac{1}{4} \) to beyond middle, connected by moderate irregular fasciae with dorsum before middle and tornus, latter extended as a streak along termen to apex; a roundish spot in disk at \( \frac{1}{4} \); two or three inwardly oblique marks on costa towards apex; cilia grey, above apex pale fulvous, beneath tornus tinged with fulvous. Hindwings fulvous irrorated with fuscous; cilia light grey tinged with fulvous.

Waterfall, Zoutpansberg District, in November; one specimen.

Eretmocera scatospila Z.

Pretoria District, in April.

Eretmocera florifera, n. sp. (Plate VII, fig. 2).

Female, 12 mm. Head, palpi, and thorax dark bronzy-fuscous; palpi whitish towards base; thorax with a pale yellow spot on each side posteriorly. Antennae purple-blackish, median third with long rough projecting scales above. Abdomen bright deep yellow, with deep fuscous-purple dorsal spot extending over two basal segments, apical segment blackish except tip. Forewings lanceolate; purple-blackish; a moderate roundish pale ochreous-yellow spot in disk at \( \frac{1}{4} \); a small whitish yellowish spot on tornus and one rather beyond it on costa; cilia purple-blackish. Hindwings bright deep yellow; a dark purplish-fuscous apical patch covering rather more than \( \frac{1}{4} \), anterior edge with projections in disk and on termen; cilia deep yellow, round apical patch dark fuscous. Under-surface of all wings deep yellow with dark fuscous apical patches.

Pretoria, in December; one specimen.

SCYTRIDÆ.

Scytheris cometa, n. sp. (Plate VII, fig. 3).

Female 13 mm. Head and thorax grey suffused with whitish. Palpi pale grey suffused with white towards base. Antennae dark grey. Abdomen grey, beneath whitish. Forewings elongate, rather narrow, apex produced, acute, termen sinuate, very oblique; grey, with a faint purplish gloss towards apex; a moderately broad suffused
whitish streak beneath middle from base to near termen, posteriorly
tending to be trifurcate on veins; a suffused whitish line along vein
1b throughout, another along dorsum to tornus; cilia grey, with
slight bronzy gloss. Hindwings with 4 and 5 stalked; dark grey;
cilia dark grey.

Pretoria, in April; one specimen "on Compositae".

SCYTHRIS OCHRANTHA, n. sp. (Plate VII, fig. 4).

Female, 22 mm. Head ochreous-yellow. Palpi pale ochreous-
yellowish, anterior edge of terminal joint fuscous. Antennae blackish.
Thorax pale ochreous. Abdomen ochreous-yellowish. Forewings
lanceolate, acute; 6 to close below apex; pale ochreous, costa more
yellowish; cilia light ochreous-yellow. Hindwings ½, all veins
separate; dark grey; cilia light ochreous-yellow.

Colenso, Natal, in March; one specimen.

SCYTHRIS PELOCHYTA, n. sp. (Plate VII, fig. 5).

Male, female, 10-12 mm. Head yellow-ochreous. Palpi whitish-
Forewings lanceolate, acute; pale bronzy-ochreous, in one specimen
tinged with grey; cilia concolorous. Hindwings ½, all veins
separate; grey; cilia light grey tinged with ochreous.

Pretoria, in August and November; three specimens.

OECOPHORIDAE.

HYPERCALLIA SINCERA, n. sp. (Plate VII, fig. 6).

Male, 24 mm. Head, palpi, antennae, and thorax ochreous-
white; antennal ciliations 4. Abdomen pale whitish-ochreous. Fore-
wings elongate, costa gently arched, apex pointed, termen slightly
sinuate, rather strongly oblique; ochreous-white; cilia white. Hind-
wings and cilia ochreous-white.

Bronkhorst Spruit, Pretoria District, in December; one specimen.

DEPRESSARIA TRIMENELLA Wals.

Pretoria District, in February; one specimen. Forewings with
2 and 3 stalked.

DIOCOSMA TRICYCLA, n. sp. (Plate VII, fig. 7).

Male 21 mm. Head yellowish-white. Palpi whitish, slightly
crimson-tinged externally, second joint suffused with crimson towards
apex. Antennae whitish-ochreous, basal joint crimson above with
apex white. Thorax whitish-yellow, patagia with a crimson stripe
becoming purplish at apex. Abdomen ochreous-whitish. Forewings
elongate, rather narrow, costa gently arched, apex round-pointed,
termen very obliquely rounded; light yellow; a purplish-grey streak
along dorsum and termen throughout, continued round apical third
of costa where its anterior extremity is expanded, towards base of
dorsum suffused with crimson; two purple-grey blotches edged with
deep crimson-ferruginous resting on this streak and reaching ¾ across
wing, first before middle, somewhat reniform, second beyond middle,
circular, connected with first in disk; some grey suffusion towards
apex; cilia light grey, on costa and round apex suffused with light
crimson. Hindwings ochreous-whitish; cilia pale whitish-ochreous;
costal hair-pencil pale yellowish. Forewings beneath with patch of modified light yellowish-fuscous scales occupying cell and extending above it, lower margin of cell with fringe of hairs directed obliquely upwards.

Lekkerwater (Rietfontein No. 70), Zoutpansberg District, in September; one specimen.

Proasarotra, n. g.

Head with loosely appressed hairs, side-tufts spreading; ocelli present; tongue developed. Antennae ½, in male simple, basal joint moderate, without pecten. Labial palpi very long, curved, ascending, second joint thickened with appressed scales, above with scales roughly spreading towards apex, terminal joint shorter than second, moderate, acute. Maxillary palpi very short, filiform appressed to tongue. Posterior tibiae clothed with long hairs above. Forewings with 2 from towards angle, 7 and 8 stalked, 7 to termen, 11 from middle. Hindwings 1, elongate-ovate, cilia ½-3, 3 and 4 connate, 5-7 parallel.

Type aganopis Meyr., from Ceylon.

Proasarotra sarcopa, n. sp. (Plate VII, fig. 8).

Female, 18 mm. Head, palpi, and thorax dull crimson. Abdomen grey. Forewings elongate, costa moderately arched, apex obtuse, termen straight, oblique; dull crimson; costal edge grey towards base, thence obscurely whitish to middle; a dark grey streak edged posteriorly with ochreous-yellow running from disk before ½ to dorsum beyond middle; second diskal stigma blackish-grey; a short inwardly oblique whitish streak from tonus, edged anteriorly by a patch of dark grey suffusion; a few scattered dark grey scales posteriorly; cilia light crimson, base whitish-suffused. Hindwings light grey; cilia grey-whitish.

Pretoria, in March; one specimen.

Xyloryctidae.

Procometis oxypora Meyr.

One male, 32 mm.; one female, 42 mm. Forewings with costa suffused with white, especially in female. Hindwings in male rather dark grey, costal hair-pencil grey; in female grey, cilia whitish-ochreous.

Pretoria District, in December and January.

Stenomidae.

Palaetheta, n. g.

Head with appressed scales, side-tufts loosely spreading; ocelli apparently absent; tongue developed. Antennae ½, basal joint rather elongate, with pecten. Labial palpi long, recurved, second joint beneath with moderate tuft of projecting hairs towards apex, terminal joint as long as second, moderate, acute. Maxillary palpi very short, filiform. Posterior tibiae clothed with rough hairs. Forewings with 2 and 3 stalked, 7 separate, to costa, 11 from middle. Hindwings 1, elongate-ovate, cilia 1; 3 and 4 connate, 5-7 tolerably parallel, 6 to apex.

Allied to Purexaula.
Palaetheta ischnozona, n. sp. (Plate VII, fig. 9).

Female, 13-14 mm. Head white, crown with a central blotch of dark fuscous iroration. Palpi white, second, and terminal joints each with two dark fuscous bands. Thorax white, variably spotted with dark fuscous iroration. Abdomen white, segments banded with ferruginous. Forewings elongate, costa gently arched, apex obtuse, termen very obliquely rounded; white; three narrow oblique fasciae of dark fuscous iroration partially suffused with brownish, first from middle of base to ½ of dorsum, second from middle of costa to tornus, narrowest in disk, dilated on tornus, third from ½ of costa to termen beneath apex, slender and interrupted; plical stigma dark fuscous; cilia white, near tips with a series of dark fuscous points. Hindwings light grey or whitish-grey; cilia ochreous-whitish.

Pretoria, in December and February; two specimens.

Stenoma ovata Wals.

One male, 28 mm. Pretoria District, in September. If correctly identified, a true Stenoma, except that labial palpi are shorter than usual, with second joint more densely scaled.

GRACILARIADAE.

Epicephala barbitias, n. sp. (Plate VII, fig. 10).

Female, 12 mm. Head and thorax white, face with a blackish spot on each side, patagia fuscous. Palpi white, apex of second joint and a median band of terminal joint black. (Abdomen broken.) Forewings very narrow, tolerably pointed; light fuscous, towards costa sprinkled with black and grey-whitish; three or four more or less marked fine longitudinal lines of black scales in disk from base to about ½ a moderate white dorsal streak from base to near apex, somewhat mixed with fuscous, upper edge slightly sinuous and marked with some black scales in sinuations; two oblique white strigulae from costa towards apex; a black apical dot containing a very fine white V-shaped mark; cilia light fuscous, basal half barred with whitish, outer half round apex and upper part of termen whitish with two black lines. Hindwings grey; cilia light ochreous-greyish.

Pretoria, in September; one specimen.

Epicephala veneranda, n. sp. (Plate VIII, fig. 1).

Female, 13-14 mm. Head white. Palpi white, second joint light greyish-ochreous with very long dense projecting tuft beneath. Antennae dark grey. Thorax white sprinkled with grey. Abdomen grey mixed with whitish. Forewings very narrow, shortly rounded-pointed; grey, mixed with dark fuscous and sprinkled with whitish; a moderate white streak along dorsum from base almost to apex, upper edge rather irregular, posterior portion cleft by a dark fuscous vein; two silvery-metallic lines crossing wing posteriorly, becoming white towards costa, first from beyond middle of costa to tornus, angulated in disk, second about ½ direct, curved, enlarged at lower extremity; between these are one or two white interneural streaks above dorsal streak, and a dark fuscous streak beneath costa; beyond second in middle is a small blackish suffused spot above which is a white dot: cilia greyish-ochreous, on costa fuscous with base whitish,
on upper part of termen white with blackish basal line. Hindwings rather dark grey; cilia ochrous-grey.

Beynespoort, Pretoria District, in December and January; two specimens. Distinguished from all described species of the genus by the long tuft of palpi, but in all other characters quite typical.

ELACHIISTIDAE.

ELACHISTA CHELONITIS, n. sp. (Plate VIII, fig. 2).

Male, 10 mm. Head white. Palpi white, tinged with ochrous towards base, second joint rather rough beneath. Antennae and thorax ochrous-whitish. Abdomen grey, sides and apex whitish-ochrous. Forewings rather broad-lanceolate; 4 absent, 8 absent; white; markings light yellow-ochrous; an elongate spot about fold before ¼, edged above and beneath with some blackish specks; two moderate fasciae marked with costal spots and sub-dorsal dots of blackish irroration, first median, rather oblique, second beyond ⅞, direct; a transverse spot before apex; an irregular streak of fine dark fuscous irroration runs in disk from first fascia to anteapical spot; a blackish mark on termen between second fascia and anteapical spot; cilia ochrous-whitish with some scattered black specks, especially round apex. Hindwings with 4 present; grey; cilia whitish-ochrous tinged with grey.

Van der Merwe Station, Pretoria District, in December; one specimen.

PLUTELLIDAE.

TEMELUCHA, n. g.

Head with appressed scales; ocelli present; tongue developed. Antennae ¾, basal joint rather short, with dense anterior pecten of scales. Labial palpi moderate, sub-ascending, second joint thickened with dense appressed scales, terminal joint very short, loosely scaled, obtuse. Maxillary palpi rudimentary. Posterior tibiae with short bristly hairs above. Forewings with slight dorsal scale-teeth; 2 from angle, 6 and 7 stalked, 7 to costa, 11 from before middle. Hindwings ⅔, lanceolate, cilia 2½; 4 and 5 rather approximated to 6, 6 and 7 connate.

Allied to *Epermenia*.

TEMELUCHA XEROPA, n. sp. (Plate VIII, fig. 3).

Female, 12 mm. Head and thorax white sprinkled with grey. Palpi white irrorated with blackish except apex of joints. Abdomen whitish. Forewings elongate, narrow, costa slightly arched, apex pointed, termen extremely obliquely rounded; fuscous finely irrorated with whitish, with a few dark fuscous specks; dorsum suffused with whitish; a light brownish-ochrous sub-costal streak from base to ⅔; a transverse brownish-ochrous spot below fold at ¹; a larger transverse brownish-ochrous dorsal spot before middle, reaching half across wing, from summit of which a partially interrupted light ochrous streak runs to apex; black dots in disk at ¼, beyond middle, and beyond ⅔, last somewhat larger and elongate; undefined small scale-projections of blackish irroration on dorsal spot and before-tornus; cilia pale whitish-ochrous, round apex fuscous-tinged and
irrorated with blackish and whitish with a dark fuscous sub-apical line. Hindwings pale grey; cilia pale whitish-ochreous.

Albert Mine, Pretoria District, in January; one specimen.

Simaethis aegyptiaca Z.

Pretoria, in November; one specimen.

Choreutis bjerkandrella Thnb.

Pretoria, in October.

Glyphipteryx ditiorana Walk (Plate III, fig. 4).

Pretoria, in December.

TINEIDAE.

Leucoptera scammatas, n. sp. (Plate VIII, fig. 4).

Male, 4 mm. Head white, with small frontal tuft. Thorax white. Abdomen grey. Forewings lanceolate; white; two narrow slightly curved fuscous transverse fasciae irrorated with blackish, finest beyond middle, second just before apex and partly in cilia; cilia otherwise white. Hindwings grey; cilia white.

Pretoria, in September; one specimen. The neuration of this small and distinct species is not clearly perceptible, but seems consistent.

Bucculatrix portilmis Meyr.

One male, 7 mm.; in March. The dorsal blackish patch should be described as a transverse spot of raised scales.

Hieroxestis praematura, n. sp. (Plate VIII, fig. 5).

Male, female, 16-17 mm. Head bronzy-fuscous, face shining brassy-whitish-ochreous. Palpi whitish-ochreous, externally more or less infuscated. Antennae whitish-ochreous, infuscated above, basal joint very long, somewhat swollen and flattened, in male thickened above with very dense projecting scales diminishing to apex. Thorax dark bronzy-fuscous. Abdomen whitish-ochreous. Forewings lanceolate, acute; dull purplish-fuscous, variably more or less mixed with bronzy-shining whitish-ochreous; always a suffused shining whitish-ochreous spot on dorsum before tornus, and usually one or two smaller spots on dorsum anteriorly; cilia whitish-ochreous mixed with dark fuscous towards base. Hindwings in male with long expansible hairs at base of costa and dorsum; pale fuscous, with bronzy reflections, towards base paler and tinged with whitish-ochreous; cilia whitish-ochreous.

Pinetown, Natal; sixteen specimens in January (Leigh) and one in May (Janse). To this genus should also be referred phaeochalco Meyr, described from Reunion as an Opoloma through overlooking the frontal tuft, which is, in this species, small and inconspicuous; it is common at Pinetown with praematura, but always distinct, 12-14 mm., forewings without pale admixture or praetornal spot; hindwings and cilia grey (female); the male is peculiar in appearance, having a broad undefined median fascia of yellow-ochreous suffusion, and in the hindwings a median hyaline streak from base to near apex and a blackish apical patch.
Gephyristis, n. g.

Head roughly tufted above, hairs of face appressed in middle, shortly rough on sides; ocelli present; tongue obsolete. Antennae $\frac{1}{2}$ (2), in male simple, basal joint moderate. Labial palpi moderate, straight, porrected, somewhat loosely scaled, second joint with two or three apical bristles, terminal joint shorter than second, hardly pointed. Maxillary palpi moderately long, filiform, folded. Posterior tibiae clothed with long hairs above. Forewings with 2 from angle, 3 absent, 4 absent, 5 out of 6 near base, 7 and 8 out of 6, 7 to costa, 11 from before middle. Hindwings $\frac{3}{2}$, lanceolate, cilia 4; 4 absent, 5 and 6 connate, 7 approximated to 6 at base. A development of Tinea, with reduced neuration, like Demobrotis.

Gephyristis anchiala, n. sp. (Plate VIII, fig. 6).


Pretoria, in December; one specimen.

Tinea adamasta, n. sp. (Plate VIII, fig. 7).


Kranspoort, Pretoria District, in December; Camperdown and Pinetown, Natal, from January to April (Leigh); six specimens.

Barbaroscardia fasciata Wals.

Pretoria District, in October.

Melasina liochra Meyr.

Female paler throughout than male, forewings pale whitish-ochreous, with grey diskal dot; hindwings grey with ochreous-whitish cilia; but a male from Pietersburg is almost as pale with diskal dot little marked.

Melasina agria, n. sp. (Plate VIII, fig. 8).

Male 15 mm. Head light fuscous, faintly ochreous-tinged. Palpi moderate, densely scaled, fuscous. Antennal pectinations 2$\frac{1}{2}$. Thorax rather dark fuscous. Abdomen fuscous. Forewings elongate, costa moderately arched, apex obtuse, termen obliquely rounded; all veins separate; fuscous, sprinkled with darker; indications of a line of dark fuscous scales from $\frac{3}{2}$ of costa to tornus; cilia fuscous.
sprinkled with darker. Hindwings rather dark fuscous; cilia as in forewings.
Pretoria District, in October; one specimen.

ADELIDAE.

Nemophora libropsis Meyr.

Male, 20 mm. Head mixed with dark fuscous between antennae. Forewings with 8 and 9 separate; blackish scales rather numerous, tending to form lines on veins.
Pretoria, in March; one specimen.
Janse del.

1. Trichoptilus vivax. ♂ n. sp.
2. " varius. ♀ n. sp.
3. " maceratus. ♂ n. sp.
4. Pterophorus colubratus. ♂ n. sp.
5. " verax. ♂ n. sp.
6. " ammonias. ♀ n. sp.
1. Platypilia sabia. Feld.  
2. Pterophorus crepuscularis. ♂ n.sp.  
3. Agdistis malitiosa. ♀ n.sp.  
4. Orneodes certifica. ♀ n.sp.  
5. Pharmacis assecula. ♀ n.sp.  
6. Epichorista gerseas. ♂ n.sp.  
7. Tortrix pharetrata. ♀ n.sp.  
8. Ancylis halisparta. ♀ n.sp.
1. Eucosma tremula. ♀ n. sp.
2. " monitrix. ♂ n. sp.
3. " symbola. ♂ n. sp.
5. Eucosma calliarma. ♀ n. sp.
6. Eucosma marmara. ♂ n. sp.
7. Baitra pythonia. ♀ n. sp.
8. Polychrosis primaria. ♀ n. sp.
9. Laspeyresia halmyris. ♂ n. sp.
1. Paltodora operosa. ♀ n. sp.
2. " iospila. ♂ n. sp.
3. Sisotroga celyphodes. ♀ n. sp.
4. Telphusa probata. ♂ n. sp.
5. " lathridia. ♂ n. sp.
6. Telphusa lathridia. ♀ n. sp.
7. " zymotes. ♀ n. sp.
8. Gelechia mesacta. ♂ n. sp.
9. " peronectis. ♂ n. sp.
10. Gnorimoschema synecta. ♂ n. sp.
Janse del.

1. Paristhmia barathrodes. ♂ n. sp.
2. Brachmia malacogramma. ♀ n. sp.
3. Polyhymno pausimacha. ♀ n. sp.
4. " palinorsa. ♂ n. sp.
5. " paracma. ♀ n. sp.
6. Polyhymno eurydoxa. ♂ n. sp.
7. Semodictis tretraptila. ♀ n. sp.
8. Nothris rhyodes. ♂ n. sp.
10. Trichotaphe claviculata. ♀ n. sp.
1. Trichotaphe ironica. ♂ n. sp. 6. Stagmatophora tripola. ♂ n. sp.
2. Ypsolophus tephrodes. ♀ n. sp. 7. " sclerodes. ♂ n. sp.
5. Stagmatophora narcota. ♀ n. sp. 10. " eretmota. ♀ n. sp.

* Mr. Meyrick must have overlooked the whitish streak along 1/3 of dorsum in both species. In C. scaligera the spots on band are not golden but silvery.
Janse del.

1. Stathmopoda trichodora ♀ n. sp.
2. Eretmocera florifera ♂ n. sp.
3. Scythris cometa ♂ n. sp.
4. " ochrantha ♂ n. sp.
5. " pelochyta ♀ n. sp.
6. Hypercallia sincera ♂ n. sp.
7. Diocosma tricycla ♂ n. sp.
8. Prosarotra sarcopa ♀ n. sp.
9. Palætheta ischnozona ♂ n. sp.
10. Epicephala barbitias ♀ n. sp.
Janse del.

1. Epicephala veneranda. ♀ n. sp.
2. Elachista chelonis. ♂ n. sp.
3. Temelucha xeropa. ♀ n. sp.
4. Leucoptera scammatias. ♂ n. sp.
5. Hieroxestis præmatura. ♀ n. sp.
6. Gephyristis anchiala. ♂ n. sp.
7. Tinea adamasta. ♂ n. sp.
8. Melasina agria. ♂ s. np.
Description of a New Species of Platysaurus and Notes on the Specific Characters of certain Species of Zonuridae, together with Synoptical Keys to all the known South African Species and a résumé of our Knowledge on their Distribution: and a Key to the known Genera of South African Lizards.

By John Hewitt, B.A. (Cantab.), Assistant for Lower Vertebrates.

Platysaurus wilhelmi, n. sp.

Distinct from the other species of Platysaurus in the more heterogeneous lepidosis of the dorsal surface, in the character of its occipital scute, and in the shape of the head which is relatively broader than in *P. guttatus*.

Occipital of moderate size reaching the interparietal and forming with it a comparatively broad suture in front; a single row of enlarged gular scales. Dorsal scales of the body varying considerably in size, being largest along the three white lines of the female and in corresponding areas in the male, but more especially in the posterior mid-dorsal region, the smaller scales of the intermediate areas being much intermixed with granules.

Ventral scales in eighteen to twenty rows, not transversely elongated in the abdominal region or only slightly so.

Lateral scales with rather prominent tubercles. Scales on arm, forearm, and anterior surface of thigh keeled, more strongly so on the leg. Coloration similar to that of *P. guttatus*, excepting that the pale lateral lines of the female are narrower and more clearly defined; also the white spots of the dorsal surface are less numerous and more regularly arranged, forming one or two rows on each side of the mid-dorsal line; the entire ventral surface of the male is black and the dorsal surface is dull, tinged with green, and marked with ill-defined black spots, the tail being red.

The types are a male and a female collected by Mr. Percy Wilhelm at Nelspruit, Barberton District, and presented to the Transvaal Museum, November, 1907. The male is 194 mm. in total length, the tail being 112 mm.; the total length of the female is 184 mm., its tail being 118 mm. Length of head, in male 19·5 mm., in female 16 mm.; breadth of head, in male 16·6 mm., in female 12·7 mm.

Since the above description was written I have seen three other specimens of this species kindly sent to me by Dr. E. Warren, Director of Natal Government Museum; these come from Ubombo, Zululand, and they agree in all essential respects with the Nelspruit specimens.

Platysaurus guttatus Smith.

The Transvaal Museum has numerous specimens of a species of Platysaurus from Woodbush and from Dwas River, neighbouring
localities in the Zoutpansberg District. These no doubt belong to the species which was described (Zool. Jahrb, 1890, p. 605) as *intermedius* by Matschie from specimens which were captured at Haenertsburg, which is quite near to Woodbush. Mr. Boulenger now (P.Z.S., 1907, p. 484) reduces *intermedius* Matsch. as a synonym of *P. guttatus* Smith. It is very probable indeed that Smith’s specimens came from the same district, as his locality record is “the neighbourhood of the Limpopo River near the tropic of Capricorn”.

Our Woodbush specimens agree with the description of the type specimen, a half-grown male, as given in the B.M. Catalogue for *P. guttatus*, but they do not agree so well with Smith’s original description, for he states that the nasal plates are contiguous, which is not the case in any of our specimens, and, moreover, he describes the third and fourth fingers as equal in length, whereas, in all our specimens, the fourth is distinctly longer than the third.

These Zoutpansberg lizards, referable to the species *P. guttatus*, have the following characters, some of which are of diagnostic importance:

The occipital is usually small, triangular, subtriangular, or very small and oval, not reaching the interparietal; occasionally there is between the occipital and the interparietal an oblong or elongated triangular scute, and in one case only out of more than thirty specimens examined, the occipital itself (or more correctly a scute formed by the fusion of occipital with the intermediate scute found in other specimens) reaches the interparietal, forming with it a suture which, however, is very short.

The ventral scutes are usually in sixteen longitudinal rows, but sometimes there are eighteen, and rarely as many as twenty; these scutes are transversely elongated in the abdominal region, sometimes being twice as broad as long, but in juvenile specimens this may not be the case.

The dorsal scales have in some slight degree a differentiation in size such as I have described for *P. wilhelmi*, but this is not so pronounced as in the latter species, nor is there such an intermingling of granules with the scales proper.

The males have red tails, the throat and belly are of a deep blue colour, and the dorsal surface is uniformly dark with a blue tinge—in life the dorsal coloration is a handsome vivid green—the females have pale tails, the belly is pale with blue centre, the throat is white but striped with oblique black lines, whilst the dorsal surface is of the same ground colour as in the male, but has also numerous small pale spots and usually also three pale longitudinal lines of which the two lateral lines are broader and often ill-defined; rarely the male also has pale spots dorsally. Our largest examples of this species reach a length of 260 mm.

Rhodesian specimens, as represented in the collections of the Rhodesian Museum, present a few points of difference from the Woodbush series. The adult males from Khami River and Matopo Hills agree precisely, except that they are somewhat larger and the belly (but not the throat) is blackish; the females differ from the Woodbush specimens in that the three dorsal lines are sharply defined and have no pale spots between them, but they agree in the dorsal scaling, and in one case only (out of ten) the elongated interparietal forms a comparatively wide suture with the occipital. In this latter case the-
species resembles the female of Wilhelmi, but is distinct therefrom by the dorsal scaling, by the greater elongation of the head, and by its elongated interparietal scute.

The South African species of Platysaurus can be distinguished by aid of the following key:

Enlarged gular scales in a double row ... *P. torquatus* Pet.

Enlarged gular scales in a single row, no occipital

*P. capensis* Smith

Occipital usually not reaching the interparietal; dorsal lepidosis practically homogeneous ... *P. guttatus* Smith

Occipital reaching the interparietal and forming with it a comparatively broad suture; dorsal scales varying considerably in size in the same transverse line

*P. wilhelmi* n. sp.

**ZONURUS.**

The two commonest Transvaal species of Zonurus (*Z. vittifer* and *Z. jonesii*) were also described from insufficient material, and the ascribed specific characters demand some revision.

**Zonurus vittifer** Reichenow.—Of this species the Transvaal Museum has numerous specimens, and it is probably the most abundant species in the Transvaal. The original description (Zool. Anz., 1887, p. 372) cites as the chief distinctive character: "Frontonasals very small and four-sided"; this, however, is not always nor even usually the case. The frontonasal is often five-sided and of moderate size or comparatively large; if it is four-sided the prefrontals meet in the mid-line, but when it is five-sided there is usually a small square scute between the frontal and the frontonasal, thus separating the prefrontals, or the large pentagonal frontonasal itself may separate the prefrontals.

The species closely resembles *Z. cordylus*, but differs in that the nasals form a comparatively long median suture and the frontonasal is small, or, if large, not transversely elongated, whilst in *Z. cordylus* the median suture of the nasals is short and the frontonasal is transversely elongated and large; also the dorsal scutes of the second row posteriorly to the parietals are longitudinally elongated, which is not the case in *Z. cordylus* L.

Dr. Jean Roux has proposed (Zool. Jahrb. Ab. Syst. XXV, p. 418) to sink this species as a variety of *Z. cordylus* L., but whilst admitting the close relationship of the two forms, I consider that the differences between them are really of specific importance; for, firstly, the above-mentioned differences are structural and quite definite, that is to say, it is easy to distinguish between the two species by consideration of either of these two characters alone, and our long series have nothing whatever that can be regarded as intermediate; and, secondly, they occupy different areas of distribution, *Z. vittifer* being found in the Transvaal and Natal, whilst *Z. cordylus* is found in Cape Colony and ranges northwards along the western part of the sub-continent to tropical West Africa.

*Zonurus vittifer* reaches no great size, the length of the adult being about 7 inches.

**Zonurus jonesii** Boul. is also abundant in the Transvaal. It was described (Ann. and Mag. N.H. 6, VII, p. 417) as having pentagonal frontonasals longer than broad, separating the prefrontals and
forming a suture with the frontal; our large series of this species shows that the frontonasal is more usually quadrangular and does not reach the frontal, so that the prefrontals generally form a suture.

Sometimes there is no loreal, this scute having fused with the preocular. Occasionally, too, there are only five upper labials, and not infrequently the frontonasal reaches the rostral.

A very distinctive character is furnished by the scaling of the flanks, these scales being somewhat smaller than the dorsals and separated from each other by granular intervals. Also a very constant character is the dark or black (in spirit specimens) lateral band which is specially marked in the shoulder region.

However, after examining numerous specimens, I have come to the conclusion that the most reliable point of distinction from _Z. cordylus_ is to be found in the shape of the head. The differences between these two species are as follows:

_Z. cordylus_ has the head flattened from above and expanded laterally in the temporal region, and the relation of the greatest breadth to the length (from tip of snout to hind margin of the parietals) in a representative series of specimens is 20-20'7, 20'3-21'2, 20-21'8, 18-19'3, 21'3-23, 20-22, 19'9-20'5, the figures representing actual measurements in millimetres, whereas in _Z. jonesii_ the head is not so much flattened, and is only slightly expanded in the temporal region, so that the ratio for this species is 15'8-18'4, 15'7-18'2, 16-18'3, 16'5-19, 15'6-18'8, 15-18'2.

Nevertheless this mode of differentiation is not altogether trustworthy when dealing with half-grown specimens of _Z. cordylus_, as the following figures relating to this species show: 14'5-17, 15'1-17'9. And, indeed, though it is usually quite easy to distinguish between young _cordylus_ and _jonesii_ when the sum total of the characters is considered, yet rarely a specimen appears which combines together the characters of both species, and identification thereon becomes merely a matter of speculation from the locality data.

_Z. cordylus_ has the head scales smooth or irregularly rugose, whereas in _jonesii_ the head scales, including the temporals, are finely and reticulately ribbed all over.

The scales on the dorsal surface of the body are, in _jonesii_, strongly keeled and obliquely ribbed, whereas, in _cordylus_, these scales, at any rate in the mid-dorsal area, are almost or entirely smooth and not ribbed.

The number of transverse rows of dorsal scales (counting from the parietal scutes to the base of the tail) varies in _jonesii_ from twenty-three to twenty-six, and in _cordylus_ from twenty-seven to twenty-nine. In typical specimens of the two species the lateral scaling of _jonesii_, or the transversely elongated frontonasal of _cordylus_, are good points of distinction, but, occasionally, such characters are misleading. For instance, a half-grown specimen from Selati (Zoutpansberg District), in most respects typically _jonesii_, has large lateral scales strongly imbricated as in _cordylus_.

A specimen from Uitenhage (Albany Mus. coll.) has the characteristic shape and general appearance of _jonesii_, but is aberrant in that the lateral scaling is just as in _cordylus_, the frontonasal is transversely elongated and the dorsal scales are in 27 rows. A specimen from Steynsburg, C.C. (Albany Museum coll.) agrees almost precisely with that from Uitenhage, but differs in that the ribbing of the dorsal scales is only very faintly developed.
These last two and a still more doubtful specimen without precise locality constitute the only records with which I am acquainted from eastern Cape Colony, and from the evidence of these aberrant forms it is reasonable to expect that a collection of this species in the same region, an intermediate area between the home of true *cordylus* and that of true *jonesii*, would bring to light a series of intermediates between the two species.

*Zonurus jonesii* is a small species, usually about 5 inches long, and rarely exceeding 5½ inches in length.

The South African species of *Zonurus* may be recognized by the aid of the following key:

1. Frontonasal in contact with the rostral. 2.
3. Head with large spines posteriorly, the dorsal surface (excluding the flanks) with 23-25 transverse rows of scales, about 12 in a row ... ... ... *Z. warreni* Boul.
   Head with short spines posteriorly; dorsal surface with about 40 transverse rows of about 20 shields... *Z. jonesii* Smith.
4. Flanks granular, about 10 scales in each transverse row dorsally and 8 scales in each ventral row *Z. capensis* Smith.
   Flanks not granular, having scales more or less like the dorsals ... ... ... ... ... 4
5. A supranasal present, nasal very small, lower eyelid with a transparent disk ... ... ... ... ... ... ... ... ... 5
   No supranasal, nasal of moderate size, lower eyelid opaque 6
6. Dorsally 32-44 transverse series of scales from occiput to base of tail, the largest row containing 32-38 scales; anterior gular scales flat, moderate... ... *Z. polyzonus* Smith
   31 or 32 transverse rows of scales dorsally; anterior gular scales almost granular ... ... *Z. pustulatus* Pet.
7. Nasal swollen, hemispherical, pierced in the centre; temporal spines present; dorsal scales in 15 or 16 transverse rows
   *Z. cataphractus* Boie
   Nasal not swollen, no temporal spines. 7.
8. Scales of the second row immediately posterior to the parietals longitudinally elongated; median suture of nasals long ... ... ... ... ... ... ... ... ... ... ... *Z. vittifer* Reich
   Scales of the second row immediately posterior to the parietals not longitudinally elongated. 8.
9. Head depressed and laterally expanded in the temporal region, the greatest breadth being almost equal to the length of the head (from tip of snout to parietals); frontonasal transversely elongated; lateral scales as large as the dorsals and strongly imbricate; dorsals in 27 to 29 transverse rows ... ... ... ... ... ... ... ... ... *Z. cordylus* L.
   Head not much depressed and not much expanded in the temporal region, the scutes all finely and reticulately ribbed; lateral scales smaller than dorsals and separated from each other by granular intervals; dorsals in 23 to 26 transverse rows ... ... ... ... ... ... ... ... ... *Z. jonesii* Boul

*This character is not absolutely reliable: in *jonesii*, and I believe also in *cordylus*, a small percentage of the individuals has the frontonasal in contact with the rostral.
CHAMAESAURA.

The four South African species of this genus all occur in the Transvaal, C. aenea being the commonest species.

I suspect, however, that C. didactyla Boul (Proc. Zool. Soc., 1890, p. 82) will prove to be merely a variety or individual variation of C. anguina. According to the descriptions the chief difference lies in the fact that C. didactyla has two tiny digits each with a claw, whilst C. anguina has only one digit with its small claw; a difference of colour is also recorded. Of these two species we have four specimens, of which one (from Irene, Taylor) is typical anguina; another from the same locality, and sent by Mr. Taylor at the same time, is didactyla, and the two others are typically didactyla so far as the hands are concerned, but the foot in one specimen is didactyl on one side and monodactyl on the other, whilst in the other specimen the feet can hardly be called didactyl as the second digit and claw is so very minute. The colour of these specimens of C. didactyla is exactly that recorded for anguina. Dr. Jean Roux also records didactylism in a limb of a specimen of C. anguina. The question of the validity of C. didactyla must, however, remain sub judice until a good series of specimens can be examined.*

The several species of Chamaesaura can be recognized by the aid of the following synopsis:—

Fore limbs wanting; scales in 22 longitudinal and 37 or 38 transverse series to base of tail ... ... C. macrolepis Cope
Both pairs of limbs pentadactyle, scales in 28 longitudinal and 42 transverse series ... ... ... C. aenea Wiegm.
Both pairs of limbs styloform, scales in 26 longitudinal and 38 or 39 transverse series—
(a) with two tiny digits each with a claw, the inner digit shortest ... ... ... ... ... ... ... ... ... ... ... ... ... ... ... C. didactyla Boul.
(b) a single digit clawed at the end ... C. anguina Linn.

Pseudocordylus microlepidotus Cuv. See characters of the genus.

DISTRIBUTION OF THE ZONURIDAE.

The exact distribution of the South African reptiles is still incompletely known, for although European workers have from time to time published lists of species obtained by travellers in South Africa, these lists have not been supplemented by local workers. In fact the only faunistic lists published in South Africa or by local workers are those of the Natal Government Museum and of Mr. Chubb in Bulawayo. Records of special groups have been published by Dr. Gough, my predecessor, who dealt with snakes, and by Dr. Duerden, of the Albany Museum, who worked on tortoises.

However, although it is not yet possible to precisely define the limits of distribution of some of the species here dealt with, yet I believe that sufficient data is now forthcoming to enable us to roughly indicate the specific areas of distribution. Material for this purpose has been furnished by the extensive collections of this museum, and for much additional information I am indebted to the authorities of all the other South African Museums who have kindly placed their material at my disposal.

* Since this was written my suspicions have been confirmed on examining the collections of this species in the South African Museum, for specimens from the same localities show all degrees of variation between typical anguina and didactyla.
Also I have made use of the records to be found in the literature referred to below:


Chubb.—P.Z.S., 1909, 590: (Matabeleland.)

Fischer.—Jahrb. Hamb. Wiss. Ankst. 5, 1887. (German S.W. Africa.)

Matschie.—Zool. Jahrb., 1890. (Transvaal.)


Smith.—Zoology of S. Africa, 1849.

Tornier.—Zool. Jahrb. 13, 579. (German East Africa.)


In accordance with the usual custom, the northern limits of this sub-continent are taken from the Zambezi on the east to the Cunene River on the west, but this line certainly constitutes no natural boundary, for in the eastern portions, the Transvaal and Natal, the lizard fauna shows a preponderating tropical element accompanied by only a minority of forms which are confined to the area in question. On the other hand, Cape Colony has a very distinct and characteristic reptilian fauna which is strictly limited in its distribution, and though in the same region there is to be found a much smaller assembly of reptiles which are also to be found in the Transvaal, yet the majority of these are widely distributed forms extending up to the equatorial region and beyond. At the same time, whilst we must regard the Cape Colony as the principal home of a fauna peculiarly South African, it should not be forgotten that there are a few groups, e.g. the Zonuridae, which as a whole are almost exclusively South African, and the species are more equally distributed in the several parts of the sub-continent, so that, after all, South Africa, as we understand it, has some claim to be regarded as a distinct zoological area whose northern limits are ill-defined because of a strong infiltration of tropical forms.

In the following lists I have not thought it necessary to quote every record with which I am acquainted nor the authority for the record, except in special cases of unusual importance.

**Zonurus giganteus** Smith.

Smith’s specimens came from the rocky pinnacles of the Quathlamba Mountains. He suggested that the same species occurs on the mountains of Great Namaqualand, but I have seen no records to substantiate this.

The Transvaal Museum has specimens from Bloemfontein, from Kroonstad (Orange River Colony), and from Vereeniging. The Bloemfontein Museum has many specimens without locality. The
distribution of this species is probably Basutoland, Orange River Colony, and neighbouring portions of the high veld (Transvaal).

**Zonurus warreni** Boul.

Recorded from Ubombo, Zululand.

**Zonurus capensis** Smith.

Taken by Smith on the Hottentot Holland Mountain near Cape-town. So far as I know, this species has never been taken since.

**Zonurus polyzonus** Smith.

A widely distributed species.

Fischer records it from Walfish Bay, Angra Pequenna, and Orange River.

The South African Museum has specimens from Steinkopf, Port Nolloth, Calvinia, and Clanwilliam; and as far south as Hoetjes Bay, Touws River, and Matjesfontein; there are some specimens from Burghersdorp and the Middelburg Division in the eastern portion of the Cape Colony; Miss Wilman has taken it at Kimberley; the Albany Museum has a specimen from Steytlerville; and there are a number of specimens without locality in the Bloemfontein Museum.

The most northern record with which I am acquainted is Irene, near Pretoria (Taylor).

The South African Museum has a single record from Natal; we have no specimen of this species from the eastern parts of the Transvaal.

The distribution appears to be German S.W. Africa, Cape Colony (with the exception of the southern coastal districts), Basutoland, and Orange River Colony, part of Natal and south-west Transvaal, and perhaps also—there are no records—British Bechuanaland.

**Zonurus pustulatus** Pet.

Recorded from Hereroland, German S.W. Africa.

**Zonurus cataphractus** Boie.

According to Smith this species is common on the west coast of Cape Colony.

Jean Roux records it from Namaqualand, and the South African Museum has specimens from the Calvinia and Clanwilliam Districts, and from Matjesfontein.

**Zonurus jonesii** Boul.

This is the common species of the Pretoria District. It occurs also in the Zoutpansberg District, and the South African Museum has specimens from the Matopo Hills (near Bulawayo) and from Palapye (Bechuanaland); it is found at Kimberley (Miss Wilman), and the Albany Museum has specimens which I refer to this species from Steynsburg and Uitenhage. It seems to have an extensive distribution in the central parts of South Africa, but there are no records from the coastal regions, the Uitenhage specimen excepted.

* According to a note in the Zoological record the angola species Z. angolensis is really synonymous with jonesii.
ERRATA.

The records of Zonurus polyzonus, and Chamaesaura anguina from Irene are incorrect: the former should be Hanover C.C. and the latter Tokai C.C.  (Vide L. Taylor.)

Page 36 (Zonurus polyzonus).
Page 37 (Chamaesaura anguina).
Zonurus cordylymus L.

Very abundant in the coastal districts of Cape Colony; the most eastern record in the South African Museum is Tsomo, Transkei; there are several records from some of the interior districts of Cape Colony, viz., Middleburg District, Bedford District, and Tulbagh District, but it does not reach so far as the central districts.

This species is recorded from several localities on the west coast of Africa—Walfish Bay, for instance—and Bocage records it from north Angola, where, he says, it occupies a littoral zone. It is not, however, confined to low-lying districts, as it occurs on the slopes of Table Mountain. Further, it is recorded by Tornier from German East Africa, by Boulenger from northern Nyassaland, and from the Pretoria District (Distants Naturalist in the Transvaal), and by Chubb from Matabeleland, but I believe that the two latter records at any rate are incorrect, for the Pretoria record was published prior to the separation of vittifer as a species distinct from cordylymus, and all the specimens in the Transvaal Museum which are related to this species really belong to vittifer or to jonesii, whilst all Matabeleland specimens now in the South African Museum are referable to jonesii.

Zonurus vittifer Reich.

This is abundant in the Zoutpansberg District and occurs also in the Middelburg District, and on the north-west Rand. It is recorded from Ladysmith (Natal), from Reitvlei (Umvoti), from Zululand, and the Albany Museum has a specimen from Teafontein, about fifteen miles north-west of Grahamstown. Apparently its principal home is in the low veld portions of the Transvaal extending southwards into Natal and eastern Cape Colony and westwards for some distance on the high veld of the Transvaal.

Pseudocordylus microlepidotus Smith occurs on the hills and mountains of the coastal districts of south and east Cape Colony; it is recorded also from the Richmond District. It is found in Natal, in the Orange River Colony, and in the Transvaal (Wakkerstroom, Pretoria District, and Zoutpansberg District). I have seen no records of this species north of the Transvaal, and none from German S.W. Africa, nor from western Cape Colony.

Chamaesaura aenea Fitz. is common in the Pretoria District, and it occurs also in the Zoutpansberg, Lydenburg, Middelburg, and Standerton Districts of the Transvaal. It is found in the Orange River Colony and in Natal. There are no records of this species from Cape Colony, nor from German S.W. Africa, and none north of the Transvaal.

Chamaesaura anguina L. (including also didactyla Boul., which is not specifically distinct from anguina). This species is common in the coastal districts of south and east Cape Colony, extending up into Pondoland, Zululand, Natal, and the Transvaal (Irene, Pretoria District, Taylor).

The South African Museum has specimens from Namaqualand and from the Worcester Division of Cape Colony.

Chamaesaura macrolepis Cope occurs in Natal and Zululand, and the Transvaal Museum has a specimen from White River (Lydenburg District) taken by Mr. A. T. Cooke. The Port Elizabeth Museum has a specimen from that neighbourhood.

* I have recently seen the specimen and it proves to be jonesii.
Bocage records this species from the high plateau of south Angola.

Platysaurus capensis Smith was taken by Smith in the sandy deserts of Great Namaqualand.

Platysaurus guttatus Smith occurs in the Zoutpansberg District of the Transvaal, in Matabeleland, and the South African Museum has specimens of this species from Mashonaland (near Salisbury) and as far south as Victoria West, C.C.

Platysaurus wilhelmi, n. sp., was taken at Nelspruit, Barberton District; it occurs also in Zululand.

**Platysaurus torquatus** Pet. described from Mozambique.

**Key to Genera of South African Lizards.**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Limbs present (sometimes much reduced)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Limbs none</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Eyes concealed under the skin</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Eyes not concealed under the skin</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td>Nostril pierced in a separate nasal</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Nostril pierced in the large rostral</td>
<td>Typhlosaurus. (An.)</td>
</tr>
<tr>
<td>4.</td>
<td>Snout rounded or feebly compressed, no large pectoral segments</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Snout broadly projecting with cutting edge, pectoral shields enlarged</td>
<td>Monopeltis. (Am.)</td>
</tr>
<tr>
<td>5.</td>
<td>Preanal pores present; an ocular shield</td>
<td>Amphisbaena. (Am.)</td>
</tr>
<tr>
<td></td>
<td>No preanal pores and no ocular shield</td>
<td>Chirindia. (Am.)</td>
</tr>
<tr>
<td>6.</td>
<td>Nostril pierced in the large rostral shield, with the posterior border of which it is connected by a suture</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Nostril pierced between the rostral and a very small nasal or first labial</td>
<td>8</td>
</tr>
<tr>
<td>7.</td>
<td>No eyelids, a supranasal</td>
<td>Typhlacontias. (S.)</td>
</tr>
<tr>
<td></td>
<td>A transparent lower eyelid, no supranasal</td>
<td>Acontias. (S.)</td>
</tr>
<tr>
<td>8.</td>
<td>Palatine bones in contact on the median line</td>
<td>Sceletes. (S.)</td>
</tr>
<tr>
<td></td>
<td>Palatine bones not meeting on the median line</td>
<td>9</td>
</tr>
<tr>
<td>9.</td>
<td>Nostril pierced between the rostral and a very small ring-shaped nasal which is situated between the rostral and the first labial</td>
<td>Herpetosaura. (S.)</td>
</tr>
<tr>
<td></td>
<td>Nostril pierced between the rostral, the supranasal, the postnasal, and the first labial</td>
<td>Sepsina. (S.)</td>
</tr>
<tr>
<td></td>
<td>Nostril pierced between the rostral and first labial</td>
<td>Melanoceph. (S.)</td>
</tr>
<tr>
<td>10.</td>
<td>Head covered by symmetrical plates</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Head not covered by symmetrical plates</td>
<td>11</td>
</tr>
<tr>
<td>11.</td>
<td>Digits not arranged in two bundles froming gasping organs</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Digits arranged in two bundles forming gasping organs</td>
<td>12</td>
</tr>
<tr>
<td>12.</td>
<td>Claws simple, scales on soles smooth</td>
<td>Chamaeleon. (C.)</td>
</tr>
<tr>
<td></td>
<td>Claws bicuspid, scales on soles spinose</td>
<td>Rhampholeon. (C.)</td>
</tr>
<tr>
<td>13.</td>
<td>Digits inferiorly modified into adhesive organs, i.e. with swellings on the articulations or lateral expansions of some or all of the phalanges</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Digits included in a thick web forming a broad palmar surface</td>
<td>Palmatogecko. (G.)</td>
</tr>
<tr>
<td></td>
<td>Digits not modified into adhesive organs and not broadly webbed</td>
<td>23</td>
</tr>
</tbody>
</table>

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This Key is a modified and enlarged reproduction of an original drawn up by Dr Gough.
14. Pupil vertical ... ... ... ... ... ... 15
   Pupil round; digits narrow at the base, the dilatation strong and
discoid, the distal joint strongly curved, and the claw retractile
   Lygodactylus. (G.)
15. Digits with no rudiment of web ... ... ... ... ... ... 16
   The dilated digits with a slight rudiment of a web and inferiorly
   with transverse undivided lamellae ... Homopholis. (G.)
16. Digits short, cylindrical, clawless, the skin swollen on the palmar
   surface and under the articulations, simulating pads
   Chondrodactylus (G.)
   Digits not as above... ... ... ... ... ... ... 17
17. The distal phalanges laterally not compressed ... ... ... ... ... 18
   The distal phalanges to some extent laterally compressed; the
distal joint long, free, rising from within the extremity of the
digital expansion ... ... ... Hemidactylus. (G.)
18. Digits clawed, dilated at the apex, which is furnished inferiorly
   with two plates separated by a longitudinal groove ... 19
   Digits not as above... ... ... ... ... ... ... 20
19. Digits not dilated at the base, the distal expansion covered above
   with scales strongly differentiated from those of the basal part
   Phyllodactylus. (G.)
   Digits dilated also at the base, the basal expansion with two
   pairs of large plates at its extremity ... ... Oedura. (G.)
20. Digits with more than three transverse lamellae inferiorly ... 21
   Digits with only two enlarged scales under their extremity and a
   nail-like scale above ... ... ... Colopus. (G.)
21. Digits with minute and rather indistinct retractile claws ... 22
   Digits clawless, a flat nail-like scale on the extremity above,
   below with undivided angular lamellae distally
   Pachydactylus. (G.)
22. Upper surfaces covered with minute granular scales
   Rhoptropus. (G.)
   Upper surfaces covered with granules and tubercules of unequal
   sizes ... ... ... ... Elasticodactylus. (G.)
23. Body covered with granular scales, digits clawed; toes strongly
   fringed laterally with long pointed scales ... Ptenopus. (G.)
   Body covered with imbricate scales ... ... ... ... 24
24. Pupil round, head short, tongue thick, and not protrac tile
   Agama. (A.)
   Pupil vertical, head elongate, tongue very long, slender, and
   bifid ... ... ... ... ... ... ... ... ... Varanus (V.)
25. The rostral takes no part in forming the nostril ... ... 26
   Nostril between the rostral and one or more labials (Scelotes
   Herpetosaura, and Sepsina) ... ... ... ... ... 8
26. Nostril between the first labial and one or more nasals ... 27
   Labials take no part in forming the nostril ... ... ... 30
27. Dorsal scales forming regular longitudinal and transverse series,
   squarish, or rhomboidal with osteodermal plates ... ... 28
   Dorsal scales roundish, soft, intermixed with granules
   Pseudocordylus. (Z.)
28. No praefrontals ... ... ... ... ... ... ... ... 29
   Praefrontals present, tongue with imbricate scale-like papillae
   above ... ... ... ... ... ... ... ... ... Gerrhosaurus. (Gr.)
29. Lower eyelid scaly (limbs sometimes rudimentary); tongue with oblique plicae above ... ... ... Tetradactylus. (Gr.)
   Lower eyelid with a large transparent disk; tongue with imbricate scale-like papillae above ... ... ... Cordylosaurus. (Gr.)
30. Nostril in a single nasal ... ... ... ... ... 31
   Nostril between two to four nasals ... ... ... ... 36
31. Dorsal scales granular, head and body strongly depressed, limbs well developed ... ... ... ... Platyceps. (Z.)
   Dorsal scales not granular, but comparatively large and imbricate ... ... ... ... ... ... 32
32. Dorsal scales lanceolate and strongly keeled; body serpentiform
   Chamaesaura. (Z.)
   Dorsal scales not lanceolate but rhomboidal or cycloid-hexagonal ... ... ... ... ... ... ... ... 33
33. Tail spinose ... ... ... ... ... Zonurus. (Z.)
   Tail not spinose ... ... ... ... ... ... ... ... ... 34
34. Eyelids well developed, movable... ... ... ... ... ... ... ... 35
   Eyelid immovable, transparent, covering the eye
   Ablepharus. (S.)
35. Lower eyelid scaly ... ... ... ... ... Lygosoma. (S.)
   Lower eyelid with an undivided, more or less transparent disk
   Mabuia. (S.)
36. Collar distinct ... ... ... ... ... ... ... ... ... 38
   No collar ... ... ... ... ... ... ... ... ... ... ... 37
37. Digits distinctly keeled inferiorly, headscales strongly keeled and striated ... ... ... Ichnotropis. (L.)
   Digits smooth or indistinctly keeled inferiorly; headscales smooth or merely finely ribbed ... ... ... Tropidosaura. (L.)
38. Digits not fringed laterally ... ... ... ... ... ... 39
39. Digits fringed laterally sometimes, only feebly so Scaepheira. (L.)
   Digits smooth or indistinctly keeled inferiorly ... Nucras. (L.)
   Digits distinctly keeled inferiorly ... ... ... Eremias. (L.)

A. signifies Agamidae.
G. " Geckonidae.
Gr. " Gerrhosauridae.
L. " Lacertidae.
S. " Scincidae.
V. signifies Varanidae.
Z. " Zonuridae.
C. " Chamaeleontidae.
DESCRIPTION OF A NEW SPECIES OF HADOGENES AND OF THE MALE OF HADOGENES GUNNINGI PURC.

BY JOHN HEWITT, B.A. (Cant.).

HADOGENES GRACILIS, sp. nov.

The scorpion here described was collected in April, 1910, for the Transvaal Museum by Mr. J. H. van Dam at De Kroon, Crocodile River, a station between the Pretoria and Rustenburg Districts.

Its characters are as follows:—

**Female.**—Carapace very shallowly emarginate in front, about as broad as long, densely granular throughout, rather coarsely at the sides and just in front of the median eyes; lateral eyes almost equal, the middle one distant about \( \frac{3}{5} \) of its diameter from the anterior eye and \( \frac{4}{5} \) of its own diameter from the posterior eye (in one specimen there is on the left side only a small accessory eye between the middle and posterior eyes), superciliary ridges of median eyes smooth.

First tergite finely shagreened at the sides, the succeeding tergites smooth, but with some coarse pitting, the seventh tergite very finely shagreened. Seventh segment broader than long. Tail \( 4\frac{1}{2} \) times the length of the cephalothorax, which is equal to the first caudal segment together with \( \frac{3}{4} \) of the second. First caudal segment highest and widest posteriorly, the height exceeding the breadth, the superior keels practically smooth; in succeeding segments superior keels are coarsely denticulate, and the terminal tooth is spiniform in segment 2, enlarged also in segment 3. Lateral keels smooth, most definite in the anterior half of segment 1, in the succeeding segments gradually becoming suppressed and quite wanting in the fifth segment. Inferior keels coarsely but irregularly denticulate in segment 2, more strongly so in segment 5, which has 7 to 10 larger teeth in each keel; nearly smooth in segments 1 and 3, irregularly roughened in segment 4. Vesicle slightly compressed, a little broader than the hind end of segment 5; very finely shagreened dorsally and ventrally, the upper side almost straight.

Pectines usually with 18 or 19 teeth, but varying between 15 and 20. Fingers of pedipalps lobed.

Colour, light brown mingled with olive green; the legs all pale, almost yellowish, as also is the vesicle laterally.

**Male.**—Resembles the female, excepting in that all the dorsal tergites are shagreened excepting on the pair of small oval depressions situated just behind the anterior raised borders of each segment. The last abdominal tergite very slightly longer than broad, narrowed behind, but not semicircularly rounded.

Tail \( 8\frac{1}{2} \) times the length of cephalothorax.

The first five segments all laterally compressed and much elongated.

Inferior keels of caudal segments irregularly roughened, but not denticulate in any segment.

Vesicle rather coarsely shagreened.

Pectines usually with 19 or 20 teeth, but sometimes only 18.
### Measurements.

<table>
<thead>
<tr>
<th>Character</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total length ...</td>
<td>128 mm.</td>
<td>190 mm.</td>
</tr>
<tr>
<td>Length of cephalothorax ...</td>
<td>15:75 mm.</td>
<td>15 mm.</td>
</tr>
<tr>
<td>Breadth of cephalothorax ...</td>
<td>15:75 mm.</td>
<td>15 mm.</td>
</tr>
<tr>
<td>Length of last abdominal tergite ...</td>
<td>10 mm.</td>
<td>11:5 mm.</td>
</tr>
<tr>
<td>Breadth of last abdominal tergite ...</td>
<td>13:75 mm.</td>
<td>11 mm.</td>
</tr>
<tr>
<td>Length of tail ...</td>
<td>68 mm.</td>
<td>128 mm.</td>
</tr>
<tr>
<td>Length of first caudal segment ...</td>
<td>10:3 mm.</td>
<td>20 mm.</td>
</tr>
<tr>
<td>1st caudal segment, posterior height</td>
<td>3:8 mm.</td>
<td>3:9 mm.</td>
</tr>
<tr>
<td>1st caudal segment, anterior height ...</td>
<td>2:25 mm.</td>
<td>2 mm.</td>
</tr>
<tr>
<td>1st caudal segment, posterior breadth ...</td>
<td>2:9 mm.</td>
<td>2:9 m.</td>
</tr>
<tr>
<td>1st caudal segment, anterior breadth ...</td>
<td>2:6 mm.</td>
<td>2:4 m.</td>
</tr>
<tr>
<td>Length of 2nd caudal segment ...</td>
<td>12:25 m.</td>
<td>25 m.</td>
</tr>
<tr>
<td>Length of 3rd caudal segment ...</td>
<td>12:25 m.</td>
<td>26 m.</td>
</tr>
<tr>
<td>Length of 4th caudal segment ...</td>
<td>13 m.</td>
<td>26:75 m.</td>
</tr>
<tr>
<td>Length of 5th caudal segment ...</td>
<td>13 m.</td>
<td>23:5 m.</td>
</tr>
<tr>
<td>Length of vesicle ...</td>
<td>9 m.</td>
<td>9:75 m.</td>
</tr>
<tr>
<td>Height of vesicle ...</td>
<td>3:25 m.</td>
<td>3 m.</td>
</tr>
<tr>
<td>Breadth of vesicle ...</td>
<td>2:75 m.</td>
<td>2:75 m.</td>
</tr>
<tr>
<td>Length of femur of pedipalp ...</td>
<td>14 m.</td>
<td>15:25 m.</td>
</tr>
<tr>
<td>Width of upper surface of same</td>
<td>5:5</td>
<td>5</td>
</tr>
<tr>
<td>Width of anterior surface of same ...</td>
<td>3:85</td>
<td>3:75</td>
</tr>
<tr>
<td>Length of hand ...</td>
<td>30</td>
<td>29</td>
</tr>
<tr>
<td>Width of hand ...</td>
<td>10:25</td>
<td>8:75</td>
</tr>
<tr>
<td>Length of hand back ...</td>
<td>16</td>
<td>15:5</td>
</tr>
<tr>
<td>Length of movable finger ...</td>
<td>17:5</td>
<td>16:25</td>
</tr>
</tbody>
</table>

The following species of *Hadogenes* are known to occur in the Transvaal:—

- *H. gunningi* Purc., Pretoria neighbourhood.
- *H. granulatus* Purc., Rustenburg District, male only known.
- *H. bicolor* Purc., Zoutpansberg District, female only.
- *H. gracilis*, sp. nov., with distribution as above.
  Also probably *H. troglodytes* Pet. and perhaps *H. betschuanicus* Pent. described from British Bechaunaland.

The species are easily distinguished by the characters of the caudal segments. In *H. gracilis* the caudal segments are longer and more compressed from side to side than in any other species known to me.

**HADogenes Gunningi Purc.**

This Transvaal species of Hadogenes was described by Dr. Purcell in the Annals of the South African Museum, 1899, vol. 1, p. 435, from several female specimens.

The male resembles the female in colour and other general characters, but differs in that it is of more slender build, the tail in particular being considerably more elongated; also the last abdominal tergite is relatively longer and narrower.

Tail six times as long as the carapace, which is as long as the first together with one-fifth of the second caudal segment. Terminal tooth of superior crests enlarged and practically spiniform in caudal segments 2 and 3 (enlarged also in segment 4 of our largest specimen); the superior keels slightly denticulate in segments 2 and 3, more so in segments 4 and 5.
Inferior keels with rough irregularly disposed almost denticulate granules in segment 5 and to a less extent also in the preceding segments, where, however, the granules are not denticulate.

Lateral keel stronger in segment 1 than in any of the other segments; lateral surfaces not granular except in segment 5 and to a slight extent also in segment 4.

Vesicle somewhat compressed; upper side straight, below finely granular.

Width of upper surface of femur of pedipalp and of hand considerably narrower than in the female.

Pectines: 17-20.

Total length: 118 mm.
Length of carapace: 12·5 mm. Breadth: 13 mm.
Length of last abdominal tergite: 8 mm. Breadth: 10 mm.
Length of tail: 75 mm.
Length of segment 1: 10·5 mm.
Length of segment 2: 13·5 mm.
Length of segment 3: 13·5 mm.
Length of segment 4: 15 mm.
Length of segment 5: 15 mm.
Length of vesicle: 7·5 mm.
Length of femur of pedipalp: 12 mm.
Width of upper surface of same: 4 mm.
Length of hand: 24 mm.
Width of hand: 6·5 mm.

Dr. Purcell, to whom I am indebted for much information on the subject of Transvaal Arachnida, considers the shape of the first caudal segment to be a character of considerable importance in the genus Hadogenes, and, accordingly, I give precise measurements of this segment in both male and female.

\[
\begin{array}{llll}
\text{Male} & \text{Female} \\
\text{Length of first caudal segment ...} & 10·5 \text{ m.m.} & 7·5 \text{ m.m.} \\
\text{Greatest breadth (posteriorly) ...} & 2·75 " & 2·75 " \\
\text{Breadth anteriorly... ...} & 2·5 " & 2·65 " \\
\text{Greatest height (posteriorly) ...} & 3·5 " & 3·4 " \\
\text{Height anteriorly ... ...} & 1·75 " & 1·9 " \\
\end{array}
\]

Very young specimens of this species exhibit some of the characteristic features of the species, but differ from the adults in their much abbreviated tails.
NOTE ON A TRANSVAAL SPECIES OF ONYCOPHORA (OPISTHOPATUS).

By John Hewitt, B.A. (Cantab.).

The species here recorded was collected by P. A. Krantz in the Lydenburg District some short time prior to the outbreak of the late war, and during the troublous times which ensued all the specimens with one exception were lost. This specimen, preserved in spirits, is a young female only 16 mm. long (antennae not included), and, judging from the external characters, it agrees very closely with the Opisthopatus cinctipes Purc. of Natal and eastern Cape Colony. It has sixteen pairs of legs, the last pair being clawed and quite as large and well developed as the first pair; the papillae of the feet are arranged exactly as in the species just mentioned, and the papillae on the body also agree fairly well in shape. Coxal organs are not to be seen, but there are indications of pits which mark the apertures of such organs in a retracted condition. In colour it is brownish black, and this, Dr. Gunning informs me, was the case in living specimens; there is a darker mid-dorsal line and a similar one on either side just above the bases of the legs. Alternating bands on the ventral surfaces of the legs are not to be seen.

The Transvaal species may, however, be distinct from Opisthopatus cinctipes Purc., for it appears to differ from that species in the following respects:

The proximal spinous pad of the sixteenth leg is well developed and entire, whereas in Cinctipes it is broken up (cp. Purcell in Annals of the South African Museum, 1900, 2, p. 68), and, secondly, the sexual orifice of the female is large and truly cruciform, the longitudinal slit being well developed.

It is intended to deal more thoroughly with this species when sufficient material is available and when an external examination can be supplemented by dissections.
Description of a new Frog belonging to the Genus Heleophryne and a note on the systematic position of the Genus.

By John Hewitt, B.A. (Cantab.).

In the Annals of the South African Magazine, Vol I, p. 110, a solitary tree frog, taken in the neighbourhood of Stellenbosch, C.C., was referred by Mr. W. L. Sclater to a new genus of Ranidae, and it was said to be related to Rhacophorus.

In the Zool. Anz., Bd. 28, p. 785, Dr. Jean Roux includes this genus in a section of Ranidae, which have an intercalary bone between the two last phalanges of the digits.

Quite recently the Transvaal Museum has received the second recorded specimen of this genus, and on examination of the osteological characters of the specimen it now appears that the genus is altogether misplaced.

Firstly, the terminal phalanges are T-shaped, and there is no intercalary bone between the two terminal phalanges of the digits. But it came as a distinct surprise to find that this is an Arciferous genus.

The characters of the genus are as follows:—

Shoulder girdle arciferous, upper jaw toothed but lower jaw not so, diapophyses of sacral vertebrae somewhat dilated but not strongly so, vertebrae prococelous, no ribs (the diapophyses of body vertebrae somewhat elongated), sternum a rather large and broad cartilaginous plate entire behind and without bony style, omosternum absent (possibly present as a rudiment), outer metatarsals separated, toes webbed, fingers free, tips of fingers and toes with well-developed disks, terminal phalanges T-shaped, the two arms of the cross-piece of the T forming an obtuse angle of about 160 degrees with each other, tympanum not visible, pupil vertical, vomerine teeth present, tongue disk-shaped, rounded and nearly free behind.

From this combination of characters it is evident that the genus belongs to the Cystignathidae and the sub-family Cystignathinae.

If the character of the pupil is really of primary importance its relationship is with the Australian rather than the American genera.

This is, so far as I know, the first record of the occurrence of a Cystignathid genus in South Africa. It is of interest as being an addition to our list of South African vertebrates with Australian affinities.

Our specimen comes from Knysna, C.C. (J. H. Rex, collector), and it seems to present sufficiently distinct characters to justify my provisionally referring it to a new species with the following characters:—

Heleophryne regis n. sp., distinct from H. purcelli Scl. in respect to the webbing of the feet; the feet are entirely webbed in purcelli, only about half webbed in regis.

Snout rounded, the gape wide, vomerine teeth in two transverse groups between the choanae, interorbital space a trifle narrower than upper eyelid, tympanum indistinct, a slight fold from the eye to the
tympanic region; fingers free, ending in triangular disks, fourth finger longer than the second; toes half webbed, the first toe practically free, terminal disks not so large as those of the fingers; subarticular tubercles well developed, oval, inner metatarsal tubercle elliptic of moderate size, the outer one wanting; tibio-tarsal joint of adpressed hind limb reaches end of snout; skin smooth above, granular on the belly and under the thighs.

Colour, purplish above with irregular dark spots, the limbs with indistinct dark cross bands; ventral surfaces yellowish white.

Measurements, from snout to vent, 42 mm., breadth of gape 17 mm., distance from ankle to tip of fourth toe 19.5 mm.
DESCRIPTION OF A NEW SPECIES OF CARALLUMA
(ASCLEPIADACEAE).

By N. E. Brown, A.L.S., Kew.

Caralluma Leendertziae, N. E. Brown (Asclepiadaceae); affinis C. melananthae, Schltr., sed pedicellis triplo longioribus, coronae-exterioris lobis tridentatis et coronae interioris lobis lateraliter compressis apice bidentatis differt.

Caules 8-10 cm. alti, 1-5-2 cm. (absque dentibus) crassi, 4-angulati, angulis grosse dentati, glabri; dentes 0-6-1 cm. longi, validi, acuti, denticulo utrinque prope apicem instructi. Pedunculi ad medium caulem enati, 1-1'5 cm. longi, 5-8 mm. crassi, umbellatim 3-5 flori, glabri. Pedicelli 4-4'5 cm. longi, erecti, 3'5 mm. crassi, glabri. Sepala 9 mm. longa, 3-5 mm. lata, ovato-lanceolata, longe acuminata, glabra. Corolla 5 cm. diam., rotata, absque tubo, extra laevis, glabra, intra dense rugulosa et pilis minutis erectis conspersa, intense purpureo-atra, marginibus ad apicem pilis longis clavatis tremulis purpureis ornata; discus planus; lobi patentissimi, plani, 1'6-1'8 cm. longi, 1'3-1'4 cm. lati, deltoideo-ovati, acuti. Corona exterior 5-loba, glabra, fusco-purpurea; lobi patentes, 4 mm. longi, 3 mm. lati, plani, basi subquadrati, supra leviter bicarinati, apice 3-dentati, dente intermedio ovato acuto marginibus subsinuato, dentibus lateralibus palentibus acutis denticulatus. Coronae interioris lobi 4 mm. longi, antheris duplo longiori, conniventis, lateraliter compressi, apice bidenti, dentibus superpositis, basi coronae exteriori adnati, concavo-emarginati, glabri, atropurpurei.

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Smithsonian Institution,
OCT 15 1910
National Museum.
ON THE DEVELOPMENT OF PIROPLASMA IN THE DIFFERENT ORGANS.

By Dr. R. Gonder.

Since the investigations of R. Koch on East Coast fever of cattle in East Africa, the cause of this disease has formed the subject of much discussion.

At present there exist two different views. Some investigators hold that East Coast fever is due to an invisible organism, others declare *P. parvum* to be the cause, but neither party has been able to prove to the satisfaction of the other that their investigations were free of errors. This is due to the fact that the cattle of Africa are, as a rule, infected with various parasites; with *P. bigeminum*, and the more or less harmless parasite *P. mutans*, which, morphologically, is very difficult to distinguish from *P. parvum*. Moreover, there is much controversy on the so-called plasma granules or Koch's bodies, also known as blue bodies, which are found in the organs of cattle suffering from East Coast fever.

In this short publication, which will be succeeded by a more detailed one, I wish to communicate some investigations on the blue bodies of Koch which will throw some light on their nature. For the present I shall leave out details, neither can I enter into the literature on the subject, which will have to be considered in the more exhaustive report.

Experiments were carried out since March of this year in the Transvaal Veterinary Bacteriological Laboratory. The material used consisted in cattle whose origin we know, and in ticks whose history we were fully acquainted with; accordingly, double infections could be excluded from the very start. The ticks placed on control cattle directly imported from England proved that they were exclusively infected with East Coast fever. In addition to this, Dr. Theiler gave me permission to utilise the cattle used in various experiments on East Coast fever which had been infected experimentally through the implantation and inoculation of different organs. For my zoological studies, therefore, a considerable amount of material was available.
Before discussing the question of Koch's bodies, I wish to make some remarks on *P. parvum*. Last year Ollwig, at the Congress of Microbiologists, in Berlin, stated that *P. parvum* and *P. mutans* were identical. My experiments leave no doubt that *P. parvum* and *mutans* are two different organisms, which view has been held for a number of years by different authors. Blood containing *P. parvum* in extraordinarily large numbers was injected subcutaneously and into the organs of various animals, and in no instance was an infection transmitted. On the contrary, it was an easy matter to transmit *P. mutans* to a healthy beast. An emulsion of 1 c.c. red corpuscles in 10 c.c. saline solution was sufficient to do so. As a further proof, it may be stated that *Rhipicephalus appendiculatus* in the Transvaal transmit *P. mutans* only in exceptional cases.

*P. parvum* and *P. mutans* are, therefore, with regard to their pathogenic effect, two different parasites, which also show differences in their cycle of development.

Together with the daily blood examinations, systematic punctures of glands and spleen were made. On comparing preparations from cattle suffering from East Coast fever with those infected with *P. mutans*, no doubts can be left about the cause of East Coast fever. Shortly before the parasites appear in the blood, one will notice segmenting forms of Koch's bodies which throw off a great number of parasites. For this investigation the large shoulder glands are the most suitable. Neither an infection with *P. bigeminum* nor one with *P. mutans*, *P. equi*, or *P. canis*, shows similar evolution forms, whereby it is proved that Koch's bodies represent a stage in the development of *P. parvum*, as already Koch himself had surmised. Accordingly, the view of Martin Mayer that the so-called Koch's granules are not specific for East Coast fever falls to the ground.

The blue bodies represent indeed a certain stage in the cycle of *P. parvum* which corresponds to the shizogony in the cycle of the malarial and other parasites.

These bodies (fig. 1–2 and fig. 5 c–d) appear both intracellularly and extracellularly, more particularly in the lymphocytes. Quite exceptionally polynuclear leucocytes are found to be infected. The development takes place more or less in the following manner. In the blue body (Agamont) a nucleus is first formed; this grows and becomes richer in chromatin and plasma; subsequently it divides successively into a great number of smaller nuclei similarly to what occurs in the cycle of haemoproteus which takes place in the organs of the pigeon and padda. The cells thus formed break up into as many sub-divisions as there are nuclei (fig. 4–5a). One encounters and but rarely a second one to which I will refer hereafter. The explanation of this fact may be that this shizogonous stage, which I call, with Hartmann, agamogony, repeats itself. Accordingly agametes, resulting from the agamogonous stage, would grow into agamonts. I have, however, not been able to completely follow up the further development of these latter forms.

The second mode of multiplication ends with the segmentation into a great number of small parasites undoubtedly resulting from the agamogonous multiplication (fig. 3–5). The young parasites enter into the red corpuscles and represent now the forms known as *P. parvum*. Thus we have in the organs, particularly in the lymphatic glands and the spleen, two different phases, which morphologically are not difficult to distinguish from each other. The nuclei of the one phase (agamogonous) when young,
show a loose structure and are irregularly shaped. The nuclei of the second phase, that is of the second generation or gamagonous, take the nuclear stains more deeply; they undergo reductions and accordingly appear smaller. Before the segmentation of the nuclei has taken place, they are oval-shaped. One is struck by the fact that the extracellular segmenting forms of the gamogonous generation produce parasites in far smaller numbers (fig. 3) than those found in the cells themselves (fig. 4—50). I have not been able to give an explanation of this observation. In the blood no multiplication has as yet been seen, but my studies on these parasites are not yet concluded. Plasma granules were found in the blood, but this fact by no means necessitates a change of the above technology. It may also be possible that two agamogonous stages have to be distinguished, and the parasites which develop in the red corpuscles would have to be considered as the gamogonous generation. I am, however, of the opinion that the two stages in the cycle which I have called provisionally agamogony and gamogony, and which finally lead to the formation of the forms seen in the blood, succeed each other within the cell. Accordingly it is clear that the number of parasites increase as the disease develops. The forms which result from the segmentation of the last generation differ morphologically in no way from the parasites seen in the blood at the commencement of an infection. They possess, in proportion to the whole parasite, a large nucleus which contains a distinctive karyosome. In using Giemsa's stain one can see differences due to the staining in the plasma of the bodies belonging to the agamogonous stage as well as of the gamogonous one. There are dark blue forms along with light blue ones containing larger alveli. It is possible that from the very start we have to deal with a sexual differentiation. The above nuclear phenomena can easily be studied in preparations stained according to the dry and moist methods of Giemsa, as well as in those stained with haemotoxylin. Microscopic examination of the various organs, particularly of the spleen, does not allow of definite conclusions. These organs represent a filter which retains the broken down parasites usually encountered in all protozoic diseases. When using the vital method I was never able to recognize the blue bodies, so that it is impossible for me to believe that these represent an assimilation product of the nuclei. The presence of Koch's bodies in the kidneys is of secondary importance. In East Coast Fever experimentally produced, either through the implantation of organs or in cases brought on by ticks, which finish rapidly with death, the formation of infarcts in the kidneys may not take place at all. My drawings of, and the communication referring to Koch's granules, concern fresh material obtained with a syringe from the lymphatic glands and the spleen. In cases of East Coast fever, where fever is present without parasites being present in the blood, the diagnosis can be made by examining juice from the spleen and lymphatic glands. If in the juice obtained from the puncture of the lymphatic glands or the spleen are seen Koch's bodies containing only larger nuclei of a loose structure, and no forms of the second or gamogonous generation, it is possible that this latter does not take place at all, and no parasites are then found in the blood. Whether ticks which have been sucking the blood of such animals transmit the disease will be shown by later experiments.

It remains to explain the fact that the blood of animals suffering from East Coast fever injected into healthy animals does not produce the disease. It is possible that the blood contains forms which can only develop in the tick, and which, injected into the animal, die. In the
transplantation of organs undertaken by Theiler and Meyer, Koch's granules are directly transmitted. These represent, under natural conditions, the stages which are formed only after the tick has transmitted the disease. The infection of the various glands in the body of an animal takes place through the blood current and accordingly it becomes feasible to expect that the inoculation of blood also ought to produce the disease. A suitable occasion would probably arise when the plasma granules are found in the blood. Experiments to elucidate this will be carried out as soon as opportunity occurs. In an animal which was infected by the transplantation of organs I found Koch's granules in the blood. Dr. Meyer showed me blood smears sent in from the practice in which a great number of mononuclear leucocytes contained the plasma bodies.

Concerning the place of the East Coast fever parasite in protozology, the proposition of Bettencourt and others to separate it from the piroplasms and to substitute a new name (*Theileria parva*) is justified.
ANAPLASMA MARGINALE.

DR. A. THEILER.

In the Annual Report of the United States Department of Agriculture for the years 1891 and 1892, Smith and Kilborn published their investigations into the cause of Texas fever, which was found to be due to the presence of an endoglobular parasite and to which they gave, at that time, the name of *Piroplasma bigeminum*. They described two forms of the disease: the acute and the mild one, which latter they also called the autumnal form. The differentiation of these two diseases was based on the aspect the parasites took in the red corpuscles which, although differing in shape and size, were considered to belong to two phases in the cycle of development. Accordingly they distinguished the pear-shaped parasite now called *Piroplasma bigeminum* and which they identified with the acute form of Texas fever, from the second form, the peripheral coccus-like body of the mild or autumnal form of Texas fever. Smith and Kilborn based on these observations the possible life cycle of *P. bigeminum* of which they described three stages:

1st. The (hypothetical) swarming stage, the form of which, however, as they state, could not be traced.

2nd. The stage of the peripheral coccus-like bodies, which bodies they thought would develop into the

3rd. The spindle or pear-shaped stage.

Smith and Kilborn already noticed that their third stage is the one which is usually met with in acute Texas fever. They had, therefore, to explain the absence of the coccus-like bodies in the acute stage, and their explanation was that the presence of the coccus-like bodies may be so ephemeral that they escape observation. Under the influence of the temperature of the autumn the second stage would remain as such and not develop into the third one. In this second stage they would cause the mild disease.

To understand this explanation it may be stated here that Smith and Kilborn undertook their experiments usually in July, August, and September, and it was during September, October, and November, that they met with the disease due to the coccus-like bodies. In subsequent observations made in South America by Knuth, the same coccus-like bodies were seen again. This author did not support the view of Smith and Kilborn about the three different stages, yet, nevertheless, he considered them to belong to the life cycle of *P. bigeminum*. On the other hand, Djunkowsky and Luhs, who were studying the piromas in the Transcaucus, came across the same parasite; they had noticed the presence of *P. bigeminum* in that country, but they did not identify the coccus-like body with this disease, but with another one, which they called tropical piroplasmosis, and which is due to a small piromas called *P. anulatum* very likely identical with our *P. parvum*.

In South Africa I have seen these parasites during a number of years. The American literature not being available to me at the beginning of my investigations, I described them as marginal points in my various reports. The observations which I made led me to think that these marginal points had nothing to do with *P. bigeminum*, but that they represented an
independent parasite genus of their own and that they were the cause of a definite disease, which had to be separated from redwater. I was, however, until recently, unable to give this proof in such a way as would remove all doubts.

Some years ago I sent ticks to England (Boophilus decoloratus) which were infected with P. bigeminum. They produced the disease in London when placed on an ox, and this ox formed the starting point of many investigations and inoculation experiments undertaken in England. As a result of such investigations, Nuttall described the cycle of development of P. bigeminum in the blood, and according to this author, it is a simple division, as in the case of P. canis. He does not mention any forms corresponding to the coccus-like or marginal points mentioned before.

In Germany the disease haemoglobinuria of cattle was also investigated during the last few years; it was found to be due to a piroplasm which, owing to some slight difference, is considered to be a species of its own, and is called P. bovis, but it is very closely allied to P. bigeminum. No parasites resembling the peripheral coccus-like bodies were noticed in the life cycle of this parasite.

Stockman and myself have carried out experiments for a number of years to immunize English cattle. The cattle were inoculated in England against South African redwater with the strain of redwater forwarded by means by the already mentioned ticks; after the inoculation the animals were sent to the Transvaal to be exposed here. In the first lot of cattle exposed, I noticed the appearance of marginal points in the blood of two animals, which succumbed to the disease. A second lot of ten heifers, which were all immunized in the same way in London, were not exposed to natural infection after their arrival, but inoculated a second time in the Transvaal with blood containing P. bigeminum. The result was that this inoculation did not break the immunity against redwater. After a certain period, varying in length from twenty-seven to thirty-two days, a typical fever reaction commenced which was initiated and accompanied by the presence of marginal points. Of ten animals injected, five died. It was evident that P. bigeminum was not responsible for this disease. With the inoculation of the blood two different parasites had been injected—P. bigeminum, against which the animals were immune, and another one, the marginal points, which caused the disease. If this conclusion was right, it had to be expected that it would be possible to separate these two parasites, at least to isolate the one with the shorter incubation time. It was, indeed, possible to do so with P. bigeminum, whose incubation period is the shorter one. A pure infection resulted after injections of blood, taken at the beginning of the acute attack of redwater, into a susceptible beast. When this animal, at a later period, was infected with marginal points it promptly reacted to this infection.

The reverse experiment was not so easy, because wherever we had an infection with marginal points it was complicated with P. bigeminum, so that the inoculation of such blood would constantly cause redwater in the first instance. An observation I had made showed that animals imported from Aliwal North, although promptly reacting to redwater, did not do so to the injection of blood containing marginal points. I concluded, therefore, that these animals are immune against this latter parasite. It had to be expected that when blood of such animals was injected into susceptible animals only marginal points would appear. This has been done in several instances, and in every one, after a typical long incubation time, marginal points alone appeared. After recovery, the animals were injected
with *P. bigeminum* of a pure infection; the result was that they showed this parasite after the usual period of incubation. Thus the independence of marginal points to the cycle of *P. bigeminum* was demonstrated in the reverse order. Accordingly, no doubt can any longer be left that these peripheral bodies represent a genus of their own which produces a specific disease in cattle.

I have proposed to give the name *Anaplasma marginale* to this parasite. This anaplasma is transmitted by ticks, and it is a noteworthy fact that the incubation time by tick transmission is much longer than that after inoculation of the animals with blood; in the experiments carried out by me it varied from fifty-five to seventy-five days. Accordingly, we understand the results of experiments of the Americans, which were started in the summer. They exposed cattle to tick infection; they noticed the appearance of *P. bigeminum* first, having a shorter incubation time, and only later in the year, after the long incubation time, they noticed the appearance of *Anaplasma marginale*.

It has already been indicated that blood of an immune animal is infective; such an animal forms the reservoir of the virus. This is a peculiarity of the piroplasma diseases, to which group anaplasmosis also belongs. It may be of interest to state my opinion that anaplasmosis is probably the disease which the farmer has hitherto called gall-sickness. Up to the present time we know of three different parasites in South Africa which are found in the blood of immune cattle—*P. bigeminum*, *P. mutans*, and *Spirochaeta theileri*—and to these will now be added *anaplasma marginale*; they can all be transmitted by the inoculation of blood and by ticks.
THE ZOOLOGICAL REGION OF SOUTHERN AFRICA AS DEDUCED FROM THE COMPOSITION OF ITS LACERTILIA.

By JOHN HEWITT, B.A. (Cantab.),
Assistant for Lower Vertebrates in the Transvaal Museum.

For purposes of convenience, zoological systematists have defined the northern boundary of the South African sub-continent in a variety of ways, and the dividing line now most generally accepted—from the Zambesi on the east to the Cunene River on the west—has no claim to be considered as a rigid natural boundary, for there is an extensive overlapping of the South African and tropical faunas.

At the same time, as I hope to show in this paper, there certainly is in the southern portion of Africa a fauna sufficiently peculiar to justify our regarding this region as a definite zoological area; and, for example, its fauna is much more distinct from that of the rest of Africa than is the Bornean fauna from that of the Malay Peninsula, though in this case the land areas are separated by several hundred miles of sea. Further, the distribution records show that the area in question resolves itself into several zoological sub-regions, a fact which was pointed out by Professor Max Weber (Zool. Jahrb., bd. 10, 136) from consideration of the freshwater fish fauna.

During the earlier part of this paper the term South Africa will be employed in its orthodox sense, i.e. Africa south of the Zambesi and Cunene Rivers, but later on I shall bring forward evidence to show that a more natural region is Africa south of the equator, the Congo basin excluded; the term tropical as applied to a genus or species will here imply nothing more than that it occurs in Equatorial Africa, or north of the equator, but is not endemic in South Africa, though it may occur here.

The dual nature of our reptilian fauna, consequent on the overlapping of the tropical species, is very obvious in the northern portions of the sub-continent, and is not prominent in south-west Cape Colony; indeed, in passing southwards from the Zambesi to Cape Colony, there is a gradual and successive disappearance of the widely-distributed tropical forms simultaneous with the appearance of an increasingly greater proportion of peculiarly South African species. As an introduction to this subject, it will be profitable to consider the fauna of this immediate neighbourhood, and the following is a list of the reptilia and amphibia of Pretoria, an asterisk denoting forms which occur also in tropical Africa—

**Lizards.**

- Pachydactylus capensis Smith.
- Lygodactylus capensis Smith.
- Agama hispida var. distantis Bou. (*Agama atricollis* Smith).
- Zonurus jonesii Bou. (also in Angola).
- Zonurus vittifer Reich.
- Chamaeleoa aenea Fitz.
- Varanus niloticus Linn.
- Nucras tessellata Smith.
- Eremias linocellata D. B.
- Ichnotropis capensis Smith (occurring also in Angola).
- Gerrhosaurus flavigularis Wieg.
- Mabuia trivittata Cuv.
- Mabuia striata Pet.
- Mabuia varia Pet.
- Lygosoma sundervalli Smith.
- Ablepharus wahlgbergi Smith.
- Chamaeleon quilensis Boc.
Snakes.

- *Dispholidus typus* Smith.
- *Psammophis sibilans* Linn.
- *Trimerorhinus tritaeniatus* Günth.
- *Trimerorhinus rhombatus* Linn. (also in Angola).
- *Tarophis semiannulatus* Smith.
- *Dasypeltis scabra* Linn.
- *Causus rhombatus* Licht.
- *Atractaspis bibroni* Smith. (also in Angola).
- *Bitis arietans* Merr.
- *Python sebae* Gmel.

Frogs.

- *Phrynobatrachus natalensis* Smith.
- *Cassina senegalensis* D. B.
- *Bufo regularis* Reuss.
- *Bufo carens* Smith.
- *Xenopus laevis* Daud.

A number of these asterisked species belong to the tropical fauna, but some are really South African species which have extended northwards. The preponderance of tropical forms in any single locality is considerably greater than is the case when a large area is comprised, for whilst the tropical fauna in South Africa is on the whole a heterogeneous assembly of unrelated species which are widely distributed over large areas, the endemic fauna is composed of sets of closely related species which are more strictly localized in distribution, and the areas occupied by such species do not much overlap.

Unfortunately, it is not possible for me to give a list of the Capetown fauna for comparison with the preceding, and for the present it must suffice to say that the majority of the tropical species have their southern limit in some part of Eastern Cape Colony, whilst only a very small percentage reaches as far as Capetown.

The following statistics relate to this question of overlapping of faunas:—South Africa has about 136 species of lacertilia, of which forty-four are found beyond the northern boundary; in Angola, Bocage recorded sixty-two species of lacertilia, of which thirty-one occur also in South Africa; in German East Africa, Tornier (Zool. Jahrb., 1900, p. 579) records sixty-five species of lacertilia, twenty-three of which also occur in South Africa; Mr. Boulenger's list of the Whyte Collection from North Nyassaland (P. Z. S. 1897, p. 800) comprises fourteen species of lacertilia, of which eleven occur also in South Africa; in Somaliland [Boulenger, *Annal. Mus. Civico. storia. Nat. Genova Serie 2a*, vol. XVII (XXXVII)], seventy species of lacertilia are recorded, of which ten occur also in South Africa; in Egypt, the only lizards also to be found in South Africa are four species, as follows:—*Varanus niloticus*, *Mabuia quinquetaeniata*, *Gerrhosaurus flavigularis*, and *Agama colonorum*, which last-mentioned doubtfully occurs in South Africa.

We may now turn to a general consideration of the lizard fauna of South Africa, from point of view of the distribution of the species and their relationships. The lacertilia of South Africa are composed as
follows:—Geckonidae twenty-seven species, Agamidae about ten species, Lacertidae twenty species, Zonuridae sixteen species, Gerrhosauridae ten or eleven species, Scincidae thirty species, Varanidae two species, and Chamaeleontidae ten species.

**Geckonidae.**

Eleven genera are known, of which a good proportion are characteristically South African. Palmatogecko, Chondrodactylus and Colopus are, so far as is known, confined to South Africa; they are restricted to the western portion of the sub-continent and are probably all monotypic genera.

The genus Homopholis has one (or two) species in the eastern portion of South Africa, a species is recorded from Abyssinia, and another species occurs in Madagascar. The genus Oedura, which is otherwise known only from Australia, has two representatives in South Africa, and the genus does not occur in any other part of Africa.

The genus Pachydaactylus, comprising thirteen or fourteen species, all confined to Africa south of the Equator, has twelve species in the South African region. *P. bibroni* has a very wide distribution ranging northwards into Tropical Africa, but it should be regarded as truly South African, as it belongs to a section of seven recorded species of which all the other members are confined to South Africa. *P. ocellatus* is common in western Cape Colony, and is also recorded from Benguella and from Ascension Island. This genus reaches its greatest development in Cape Colony and the western portion of the sub-continent; only one species, *P. punctatus*, is confined to the eastern portion (Mozambique, Zoutpansberg District) of our region.

Rhoptropus, a genus of three (or two) species, is only known from the western portion of southern Africa. *R. ocellatus* occurs in western Cape Colony, and *R. afer* is known from German South-West Africa and Angola. According to Dr. Jean Roux, however, this genus is identical with Phelsuma, a genus of eight or nine species occurring in East Africa, Madagascar, Comoro, Zanzibar, Mauritius, Bourbon, Rodrigues, Seychelles, and Andaman Islands. The genus Elasmodactylus has one species in British Namaqualand (*fide* Sclater) and another in the lower Congo region. Lygodactylus, a genus occurring in tropical and South Africa, and in Madagascar, has two representatives in South Africa. One of them, *L. capensis*, closely related to a Madagascar species, occurs in the tropics and extends southwards into eastern Cape Colony; the other species, *L. ocellatus* Roux, is only known from the Transvaal. *Plonopus garrulus* Smith, the only species of the genus, is known from German-South-West Africa and north-west Cape Colony.

Phylodactylus, a large genus recorded from the tropics of America, Australia, and Africa, has two species in South Africa, of which the better known *P. porphyreus*, occurs also in the Congo region, Madagascar, and Australia (assuming the identity of this species with *P. marmoratus* of Australia); the only locality known to me for *P. lineatus* is Laingsburg, C.C. (Roux).

Hemidactylus is almost a world-wide genus within the tropics. Only one species occurs within our area, and this *H. mabouia* is common to tropical Africa, Madagascar, West Indies, and South America. It is evident that the gecko fauna of South Africa is very characteristic and with a good proportion of endemic genera is well marked off from the tropical gecko fauna (which is comparatively poor in number of species.
and has no peculiar genera), though one or two representatives of the latter extend southward into the sub-continent. The affinities of these endemic genera are as follows: the isolated genus Chondrodactylus is closely allied to the Nephrurus of Australia; Phylodactylus is very near the Madagascar genus Ebenavia, and in the same group with these is Oedura, which is Australian and South African, and two other genera belonging to Australia and Southern India respectively.

The genera Pachydactylus, Colopus, Rhoptropus, Elasmodactylus, and Phelsuma (which, perhaps, includes Rhoptropus), constitute a distinct group of genera, the three former being South African, the fourth belonging to Lower Congo and British Namaqualand, whilst Phelsuma belongs to East Africa, Madagascar, and other islands of the Indian Ocean. Homopholis, belonging to South Africa, Abyssinia, and Madagascar, has generic relationships in Madagascar.

The genus Lygodactylus, which has several species in tropical West Africa and in Madagascar, but only one species peculiar to South Africa, has its nearest ally in another Madagascar genus; apparently the West African forms constitute a section of the genus distinct from that which includes the South African and Madagascar species. The genus Ptenopus has its nearest relative in Stenodactylus, a genus belonging to North Africa and South-West Asia. The isolated Palmatogecko is considered by the describer of this genus to be related to Ptenopus.

It should be mentioned that the affinities above cited are taken from the classification employed by Mr. Boulenger in the B. M. catalogue, and this is based upon characters which are largely adaptive. I believe, however, that these relationships are for the most part quite true, for otherwise we should have to suppose that a process of convergent evolution has taken place in the case of a number of pairs of genera belonging to South Africa and Madagascar. And, again, it is a well known fact that geckos are particularly well adapted for accidental transportation over great distances, as they occur on many oceanic islands, so that this might be a partial explanation of the occurrence of South African genera and allies in Madagascar; but this supposition loses value when we remember that many of the geckoes of South Africa are rather localized in distribution, and that, whilst South Africa and Madagascar have each a rich gecko fauna, only very few representatives of these faunas are found north of the equator.

Agamidae.

This family is represented in South Africa by about nine or ten species of the genus Agama. There are only three genera in the whole African region, and Madagascar has no representatives whatever of this family.

The South African species, A. hispida, its variety distanti, brachyura, aculeata, armata, putchella, atra and holubi, constitute a structurally distinct association, the members of which are confined to South Africa, with the exception of armata, which extends up into Angola and German East Africa, and hispida, which is also known from German East Africa.

A. kirki, mossambica, and planiceps found in the northern portions of the sub-continent and in tropical Africa belong to an association of tropical and North African species.

A. atricollis, which occurs in German East Africa and Angola, extending southwards as far as Natal, has a near ally in Abyssinia and Arabia, and belongs to a section of species which are mostly found in Persia and North India.
In brief, the Agamoid fauna of South Africa has no peculiar genera and is not very distinctive; it comprises six or seven endemic species and several species which belong to the overlapping tropical area.

The genus Agama is principally African, and has representatives also in south Asia and south-east Europe.

**Zonuridae.**

This whole family is characteristically South African, being confined to Africa south of the equator, with an odd species in Madagascar. Moquin doubts the latter record on the grounds that the only evidence is in Cope's original description, which is not authenticated with the usual data, whereas it is now known that the species occurs in German East Africa; at the same time the fact that the species of Zonurus are often exceedingly localized in their distribution may explain the former part of the argument whilst it does not preclude the possibility of a disconnected distribution at the present day. There are four genera, the largest, Zonurus, comprising about ten species, of which eight occur in South Africa and only two of these (Z. cordylus and jonesii) extend northward into the tropical region (fide Tornier and Bocage). The species of Zonurus distribute themselves all over the South African region, some of the species being probably very localized (cp. capensis, warreni, and giganteus).

The monotypic genus Pseudocordylus occurs along the coastal strip of Cape Colony and extends northwards in the eastern portion of the sub-continent as far as the Zoutpansberg District.

The genus Chamaesaura has three species in the eastern portion of the sub-continent: one of these C. macrolepis is also recorded from Angola. The tropical species of this genus occur in Uganda, British Central Africa, and German East Africa.

The genus Platysaurus has four species of which three are distributed in South Africa, one western and two eastern, and the fourth species *P. torquatus* occurs in Mozambique (precise locality unknown).

From these facts of distribution it would seem highly probable that the family has been evolved in Southern Africa.

**Varanidae.**

Only two species occur in South Africa of which one, *Varanus niloticus* is common to almost the whole of Africa whilst the other *A. albigularis* occurs also in South Angola and in Nyassaland. The genus occurs in Africa, India, Malay Archipelago, and Australia, but not in Madagascar.

**Amphisbaenidae.**

Three genera are known in South Africa, but they form no characteristically South African association of species.

The genus Amphisbaena represented by a number of species in the tropical portions of America and Africa has two species in South Africa: *A. violacea* extends from Zululand to Mozambique and *A. quadrifrons* occurs in Hereroland and as far south as Kimberley.

The genus Monopeltis has about four species in South Africa of which probably all extend north of the boundary line: *M. capensis* and *anchietae* are western species whilst *sphenorbynchus* and *granti* (this latter only known from Beira) are eastern. This is an African genus of about a dozen species; its headquarters are West Africa.
Chirindia is a monotypic genus known only from south-east Mashonaland. So far as I know Amphibiaenidae are not recorded from Cape Colony and the South African representatives are best regarded as outlying members of a tropical group.

**Lacertidae.**

Five genera occur in South Africa, and one of them, the monotypic Tropidosaura, is peculiar to the region being known only from the coastal strip of south Cape Colony. The genus Eremias has nine species in South Africa, of which seven are western forms (*capensis, undata, lugubris, suborbitalis, namaquensis, pulchella* and *inornata*), all of them being found in Namaqualand, and several extending into the Karroo region of Cape Colony, whilst lugubris and namaquensis also occur in Angola. *E. burchelli* appears to be confined to Cape Colony and *lineocellata* occurs in the Transvaal and Orange River Colony. The genus is not known to occur in Natal and Zululand.

Eremias is a large genus, well developed in Africa, and occurring also in Asia. The South African species, for the most part, do not form a structurally distinct association, but their relationships are with the other African species; a small more or less distinct natural group is constituted by the four species: *pulchella, lineocellata, burchelli* and *capensis*. The genus Nucras has only two species: *N. delalandii* occurs in the Eastern portion of the sub-continent, extending southward along the coastal strip of Cape Colony, and northwards perhaps as far as German East Africa, whilst *N. tessellata* is widely distributed over tropical Africa and South Africa, with the exception of southern Cape Colony.

The genus Scapteira has five representatives in South Africa, one in Mossamedes and three in Central Asia. The South African species are all western forms with the exception of *S. knoxii*, which belongs to Cape Colony, extending eastwards at any rate as far as Kingwilliamstown, and is recorded (B. M. Cat.) from the Island of Johanna. The species *knoxii, depressa, serripes*, and the Angola species, form a distinct natural group, and the two remaining South African species, *ctenodactyla* and *cuneirostris*, constitute another distinct group. The disconnected distribution of the genus Scapteira is somewhat remarkable in view of the fact that both the Asiatic and the South African habitats are deserticolous, and that like conditions prevail in a great part of the intervening area; and the presence of *S. knoxii* in Johanna Island seems to be inexplicable, especially as Madagascar has no Lacertidae.

The genus Ichnotropis is confined to Africa south of the equator. *I. squamulosâ* is a tropical species extending southwards about as far as the northern border of Cape Colony, whilst *I. capensis* occupies a wide strip of country from Natal in the east to Angola in the west; *longipes*, which is very closely allied to *capensis*, is described from Mashonaland.

The lacertid fauna of the sub-continent as a whole is not very distinct, though there is one peculiar genus, the monotypic Tropidosaura, which is closely related to the other African genera; the South African representatives are, indeed, a part of the general Ethiopian lacertid fauna, and this family furnishes very little positive evidence in favour of the maintenance of the South African area as an absolutely distinct zoological region.
Gerrhosauridae.

This family has its headquarters in South Africa and Madagascar. Of the five genera, three occur in our area and two are peculiar to Madagascar. The genus Gerrhosaurus has about five or six species, of which one species, typicus, is only known from north-west Cape Colony: flavigularis is found almost throughout tropical (not in West Africa) and South Africa: validus occupies a strip of country from South Angola to the Zoutpansberg District; and major is principally an eastern species ranging from East Africa to Natal. I regard the genus Gerrhosaurus as truly South African, though several of the species do extend beyond the northern boundary. Amongst the lizards it is a general rule that species of undoubted tropical relationship do not extend southward into south-west Cape Colony (cp. Mabuia striata, Lygosoma sundervalli, Ablepharus wahlbergi). On the other hand, Gerrhosaurus flavigularis does occur in south-west Cape Colony, in spite of its extensive range within the tropics; and this is the case also with Pachydactylus bibroni and other South African species of like distribution. Again, Gerrhosaurus major, until recently, was known only from Zanzibar Island, but has since been recorded from German East Africa, and from Togoland in West Africa. In 1907, Mr. Boulenger described grandis from Zululand, but from the evidence of material from the Barberton District I have reduced grandis as a synonym of major. G. bergi of German East Africa appears to be very closely allied to major, and so also is G. bottegi, described from Erithraea.

The genera Tetradactylus and Cordylosaurus are characteristically South African. The former has four species: T. seps occupies the coastal strip of Cape Colony, T. tetradactylus is only known from south-west Cape Colony, T. breyeri is a Natal and Transvaal species and T. afric anus is recorded from Natal, Namaqualand, and South Angola.

Cordylosaurus trivittatus ranges from western Cape Colony as far as South Angola and C. tessellata, doubtfully distinct, is recorded from Namaqualand.

Scincidae.

Nine genera of Scincidae occur in South Africa. The large genus Mabuia which though principally African occurs all over the warmer parts of the world except Australia, has twelve species in South Africa but these do not constitute a peculiar group or groups: striata, varia, and quinquetaeniata are tropical forms which descend southwards as far as eastern Cape Colony: stran geri, occidentalis, acutilabris, sulcata, and peringueyi are western species, none of them extending as far south as the southern coastal districts of the Cape Colony and all excepting the last mentioned occurring in South Angola: trivittata, apparently occurs throughout South Africa with the exception of Natal, Zululand, and Rhodesia, and this species belongs to a small section which includes also occidentalis and i vensii which are both western species: homalocephala occupies the coastal strip of South Africa, depressa (possibly a synonym of homalocephala) is only known from Tette, and gruelzneri from Gerlachs hoop (Transvaal).

The very large genus Lygosoma, mainly Australian but almost cosmopolitan in the tropics except for Madagascar, has only five or six species in tropical Africa and but one, sundevalli, extends southwards into the sub-tropical parts of South Africa.
Ablepharus wahlbergi, the only representative in South Africa of a widely-distributed old world genus, has a very similar distribution; of this genus, four species occur in tropical Africa and one species which is nearly cosmopolitan occurs in Madagascar.

The genus Acontias has about eight or nine species, and is known from South Africa, Madagascar, and Ceylon. A. meleagris occurs throughout South Africa, plumbeus is an eastern species ranging from East Cape Colony to Mozambique, and lineatus is a western species extending eastwardly across the Karroo.

The genus Scelotes occurs in South Africa, Madagascar and Mauritius, and out of a total of twelve or thirteen species, South Africa has six. The South African and Madagascar species range themselves into distinct groups, except that one of the Madagascar species has its nearest ally in S. capensis. The species capensis, bicolor, caffer, and tridactylus are western or Karroo forms; bipes is found in the coastal regions of Cape Colony and Natal, whilst guentheri and inornatus are eastern forms, occurring in Zululand and Natal.

Herpetosaura is a South African genus of three species; anguina occurs in Kaffraria, mira is a Transvaal species, and arenicola occurs in Natal, Zululand, and Mozambique.

The genus Sepsina has about ten or eleven species in Madagascar, tropical and South Africa. S. weberi is only known from Little Namaqualand, and grammica is indefinitely located on the south-west coast of Africa.

The genus Typhlacontias has two species, one in Mossamedes and the other, gracilis, in the Zambesi district.

The genus Melanoseps, with only one species, ater, extends from German East Africa into Mozambique.

I believe that the Scincidae of South Africa are for the most part of single origin, though at first sight this may not seem to be the case; the vermiform genera, Acontias, Scelotes, and Herpetosaura, etc., certainly constitute part of the peculiarly South African fauna, whilst the species of Mabuia, Lygosoma, and Ablepharus genera, which are so widely distributed, may be more recent arrivals from elsewhere. But the species of Mabuia at any rate should be included in the endemic fauna, seeing that the genus is principally African and is well represented in South Africa and also in Madagascar; the distribution of the genus may possibly be explained in the same way as that of the chameleons (see later) or perhaps on the grounds of its antiquity.

Anelytropidae.

This small family of worm-like lizards has a genus in each of the three areas Mexico, West Africa, and South Africa, but according to Gadow this is quite an artificial assembly of degenerates and no great importance is to be attached to the facts of distribution. The South African Typhlosaurus has five species, of which lineatus and vermis are known from north-west Cape Colony, cregoi from the Zoutpansberg District, aurantiacus from Zululand and Mozambique, whilst the precise locality of caecus is unknown.

Chamaeleontidae.

Ten species of Chamaeleon and one Rhampholeon occur in South Africa,
The genus Chamaeleon has its headquarters in Madagascar and Africa, and there are one or two isolated species in Arabia, Ceylon, and Southern India. The species *melanocephalus, taeniobranchus, gutturalis, caffer, pyrrlites, ventralis*, and *damaranus* form a distinct and characteristic South African group: they are mostly Cape Colony forms, several extending into Natal, whilst *damaranus* ranges between Knysna (Cape Colony) and the Zoutpansberg District. Mocquard has recorded *C. melanocephalus* from Madagascar, but in his recent work on the Madagascar reptiles (Nouv. Archiv. du Museum d’Hist. Nat., Paris, 1909) this species has no place in the faunistic list.

The nearest relatives of this South African group of Chamaeleons are *C. tigris* of the Seychelles (and Zanzibar Islands?), *fuelleborni* from German East Africa, *jacksoni* from Uganda, *bilanialus* of East Africa, and *tempeli* of German East Africa (Werner, Zool. Jahrb. 1902, p. 295).

*C. namaquensis* is a western species stretching from South Angola into western Cape Colony, the most eastern record being Kimberley: this species is quite isolated in the genus. The species *dilepis* and *quilenis*, referred by Tornier to one and the same species, are tropical forms occurring in West Africa and German East Africa and extending southwards as far as the Orange River.

*Rhampholeon marshalli*, the only representative in South Africa of a tropical genus, comes from the Chirinda forest in south-east Mashonaland.

Having thus briefly surveyed the distribution of the various groups of South African lizards, the following facts present themselves:

(1) One family, the Zonuridae, is almost peculiar to the region, but may have a representative in Madagascar, and another family, the Gerrhosauridae, has its headquarters in South Africa and Madagascar.

(2) In the Geckonidae and the Scincidae there are a good proportion of genera which do not occur in tropical Africa, some of them being peculiar to South Africa, whilst others are represented also in Madagascar, and several in Southern India and Australia.

(3) Several large and widely-distributed genera occurring also in tropical or northern Africa are represented in South Africa by an association of species which is structurally separated from the other sections of the same genus, but in other cases the South African representatives do not form a distinct group.

(4) In some families (Agamidae, Varanidae, Scincidae, etc.) a number of tropical species have extended southwards into South Africa.

And we may refer the lizard fauna of South Africa to three classes:

(1) The peculiar endemic fauna, comprising the Zonuridae, Gerrhosauridae, all the Geckonidae with the exception of Hemidactylus, and the Scincidae, with the possible exception of *Lygosoma* and Ablepharus.

(2) The Chamaeleons, which are very characteristic of the whole Ethiopian region, but unlike other families which are well developed in Madagascar, they are not restricted to southern Africa, but occur throughout the whole of Africa.

(3) The "Ethiopian" fauna, including the Agamidae, Lacertidae, Varanidae, Hemidactylus in the Geckonidae, the Amphisbaenidae, and possibly the Scincoid genera, *Lygosoma*, and Ablepharus. This fauna is composed of genera which for the most part have a wide range through Africa and often through Southern Europe and Asia, but this whole assembly may not be of single origin.
As we have already mentioned, a number of genera comprised in the peculiar fauna have relationships in Madagascar, and indeed this fauna as a whole has a very strong affinity with the whole Madagascar fauna.

The lacertilia of Madagascar are composed of the following families: Geckoes, Skinks, Chamaeleons, Gerrhosauridae (Zonuridae probably), and a few Iguanidae, whilst the other families Agamidae, Varanidae, Lacertidae, Anguidae, and Amphibiaenidae are quite absent; leaving out of consideration the Iguanidae—the occurrence of which in Madagascar has not yet been satisfactorily explained—the Madagascar lizard fauna shows complete identity in its families and identity or close relationship in many of the genera with the peculiar fauna of South Africa, and the families which are lacking to Madagascar are those which constitute what I have termed the Ethiopian fauna of South Africa.

It should be mentioned, however, that the identity of the faunas does not extend to the species, for probably there is not a single species of lizard common to Madagascar and South Africa, and further, Madagascar has a few peculiar genera which have no allies in South Africa.

Again, this peculiar fauna is not strictly limited on the north by the Zambesi and Cunene Rivers, and as a matter of fact it is to be found to some extent right up to the equator. In Tornier's list of the lizards of German East Africa we find the following representatives of this fauna:—

Geckonidae : Pachydactylus, 2 sp.; Platypholis, 1 sp.; Diplodactylus, 1 sp.
Zonuridae : Zonurus, 2 sp.; Chamaesauro, 1 sp.
Gerrhosauridae : Gerrhosaurus, 1 sp.
Scincidae : Sepsina, 1 sp.; Melanoseps, 1 sp.

And in Angola, according to Bocage, there are:—

Geckonidae : Pachydactylus, 2 sp.; Rhoptropus, 1 sp.
Zonuridae : Zonurus, 2 sp.; Chamaesauro, 1 sp.
Gerrhosauridae : Gerrhosaurus, 2 sp.; Tetradactylus, 1 sp.; Cordylosaurus, 1 sp.
Scincidae : Sepsina, 3 sp.; Typhlacontias, 1 sp., but with very few exceptions—the genera Lygodactylus, Homopholis, and Gerrhosaurus—this fauna does not pass north of the Equator.

The dual nature of the South African fauna and the general relationship of the one portion with that of Madagascar is no doubt to be explained by the following old theory: Madagascar, according to most authorities, was united with Southern Africa up to midtertiary times (Mocquard and others consider that the separation occurred in the secondary period) this large area constituting a continental island (see "Wallace's Island Life"), and there was a common fauna which gave rise in South Africa to the peculiar endemic fauna of the present day. Then came the separation off of Madagascar, and subsequently the continent of Africa assumed its present shape and South Africa was invaded by a new assembly of lizards, Lacertidae, Agamidae, etc., which came from Europe and Asia via North Africa. It is not possible for me to deal with the problem of the primary origin of the peculiar fauna of South Africa and of Madagascar, for the affinities of such characteristic families as the Gerrhosauridae and the Zonuridae provide no very definite clue, nor is there any palaeontological evidence; but as there seems to be no indication that this is derived from a European or Asiatic source, it may perhaps be regarded as the remains of a former southern hemisphere fauna, for it has some relationship (Scincidae, Geckonidae) with Ceylon, Southern India, and Australia (cp. distribution and relationship of
the genera Acontias, Sepsina, Melanoseps, Oedura, Phelsuma, and Phyllodactylus); and though the evidence of these few lizards is in itself hardly sufficient to warrant the hypothesis of the existence in the secondary period of a continent (Lemuria) stretching between South Africa, Madagasgar, and southern India, it is of interest to note that similar relationships in these several areas have been found also in other groups of animals (mammals, birds), and certain geologists have advocated this theory on the evidence of a similarity between the fossil plants and reptiles of South Africa and India. The theory was strenuously opposed by Wallace, who, on account of the great depths of ocean which separate the extensive shoals and coral reefs now to be found in the Indian Ocean between Madagascar and India, considered that there could not have been a continuous land surface during the secondary or tertiary periods, but admitted the former existence in those parts of several large islands, some of them not much inferior in size to Madagascar itself; and these islands he supposed were stepping-stones for an interchange of faunas. Nevertheless the Lemuria theory still has its champions, and, for instance, Major Alcock (A.M.N.H. 7.14.267) explains the distribution of the Coeciliidae and of some hermit crabs in terms of this same theory. Other writers, in order to explain a certain affinity between the land shells of Australia and those of southern Africa, have requisitioned the Antarctica theory, and Hedley indeed (A.M.N.H. 6.17.117) considers that there has been a direct or more probably indirect land connection through Antarctica between Australia and Africa; and Gilchrist (“Science in South Africa”, p. 192), referring to certain genera of marine fish common to the Antarctic region and to South African waters, says that “the shore forms might be taken as additional evidence of the former existence of an Antarctic continent”, but guardedly adds “an explanation postulating the existence or removal of continents is to be regarded as a last resource”.

However this may be, it appears that the affinities of the South African lizards with those of other regions are to be paralleled, not only amongst other groups of animals, but also in the plants of the present day, for Bolus (“Science in South Africa”) says that “the flora of the south-west Cape Colony presents striking marks of a similar origin to that of Australia”, and Wallace states that “the affinities of the Madagascar flora are largely African, whilst Bentham emphasizes the fact that “the connection of the mascarene endemic compositae, especially those of Madagascar itself, are eminently with the southern and sub-tropical African races”.

As regards the entity of the South African region as a zoological area, there can be no doubt but that the distinction between the peculiar endemic fauna of southern Africa and the fauna of tropical Africa is too pronounced to permit of our regarding the South African region as merely a province of the large Ethiopian area and indeed, but for the infiltration of tropical forms, no one would hesitate to unite South Africa with Madagascar as a region quite distinct from the more northern parts of Africa. But the question of the northern boundary of our area is quite another matter. It is obvious that under the circumstances the South African area must include all the southern African families and genera of Madagascar affinities, but as there are no strongly-marked natural boundaries, some few species, e.g. Gerrhosaurus flavigularis, have extended far into tropical Africa. I do not think it necessary to attempt to include the remotest limits of every widely-distributed species unless a sufficient number of species belonging to different genera extend thus widely but it must comprise the majority of the species. To fulfil these conditions the
South African zoological area should take in German East Africa (perhaps also British East Africa), British Central Africa, and Angola; that is to say, roughly speaking, Africa south of the equator, the Congo basin excepted. We should thus include the whole of the Zonuridae, practically all the Gerrhosauridae—though *G. flavigularis* apparently extends into Southern Egypt—and in addition to the genera previously mentioned in the Geckonidae, all the species of Pachydactylus, the genera Diplodactylus (Australia, Madagascar, and German East Africa) and Platypelphis (German East Africa), an ally of Homopholis, in the Scincidae the allied genera Melanoseps and Sepsina which are related to Sepsophis of Southern India, the genus Sepsina occurring also in Madagascar, and the genus Typhlacontias which is related to Acontias. The question may now be asked to what extent will the distribution of the other sections of the South African lizard fauna conform to the new arrangement. We have already seen that the families Agamidae, Lacertidae, Amphisbaenidae, and Varanidae form very few strongly-marked associations of species and still less of genera in the South African region as ordinarily defined, so that it could matter little if the distribution of these families should lend no support to this proposal for a greater South Africa. As a matter of fact, however, they are decidedly in agreement: in the case of a number of genera (Scapteira, Eremites, Nucras) certain representatives, either singly or in groups of species which occur in the western portion of the sub-continent, extend northwards into Angola and similarly genera in the eastern portion have species which are common to the Transvaal and German East Africa but not extending further north, or in these two areas are comprised all the species belonging to the same section of a large genus (ep. *Ichnotropis squamulosa*, the *hispida* section of *Agama*): and thus the proposed region would now include several additional genera peculiar to the area (*Ichnotropis, Nucras*) from which we may conclude that the comparatively recent Ethiopian fauna has really been in South Africa for a long period seeing that in this area peculiar genera have been evolved.

The present distribution of the Chamaeleons is somewhat puzzling, and, at first sight, difficult to explain in terms of the preceding hypotheses. According to Werner, the species constitute a number of structurally distinct groups, as follows:—The characteristic South African group goes along with a number of East African species and with the species common to the Seychelles and Zanzibar (Mocquard doubts the Zanzibar record for *C. tigris*; this is a point of considerable importance, in view of the great isolation of the Seychelles Islands): the distribution of the whole group almost coinciding with the larger South Africa. The species *enchietae*, of Angola, is considered by Mocquard (see Werner’s monograph) to be identical with *lateralis* of Madagascar. This (or these) species belongs to a group which comprises another Madagascar species and two species from East Africa. The Indian, Arabian, Socotran, Syrian, North African, and Mediterranean species are all comprised in the section of nine species, which includes one West African species and three species occurring north of the equator stretching from west to east, two of them also extending far southwards (*dilepis* and *gracilis*). Another whole section of fourteen species is made up entirely of Madagascar and Comoro species. A section of ten species is composed of Madagascar and East African forms; and another section of nine species divides itself between the same two areas. Another section of ten species is made up of five West African (Kamerun and Gabun) species and five from East Africa. *C. namaquensis* is a section in itself.
The Chamaeleonidae have two other genera, Brookesia, confined to Madagascar, and Rhampholeon, of six species, which are distributed in East Africa from Mashonaland northwards to Somaliland. One species only extends from East Africa as far as Kamerun and Gabun in West Africa.

The salient facts shown by the above are: South Africa, East Africa, and Madagascar have mutual relationships, and these areas contain the great majority of the species. The most widely-distributed African species extend north of the equator stretching from east to west, and are comprised in the same section as includes the single Indian species, the widely-distributed *vulgaris* of North Africa and the Mediterranean region, the two Arabian species—one of which is also recorded from the Nile—and the Socotran species. These facts seem to me not inconsistent with the hypothesis which so well explains the distribution and affinities of the other lizards, and we may, indeed, suppose the Chamaeleons had their home in the large island which comprised southern Africa and Madagascar. After the separation of Madagascar and the union of northern and southern Africa certain species which have special facilities for distribution spread northwards, penetrating into Europe, and one odd species passed, via North Africa or Arabia, even into India and Ceylon.

The occurrence of Chamaeleons in all habitable parts of Africa and on numerous islands (Samo, Khio, Cyprus, Socotra, Comoro, Seychelles, Zanzibar, Mauritius, Bourbon, Canaries, and Fernando Po) undoubtedly points to the fact, which might not otherwise be suspected, that these creatures have exceptionally good capacity for distribution, and in this respect they differ widely from the other endemic groups of southern Africa (Zonuridae, etc.), which, as I think, have remained content with the area which formed their original home. Chamaeleon remains have been reported from Eocene deposits in Wyoming, U.S.A., and from Oligocene strata at Quercy, France, which, no doubt, indicates that Chamaeleons are a comparatively old group, and had an extensive distribution in past ages. We need not, therefore, suppose that Chamaeleons actually originated in the Ethiopian island, but only that all the present day Chamaeleons had their ancestors in that area.

According to Hollway ("Science in South Africa"), the northern boundary of South Africa, from a geographical point of view, is the great Congo-Zambesi divide, which stretches like a bridge from east to west across the continent from within a short distance of the Atlantic to the north end of Lake Nyassa; and I think it very probable that this boundary on the western half coincides with the northern boundary of the South African zoological area, but on the eastern side the highland area goes much further north, and so also does the South African fauna.

Mr. W. L. Sclater has proposed (Geog. Journal, 7, 282) to divide the Ethiopian region into four sub-regions, the Saharan, West African, Malagasy, and Cape sub-regions, and he then extended the Cape sub-region as far as the Congo watershed on the west and the Tana watershed on the east, which is entirely in agreement with my present conclusions; but, later on, he found it "increasingly difficult to draw any dividing line between the Saharan and Cape sub-regions" ("Science in South Africa", p. 150), and, limiting himself to the area south of the Zambesi and Cunene Rivers, he attempted to show that "South Africa has not such a specialized fauna as was formerly attributed to it, and that it has comparatively little to distinguish it from the rest of the Ethiopian region". Now this generalization was based on the question of percentages of peculiar genera
amongst the South African (south of the Zambesi and Cunene Rivers) land vertebrates; but a rigid statistical inquiry of this kind may often prove very misleading, for there are a number of genera (Zonurus, Gerrhosaurus, Pachydactylus) which have each many species the majority of which are confined to South Africa, but as one or two outlying species happen to have crossed the border the genus has no title to be called peculiar, and yet the evidence of such genera is clearly of considerable import; and, again, the genera which occur only in South Africa and in Madagascar are also misplaced in such a simple statistical scheme. But, as a matter of fact, this method would have led to a more correct conclusion had the author adhered to the Cape region as previously defined by himself.

It is not possible for me to say to what extent the distribution and affinities of the other South African land vertebrates is in accordance with the conclusions based only on the study of the lizards—but probably it will be found that every group of vertebrates resolves itself into two sections representing the ancient and the new faunas—and as for the invertebrates it is hardly to be expected that many groups distribute themselves according to vertebrate regions. However, Mr. Distant, from consideration of the Rhopalocera, is disposed to accept Sclater's Cape region, but suggests that Somaliland should also be included (A.M.N.H. 7.1.47). Zoological regions have no absolute value and apply only to certain groups, seeing that the facilities for distribution vary immensely in the animal kingdom and that different groups of animals have arisen during different geological periods, and since their origin have been subjected to a great diversity of changes: and indeed a zoological area is chiefly interesting to the zoologist as a datum bearing on the history of the groups which conform to that area.

The Zoological Sub-regions of South Africa.

The available data are still insufficient to deal at all thoroughly with this subject, but the broad facts of the matter are as follows: a western portion comprising Angola, German south-west Africa, west Cape Colony, and the Karroo, has a very characteristic fauna abounding in types which are structurally adapted for life in arid and sandy regions; an eastern portion, including German East Africa, Portuguese East Africa, British Central Africa, Rhodesia, low veld Transvaal, Zululand, Natal, and the eastern portion of Cape Colony, together with a part of the southern coastal strip, has also a distinct fauna. Between these two areas are included the Orange River Colony and the high and middle veld portion of the Transvaal, the fauna of which is more nearly allied to the western area though it is very much poorer in deserticolous types than is any portion of that western area. I believe, therefore, that in the southern portion of our sub-continent that extensive range of high mountains, the Drakensberg, marks the boundary between the eastern and western sub-regions, but it should be clearly understood this is not an absolute boundary for every species; northwards there is no natural boundary to separate the two areas but, nevertheless, Angola and German East Africa have faunas sufficiently distinct but no doubt with some overlapping.

The more characteristic fauna of the western region is as follows:—
All the South African species of Eremias, and of Scapteira, the South African group of six species of Mabula, including trivittata, occidentalis, etc., the geckonid genera Ptenopus, Palmatogecko, Chondrodactylus, Rhop-tropus, and Colopus, the genus Cordylosaurus, and the species Amphibacsna quadrifrons Monopeltis capensis, Typhlosaurus lineatus, and Chamaeleon
Namaquensis. As already stated, this fauna is concentrated in German South-West Africa, western Cape Colony, and the Karoo, whilst only comparatively few elements extend to the high central plateau constituted by the Orange River Colony and high and middle veld portions of the Transvaal; this central plateau, apart from the species which are undoubtedly representatives of the western fauna, has very few species peculiar to the area, and the rest of its fauna is made up of widely-distributed species, so that I do not think that this area is entitled to stand as a sub-region distinct from the western and of equal importance to it.

The headquarters of the typical western and eastern faunas are areas of widely different environment, the western portion being comparatively arid and rainless, whilst more genial conditions prevail in the eastern area. Consequently the western fauna shows to a considerable extent, structural adaptations with the surroundings, as for example in Typhlosaurus lineatus with its sharp cutting snout for burrowing in baked earth and burning sand; the species of Scapteira (Lacertidae) and the gecko Pleiogynus garrulus, with their broadly-fringed digits, which allow of rapid movement over loose sand; Chamaeleon namaquensis, whose brown and sombre hues, assimilating with the desert colours, contrast strongly with the vivid greens of bush-frequenting chamaeleons.

The more characteristic fauna of the eastern region includes the following genera and species: In the Scincidae the species of Herpetosaura and Melanoseps and Acontias plumbeus; the geckonid genera Homopholis, Platypolis, and Diplodactylus; the degraded Typhlosaurus aurantiacus and cregoi; in the Amphisbaenidae three species, Amphisbaena violacea, Monopolis sphenorchynchus, and the genus Chirindia; two species of Agama, namely, kirki and mossambica; the great majority of the species of Rhampholeon and probably Chamaeleon damaranus and caffer.

This eastern region extends along the southern coastal strip of Cape Colony for a considerable distance in a westerly direction, reaching as far as Knysna, though the most characteristic species of the region do not extend much further south than Zululand. In thus defining the southern limits of the eastern areas I have been guided to some extent also by the distribution of the widely distributed tropical species which extend southwards into our area. Such tropical species in all cases extend much further southwards on the eastern side than on the western side. In some cases, e.g., Mabuiia quinquetaeniata, the species extends from Angola to East Africa, but southwards it scarcely penetrates into German South-West Africa, and avoids the high central plateau, but extends in a southerly direction into low veld Transvaal, Zululand, Natal, and Werner records it from the Grahamstown neighbourhood. Lygosoma sundevalli and Ablepharus wahlbergi have a similar distribution, but these species encroach somewhat further on the western side. Mabuiia striata, the common house skink, occurs throughout the whole area with the exception of south-western Cape Colony. Much the same kind of distribution obtains amongst the tropical geckos. Hemidactylus mabouia appears to be altogether absent from German South-West Africa and the central plateau, but eastwards it extends into Barberton District and Zululand. Lygodactylus capensis again is absent from German South-West Africa, and from western Cape Colony, but occurs on the high plateau, extending as far south as Kimberley on the western side and Natal on the east side.

Chamaeleon quinlensis is found throughout the whole area with the exception of Cape Colony.
It will be seen from the above facts that the two areas are by no means homogeneous throughout their length, inasmuch as the tropical fauna from the north gradually loses in intensity as it passes southwards, whilst a somewhat opposite state of affairs obtains with the peculiar South African fauna. The rivers of South Africa, no doubt, act as efficient barriers against the dispersal of a small proportion of the species. On the west side, the Orange River seems to be the southern boundary of a number of tropical species which enter the western sub-region, and, consequently, in western Cape Colony the peculiar fauna of South Africa is relatively most strongly developed. On the east side the Limpopo River is apparently an impassable barrier to such typical South African lizards as *Mabuia trivittata*, *Pseudocordylus microlepidotus*, and *Chamaesaura aenea*; and, on the other hand, such tropical species as *Agama kirki* are not to be found south of that river.

It may be possible to further divide the western region, and, perhaps, also the eastern, into a number of zones according to altitude, but there is not sufficient data to determine this. It is known, however, that there are certain species (*Zonurus cordylus* and *Mabuia homalocephala*) which occur only on the coastal strip of South Africa.

In conclusion, we may summarize as follows:—The South African zoological region is sub-divided into western and eastern sub-regions with the limits as above defined, but the separation is not a very profound one, for some species and many genera are common to both sub-regions, and, though some genera and many species are absolutely confined to one of the regions only, this cannot be said of any natural group of genera nor of any family of lizards, whilst, lastly, the segregation is largely in accordance with different environmental conditions, seeing that the most characteristic elements of the western sub-region show many structural adaptations for a deserticolous habitat.
(1) Female of *Platysaurus guttatus*, Smith, from Woodbush.
(2) Female of *Platysaurus wilhelmi*, n. sp.
Hadogenes gunningi Pure.
Koch's Bodies (free).

(a) Agamogonous forms.
(b) Gamogonous form.

Fig 1

(a) Agamogonous forms (free).
(b) Gamogonous form before the segmentation.
(c) Blood corpuscle with parasites.

Fig 2
Free gamogonous form in segmentation.

(a) Intracellular agamogonous form in segmentation.
(b) Intracellular gamogonous form in segmentation.
(a) Intracellular agamogonous form.
(b) Intracellular gamogonous form.
(c) Free agamogonous form in segmentation.
(d) Intracellular form in segmentation.
Caralluma Leendertriae, N. E. Brown.
DESCRIPTION OF A NEW SNAKE, PROSYMNA TRANSVAALENSIS, FROM THE TRANSVAAL.

By John Hewitt.

PROSYMNA TRANSVAALENSIS, n. sp.

Rostral large and broad, with angular but not sharp-cutting horizontal edge; a single internasal, a single prefrontal, and a single anterior temporal; frontal large, more than half the width of the head, not touching the eye; loreal longer than deep; a single preocular and a single postocular (on the right side the supraocular and the postocular are fused together); six upper labials, the third and fourth entering the eye; two pairs of chin shields, the posterior pair small.

Dorsal scales smooth, in fifteen rows; ventrals, 156; anal entire; subcaudals, twenty-two (twenty-six in another specimen). Black above, with two longitudinal rows of small white spots situated at irregular intervals, absent on the tail and the most anterior portion of the body; lower parts whitish.

Total length 260 mm.; tail 25 mm. Type specimen from Tzaneen, Zoutpansberg District, 31st July, 1908 (W. H. Charter).

We have also three specimens from Medingen, Klein Letaba (Rev. W. Krause). The largest of these agrees with the type, excepting in that the supraocular is not fused with the postocular on either side. The two other specimens, both juvenile, are aberrant, in that one of them has two postoculards and two suboculars, which latter separate the eye from the upper labials, whilst in the other specimen labials two and three on the right side, and two, three, and four on the left side enter the eye. Moreover, in these young specimens, the rostral is not so angular as in the adults.

This species is near to Prosymna ambigua Boc., but on account of the single postocular, the slightly increased number of ventrals, and the two pairs of chin shields, I believe it to be distinct.
DESCRIPTION OF TWO TRAP-DOOR SPIDERS FROM PRETORIA
(FEMALE OF ACANTHODON PRETORIAE POC. AND
STASIMOPUS ROBERTSI, N. Sp.).

BY JOHN HEWITT, B.A.

THE SUPPOSED FEMALE OF ACANTHODON PRETORIAE POC.

In the Ann. Mag. Nat. Hist., 7, 1, p. 319, Mr. Pocock described a single male trap-door spider from Pretoria under the name of Acanthodon pretoriae, and apparently the species has not been mentioned since. The recent addition to our collections of a very fine specimen of a female Acanthodon taken by Mr. Jenkins in the neighbourhood of his residence in Park Street (Pretoria) gives me an opportunity of describing what I believe to be the female of this species.

We have no male Acanthodon in the collection, but there is another female specimen of the same species from Villieria (a Pretoria suburb).

Colour.—Carapace pale-yellow translucent, the chelicerae and legs light brown, and the abdomen dull brown.

Carapace.—Equal in length to the patella, tibia, and half the metatarsus of the first leg; practically equal to the tibia and metatarsus of the fourth leg.

Eyes.—Width of ocular area slightly exceeding the length; distance between outer margins of the two frontal eyes appreciably less than between outer margins of the antero-median eyes of the posterior group, and this latter distance slightly less than that between the outer margins of the postero-median eyes; antero-median eyes of posterior group slightly more than a diameter apart, their distance from postero-lateral eyes of the same side two and a half to three times the diameter of the antero-median eye; distance between postero-median eyes slightly less than that between postero-median and postero-lateral of the same side.

Postero-median eyes considerably smaller than any of the others; frontal eyes looking obliquely forwards.

Legs.—Fourth the longest; third the shortest, its femur, patella, and tibia very stout; tibia of first leg armed below with about fifteen spines anteriorly and twenty-four posteriorly (including short as well as long spines); of second leg with about fourteen antero-ventral spines and ten postero-ventrally.

Metatarsus of first leg inferiorly with many (more than twenty) spines on the anterior side, and still more on the posterior side; of second leg similar, but fewer posteriorly.

Tarsi of legs one and two have strong spines antero-ventrally and postero-ventrally; tarsi of legs three and four have scattered bristly hairs, situated on the anterior portion only of the ventral surface. On the third leg, patella, tibia, and metatarsus have each many spines situated dorsally on the anterior surface. On the upper part of the posterior surface the patella has only a couple of spines, apically situated, and an odd one nearer the middle of its length, situated rather more ventrally; there are many
on the tibia, and about a dozen on the metatarsus, which also has about
three or four bristly hairs on either side of the ventral surface, and there
are a pair of such bristles at the distal end of the tibia ventrally.

On the fourth leg the spines are rather fewer and weaker: many
short ones on the upper anterior surface of patella, a row of about a dozen
on the upper anterior surface of the tibia, and a few scattered stiff hairs
below. About a dozen spines on the lower portion of the anterior surface
of the metatarsus; on the posterior surface of this leg spines are wanting.

\textit{Pedipalp}.—Tibia and tarsus fringed on the anterior and posterior
sides of their ventral surface with numerous strong spines.

\textit{Measurements} (in millimetres).—Total length, 31.5; length of
carapace, 10.5; of palp, 24; of first leg, 26.5; of second leg, 23; of
third leg, 22.5; of fourth leg, 32.5; of metatarsus of first leg, 3.8; of
metatarsus of fourth leg, 5.75.

The following description relates to a single male specimen of a trap-
door spider, taken in the neighbourhood of Pretoria at Mountain View
bridge, on the 11th June, 1910, by the Rev. Noel Roberts, who kindly
presented the specimen to the Museum. It is probably a Stasimopus,
allied to \textit{S. nigellus} Poc, described from Vredefort Road, O.R.C. (A.M.N.H.
7.10.319), but the description of this latter species is rather meagre. The
specimen cannot be matched in the Museum collection, and the female
is quite unknown.

\textbf{STASIMOPUS ROBERTSI, N. Sp.}

\textbf{Male.}

\textit{Colour}.—Carapace and chelicerae black, the abdomen fuscous, excepting
ventrally on the genital segment and lung opercula, where it is yellow;
sternum brown, darker anteriorly and at the sides; pedipalps and legs
black, excepting the tarsi and the greater portion of the length of the
metatarsi (tibia in pedipalp), which are reddish; also the ventral surfaces
of the coxae, especially the posterior ones, are brown.

\textit{Carapace}.—Reticulately rugose in its posterior half, the raised cephalic
portion with three ridges, of which the median one is short and weak, but
the two outer ones are much stronger and have a shallow, almost S-shaped
curve, posteriorly nearly reaching the outer limits of the fovea; this raised
portion is reticulately wrinkled on its lateral surfaces.

Carapace longer than any of the metatarsi, equal to the tarsus and
metatarsus of the second leg.

\textit{Sternum}.—Apparently without sigilla and labium without spines or
teeth.

\textit{Eyes}.—Anterior row slightly procurved, posterior row recurved, wider
than the anterior row; lateral eyes of anterior row transverse, of posterior
row facing obliquely backwards; the median eyes of posterior row about
the same distance apart as (or very slightly less distant than) the lateral
eyes of anterior row; distance between anterior and posterior lateral eyes
appreciably exceeding the long diameter of the latter.

Posterior median eye distant from posterior lateral eye a trifle less
than its own diameter, about its own diameter from the antero-median
eye, and more than its own diameter from the antero-lateral eye.
Pedipalps.—Stretched out in front the pedipalps are only a trifle shorter than the first leg; femur practically straight, expanded distally; patella slightly curved and about as long as the tibia of first leg; tibia swollen, convex on its outer surface, very slightly concave on the inner surface; bulb of palpal organ quite three-fourths as long as the spine, which is curved and slightly twisted, gradually tapering to a filament.

Legs.—First leg long and slender, the tarsus scopulate below (as also are the tarsi of all the legs), with four or five spines on the anterior side and six or seven on the posterior side; metatarsus without scopula, thickly spined at the sides of the ventral surface, the spines disposed obliquely, either singly or in pairs or in threes, no spines along the median line, or only an odd one proximally; tibia thickly spined over the whole ventral surfaces; patella with a few stout spines on the distal portion of the ventral surface.

Second leg resembling the first, but shorter. Third leg: the spines not so strongly developed, the patella having no strong spines, and only one or two on the tibia; the tibia and femur considerably reduced in length, but stouter. Fourth leg: slightly longer than the second, but hardly so long as the first; the tarsus with a number of rather thick spines at the sides of the ventral surface—about a dozen anteriorly and a smaller number posteriorly; patella without any very stout spines, and tibia with only one or two situated mid-ventrally; the femur, patella, and tibia of this leg much stouter than in legs one and two.

Measurements (in millimetres).—Total length 17·5. Length of carapace, 7; length of pedipalp, 24; length of first leg, 25·5; length of second leg, 23; length of third leg, 19; length of fourth leg, 25; tibia of pedipalp, 6·25; patella of pedipalp, 4·75; femur of pedipalp, 7·5.
A Key to the South African Species* of Geckonidae, Scincidae, Gerrhosauridae, and Lacertidae, together with some Notes on the Specific Characters and a Brief Summary of the Known Facts of their Distribution.

By John Hewitt, B.A. (Cantab.),

Assistant for Lower Vertebrates.

The following paper is based mainly on the extensive collections of the Transvaal Museum, but I am also greatly indebted to the authorities of all the other South African museums for the loan of material. The investigation was undertaken with two chief objects: (1) to ascertain the specific areas of distribution; (2) to define the limits of the various species. As regards the facts of distribution I have made use of all the records in the literature listed in Ann. Trans. Mus., Vol. 2, No. 1, p. 35 (for a complete bibliography see Roux in Zool. Jahr, 1907, XXV), but I have not thought it necessary to quote every record, nor the authority for all records, except in cases of particular importance. The distribution of reptiles which are confined to South Africa is very ill-known, chiefly because this group has received but little attention from local workers; in fact, so far as I know, only one extensive list of local reptiles has been published in South Africa (Ann. Natal Govt. Mus., Vol. 1, Part 3).

The question of the range of variation within a species could not be fully dealt with, mainly because of inadequacy of material, but there is sufficient evidence to show that South Africa has been credited with more reptiles than it really possesses, for in some cases so-called species are merely geographical varieties, whilst others represent nothing more than individual variations; the latter class must, of course, be abolished, but fairly well-marked geographical varieties may be entitled to stand for convenience sake, even though an occasional intermediate should appear.

The descriptions and keys employed here are mainly founded on those of the British Museum Catalogues.

GECKONIDAE.

1. Chondrodactylus.

Tubercles on supraorbital edge enlarged, separated from those on the other side by two (or only one) series of tubercles; the body covered dorsally with irregular flat granules and round keeled tubercles; horizontal diameter of eye equal to length of eleven or twelve scales on middle of belly.

Light grey-brown above, with five blackish angular transverse bands on the back, and sometimes round white spots on the sides of the body; a dark median longitudinal streak on the nape, and an oblique dark band from the eye towards the latter.

C. angulifer Pet.

Differing from angulifer thus:—

Tubercles on supraorbital edge scarcely enlarged, separated from those on the other side by three series of tubercles in the middle; enlarged

* For a key to the genera of the S. African lizards, see Annals Trans. Mus., vol. 2, No. 1, p. 38,
dorsal tubercles larger, more strongly keeled, subtriangular; horizontal
diameter of eye equal to length of six or seven scales on middle of belly.

A blackish crescentic band concavity forwards, extending from
shoulder to shoulder, and pairs of round whitish spots on the back.

* C. weirii Boul.

2. Ptenopus.

Head and body with uniform small granules all over, a little larger
on the belly; nostril between two nasals, the antero-inferior being larger
and in contact with rostral and first labial; no chin shields. Pale above,
with dark reddish-brown reticulations forming spots. P. garrulus Smith.

3. Phyllodactylus.

Digital expansion considerably wider than the digit. Nostril
between the rostral and three small nasals, the first labial being cut off
by the crescentic infra-posterior nasal. No regular chin shields, but small
polygonal scales passing gradually into the minute granules of the gular
region. Greyish or reddish-brown above, variegated with dark-brown.

P. porphyreus Daud.

Digital expansion scarcely wider than the digit. Nostril pierced
between rostral, first labial, and three small nasals, which are generally
granules. A row of small chin shields. Upper surfaces greyish-brown,
usually with four or six dark-brown longitudinal lines on the back and
tail, but sometimes with wavy transverse lines. P. lineatus Smith.

4. Oedura.

Nostril between four or five scales, the upper largest and separated
from its fellow by a granule; head with small round convex granules,
largest on the snout; chin shields small and flat, passing gradually into
the small granules of the throat.

Pale-brown above, mottled with darker transverse bands; tail with
blackish transverse spots dorsally, and whitish annuli in the distal half.

O. nivaria Boul.

Nostril between the rostral and three nasals, the upper of which is
large, and forms a suture with its fellow. No chin shields; head with
uniform small round flat granules.

Greyish above, with small brown spots and transverse brown bands,
five on the body and three on the tail. O. africana Boul.

5. Hemidactylus.

Digits free, the distal joints long. Dorsal surface of body with small
granules and small irregularly scattered convex or subtriangular tubercles;
tail with very small scales and large conical tubercles arranged in six
longitudinal rows. Male with fifteen or more femoral pores on each side.
Grey or light brown above, with dark spots or undulated cross bands.

H. mabouia Mor.


Mental broken by a continuation forwards of the line between lower
labials and gulars on either side; four or five pairs of subdigital lamellae.

* See note on this species.
Brownish or olive, with darker variegations; a blackish lateral streak passing through the eye, generally broken up on the sides of the body; sometimes a pale dorso-lateral streak.

*L. capensis* Smith.

Mental entire, not cut by a continuation forwards of the line between lower labials and gulars; three or four pairs of subdigital lamellae.

Olive above, with numerous small pale spots edged with black.

*L. ocellatus* Roux.


Head above and beneath minutely granulate; nostril between first labial and five small nasals; rostral subquadranilateral; snout very convex, in length one and a quarter times diameter of orbit.

Body scales above and below equal, small, subhexagonal, imbricated. Grey, with dark-brown variegations above; a dark-brown band from behind the eye to a little beyond the scapula region. *H. wahlbergi* Smith.

Head with small granules, which are considerably larger on the snout; nostril between first labial and six scales, of which the two anterior are largest; snout equal in length to the orbit or scarcely longer; dorsal scales of body larger than the ventrals; rostral six sided, its upper side in contact with the anterior nasal and an internasal. Uniform greyish above.

*H. macrolepis* Boul.*

8. Pachydactylus.

**Subdigital Lamellae 7-10.**

Dorsally with flattened granular scales and some small keeled ones, intermixed with large strongly keeled scales, arranged in longitudinal series; head covered with small flattened convex or bluntly keeled scales, largest on the occiput; ear narrow vertical; eight to ten transverse lamellae below the digits. Brown or greyish above, back and tail with narrow, rather indistinct transverse dark-brown bands; a dark-brown line on each side of the head passing through the eye, and another from the nostril to the upper border of the orbit. *P. bibroni* Smith.

Similar to bibroni in colour and other general characters, but differing in that dorsal tubercles are quite flat, arranged in rather irregular longitudinal rows; across middle of back nineteen to twenty-one tubercles; across middle of belly forty-three to forty-five scales.

*P. laevigatus* Fisch.

Dorsally with minute granules, intermixed with large trihedral tubercles, forming eighteen longitudinal series; hinder part of head with minute granules, intermixed with oval smooth or obtusely keeled tubercles; naso-rostrals in contact; ear small, oval; six to nine subdigital lamellae. Dorsally with three broad dark-brown crossbands on the body; a dark-brown horseshoe-shaped streak round the back of the head, passing through the eyes.

*P. fasciatus* Boul.

**Subdigital Lamellae, 3-6.**

*Dorsal tubercles keeled (not conical).*

Dorsally with very small granules and large keeled round or oval tubercles, symmetrically arranged; the granules of interocular region and

*This species may be a synonym of wahlbergi.*
hinder part of the head intermixed with large round keeled tubercles; naso-rostrals in contact (sometimes separated in young or half-grown individuals); tail annulate, with alternating smooth scales and large feebly keeled tubercles or scales; five to six subdigital lamellae. Pale above, with dark-brown and whitish variegations; a dark-brown streak on each side of the head, passing through the eye. *P. capensis* Smith.

Similar to capensis, but differing in that naso-rostrals are not in contact; the first labial is pentagonal, as high or higher than broad, and it borders the nostril; the dorsal tubercles are arranged in more or less longitudinal rows, the scales of median row less convex and weaker-keeled than those laterally situated. Pale above, with five or six dark stripes across the back. *P. weberi* Roux.

Four to five subdigital lamellae; enlarged dorsal tubercles, rather small, keeled, but not symmetrically arranged; the interocular region and back of the head with only a few scattered, slightly enlarged granules; naso-rostrals separated by a granule; mental longer than broad. Pale above, irregularly spotted all over with dark-brown (affinis), or four broad brown transverse bars on the back, and a broad brown crescent-shaped band, bordering the head posteriorly (formosus s. st.). *P. formosus* Smith.

Four subdigital lamellae; dorsal tubercles feebly keeled and irregularly arranged; naso-rostrals separated; mental square, not narrowed posteriorly; outer part of femur and tibia with scattered oval strongly keeled large tubercles. Reddish-brown above; the back with five transverse, dentated, whitish, dark-brown-edged bands, much narrower than the interspaces between them. *P. mentomarginatus* Smith.

**Dorsal tubercles conical or subconical.**

Head covered with conical tubercles and small granules; body dorsally with small granules and large conical spinose tubercles, irregularly arranged; lower surfaces with granular subconical scales; naso-rostrals separated by a granule; four or five subdigital lamellae. Greyish-brown above, with four transverse dentated whitish bars on the back, which are narrower than the intervals; a whitish band from the mouth to the anterior crossbars. *P. rugosus* Smith.

Head scales smooth, flattened, not conical; dorsal surface of body with keeled subconical or conical tubercles and small granules; ventrally with smooth, flat, imbricated scales; naso-rostrals in contact; four or five subdigital lamellae. Head pale, bordered by a black band starting from the nostril, passing through the eye and round the occiput; this dark band bordered posteriorly by a pale one; the body is dark with two pale bands dorsally. *P. oshaugnessyi* Boul.

**Dorsal tubercles distinct from granules only by their larger size.**

A few conical tubercles on outer side of tibia; naso-rostrals rather widely separated; three or four subdigital lamellae. A broad dark-brown streak on the side of the head, passing through the eye and converging in a curve towards its fellow on the occiput; back with four longitudinal series of dark-brown spots, sometimes confluent into bands. *P. maculatus* Gray.
Dorsal scales all equal.

Snout usually very short, hardly as long as diameter of orbit; naso-rostrals usually in contact; three subdigital lamellae; caudal scales three or four times as large as the granules of the back. Dorsally grey, with reddish-brown blackish-margined markings as follows: a spot on the nose and another on the forehead, a semicircular broad bar round the back of the head from eye to eye, and posteriorly directed angular broad bars on the back and tail. *P. mariquensis* Smith.

Snout very short; naso-rostrals usually separated; four to five subdigital lamellae; caudal scales about twice as large as granules on the back. Grey or brown above, with small white dark-edged ocelli; a straight dark streak on the side of the head and neck, passing through the eye.

*P. ocellatus* Cuv.

Very like ocellatus, but differing in that the snout is longer and more pointed; the scales on the snout are three or four times as large as those on the back of head (scales of head and body subequal throughout in ocellatus and mariquensis). Brown above, spotted with blackish-brown; behind the eye a yellow band, blackish-edged above. *P. punctatus* Pet.


Nostril between three nasals, the anterior largest; dorsal scales uniformly granular; tips of fingers slightly dilated, of toes rather narrowed. Olive-green above, with large yellow darker-edged spots confluent into irregular crossbands on the back; a yellow median streak from snout to occiput. *C. wahlbergi* Pet.

10. Rhoptropus.

No chin shields; ear-opening horizontal; mental and contiguous labials much elongated; ten or eleven upper and eight or nine lower labials; nostril in the centre of a swelling formed by three or four nasals. Yellowish or greenish-olive above, uniform, or with small scattered dark spots.

*R. afer* Pet.

Mental large, subtriangular, broader than long, in contact with two chin shields; nostril between the first labial and two nasals, the latter not swollen; ear opening oblique; seven upper and six lower labials. Grey above, with round, dark-edged whitish spots; a rather indistinct dark line on each side of the head, passing through the eye.

*R. ocellatus* Boul.

Three chin shields; seven upper and eight lower labials. Olive-green above, marbled with blackish; three small transverse black spots near the insertion of the thighs; limbs with reddish-brown chevron-shaped bands, the tail annulate with black. *R. braconnieri* Thom.

11. Elasmodactylus.

Nostril between rostral, first labial, and three other small scales; thirteen subdigital lamellae on median toe of hind foot; terminal joint of toes superiorly with two enlarged scales, which protect the pouch of the very minute claws. Grey above, with traces of black spots, some of the larger tubercles being black; traces of transverse bands on the tail.

*E. namaquensis* Sclat.

*See note.

The whole animal uniformly granulated; digits above and below densely covered with small uniform granules, without any trace of lamellae, the short free distal joint with a faint obtuse claw; eyelid distinct all round the eye; pupil vertical.  

P. rangeti Anders.

Notes on the Specific Characters of Certain Species.

1. Chondrodactylus.—The swollen palms and soles are very characteristic, and individuals are of stout build, reaching a large size. C. weiri Boul. (P.Z.S., 1887, p. 340) is in my opinion of doubtful validity, for its separation from C. angulifer is based upon characters which are all very variable in angulifer; this applies to the degree of enlargement of the supraorbital scales, the number of scales between the supraorbitals, the size of the ventrals relative to the eye, and the degree of keeling of the dorsal scales.

The South African Museum has a good series of C. angulifer from Little Namaqualand and western Cape Province. In this series there are two or three individuals which have three series of scales between the supraorbitals, but they do not also combine the other characters of C. weiri, and in view of the fact that none of the Cape Province specimens have precisely that combination of variations which are said to separate off the Kalahari species, the identity of this latter must remain undecided until a large series of Kalahari specimens is available for examination.

2. Lygodactylus ocellatus Roux.—(Zool. Jahrb., 1907, p. 406.) This seems to be a distinct species; it is easily distinguished from capensis by the character of the mental as given in the key. According to Roux it also differs from capensis in that there are only two nasals, and the nostril abuts on the rostral, whereas in capensis there are three nasals, and the rostral is cut off from the nasal; but we have specimens of capensis which have precisely the condition described for ocellatus, and on the other hand all our specimens of ocellatus have three nasals.

The character of the subdigital lamellae, which in the original description of ocellatus is given as three pairs, is not altogether reliable, for our specimens have definitely four pairs, though the most distal pair is small.

Apparently the two species occur together, for we have two specimens representing each species taken at Waterval Onder (Dr. Gough) on the same date, and recorded together under one number.

3. Homophilis.—The validity of H. macrolepis Boul. is very doubtful. The points of difference from H. wahlbergi Smith, according to the descriptions given in the B. M. Catalogue, are: in wahlbergi ear opening very small and round, in macrolepis ear opening small, roundish, subtriangular, but in the original description of wahlbergi the ear opening is given as narrow, oblique, broadest below; in wahlbergi, nostril between the first upper labial and five small nasals; in macrolepis, nostril between the first labial and six scales, the two anterior of which are largest; whilst according to Smith’s description of wahlbergi there is a relatively large nasal, situated antero-ventrally, and a smaller one just above it, no mention being made of the number of posterior nasals; in wahlbergi, tail covered
with small smooth irregular scales; in macrolepis, tail with imbricate scales on the upper surface, much smaller than on the lower; and in Smith’s description the scales on the under surface of the tail are larger than those on the upper surface; and others as given in the preceding key. We have a series of about a dozen specimens of a Homopholis from the Zoutpansberg and Barberton Districts. These exhibit great variation in respect to the number and size of nasal and internasal scutes.

Usually there are two comparatively large anterior nasals, the ventral one considerably the larger, but sometimes these are fused together; there may be one, two, three, four, or even more internasals, and there are three or four posterior nasals; the arrangement on one side is often not quite the same as on the other side. In large specimens the upper margin of the rostral is rounded, and the rostral may best be described as subquadrangular, but in younger individuals the rostral is often six-sided. This is a character of no specific importance.

As regards the granulation of the head, in most of our specimens the granules on the snout are appreciably larger than those on the back of the head, and this is the case to a greater or less extent in all the specimens I have seen of this genus.

On comparing our specimens with the co-type of macrolepis (in the South African Museum), and with specimens kindly lent me by the authorities of the Natal Government Museum and the Rhodesian Museum I have not been able to resolve this long series into two species, and am provisionally referring all to wahlbergi. The question of the validity of macrolepis cannot be absolutely decided until the types of the supposed two species can be compared with a series of specimens. Larger specimens of Homopholis sometimes have a pair of broad black dorso-lateral bands; this appears to be nothing more than a colour variation.

4. Pachydactylus fasciatus Boul.—The specimen in the South African Museum labelled as the co-type of this species has on most of the digits five or six subdigital lamellae, and on the median toe there are only seven; the original description cites nine lamellae under the dilated part of the median toes. In other respects this specimen agrees with the description of the species.

Pachydactylus capensis Smith.—This species is common in the Pretoria district. Young and half-grown individuals show considerable variation in the degree of keeling of the dorsal tubercles, but in all adult specimens that I have seen the dorsal tubercles are strongly keeled, and the scales on the snout, and the larger scales on the hinder part of the head, are also definitely keeled.

In adult specimens the naso-rostrals are in contact, but in young and half-grown individuals they are sometimes separated by granules; in no case does the first labial enter the nostril. Our largest specimen measures 57 mm. from snout to vent.

Pachydactylus weberi Roux.—This species I have not seen. It should be easy to distinguish from P. capensis by the character of the first labial. The colour pattern is of the same type as in P. fasciatus Boul., the thin stripes of weberi representing the darker borders of the broad bands of fasciatus.
According to the description they are to be distinguished by the character of the naso-rostrals, and by the number of subdigital lamellae a character which, as I have shown above, is variable in fasciatus. Unless the character of the first labial be found to show a constant difference in the two species this recently described form will have to be reduced to a variety of fasciatus.

_Pachydactylus formosus_ Smith.—We have specimens from the Rustenburg District agreeing with the form described by Mr. Boulenger as affinis (Ann. Mag. Nat. Hist., 6, 2, 138), which more recently is united with formosus (Zool. Jahrb., 25, 410). Immature specimens of this species and of capensis may easily be confused together, especially as the naso-rostral character is only available in the adults.

In our specimens the head is flattened from above, the back is irregularly spotted with dark-brown, and there are traces of five or six thin white stripes across the back. A single specimen from Krabbefontein (Zoutpansberg District), which I refer with some doubt to this species, has the naso-rostrals united, but the dorsal tuberces of the back are numerous and disposed quite irregularly.

_Pachydactylus mentomarginatus_ Smith.—This species was described from small specimens, which, as suggested in the B. M. Catalogue, are probably immature. The only character by which it can be distinguished from _P. formosus_ is that of the mentum, as the scaling on the head, body, and limbs is precisely the same in the two species, and the type of coloration in mentomarginatus is common to very young individuals of formosus. The mentum in typical specimens of formosus from western Cape Province shows some variation, and though it is normally reduced posteriorly there are one or two specimens (in the South African Museum) where it is scarcely reduced behind, and such specimens might be referred to either of these two species. I suspect therefore that mentomarginatus will have to sink in _formosus_.

_Pachydactylus rugosus_ Smith.—This is a very distinct species. The characteristic conical tuberces are particularly conical and high on the dorsal surface of the neck. In _P. formosus_ s. str. there is some approach to this condition in the dorsal neck tuberces, but they are not so high nor so definitely conical as in rugosus. The colour markings in the two species are somewhat similar, but the white bands of rugosus are much broader than those of formosus.

Subconical ventral scales are not found in any other species of Pachydactylus.

_Pachydactylus oshaughnessyi_ Boul.—Mr. Chubbs’ specimens agree precisely with the figure given in the B. M. Catalogue. The dorsal tuberces, however, cannot be said to be definitely conical, and they show some approximation to the condition that obtains in _P. capensis_; from this species they are at once distinguished by their smooth flattened head scales and from other allies of capensis by their united naso-rostrals.

_Pachydactylus maculatus_ Gray.—The type of colour pattern is very constant in the species, but the scaling varies somewhat. There is considerable variation in the degree of enlargement of the larger tuberces, some being subconical or even conical, and though usually the enlarged
tubercles are scattered, occasionally they are more numerous than the smaller ones. Sometimes the colours of the dorsal pattern are in vivid contrast; one such specimen (Port Elizabeth Museum) could be described as having a double row of rather large, dark, black-margined islets separated by whitish reticulations; just over the neck this whitish reticulation forms a cross.

*Pachydactylus mariguensis* Smith.—The Port Elizabeth Museum has a specimen of this species which is abnormal in several respects. The head is considerably more flattened than usual, and the snout is relatively long and not obtuse.

There are eight lower labials instead of six or seven as in normal specimens. The markings on the snout and forehead are normal, but the semi-circular band round the back of the head is incomplete behind (as in maculatus). The markings on the back are all reddish-brown, margined with black, but they are arranged as a narrow, irregular, broken, reticulately-marked lateral band, and a broader irregular dorso-lateral band, these bands expanding in places into large spots, which in the posterior region of the back coalesce into transverse bands.

The long and slender tail is transversely banded, the dark bands being narrower than the pale intervals.

*Pachydactylus ocellatus* Cuv.—Occasionally this species has, in addition to the small ocelli, some dark blotches or longitudinally elongated dark streaks dorsally. The dark streak on the side of the head is not curved posteriorly; on the snout it is bordered above by a white streak.

*Pachydactylus punctatus* Pet. Our specimen from Selati (Zoutpansberg District) has the naso-rostrals united; the back is covered with smooth, flat, imbricating scales.

5. *Rhoptropus*.—I have not seen any representative of this genus. The genus Dactychilikion has been reduced as a synonym of Rhoptropus by Mr. Boulenger, but so far as I know the validity of the species (*braconnieri* Thom.) has not been questioned.

### Distribution of the Species.

1. *Chondrodactylus angulifer* Pet.—This species is known from Bethany and from a locality between Aus and Bethany (Great Namaqualand), from Little Namaqualand, Touws River, Beaufort West and Kenhardt (South African Museum), from Malmesbury (Boettger), from Carnarvon (Albany Museum), and from the Karroo.

*Chondrodactylus weirii* Boul.—Recorded from the Kalahari.

2. *Ptenopus garrulus* Smith—This species is recorded from various localities in Great Namaqualand (Angra Pequena and between Aus and Bethany), and the South African Museum has specimens from Little Namaqualand and Little Bushmanland; Mr. F. A. Pym has taken the species at Modder River, near Kimberley, and Mr. F. W. Fitzsimons has this gecko from the immediate neighbourhood of Graaff-Reinet, which is the most southern record known to me.

3. *Phyllodactylus porphyreus* Daud.—Apparently this species in South Africa is confined to the western portions of Cape Province,* though it is
recorded also from Madagascar and Kamerun, and it is very closely allied to or perhaps identical with the Australian species, *P. marmoratus*. The Cape Province records are Knysna and Table Mountain (Roux), Tokai (Mr. L. Taylor), and Calvinia, Clanwilliam, and Little Namaqualand (South African Museum).

*Phyllocaulus lineatus* Smith.—The locality of the British Museum Catalogue is indefinitely Cape of Good Hope, and the only other record known to me is Buffel River, Laingsburg (Roux).

4. *Oedura nivaria* Boul.—(P.Z.S., 1894, p. 726.) This was first recorded from the highest point of the Drakensberg Range in north-western Natal; later records are Durban and Transvaal (Roux), and Pirie Forest, Kingwillamstown (Pym).

*Oedura africana* Boul.—(Ann. Mag. N. H., 6, 2, p. 137.) Only known from Damaraland.

5. *Hemidactylus mabouia* Moreau.—This species occurs in tropical South America and throughout the tropical parts of Africa from West Africa and German East Africa southwards, extending also into Madagascar and the islands of the Gulf of Guinea. The most southern record known to me is M'seleni, Zululand. The Transvaal Museum has numerous specimens from the Barberton District (Louws Creek and Hectorspruit) and the species is recorded from the Zoutpansberg District. According to Roux it occurs in the Pretoria District. It occurs in Angola, but there are no records from German South-West Africa nor from the Orange Free State.

6. *Lygodactylus capensis* Smith.—This species extends from Gaboon, South Angola, Lake Tanganyika, and Mozambique southwards to Natal. Smith recorded it from "Kaffirland and the districts north of Cape Colony". Apart from this the only Cape Province records known to me are Kimberley (Miss Wilman) and G hous, near Upington, and the species has not been taken in Eastern Cape Colony by the museums of that district. The records from Natal, Zululand, Orange Free State, Transvaal, and Rhodesia are numerous, but apparently the species has not been taken in German South-West Africa.

*Lygodactylus ocellatus* Roux.—Described from the Pretoria District. We have specimens from Waterval Onder (Barberton District), and from Doornkop, Witpoort, near Belfast (Middelburg District), taken by Messrs. R. Gerhardt and Langenhaim.

7. *Homopholis wahlbergi* Smith.—The species *H. macrolepis* Boul, doubtfully distinct from wahlbergi, was described from Delagoa Bay. Smith’s locality for wahlbergi was “Kaffirland, the country to the eastward of Cape Colony”. We have the species from Waterval Boven and Louws Creek (Barberton District), from Krabbefontein, Shilowane, and Woodbush (Zoutpansberg District), and from Palapye (Bechuanalnd). The Rhodesian Museum has it from Matoppp Hills and from Gwanda, and the South African Museum has a record twenty miles east of Salisbury.

* The term Cape Province is used in its present-day sense for the former Cape Colony; it must not be confused with the Cape Province of botanists.
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(Mashonaland). Mr. Boulenger records it from Coguno (Portuguese East Africa), and from M’seleni (Zululand).

8. *Pachydactylus bibroni* Smith.—A widely distributed species, occurring in South Angola, German East Africa, and in most parts of South Africa. There are numerous records from the Transvaal, from Rhodesia, from German South-West Africa, from British Bechuanaland, from Orange Free State, and from Little Namaqualand, but there are none from Natal and Zululand, though to the north of this area the species occurs in Mozambique and Eastern Transvaal, whilst in a southerly direction it is known from Grahamstown and Colesberg (Albany Museum), and from Cradock and Karroo Hills, Witmoss (Port Elizabeth Museum). The other Cape Province records known to me are Clanwilliam, Calvinia, and Worcester (South African Museum), Prince Albert Road (Roux), and Belmont and Kimberley (Kimberley Museum).

*Pachydactylus laevigatus* Fischer.—Described from Aus in Great Namaqualand, and recorded also from Rehoboth and Kalahari Desert.

*Pachydactylus fasciatus* Boul.—Described from Namaqualand.

*Pachydactylus weberi* Roux.—Described from Klipfontein in Little Namaqualand.

*Pachydactylus capensis* Smith.—This species occurs in the Transvaal, British Bechuanaland, Orange Free State, Zululand, Natal, and Cape Province, with the exception of the southern coastal districts. The Cape Province records are Kimberley (Miss Wilman), Little Namaqualand, Richmond District, Middelburg District, Hanover District, and the South African Museum has specimens from Matjesfontein, Beaufort West, and Burghersdorp. Miss Wilman has the species from Mafeking.

I have seen no records from Rhodesia, but Roux records it from Rikatla, in Mozambique. The Transvaal records are Pretoria District, Johannes-burg, Waterberg District, and Krabbefontein (Zoutpansberg District).

*Pachydactylus formosus* Smith.—The South African Museum has typical specimens of this species from Ceres, Calvinia, Clanwilliam, and Concordia (Little Namaqualand), and the variety described under the name of *P. affinis* Boul., occurs in the Rustenburg District and Krabbefontein (Zoutpansberg District), in Mashonaland and Matopo Hills (South Rhodesia).

*Pachydactylus mariquensis* Smith.—This species occurs in British Namaqualand, and in the neighbourhood of Grahamstown (Albany Museum). The Port Elizabeth Museum has a specimen somewhat aberrant from Blue Cliff, Uitenhage.

*Pachydactylus mentomarginatus* Smith.—The locality of this species is not known; it is probably western Cape Province.

*Pachydactylus rugosus* Smith.—This species is common in British Namaqualand.

*Pachydactylus oshaughnessyi* Boul.—This is a Nyassaland species recently recorded by Mr. Chubb from Queque and from Gatooma in Rhodesia.

*Pachydactylus maculatus* Gray.—Common in eastern Cape Province, being known from Pondoland, Port Elizabeth, Kingwilliamstown, Grahamstown, Kowie River, Bashee River, Natal, and Zululand (junction of the
two Umfolosi Rivers). It occurs also in the Karroo, the South African Museum having specimens from Graaff-Reinet, Hanover District, Steynsburg, Beaufort West, and a solitary record from British Namaqualand. The Albany Museum has this species from Jansenville and from Helpmakaar, near Ladysmith.

Pachydactylus ocellatus Cuv.—In South Africa this species seems to be concentrated in south-west Cape Province, though the British Museum Catalogue has records from Benguella (it was taken also by Dr. Ansorge in Angola), and Ascension Island, and it has been taken in Damaraland by Wahlberg. The Cape Province records are Matjesfontein and Malmesbury (Roux), and Cape Division, Touws River, Worcester, Robertson, Swellendam, Bredasdorp, Prince Albert Poort, and Calvinia (South African Museum.)

Pachydactylus punctatus Pet.—Described from Mozambique. We have a specimen from Selati (Zoutpansberg District).

9. Colopus wahlbergyi Pet.—Only known from Damaraland.

10. Rhoptropus afer Pet.—Recorded from South Angola, Hereroland, and Damaraland.

Rhoptropus ocellatus Boul.—Described from Capetown, and recorded from Little Namaqualand (Roux).

Rhoptropus braconnieri Thom.—Only known from Lake N'gami.

11. Elasmodactylus namaquensis Sclat.—Described from British Namaqualand.


SCINCIDAE.

MABULA.

1. Scales on the soles of the feet not *spinose; suboculars not or scarcely narrowed inferiorly.

Scales on the soles of feet sharply keeled and spinose; the subdigital lamellae strongly keeled.

2. A single subocular, more or less enlarged.

Two labials (five and six) of about equal size may be termed suboculars.

3. Subdigital lamellae smooth; dorsals tricarinate; forty-two to forty-six scales round the body. Olive-brown above, with small darker and lighter spots; a more or less distinct lighter dorso-lateral band, and a black white-edged spot in the axilla. M. stangeri Gray.

Subdigital lamellae smooth; dorsals, five to seven carinate; thirty scales round the body; fronto-nasal separated from the frontal. Olive-above, a light lateral streak extending from upper lip to groin, edged above by a black band, and below by a black line. M. depressa Pet.

4. Parietals forming a suture * behind the interparietal.

Parietals completely separated by the interparietal.

* This character not absolutely constant.
5. Snout short, obtuse; subdigital lamellae smooth; two or three long pointed ear lobules; twenty-eight to thirty-two scales round the body; fronto-nasal in contact with frontal. Olive above, often with dark-brown longitudinal streaks or series of spots; a dark-brown lateral band, edged inferiorly by a whitish streak, beginning on the upper lip and passing through the ear. *M. homoalocephala* Wieg.

Snout rather elongated; three to five short, obtusely pointed ear lobules; subdigital lamellae smooth (perhaps occasionally unicarinate); thirty-six to forty-four scales round the body. Either pale-brown or olive above, each scale with a paler spot, the tail being pale yellow; or dark-brown above, with three yellowish white bands, the tail being blue. *M. quinquetaeniata* Licht.

6. Scales on the anterior border of ear not differentiated; subdigital lamellae keeled or almost smooth; twenty-eight to thirty-six scales round the body; dorsals three carinate. Olive or brown above, with transverse dark-brown spots or bands, and three light bands along the back; ventrally whitish; sometimes uniformly olive-brown above. *M. trivittata* Cuv.

Similar to homoalocephala in scutellation and habit; three short and rounded ear lobules; thirty-six scales round the body. Olive above, with five black dorsal lines with a series of yellow dots between them; a yellow band on each side, edged below by a broad black band; lower surface metallic greenish-yellow. *M. gruetzneri* Pet.

Two or three long pointed ear lobules; subdigital lamellae smooth; thirty scales round the body; dorsals three to five carinate; prefrontals in contact. Dark, with light-brown longitudinal streaks corresponding to the series of scales. *M. peringueyi* Boul.

Two or three large, projecting, obtusely pointed ear lobules; subdigital lamellae sharply unicarinate; dorsal scales feebly keeled. Olive above, with three yellowish-white dark-edged dorsal streaks, and a whitish dark-edged lateral band from upper lip to the groin. *M. occidentalis* Pet.

7. The adpressed hind limb not reaching the axilla. 8. Adpressed hind limb reaching the axilla or beyond. 9.

8. Thirty to thirty-four scales round the body; three to five short-pointed ear lobules; dorsals three carinate; subdigital lamellae three carinate; subocular inferiorly reduced but not much so, the lower labial border being at least half the total length of the scute. Olive or brownish above, often with small dark-brown spots, which may be arranged in longitudinal or occasionally transverse bands, sometimes with small pale spots, and occasionally with two or three thin pale dorsal bands or streaks; a sharply defined whitish lateral streak, starting on upper lip and passing through the ear, almost invariably present. †*M. varia* Pet.

Thirty-two to forty scales round the body; dorsals mostly three carinate (some few may be five carinate); subdigital lamellae one to three carinate; two to four short subtriangular ear lobules; subocular not reaching the lip, or if so much narrowed inferiorly (more so than in varia); fronto-nasal broader than long. Usually dark-brown above, with a pale

* This character not absolutely constant.
† See note on the distribution of this species.
spot on each scale (the spots arranged in longitudinal lines), and conspicuous pale dorso-lateral bands; the head with dark-brown reticulations or spots, and the throat (rarely also the whole ventral surface of body), with brown spots or reticulations; often a darker brown band, starting from the eye on the temples and sides of the neck, sometimes continued along the body as a lateral band, and sometimes an ill-defined pale band in the neck; occasionally uniformly pale-brown dorsally and laterally, and sometimes with four or five dark longitudinal bands or streaks dorsally.

* M. striata Pet.

Thirty-six to thirty-eight scales round the body; subocular not reaching the lip; three small triangular ear lobules; dorsals five carinate; sub-digital lamellae three carinate.

Bronzy-green above, with irregularly scattered black dots, an indistinct light dorso-lateral band, no light band on the flanks.

† M. chimbana Boul.

9. Head and body very strongly depressed; thirty-four to thirty-eight scales round the body; subdigital lamellae three carinate; dorsals five carinate; subocular not reaching the lip; two or three very small ear lobules; fronto-nasal about as long as broad. Usually uniformly blackish above, and likewise also the ventral surface; in immature specimens pale ventrally, and dorsally brown, with six longitudinal black bands.

M. sulcata Pet.

Twenty-eight to thirty-two scales round the body; dorsals three carinate; subocular not reaching the lip; subdigital lamellae strongly unicarinate or almost three carinate; three or four long lanceolate ear lobules; toes very long. Dark transverse bars on the back; two light lateral bands, the lower commencing below the eye and passing through the ear; a yellowish vertebral band, often indistinct.

M. acutilabris Pet.

Lygosoma.

Limbs short and weak, pendactyl; body much elongated; lower eyelid scaly; supranasals present; prefrontals small; frontal about as long as the fronto-parietals and parietal together, but not broader than the supraocular region; scales smooth or more or less carinate dorsally. Brown or rufous above, uniform, or each scale with a blackish dot or streak; the sides sometimes darker, with whitish brown-edged ocelli.

Lygosoma sundevalli Smith.

Ablepharus.

Interparietal shield small; a single fronto-parietal shield of large size; eye surrounded sometimes incompletely by a circle of granules more or less uniform in size; five fingers and toes. Brown or olive above, uniform or with black spots, forming longitudinal lines; a pale dorso-lateral streak; lateral surfaces dark.

Ablepharus wahlbergi Smith.

† See also note on M. varia.

* See note on distribution of this species.
Acontias.

1. Snout obtusely rounded, projecting; fourteen to twenty scales round middle of body; three supraoculars.
   (a) First supraocular nearly as large as or even a trifle larger than the two others together; a single very large preanal plate. Olive brown above, yellow below; or yellow or pale-brown above, each dorsal scale with a dark-brown spot, which may unite to form six or eight longitudinal bands. *A. meleagris* L.
   (b) First supraocular appreciably larger than the two others together. Uniform blackish. *A. plumbeus* Bian.

2. Snout cuneiform, much depressed, flat inferiorly, and strongly projecting; fourteen scales round the body; two supraoculars, or sometimes only one.
   (a) Whitish, with black lines following the longitudinal series of scales. *A. lineatus* Pet. lineatus S. str.
   (b) Brown, with a purplish band across the hinder part of each dorsal scale. Var. grayi Boul.

Scelotes.

The limbs with five digits; twenty-two scales round the body; lower eyelid with an undivided transparent disk; interparietal broader than the frontal. Olive-brown above, each scale anteriorly edged with greenish-white; lower surface greenish-yellow. *S. capensis* Smith.

Limbs with three digits; eighteen scales round the body; third finger much shorter than second. Silvery grey above, each scale darker in the centre; a whitish black-edged lateral band, commencing on the snout and passing over the supraoculars. *S. tridactylus* Bol. *S. capensis* str.

Twenty scales round the body; third finger equal to the second. Olive-green, paler beneath. Scales dotted with black at the base. *S. caffer* Pet. *S. caffer* L.

Fore limbs absent; hind limb with two minute-clawed digits, or occasionally with only one claw; supranasal in contact with the first labial; lower eyelid transparent; eighteen scales round the middle of the body. Pale-brown above, the scales speckled with black; usually a dark-brown streak on each side of head, passing through the eye and continued along the side of the body as two lines of brown dots. *S. bipes* L.

Hind limb a bud-like rudiment, without claw; twenty scales round the middle of the body; supranasal separated from the first labial by a post-nasal (see note); lower eyelid scaly. Pale-brown above and on the sides; each scale with a dark-brown dot; belly brownish-white, immaculate. *S. guentheri* Boul.

No trace of limbs externally; supranasal in contact with the first labial; four supraoculars, the three anterior ones subequal and in contact with the frontal; tail slightly longer than the body. Pale-brown, each scale with a dark-brown dot, which is very small on the back, large on the belly, largest on the sides. *S. inornatus* Smith.

* See note.
Three supraoculars, the first being largest; body subquadrangular; the scales transversely elongated. Back intermediate between greenish-white and pale flesh-red, with two longitudinal lines of closely set brownish-red dots; sides brownish-red; under parts much paler.

*S. bicolor* Smith.

**Herpetosaura.**

Limbs present, each with five digits; twenty-two scales round the body. Head darker than the body, the middle portions of the scutes almost black; suture lines paler-brown; the body brown, with longitudinally arranged black spots, largest on the sides of the body and on the tail; ventrally also with small black spots.  

*H. mira* Roux.

Limbs absent; four supraoculars, the three anterior ones subequal; six supraciliaries; twenty scales round the body; frontal about twice as long as fronto-nasal; tail shorter than the body. Silvery or light-brown above, the sides and lower surfaces dark-brown or blackish; sometimes pale ventrally, and the pale dorsal area may have a darker broad median band.

*H. anquina* Boul.

Limbs absent; three supraoculars; five supraciliaries; first supraocular considerably bigger than the second or the third; frontal a little longer than the fronto-nasal. Pale in colour, with two or four series of black dots along the back, and four to six on the sides, sometimes forming by fusion a dark lateral band.  

*H. arenicola* Pet.

**Sepsina.**

Feet with five digits; limbs small, the posterior one equal in length to the distance between the base of anterior limb and the gape of the mouth, the anterior limb equal in length to three-fourths of its distance from the ear opening. Light-brown above, with black spots along the series of scales, more distinct laterally; a pale dorso-lateral streak, commencing on the snout.

*H. weberi* Roux.

Feet with three digits; limbs very small, fore limb hardly one-third the length of the hind limb. Fawn-brown above; four rows of scales on each side, with a dark line in the centre, forming interrupted streaks.

*M. grammica* Cope.

**Melanoseps.**

Three supraoculars, first largest; first upper labial largest, third entering the orbit; twenty-two scales round the middle of the body; tail about one-fifth the total length. Blackish-brown above and below, the scales edged with lighter brown.  

*M. ater* Pet.

**Typhlacontias.**

Supranasal and fronto-nasal transversely elongated; four upper labials, the third entering the eye; a loreal present, also two minute preoculars; two supraoculars; two small postoculars, and two small widely separated prefontals; eighteen scales round the body. Brown above, with a darker mid-dorsal band; ventrally yellowish-brown.

*T. gracilis* Roux.
Remarks on Specific Characters of Certain Species.

M. homalocephala Wieg.—The British Museum Catalogue description for this species gives the dorsals as tricarinate, and this is the case in the Port Elizabeth Museum specimens, but in the specimens of the Natal Government Museum from M'seleni, Zululand, they are very strongly five or even seven carinate.

In these same specimens the subocular is quite twice the size of either the fourth or fifth upper labials; the British Museum Catalogue description represents this condition as unusual. The separation of the prefrontals seems to be fairly constant; out of a very long series of specimens I have found only one exception. In one other case the prefrontals and the fronto-nasal had completely fused together. Another almost invariable character is the union of the parietals, but rarely this also fails. As regards the colour markings, a very constant and perhaps invariable character is afforded by the white lateral streak, which is very like that of M. varia Pet. The dark-brown lateral band is sometimes very broad and distinct, and at other times reduced and ill-defined.

M. depressa Pet.—In view of the great variation exhibited by M. homalocephala this species may prove to be synonymous with the latter; the only satisfactory feature of distinction is that of the suboculars, which certainly present some degree of variation in homalocephala. Judging from the author's figure the species agrees fairly well with the Zululand variety of M. homalocephala.

M. peringueyi Boul.—Out of six specimens examined one had the prefrontals separated, and in another specimen (juvenile) the parietals formed a suture in the mid-line.

M. trivittata Cuv.—The condition of the head scutes is highly variable. The supranasals seem to be invariably in contact. The prefrontals usually do not form a median suture, at any rate in Transvaal specimens. Very rarely the parietals form a short suture behind; there is usually a pair of nuchals, which may or may not meet in the mid-line, and occasionally are broken up into scales. The subocular may be scarcely any bigger than the other labials, or more often it may be nearly twice the size of any one of the others. The first loreal may or may not reach the first upper labial. The subdigital lamellae are sharply unicarinate in young and half-grown specimens, but only bluntly keeled in adults. The scales of the sole are spinose in young, but in adults are not so, or only in slight degree. Colour markings are pretty constant, and the exceptions are mostly old females, which in some cases have no markings dorsally other than a faint ill-defined pale mid-dorsal band. Occasionally, however, young or half-grown specimens have this plain coloration.

In some specimens which have the normal colour pattern there is a trace of a more ventral pale lateral line, beginning on the upper lip, passing through the ear, and going as far as the hind limb, being most distinct in the neck region. The dorso-lateral bands may start over the eyes or more posteriorly in the neck. The majority of our specimens have either thirty-four or thirty-two scales round the body; the adpressed limbs only just meet, or fail to do so. Our largest specimens reach a length of 292 mm,
M. occidentalis Pet.—Resembles trivittata in general habit, but differs in respect to the character of the ear lobules, and it has no dark cross bands or spots on the back.

M. gruetzneri Pet.—This species was described from the Transvaal in 1869, and so far as I know has not been taken again, with one possible exception. In Zool. Jahrb., 1907, p. 431, Dr. Jean Roux records the species from the Pretoria District (Coll. Dr. Breyer), and remarking that the specimens do not altogether agree with the description given in the British Museum Catalogue, he enumerates the characters of the species as exhibited by those specimens. But the combination of characters therein cited seems to me to differ in no essential respect from those of trivittata, a species which is subject to much variation in almost all the characters ordinarily employed in specific description. The Transvaal Museum has a very long series of trivittate mabuias, collected from various parts of the Transvaal and of South Africa, but I have found it quite impossible to split up into two species the collection of mabuias which have the three pale longitudinal bands, and the numerous dark-brown transverse bands of M. trivittata.

M. striata Pet.—The condition of the subocular varies considerably; often it may be completely cut off from the lip, and at other times it encroaches thereon so much that the labial margin of this scute is about half the total length of the scute. The reduction of the subocular is relatively greatest in the adults, and especially in very large specimens. In old specimens of this species the adpressed limbs scarcely meet. As a general rule the prefrontals are separated, but occasionally they form a suture in the mid-line. The parietals may or may not form a suture behind. This is the common domestic lizard of Pretoria, being abundant in the immediate neighbourhood of houses. The house form does not reach the large size of the same species on the veld.

M. sulcata Pet.—This species much resembles M. striata; the two species are to be distinguished by the characters of the hind limb, the fronto-nasal scute, and the carination of the dorsal scales. But in a young specimen of sulcata from Bechuanaland (Albany Museum), marked with the six dark longitudinal stripes dorsally, the dorsal scales are only tricarinate, and in juvenile examples the character of the elongation of the hind limb is unavailable. An adult specimen from Victoria West (presented to the Albany Museum by Mr. P. D. Morris) has its dorsal scales tricarinate throughout, and the adpressed hind-limb barely reaches the axil. According to Bro. J. H Power the black individuals are male and the striped ones female.

M. quinquetaeniata Licht.—In a large series of specimens the parietals form a suture behind the interparietal, and only in one case are they separated by a small scale. But the prefrontals may or may not form a suture. The subdigital lamellae are invariably smooth. Colour: in younger specimens, blackish-brown above, with three yellowish-white longitudinal bands, the lateral band starting from over the eye; tail bluish. The adults vary considerably. The females are uniformly brown or olive brown above, with a white spot near the apex of each scale, with
or without a diffused brick-red patch at the side of the neck; the tail pale-yellow. The males have much the same coloration as in the young, but in addition many of the darker dorsal scales have pale spots.

*M. varia* Pet.—This is one of our smallest species of mabuia, the total length (British Museum Catalogue) being 165 mm. It resembles *M. homalocephala* in appearance, but is at once distinguished by the character of the spinose soles and sub-digital lamellae. From *M. striata*, with which it may be easily confused, it is usually distinguishable by means of the character of the subocular, but when this fails recourse must be made to the colour marking, and the white sharply defined continuous lateral streak of varia seems to be very constant, excepting in the very young.

In a single adult specimen of *Mabuia varia*, kindly lent by Mr. Fitzsimons, of the Port Elizabeth Museum, the white lateral streak is altogether wanting, and dorsally the colour is uniformly brown, except for some few small black spots.

It is almost impossible in some cases to distinguish between the very young specimens of the two species, for the young of varia may or may not have the characteristic white line of the species, though there is always at least a trace of it in the neck region; and in the young the subocular reaches the extreme limit of reduction, thus bringing it within the range of striata.

Moreover, the young of striata, like that of varia, may have a whitish lateral streak in the neck region, and pale dorso-lateral bands or streaks on the body, but it usually has also dark-brown spots or reticulations on the head, a character which is only rarely present in the young of varia, though it may occur more frequently in adults; as a rule the white lateral streak of a young striata is not so sharply defined nor so white as that of varia, whilst the pale dorso-lateral streaks of varia are not so broad nor so conspicuous as those of striata. Other characters which may be employed in doubtful cases are: the ear lobules in varia are longer and more pointed than those of striata; in varia the dorsal body scales are not so much transversely elongated as in striata; in striata the dorsal scales of the tail are considerably elongated transversely at a point quite near the base of the tail, whereas in varia the transverse elongation of the caudal scales commences more posteriorly, and is not so pronounced as in striata.

*Lygosoma sundevalli* Smith.—All the specimens I have seen have had completely smooth dorsal scales, and the colour is light-brown dorsally, the scales darker at the sutures; ventrally uniformly yellowish-white, and the sides also are without spots.

The head scutes do not vary much. A specimen from Windhoek (German South-West Africa) has the fifth and sixth upper labials as sub-oculars, whereas more usually it is the fourth and fifth.

*Ablepharus wahlbergi* Smith.—In life the ventral surfaces are pink; sometimes there is a fairly conspicuous white lateral streak, commencing on the upper lip and passing through the ear.

The scutellation of the head varies somewhat in specimens from the same locality; for instance, the frontal may form a broad suture with the fronto-nasal, or they may be completely separated by the meeting of the prefrontals in the mid-line.
A. meleagris L., and A. plumbeus Bian.—These two species are very closely allied, and it is not possible to distinguish them simply on scutellum characters. In adult specimens of plumbeus the first supraocular is appreciably longer than the second and third together, but in younger individuals this may not be the case, whilst on the other hand it occasionally happens that specimens of meleagris have precisely the same relations of the supraoculars as in plumbeus.

I have not found any constant difference in the numbers of the scaling; the number of ventrals in each case is about 150 or 155. The two species are best distinguished by the colour and by the general build, plumbeus being relatively stouter and shorter than meleagris, as shown by the following measurements in inches, expressing the relationship of the greatest breadth to the total length.

A. meleagris: 4 1/8 — 8 1/2; 5 1/6 — 9 1/4; 7 1/6 — 9 1/2; 14 1/2 — 11 3/8; 15 1/6 — 11 3/4.

A. plumbeus: 7 1/6 — 8; 15 1/6 — 17 1/4.

Acontias lineatus Pet., and A. grayi Boul.—I think the latter species is merely a colour variety of A. lineatus, for the structural characters on which A. grayi were founded prove to be highly variable, and afford no sound basis for separation from lineatus.

The South African Museum has a long series of A. lineatus, and typically coloured specimens show the following characters: usually the frontal is equal in length to the fronto-nasal, and is a little longer than the interparietal; sometimes the frontal is longer than the fronto-nasal, and often it is much longer than the interparietal; rarely the interparietal is longer than the fronto-nasal, and in one case the frontal and interparietal were fused together. The interparietal may be longitudinally elongated, or it may be as broad as long, and there may be either one or two supraoculars.

Usually the head is fuscous laterally, but sometimes it is infuscated dorsally on every scute; the dark lines on the body may be very thin or they may be thick. One specimen which in respect to the head characters agrees precisely with the original description, is uniformly brown on the dorsal surface of the body, and yellowish-white laterally and ventrally. The head is fuscous laterally, but pale dorsally, as in typical specimens of lineatus. There are two specimens which agree more or less completely with the description of A. grayi. One is brown and the other blue-black, the colour in each case being more pronounced dorsally, and both have the frontal longer than either the fronto-nasal or the interparietal. One of these specimens came along with two of A. lineatus S. str., from O'grabis (Namaqualand), from the same collector (A. L. Streuss). In view of this fact, and more especially that but for the colour character the above-mentioned two specimens of A. grayi would fit well in a series A. lineatus, I believe that these specimens should be considered as colour varieties of lineatus.

Acontias meleagris L., and A. lineatus Pet.—The Albany Museum has a long series of lineated specimens of Acontias meleagris. In this species the largest specimens are uniformly coloured, and have eighteen scales round the body; the smaller and middle-sized examples have usually eight,
occasionally ten, and sometimes only six dark longitudinal stripes dorsally, and in all these lineated specimens of meleagris there are fourteen scales round the middle of the body, and sixteen round the anterior two-fifths of the body.

The eastern Cape Province specimens of lineatus resemble the young of meleagris in nearly every respect—elongation of snout, form of head scutes, and scaling of the body—but differ in that there are only two (instead of three) supraoculars, and the dark lines are of almost uniform width, whereas in meleagris the innermost pair is broadest (broader than the pale interspace, which is not ordinarily the case in lineatus), and there is a successive diminution of width to the outermost pair.

In the collection of the Port Elizabeth Museum there are four specimens of lineatus, of which one is of normal coloration, but the other three which are more juvenile, are quite white, with no colour markings whatever. As in meleagris the frontal is much longer than the fronto-nasal or the interparietal, which latter scute is small; the frontal and fronto-nasal together are about equal to the rostral, and the mental projects back beyond the rostral; there are fourteen scales round the middle of the body, and sixteen in the first third of the total length; the smallest specimen is only four and a half inches long.

In all these specimens the snout is less projecting than in the more typical form of lineatus as found in western Cape Province, and it is just possible that they are merely the young of lineated meleagris, but I prefer to regard them as lineatus, for it seems to me that the character of the number of supraoculars is more reliable than the form of the snout. However, a lineated specimen of meleagris from Alicedale (Albany Museum) has only two supraoculars on the left side, and three on the right, and a Grahamstown specimen has the same abnormality. Our smallest specimen of meleagris is not lineated, and the length is only three and a quarter inches. From the same locality (Grahamstown), and sent to us at the same time, we have a lineated specimen eight inches long.

*Scelotes.*—I have not seen sufficient material of this genus to justify a revision of the specific characters, though doubtless this is much to be desired, as a number of the South African species were described from solitary specimens.

The key is drawn up almost entirely from the British Museum Catalogue.

*S. bicolor* Sm. ought to be rediscovered, as apparently the type and only known specimen is lost. It may even be a species of Herpetosaura, though this is not very probable, for Herpetosaura belongs to the eastern portion of the sub-continent.

*S. inornatus* Smith.—This species has a strong superficial resemblance to *Herpetosaura anguina*. They are to be distinguished by means of the generic character (palatine bones), by the colour, and perhaps by means of the ratio of the length of the body to that of the tail.

The description of the British Museum Catalogue cites: "Frontal not twice as long as the fronto-nasal", but in the specimen belonging to the Natal Government Museum the frontal is more than twice as long as the fronto-nasal.
S. caffer Pet., and S. tridactylus Boul.—I suspect that these two species will prove to be the same. In the collection of the South African Museum there are several specimens belonging to one or other of the two species. Two specimens agree entirely in coloration and other characters with C. tridactylus, but one of them has eighteen scales round the body, and the other, the larger specimen, has twenty scales.

Another specimen, exactly similar in the scutellation of the head, has twenty scales round the body, and all the scales are dotted with black at the base.

In each case the second finger is the longest, but in the last-mentioned specimen it only very slightly exceeds the third finger, and in the two former cases it may be stated as second finger slightly exceeding the third.

These several specimens appear to combine together the ascribed characteristic features of the two species.

S. guentheri Boul.—Of this species I have seen two specimens, one from Umfolosi, Zululand, and the other from Natal (Natal Government Museum). They differ from the type in the following respects: There is no postnasal, the supranasal being in contact with the first labial; the rudimentary hind limbs are devoid of claws, and the colour is laterally dark-brown, but brown dorsally and ventrally, each scale with a dark centre.

So in respect to the absence of a postnasal, the development of the hind limb, and the colour, these specimens approach S. bipes L., but they differ in the head scaling and in the snout. On the other hand they agree very well with S. inornatus but for the hind limb rudiment. According to the figures of the British Museum Catalogue inornatus has a pair of obliquely elongated temporal scales immediately posterior to each parietal, whilst guentheri has three temporals on either side, and they are scarcely larger than the ordinary dorsal scales; but our two specimens of guentheri agree with inornatus in this respect also. If this species in question really is guentheri—and it was identified as such by Mr. Boulenger in Ann. Natal Government Museum, Vol. 1, Part 3—the validity of guentheri is questionable, for the only recognizable difference from inornatus is that guentheri has a bud-like rudiment of a hind limb, varying in the degree of its development, whilst inornatus has no such rudiment.

The two specimens of guentheri have ninety-eight and one hundred ventral scales respectively; our single example of inornatus has ninety-five.

Herpetosaura anguina Boul.—There is a specimen in the South African Museum which is labelled the co-type of this species, and whilst agreeing fairly well with the description and figure given in the British Museum Catalogue, it differs appreciably in respect to the relative size and shape of the interparietal scute; this scute is longer than the frontal, and is acutely pointed posteriorly, whereas the figure given in the British Museum Catalogue represents the interparietal as being rather shorter than the frontal, and having a curved, almost semicircular, posterior margin. In a small series of specimens from Dunbrody (Uitenhage), the same condition obtains as in the co-type; this is also the case with the specimens of the Port Elizabeth Museum.
Another discrepancy in the above-mentioned figure is that two labials are suboculars, whereas in all the specimens I have seen only one labial enters the eye, and this agrees with the actual description of the species.

One specimen in the Port Elizabeth Museum collection is anomalous in possessing a pair of fronto-parietals, which are, however, widely separated; judging from this specimen it appears probable that the frontal of a normal Herpetosaura is formed by fusion of the fronto-parietals with the frontal proper.

**Distribution of the Species.**

*Mabuia stangeri* Gray.—A West African species, extending southwards into Damaraland.

*Mabuia depressa* Pet.—Described from Tette, Mozambique.

*Mabuia homalocephala* Wieg.—This species is recorded by Dr. Jean Roux from Rikatla (Mozambique). The Natal Government Museum has specimens from Indukuduku and M’seleni (Zululand); Mr. Pym has taken it at Kingwilliamstown; and the South African Museum has records from O’okiep (Namaqualand), from the Cape Division, from Knysna, and from Natal. Smith collected this species (*Euprepes smithii*) in “stony arid districts to the north-east of the Cape Colony.” There are no records from the Transvaal, nor from the Orange Free State and central districts of the Cape Province.


*Mabuia trivittata* Cuv.—This is probably the commonest skink in South Africa. It is abundant in the Transvaal ( Pretoria, Witwatersrand, Middelburg, Zoutpansberg, and Lydenburg Districts), Orange Free State, and Cape Province, at any rate as far east as East London (Transvaal Museum). There is no record north of the Limpopo, and none from Natal or Zululand. Miss Wilman has this species from Mochudi, and it occurs in Lesser Namaqualand and in Damaraland.

*Mabuia occidentalis* Pet.—This species occurs in South Angola, where, according to Bocage, it occupies the littoral zone. It is found in Hereroiland, Damaraland, and Lesser Namaqualand. Dr. Jean Roux records it from Matjesfontein, Cape Province, and from the Rustenburg District of the Transvaal.

*Mabuia gretzneri* Pet.—Recorded in the British Museum Catalogue from Gerlachshoop, which is in the Middelburg District of the Transvaal. Dr. Jean Roux records it from the Pretoria District (see previous note).

*Mabuia quinquetaeniata* Licht.—This blue-tailed skink is a tropical species occurring in German East Africa and in Angola. Bocage states that it is found only in the littoral and intermediate zones of Angola, and this is probably the case also in South Africa.

It extends southwards in an easterly direction as far as the Transvaal and Zululand. Werner records it from Grahamstown, Cape Province, but I have seen no specimen from Cape Province, and neither specimen nor record
from German South-West Africa or Orange Free State. The most westerly record for South Africa is Shoshong, in Bechuanaland (Bocage). In the Transvaal it occurs in the Zoutpansberg and Barberton Districts.

*Mabuia varia* Pet.—Also a tropical species common in Angola and German East Africa. It occurs in every part of South Africa, with the possible exception of the south-west districts of Cape Province, though Smith's distribution for this species is the "whole of Southern Africa, but not so abundant within the boundaries of Cape Colony as beyond it".

I have seen no specimens nor certain records from the south-west districts. It is known from Lesser Namaqualand, from the Richmond district, and from Kingwilliamstown (Pym). The Albany Museum has a specimen from Steytlerville.

*Mabuia chimbana* Boul.—A tropical species occurring in German East Africa and in southern Angola, where, according to Bocage it lives on the high plateau and middle zones. I think this species does not occur in South Africa, but I include it on the authority of Selater's list. According to Tornier (Zool. Jahrb., 1902, p. 586) it is merely a form of *M. striata*.

*Mabuia striata* Pet.—A tropical species occurring in Angola and German East Africa, whence it is diffused throughout South Africa, with the exception of the southern part of Cape Province. Dr. Jean Roux records it from Lesser Namaqualand, and the Kimberley Museum has the species from Belmont and from Kimberley. Smith's specimens came from the northeastern districts of Cape Province.

*Mabuia sulcata* Pet.—This species is found on the high plateau and middle zone of southern Angola. Fischer records it from Great Namaqualand, and Boettger from Neu Barmen, Hereroland. The South African Museum has specimens from Lesser Namaqualand, from the Prince Albert Division, the Cape Division, and from Matjesfontein, Cape Province. The Albany Museum has it from Jansenville and from Victoria West (Mr. P. D. Morris); Mr. Boulenger records it from the Richmond district, Cape Colony, and in the British Museum Catalogue the Karroo is given as locality. Bocage records it from Shoshong (Bechuanaland), and the Kimberley Museum has the species from Kimberley.

*Mabuia acutilabris* Pet.—This species occurs in the Congo and in Angola. It extends into Damaraland and Lesser Namaqualand.

*Lytosoma sundevalli* Smith.—A tropical species, occurring in Zanzibar and Uganda, and in Angola. According to Smith it occurs "in the country to the eastward of Cape Colony". In the British Museum Catalogue it is recorded from Natal and Mozambique. The Transvaal Museum has a specimen from Bandolierkop (Zoutpansberg District), from Hectorspruit (Barberton District), and I have taken it at Wonderboom, near Pretoria. The South African Museum has a specimen from Salisbury (Mashonaland), and Mr. Chubb records it from Bulawayo. We have it also from Windhoek (German South-West Africa), the South African Museum has a specimen from Damaraland, and the Albany Museum has the species from Serowe, Bechuanaland.

*Ablepharus wahlbergi* Smith.—A tropical species occurring in East Africa, Congo, and Angola. Bocage states that in Angola this species
occurs on the high plateau, and does not descend to the coastal regions. Smith recorded it from “the country to the eastward of Cape Colony”. It is found in Zululand, Natal (Ladysmith and Durban), and in the Transvaal ( Pretoria, Johannesburg, Warmbaths, Louws Creek, and Waterval Onder). I know of no records from any other part of South Africa.

Aconitias melagris Linn.—A species of wide distribution in South Africa, being recorded from Damaraland, Little Namaqualand, Cape Province, Transvaal, and Mashonaland. Roux records it also from Rikatla (Mozambique). The Cape Province records include all the coastal districts, the South African Museum having specimens from Umtata and Transkei, the most easterly records for the Cape Province with which I am acquainted, and in the same collections there are specimens from some of the interior districts, viz., Bedford, Worcester, and Robertson Divisions. The Transvaal Museum has specimens from Ventersdorp (Potchefstroom District), and from Irene ( Pretoria District). The Albany Museum has this species from Palapye Road, Kalahari.

Aconitias plumbeus Bianc.—This species occurs in Mozambique, Zululand, Transvaal, and probably eastern Cape Province. Roux records it from Shilouvane (Zoutpansberg District), and we have specimens from Hectorspruit, Barberton, and Louws Creek (Barberton District), and from Mbabane (Swaziland). The South African Museum has an immature specimen from East London, which I refer to this species. It appears to be confined to the coastal and low veld districts.

Aconitias lineatus Pet.—This species is common in British Namaqualand and other western districts of Cape Province. Roux records it from Matjesfontein (Worcester district), and the British Museum Catalogue records a specimen from the Karroo. Of the eastern variety the Port Elizabeth Museum has a specimen from Port Elizabeth, and the Albany Museum has a number of specimens from the neighbourhood of Grahamstown. According to Matschie the species occurs at Haenertsburg (Zoutpansberg District), but this is the only Transvaal record known to me. Boettger has recorded this species from Angra Pequena and Hantam (Great Namaqualand).

Scelotes capensis Smith.—The locality given by Smith is the western coast of South Africa. Fischer records the species from Great Namaqualand.

Scelotes tridactylus Boul.—The locality of the original description is simply Cape of Good Hope. The South African Museum has specimens provisionally referred to this species from Bechuanaland, British Namaqualand, and Dunbrody (Uitenhage).

Scelotes caffer Pet.—Described from Kaffraria. Perhaps some or all of the records ascribed to tridactylus more correctly belong to this species. Smith says: “Most parts of southern Africa; found under stones or in loose soil near the roots of shrubs.”

Scelotes bipes Lin.—Recorded by Mr. Boulenger from the neighbourhood of Capetown. The South African Museum has specimens from the Clanwilliam, Calvina, and Cape Divisions, from Robben and Dassen Islands, and a colour variety from Delagoa Bay. The Natal Government
Museum has this species from Indukuduku (Zululand). Bocage records the species from Linokana (Marico District, Transvaal), but I suspect this record to be incorrect.

_Scelotes guentheri_ Boul.—The locality of the type specimen is Port Natal. The Natal Government Museum has the species from Ubombo and Umfolosi (Zululand), and from Drakensberg (Natal), at an altitude of 6000 feet.

_Scelotes inornatus_ Smith.—According to the describer, “arid situations in the interior of southern Africa”. The British Museum Catalogue has a record from Port Natal, and the Natal Government Museum has the species from Kosi Bay (Zululand).

_Scelotes bicolor_ Smith.—The only specimen on record was taken by the describer under a large stone on the side of a rocky ravine in Little Namaqualand.

_Herpetosaura mira_ Roux.—Collected by Dr. Breyer in the Transvaal (Pretoria or Rustenburg District). (Zool. Jahrb., 1907, p. 435.)

_Herpetosaura anguina_ Boul.—Described from the neighbourhood of Port Elizabeth. The Transvaal Museum has specimens from Dunbrody (Uitenhage), and there is a record from the Peddie coast in the South African Museum.

_Herpetosaura arenicola_ Pet.—Described from Mozambique. Boulenger records it from Coguno (Portuguese East Africa), and from Delagoa Bay, and the Natal Government Museum has a series of specimens from M’seleni (Zululand).

_Sepsina weberi_ Roux.—Described from Little Namaqualand (Steinkopf). (Zool. Jahrb., 1907, p. 437.)

_Sepsina grammica_ Cope.—The locality of the describer is indefinite: south-west coast of Africa.

_Typhlaontias gracilis_ Roux.—A species recently described from a single specimen taken in the Zambezi District (Rev. Suisse de Zool., 1907, p. 83).

_Melanoseps ater_ Pet.—Recorded from the Zambezi River. It is known also from German East Africa (Tornier.)

GERRHOSAURIDAE.

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**Gerrhosaurus.**

**Thirty-two to thirty-four transverse series of scales dorsally.**

Fourteen to twenty longitudinal series of scales dorsally; ventrals in ten longitudinal series; tympanic shield narrow; prefrontals forming a long median suture.

(a) Fulvous-brown above.  
_G. major_ A. Dum. (S. str.)

(b) Pale brown above, with black spots, which become confluent posteriorly.  
_Var. grandis_ Boul.

**Over fifty transverse series of scales dorsally.**

Twenty-eight to thirty longitudinal series of scales dorsally; fourteen to sixteen longitudinal series of scales ventrally; dorsal shields three to
five carinate; tympanic shield large, crescentic, or triangular. Blackish-brown above, each scale with a small yellow spot or short streak; a yellowish dorso-lateral band sometimes present. *G. validus* Smith.

Twenty-two to twenty-four longitudinal series of scales dorsally; ten longitudinal series of scales ventrally; dorsal scales uncarinate; fronito-nasal in contact with rostral and frontal; tympanic shield large, crescentic. Brownish above, with squarish light spots; a light dark-edged dorso-lateral streak. *G. typicus* Smith.

Similar to typicus, but differing thus: only eight longitudinal series of scales ventrally; frionto-nasal not meeting rostral nor the frontal; no pale dorso-lateral streak. *G. auritus* Btgr.

Twenty to twenty-eight longitudinal series of scales dorsally; ventrals in eight longitudinal series. Tympanic shield narrow, usually band-like, not much enlarged. Brown or olive above, with a pale dark-edged dorso-lateral streak. *G. flavigularis* Wieg.

**Tetradactylus.**

Limbs short, but well developed and pendactyl; ventrals in eight longitudinal series; nine to twelve femoral pores. Olive or reddish-brown above, the sides usually darker. *T. seps* L.

Limbs very short, tetradactyl; ventrals in six longitudinal series; four or five femoral pores. Olive above, with dark-brown longitudinal streaks. *T. tetradactylus* Lacep.

Limbs anteriorly two-fingered and clawed; posteriorly undivided and without claws; ventrals in eight longitudinal series; two femoral pores. Brown above; a thin dark line from the eye to the fore limb, and another dark line starting from the shoulder and going the whole length of the body and tail. *T. breyeri* Roux.

Limbs minute, undivided; ventrals in six longitudinal series; two or three femoral pores. Olive above, with dark-brown longitudinal lines. *T. africanus* Gray.

**Cordylosaurus.**

Dorsal scales three to five carinate, in fifteen longitudinal and fifty-two to fifty-five transverse series; ventrals in eight longitudinal series. Pale-olive above, with three broad dark-brown longitudinal bands, which include a white dorso-lateral band on each side. *C. trivittatus* Pet.

Similar, but the dorsal scales not distinctly keeled; middle of the back yellowish-brown, more laterally checkered white and blackish-brown, the sides of the body dark-brown. *C. subtessellatus* Smith.

**Notes on the Specific Characters of Certain Species.**

*Gerrhosaurus flavigularis* Wieg.—In view of the great variability of the principal character on which the distinction between the two species was based, Tornier considers that *G. flavigularis* and *G. nigrolineatus* Hall are the same. Our series of *G. flavigularis* shows much variation in the relationship of the frionto-nasal to the neighbouring scutes; it is always shut off from the rostral, but it may form a broad or only a very narrow
suture with the frontal; or not infrequently the prefrontals may form a broad median suture. The tympanic shield also shows considerable variation, and occasionally may be relatively broad, but I have not seen any specimen where the breadth was as much as half the height. The colour marking is fairly constant, but in the largest specimens the pale dorso-lateral streak may be indistinct or absent. The breeding male has a bright brick-red coloration on either side of the cheeks and neck, extending along the lips and on to the mental scute.

**Gerrhosaurus auritus** Btgr.—I have not seen this species, but am inclined to suspect its validity, for the author distinguished it from nigrolineatus by the following characters: In auritus the tympanic shield is enlarged, being half as broad as high, which is not normally the case in nigrolineatus; in auritus there are eight temporal shields, whereas in Congo specimens of nigrolineatus there are eleven temporal shields; in auritus the scales of the outermost row of belly shields are as broad as those of the inner rows. Now the first-mentioned character is variable in flavigularis, the tympanic shield sometimes becoming almost as broad as is described for auritus; the second character is of no value, for our series of flavigularis shows variation from five to ten temporal scutes; the third character is also very variable in flavigularis, and although the outermost ventral scales are generally narrower than those of the inner series, this is less pronouncedly the case in larger specimens.

**Gerrhosaurus validus** Smith.—The degree of enlargement of the tympanic scale is highly variable, the free part sometimes forming an acute angle, and at other times being obtuse or broadly rounded at the apex; in the young it is narrow and bandlike. The anterior nasals form only a short median suture, and in one case (out of six) the fronto-nasal just meets the rostral. The young have many pale spots dorsally, whilst laterally there are a number of vertical pale streaks.

**Gerrhosaurus major** A. Dum. (synonym *G. grandis* Boul.)—The species from Ubombo (Zululand), described as *G. grandis* Boul. (Annals Natal Government Museum, Vol. 1, Part 3, 1908), occurs also in the Barberton District. We have two specimens, one from Kaapmuiden and the other from Malalane (W. Bolton). The description of the species, based on a solitary specimen, agrees entirely with that of major (a Zanzibar species), except as follows: Only fourteen longitudinal rows of scales dorsally, and with a cylindrical tail (but in the figure which accompanies the description sixteen longitudinal rows are represented, and apparently also the tail is slightly compressed laterally in its posterior half), whereas major is described as having eighteen or twenty rows of scales dorsally, and the tail slightly compressed in the posterior half. There is also a difference of coloration. Now our specimens, which agree precisely in coloration and general habitus with the figure and description of *grandis*, have the following characters: Eighteen longitudinal rows of scales dorsally in the larger specimen, and sixteen rows in the smaller specimen; in both specimens the tail is laterally compressed in the posterior half; in the younger specimen anteriorly also. It is evident therefore that our Barberton specimens agree exactly with *G. major* in the structural
characters, differing only in respect to coloration, and accordingly I refer these and the Ubombo specimen to that species, for the present distinguishing the South African form under the varietal name grandis, as there appears to be a definite colour difference.

_Tetradactylus africanus_ Gray.—In this species the anterior limbs are very minute, sometimes indeed being altogether absent.

_Tetradactylus breyeri_ Roux.—This is allied to _T. africanus_, but is apparently distinct. The distinguishing characters in addition to those given in the key are: Dorsals in twelve longitudinal and seventy transverse rows, whereas _T. africanus_ is described as having fourteen longitudinal and sixty to sixty-two transverse rows.

_Cordylosaurur*us trivittatus* Pet.—In this species the degree of carination of the dorsal scales varies being very pronounced and at other times not so.

_Cordylosaurur*us subtessellatus* Smith.—The South African Museum has a specimen without history which I refer to this species. In coloration it is uniformly brown all over. It is probable that this species will eventually prove to be a variety of _C. trivittatus_.

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**Distribution.**

_Gerrhosaurus validus_ Smith.—This species was recorded by the describer from near the sources of the Orange River. We have it from Woodbush, and Chubb records it from the Matoppo Hills and Empandeni in Rhodesia. The British Museum Catalogue has a record from Tette (Mozambique), and Bocage states that it occurs in south Angola.

_Gerrhosaurus major_ Dum.—The typical form is known from Zanzibar and German East Africa. The variety _grandis_ Boul. was taken at Ubombo (Zululand), and we have it from Kaapmuiden and Malalane, Barberton District (W. Bolton).

_Gerrhosaurus flavicularris_ Wieg.—A very widely distributed species, being known from every part of South Africa with the exception of Great Namaqualand, Little Namaqualand, and western Cape Province north of the coastal districts. The South African Museum has specimens from Rondebosch (Cape Division), Robertson, and Knysna; and in the eastern districts of Cape Province the species is abundant. Northwards the species extends through Central and East Africa as far as Sennar, and westward to Angola, the Congo, and Gaboon.

_Gerrhosaurus typicus_ Smith.—Smith took his specimen on the sandy plains immediately to the south of the mouth of the Orange River. Roux also records the species from Little Namaqualand.

_Gerrhosaurus auritus_ Boett.—Collected at Ondonga, in Ovampo-
land.

_Tetradactylus breyeri_ Roux.—Collected by Dr. Breyer in the Transvaal. I have seen a specimen of this species from Umvoti, Natal (South African Museum), and the Transvaal Museum has it from Weenen County, Natal (Rev. N. Roberts).

_Tetradactylus seps_ L.—This species has been several times recorded from Table Mountain and other localities in the Cape Division, and the
South African Museum has a specimen from Paarl; Roux records it from Knysna, and Smith stated that the species was "common in the grassy flats of the eastern districts of Cape Colony", but I think that it does not extend much beyond Knysna in an easterly direction, as the species has not been taken by the museums of eastern Cape Province.

*Tetradactylus tetradactylus* Lacep.—The South African Museum has records from the Cape Division, from Worcester, and from Robertson. Bocage has recorded it from Linokana (Transvaal), but I believe this to be an error (especially as he recorded *Scelotes bipes*, another Cape species, from the same locality), as no other worker has recorded this species from any other locality than south-west Cape Province.

*Tetradactylus africanus* Gray.—Bocage records this species from South Angola; the South African Museum has specimens from Namaqualand and from Natal, and the Natal Government Museum has it from Melmoth (Zululand).

*Cordylosaurus trivittatus* Pet.—The British Museum Catalogue cites Benguela, Damaraland, and Great Namaqualand; Bocage has it from south Angola; the South African Museum has specimens from Little Namaqualand, Clanwilliam, and Calvinia.

*Cordylosaurus subtessellatus* Smith.—Taken by the describer in Great Namaqualand.

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**LACERTIDAE.**

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**EREMIAS.**

**Ventrals in six longitudinal series; two large supraoculars, completely surrounded by granules.**

Lower eyelid scaly; occipital absent or minute; a curved bandlike scale on the supero-anterior border of the ear. Liver-brown above (blackish in the young), with yellow spots and three longitudinal stripes, sometimes broken up into spots, the median stripe bifurcating on the nape.

*E. lugubris* Smith.

**Ventrals in ten to sixteen longitudinal series; supraoculars usually in contact with the frontal.**

Lower eyelid with two large transparent scales; distance between loreal and first supraocular equal to or exceeding the length of the latter shield.

Ventrals in ten longitudinal series; dorsal scales smooth. Yellowish above, with five longitudinal dark-brown bands, the outer passing through the ear. *E. undata* Smith.

Ventrals in twelve or fourteen longitudinal series; dorsal scales keeled only on the hinder part of the body; scales on upper surface of tibia much larger than the dorsals; distance of loreal from first supraocular a little greater than length of the latter shield. Grey or brown above, with black and white ocelli, and sometimes a dark dorso-lateral band. *E. pulchella* Gray.

Distinct from pulchella in that the dorsal scales are keeled from between...
the shoulders; scales on upper surface of tibia scarcely larger than the posterior dorsals; distance of loreal from first supraocular usually much greater than length of latter shield. Supraoculars sometimes bordered entirely or nearly so with granules. Brownish above, often with four or six (with commencement of a seventh as a median dorsal streak) longitudinal blackish bands, each enclosing a series of pale spots; sometimes with irregularly arranged ocelli. *E. lineocellata* D.B.

**Lower eyelid granular, or with a number of more or less transparent scales.**

(1) *A curved bandlike scale on the supero-anterior border of the ear.* Ventrals in ten or twelve longitudinal series; lower eyelid transparent, with four or five plates of unequal size; distance between loreal and first supraocular equal to the length of the latter. Uniformly grey above, with some pale spots on the sides of the body. *E. inornata* Roux.

Ventrals in twelve longitudinal series; lower eyelid with a semi-transparent disk, formed of several scales; distance between loreal and first supraocular equal to or slightly less than the length of latter. Pale buff above, with four white streaks enclosed by five longitudinal blackish bands, the median one bifurcate on the nape; sometimes a series of whitish dots on the black bands. *E. namaquensis* D.B.

(2) *No bandlike scale on the supero-anterior border of ear.* Lower eyelid entirely granular; three large supraoculars; ventrals in twelve longitudinal series; occipital scale usually absent. Grey, with small black spots dorsally.

Lower eyelid with a semi-transparent disk formed of several small scales; ventrals in fourteen to sixteen longitudinal series; two or three small scales or granules between loreal and first supraocular; nasals feebly swollen; fronto-nasal separated from rostral; sixty-five to seventy-five scales across the middle of the back. Grey or brown above, with small or large black spots, sometimes forming three or four bands on the body, five on the nape, the bands extending on the head shields; round light spots along the black bands or among the black spots. *E. burchelli* D.B.

Differing from *burchelli* thus: four or five granules between the loreal and the first supraocular; fronto-nasal usually in contact with rostral; the nasals swollen; about fifty to fifty-five scales across the middle of the back. Coppery-brown above, with black reticulations sometimes confined to the sides; sometimes a light or dark vertebral band bifurcating on the nape, and one or two light lateral bands; occasionally general colour is blackish, with pale bands and spots. *E. capensis* Smith.

**Nucras.**

Adpressed limbs overlapping; ventrals in twenty-seven to thirty-three transverse series; forty to sixty-two dorsal scales across the middle of the body; a few granules between the supraoculars and supraciliaries. Upper parts brownish, with or without dark and light longitudinal lines; the sides usually dark-brown, with white vertical bars or pale round spots arranged in longitudinal rows and occasionally forming continuous lines; lower surfaces white, immaculate. *N. tessellata* Smith.
Adpressed limbs separated or only just meeting (in young overlapping); ventrals in thirty-three to thirty-seven transverse series; thirty-five to forty-three dorsal scales across the middle of the body; often no granules between the supraoculars and supraciliaries, but sometimes several. Grey or brownish above, with large black spots, sometimes confluent into irregular transverse bands on the back; the black spots with round white ones in the centre; lips with vertical black bars; lower surfaces white, usually black-spotted in the adult.

*Tropidosaura.*

Dorsal scales large, imbricate, strongly keeled; first supraocular largest, separated from loreal by a very small shield; nostril between two or three nasals; usually two superposed postnasals. Olive-brown above, with two dark and two light longitudinal streaks on each side; a more or less distinct dark vertebral streak.

_T. montana_ Gray.

*Ichnotropis.*

Frontonasal longitudinally divided; subocular not reaching the lip; occipital wanting or small; forty-six to forty-eight scales round middle of body. Copper-brown above, with two or three longitudinal series of small black and white spots on each side; the white spots sometimes confluent into longitudinal streaks.

*I. squamulosa_ Pet.

Fronto-nasal single; subocular bordering the lip; an occipital present; thirty-five to forty scales round the middle of the body. Yellow or reddish-brown above, with three longitudinal series of black spots on each side, more or less confluent into longitudinal bands, separated by pale streaks; the lower black band extending along the upper lip, and the conspicuous lateral pale streak passing through the ear.

_Differing from capensis in possessing longer limbs and shorter body, the adpressed hind limb reaching between the eye and ear; foot much longer than the head. Pale grey-brown above, tinged with orange laterally; a black streak along each side, starting from tip of snout and passing through the eye; another black streak along the upper lip, reaching only as far as the shoulder, and separated from the upper one by a white streak._

_I. capensis_ Smith.

_Scapteira._

(A) *Snout conical; ventral plates of body arranged in straight longitudinal series.*

(1) *A bandlike supratemporal shield; lower nasal forming a suture with the rostral.* Fronto-nasal (sometimes two) separated from rostral by the nasals; forty-two to sixty scales across middle of body dorsally; dorsal scales keeled in front, and posteriorly strongly so.

Yellowish-brown or olive above, with longitudinal series of whitish black-edged ocelli or black spots, usually confluent into four longitudinal bands; young with light and dark bands, the vertebral light band bifurcating on the nape; a series of round light spots along the dark bands.

*S. knozi_ M. Ed.

Fronto-nasal in contact with rostral; dorsal scales smooth, granular, obtusely keeled posteriorly, seventy to seventy-five across the body.
dorsally. Young are dark-brown, with five wide longitudinal white bands, the median bifurcating on the nape; adults with four longitudinal series of irregular black spots or reticulations, sometimes confluent into irregular bands, or indistinctly marked as in the young. *S. depressa* Merr.

(2) *Lower nasal separated from the rostral; no bandlike supratemporal shield.* Fronto-nasal separated from the rostral; three large supra-oculars; dorsal scales smooth between the shoulders, but obtusely keeled on the back; digits keeled inferiorly and strongly fringed laterally. Sandy-grey above, with blackish reticulations. *S. serripes* Pet.

(B) *Snout wedge-shaped; ventral plates forming oblique longitudinal series; lower nasal forming a suture with the rostral.*

Fronto-nasal not meeting the rostral; a lateral series of enlarged keeled scales on posterior part of the back forming a narrow band. Brown or orange above, a light dorso-lateral line and a broad dark-brown or red lateral band; the sides and limbs with white spots.

*S. ctenodactyla* Smith.

Fronto-nasal forming a suture with the rostral; no lateral series of enlarged scales. Grey or sand-coloured above, with darker network enclosing round lighter spots. *S. cuneirostris* Struch.

**Notes on certain species.**

*Eremias namaquensis* and *inornata.*—The South African Museum has specimens from Steinkopf and Naroep which agree with the description of *inornata* (Zool. Jahrb., 1907, 427). It is closely allied to *namaquensis* and may be only a variety of that species.

A point of distinction between the two species, according to the description, is furnished by the number of ventral scales in a transverse row, but out of three specimens of *inornata* two had ten ventral scales and one specimen had twelve, whilst on the other hand, though *namaquensis* has usually twelve, occasionally specimens appear which have only ten, though in other respects they are perfectly typical. However, in the series which I examined, the following differences obtained: in *inornata* the eye scales are of large size, fewer in number, and more transparent than in *namaquensis*, where these scales can be described as only semi-transparent; the scales on the tibia are larger and more strongly keeled than in *namaquensis*; the first supraocular is relatively longer in *namaquensis*.

The specimens of *namaquensis* are very constant in coloration; I have only seen one variation, and this had only one pair of dark streaks dorsally.

*Eremias pulchella* and *E. lineocellata.*—It is often a matter of no small difficulty to decide between these closely allied species when the material comes from a locality remote from the home of the typical form. In typical specimens of *pulchella*, as found in Little Namaqualand, the scales on the anterior half of the dorsal surface show no trace of keeling, and posteriorly they are only obtusely keeled. The colour marking is either a black dorso-lateral band or four rows of ocelli or small spots dorsally. In other parts of Cape Province the dorsal scales of *pulchella* may be much more pronouncedly keeled, and in a Tulbagh Road specimen (South African
Museum), which I refer to this species, the dorsal scales are obtusely keeled almost up to the shoulders.

On the other hand lineocellata, especially in southern localities, may vary in the direction of pulchella. But again, I have seen one specimen of Eremias, probably referable to lineocellata—identity not quite certain, as the head was badly damaged—which had all the dorsal scales strongly keeled, commencing from the hinder part of the head. This specimen came from Mochudi (Miss Wilman). Besides the above-mentioned character, the proportions of the supraoculars provide a good but not absolute method of distinguishing the two species. To the specific distinctions cited in the key may be added: anterior supraocular longer than, equal to, or more than half the length of the second supraocular in *E. pulchella*, but not much more than half the length of the second supraocular, or at any rate not equalling the second in *E. lineocellata*. But very rarely there appears a specimen of pulchella where the supraoculars are entirely surrounded by granules, and I have seen an example of this species which had the first supraocular only about half the length of the second. In *E. lineocellata* there is much variation in the number and size of the granules between the anterior supraocular and the loreal.

*Eremias burchelli* and *E. capensis*—These closely related species are easily distinguished by the character of the granules between the loreal and the first supraocular, and I believe by the number of scales in a transverse line dorsally; in *E. capensis* the fronto-nasal usually forms a suture with the rostral, but occasionally these two scutes are just separated. One specimen of *E. burchelli* has four white lines dorsally, the two median ones not fusing; another specimen also in the South African Museum has black reticulations, almost confluent into broad dorsal bands. In the collection of the Albany Museum there are three immature specimens of an Eremias which should probably be referred to burchelli. They agree together in many essential respects, and were taken by the same collector (B. J. Glanville), so that I believe they belong to one and the same species. Nevertheless, they exhibit certain differences which, if constant in a series of adult specimens, would be regarded as of specific importance. In one case the fronto-nasal meets the rostral, and the prefrontals form a median suture; in another case the rostral and fronto-nasal do not meet, and the prefrontals are separated by an azygos scale, and in the third case the fronto-nasal is cut off from the rostral, but forms a suture with the frontal. In the first case the condition of the scales between the loreal and the first supraocular is much as in burchelli, in the second case it more closely resembles capensis, and in the third case there is what might be described as an intermediate condition. The number of scales across the body dorsally is sixty to sixty-three, whereas according to the descriptions in the British Museum Catalogue burchelli has seventy to seventy-five and capensis has fifty to fifty-five. However, in a typical specimen of burchelli from Graaff-Reinet (Port Elizabeth Museum) there were sixty-five scales across the dorsal surface of the body. In the largest of the three specimens above mentioned the body is elongated, and the adpressed hind limb does not reach quite as far as the shoulder. The colour markings vary, and the only feature common to all three is a well-defined pale lateral streak,
commencing on the upper lip and passing through the ear. The Albany Museum has five specimens of *E. capensis* from Victoria West, presented by Mr. P. D. Morris. One of them has the supraoculars completely separated from the frontal by granules, and this specimen, which is of large size, has 57 scales across the body dorsally; the others have the dorsal scales varying in number from 52 to 54, and the supraoculars are in contact with the frontal. The colour characters of this series are: One large individual is light brown above with indefinite darker reticulations; the aberrant specimen first mentioned is brown with more pronounced dark reticulations, and has a median pale streak bifurcating at a little distance behind the shoulder, another thinner pale streak somewhat broken on the body starts from below the eye and goes to the tail, and a whitish band, starting from the upper lip, passes across the ear and ends at the base of the hind limb; the three half-grown specimens are blackish above with pale spots and whitish streaks, two of them being striped very much as in the last-mentioned individual, though in one case the lower lateral band is not marked out, whilst in the third example, instead of the bifurcating median band, there are two pale bands which converge a little posteriorly but do not fuse, and the lower lateral band is absent; in each of the four striped individuals there is a short anterior median pale streak starting from the occiput and ending in front of the bifurcation of the larger median band (just behind the shoulder in the aberrant half-grown specimen).

*Nucras.*—The two species of this genus are easily distinguishable in full-grown specimens by means of the relative proportions of body and limbs; in *tessellata* the body is relatively shorter, and the limbs, especially the posterior pair, longer than in *delalandi*; moreover, the characteristic colour markings of the two species are fairly constant. In young and half-grown specimens the determinations of the species may be a matter of some difficulty, for the body and limb proportions are more nearly alike, and the other structural characters may be of an intermediate nature, so that eventually the decision has to be based largely on the colour marking. In the specimens I have examined the scales of a transverse dorsal line were in *tessellata* usually more than fifty, but I have seen specimens with only forty-four, and the British Museum Catalogue cites forty to forty-eight. In *delalandi* they were usually from thirty-six to thirty-nine, but several specimens had as many as forty-three or even forty-four. As regards the character of the granules between the supraoculareas and supraciliaries, they appear to be always present in *tessellata*, and in *delalandi* they are often absent, but not infrequently individuals appear which in other respects are typically *delalandi*, but are precisely like *tessellata* in respect to this character. The colour marking of *tessellata* is fairly constant, even in the young or half-grown specimens, but I am inclined to believe that this species may rarely be ocellated, somewhat as in *delalandi*, but this is on the evidence of a single specimen, which I refer with some slight doubt to this species. The specimen in question is one of two individuals which were collected by Mr. F. A. Pym, at Modder River, near Kimberley. One of these is *tessellata* of normal appearance, but the other has moderate-sized black spots—not ocelli—dorsally, arranged much as in *delalandi*. This latter specimen has thirty-two transverse
rows of ventrals, and it agrees with the other specimen in having forty-four scales across the body dorsally, and there is a row of granules between the supraoculars and supraciliaries. The adpressed limbs just meet, and the hind limbs are large and long; the fourth supraocular is broken up into granules, which sometimes occurs in tessellata, but I have not met with it in delalandi, and there is an indication of the commencement of the same process in the other specimen; on the other hand it is in general habit somewhat different from the other specimen, and from ordinary tessellata, being appreciably stouter in head and body.

Miss Wilman has taken several specimens of tessellata in the Kimberley neighbourhood. They are normal in colour marking, and the dorsal scales number forty-six and forty-nine respectively. Another very doubtful specimen of this genus came from Shilouwane (Zoutpansberg District). In general build it resembles delalandi, but differs in that the body is relatively shorter, so that the limbs just overlap. In colour it shows a resemblance to delalandi, but nevertheless it is quite distinct from the normal forms of that species; it is ocelled dorsally, the ocelli having white centre and black margins, but they are arranged, though not very definitely, in longitudinal lines, the ocelli themselves being longitudinally elongated anteriorly. There is a thin pale black-margined mid-dorsal line, interrupted in places, and the belly is uniformly white. There are only thirty-one transverse rows of ventrals, and there are forty-four scales across the middle of the back, whereas four specimens, of same size, and coming from adjacent localities in the Zoutpansberg District (viz., Haenertsburg and Great Letaba River), are typically delalandi, and have the ventral rows varying in number from thirty-three to thirty-five, and the scales of a transverse row dorsally, ranging from thirty-seven to forty. The tail is thick as in delalandi, but the foot is elongated, much as in tessellata, and there is a couple of granules between the supraoculars and supraciliaries. On the whole I think this should be regarded as an immature form of delalandi, a conclusion which is based upon the general habitus of the specimen.

A juvenile specimen of a Nucras from Grahamstown presents an unusual type of colour marking; the dorsal surface is blackish, with eight (parts of ten) thin yellow longitudinal lines, and there are no spots or transverse markings at the sides. There are thirty transverse rows of scales ventrally, and forty-three scales in a transverse row dorsally. There is on each side a row of four granules between the supraoculars and the supraciliaries. The adpressed limbs overlap, but not greatly so. This specimen I refer to tessellata.

It is evident from the above that the two species are very closely related, and in some cases the distinctive characters do not appear until the individual is fully adult.

Ichnotropis capensis Smith.—This lizard is common on the veld in the Pretoria neighbourhood. It exhibits a very considerable seasonable variation in colour, the sombre attire of the winter season being in marked contrast to the brilliant hues of breeding specimens. The life colours of a breeding pair, taken on 14th October, 1909, are as follows: The male reddish-brown above; a series of ill-defined and almost confluent black spots dorso-laterally; more laterally a broad black band, starting from
the end of the snout and passing through the eye above the ear and going down the tail; more ventrally another prominent black band, arising from the tip of the snout and passing along the upper lip, and to the shoulder, whence the band is continued along the flanks to the thighs as a brilliant vermillion-red streak; these three bands enclose two pale streaks, the more dorsal one being white, and the lower one bright yellow in the head and neck region; ventrally white, except in the lower lip, gular region, and neck, where there is a decided yellow tinge. The female is similar, but not so brightly coloured, the yellow colour being absent, and the black and red bands less brilliant than in the male. Apart from the colour the sexes can be distinguished by the fact that the base of the tail is swollen in the male, and the preanal scutes are fewer but much larger than those of the female.

**Distribution of the Species.**

*Eremias undata* Smith.—This species was recorded by Smith from the arid sandy flats between Capetown and Little Namaqualand. Boulenger records it from the Richmond District of Cape Colony, and Fischer from Great Namaqualand.

*Eremias inornata* Roux.—The locality of the discoverer is Orange River, Lesser Namaqualand, and the South African Museum has specimens from Steinkopf and Naroep.

*Eremias lugubris* Smith.—According to Smith this occurs "in the arid districts immediately beyond the northern boundary of Cape Colony". It occurs in the Kalahari, Hereroland, and, according to Bocage, in south Angola. Tornier records it with a query from German East Africa. The Albany Museum has specimens from Palapye Road. In South Africa this species appears to be confined to the western parts.

*Eremias suborbitalis* Pet.—This was described from Damaraland and Great Namaqualand, and recently Roux records it from Lesser Namaqualand and from Matjesfontein (Cape Province.)

*Eremias namaquensis* D.B.—Described from Great Namaqualand, and since recorded from south Angola, from Lesser Namaqualand, from Modder River (Bocage), from Beaufort West (South African Museum), and from Kaffraria (British Museum Catalogue).

*Eremias pulchella* Gray.—Recorded by Boettger from Damaraland and Great Namaqualand, by Smith from the west coast of Cape Province near the Orange River, and known from Lesser Namaqualand, the Karroo, and Richmond district of Cape Province.

The South African Museum has specimens from Clanwilliam Division, from Paarl, Tulbagh, Ceres, Matjesfontein, Prince Albert Division, Middelburg, and Aliwal North. The Kimberley Museum has this species from Victoria West, and the Albany Museum has it from Colesberg.

*Eremias lineocellata* D.B.—We have specimens of this species from the following localities in the Transvaal: Pretoria, Irene, Pietersburg, and Krabbefontein (Zoutpansberg District), and it is recorded by Boettger from the Middelburg District. The South African Museum has a specimen from Natal, but the species probably has a very limited distribution in
that Province, as this is the only known record. Miss Wilman has taken
this species in the Kimberley neighbourhood and at Mochudi, and we
have a specimen from Hanover (Cape Province). Also we have this species
from Brandfort (Orange Free State) (A. K. Haagner), the only known
record from that Province.

Eremias burchelli D.B.—The locality given by Smith is Karroo Flats,
on the south-west coast of Africa, particularly Little Namaqualand,
towards Orange River. Roux records it from Matjesfontein, the South
African Museum has specimens from Clanwilliam and the Middelburg
districts, the Port Elizabeth Museum has a record from Graaff-Reinet,
the British Museum Catalogue cites Kaffraria, and Bocage records it from
Modder River.

Eremias capensis Smith.—Smith's record was: "arid Karroo flats
within Cape Colony, and of districts immediately beyond." Fischer states
Great Namaqualand, Roux records it from Lesser Namaqualand, the
South African Museum has a specimen from Matjesfontein, the Port
Elizabeth Museum has it from Graaff-Reinet, and Miss Wilman has it
from Victoria West.

Nucras tessellata Smith.—Of wide distribution in tropical and South
Africa, being recorded by Bocage from the high plateau and intermediary
zone of south Angola, by Boulenger from the south coast of Lake Victoria
Nyanza, by Tornier from German East Africa, and by Peters from Mozam-
bique. It extends southwards through Namaqualand, Rhodesia, Trans-
vaal, Orange Free State, Zululand, and Natal, into Cape Province, but
appears to be absent from the southern coastal districts.

According to Smith it is to be found throughout the districts on the
western coast of South Africa, particularly Little Namaqualand. Boulenger
records it from the Richmond district, the South African Museum has
specimens from the Clanwilliam, Calvinia, Worcester, and Robertson
districts, the Albany Museum has it from the Grahamstown neighbour-
hood and from Victoria West (P. D. Morris), and the Port Elizabeth
Museum from Graaff-Reinet.

Nucras dclalnudi M. Edw.—This species is common in the eastern
coastal districts of Cape Province, Port Elizabeth, Uitenhage, East London,
Grahamstown, and Kingwilliamstown. It occurs also in Pondoland,
Natal, Zululand, and the Transvaal. There are no records from the
south-western districts of Cape Province, nor from the interior districts,
excepting Burghersdorp (South African Museum). In the British Museum
Catalogue there is a record from Damaraland, but this is the only record
from that district known to me. There are no records of this species
north of the Limpopo, with the exception of one from Kakoma (German
East Africa) (Tornier), but as the solitary specimen on which the record
was based is juvenile it may perhaps belong to the other species.

Tropidosaura montana Gray.—The distribution cited by Smith is
"eastern Cape Colony and Kaffraria". We have the species from Table
Mountain (Mr. L. Taylor), and Mr. Pym has taken it in Pirie Forest, King-
williamstown.

Ichnotropis capensis Smith.—Recorded from north and south Angola,
common in the Kalahari Desert and in certain districts of the Transvaal
Ichnotropis longipes Boul.—The species was described from a Mashona-land specimen (P.Z.S., 1902, 2, 17). Mr. Chubb's records from Bulawayo and Khami River are based on incorrect identifications.

Ichnotropis squamulosa Pet.—This is an East African species, being recorded from German East Africa and from Nyassaland. It is known from several localities in Rhodesia (Hunyain River and Southern Rhodesia), from the Zoutpansberg, Barberton, and Rustenburg Districts of the Transvaal, and we have it also from Schweizer Reneke (Bloemhof District). The South African Museum has a specimen from Delagoa Bay, and the Natal Government Museum records it from Kosi Bay (Zululand). Boettger records it from Rehoboth (German South-West Africa), Smith took it in the Kalahari Desert, and Miss Wilman has the species from Mochudi.

Scapteira knoxi, M. Edw.—According to Smith this inhabits "arid Karroo country within the boundaries of Cape Colony". It has been several times recorded from British Namaqualand. Roux has it from Matjesfontein, and the South African Museum has specimens from the Cape Flats, Calvinia, Clanwilliam, Hanover, and Middelburg Divisions of Cape Province. The British Museum Catalogue cites also Johanna, one of the Comoro Islands.

Scapteira depressa Merr.—Recorded from several localities (Angra Pequena, Aus), in Great Namaqualand, and the South African Museum has specimens from Port Nolloth and Steinkopf in Lesser Namaqualand.

Scapteira serripes Pet.—Recorded from Damaraland and Benguela. The South African Museum has specimens from Lesser Namaqualand.

Scapteira ctenodactyla Smith.—This species is known from Great Namaqualand, Little Namaqualand, and Beaufort West.

Scapteira cuneirostris Strauch.—Only known from Damaraland.
ON THE ACULEATE HYMENOPTERA COLLECTED BY
MR. A. J. T. JANSE, NORMAL COLLEGE,
PRETORIA, IN THE TRANSVAAL.

BY P. CAMERON.

In this paper I have, with the exception of a few critical species left over
for further examination, enumerated and described the Aculeate Hymen-
optera collected by Mr. A. J. T. Janse, chiefly in the neighbourhood of
Pretoria (Transvaal). The number of new species is large, a fact not to
be wondered at considering how little we know about the hymenoptera,
as a whole, of Cape Province and of the Transvaal. As it is, the collection
does not contain many species already recorded from the Transvaal. Thus,
for example, Col. C. T. Bingham, in his paper in the Annals and Magazine
of Natural History, September, 1902, pp. 210, 211, records six species of
Bembex from the Transvaal, besides two from Nyassaland, while Mr.
Janse has only captured three species. There are also numerous widely
distributed species enumerated by Col. Bingham which have not yet been
taken by Mr. Janse. Nevertheless, Mr. Janse’s collection, comparatively
small though it is, forms a very valuable and welcome addition to our
knowledge of the South African hymenopterous fauna.

In recording the known species I have, to save space, given only the
reference to the original description, and to the works or papers wherein
their African distribution is given.

TIPHIIDAE.

Tiphia Fab.

_Tiphia transvaalensis_ sp. n.

Black mandibles; the apex of antennal scape, the flagellum, except
above towards the apex, the tegulae, apex of femora narrowly, and the
tibiae and tarsi rufous, the apex of the coxae and trochanters more or less
rufous; wings hyaline, very iridescent; the stigma and nervus black,
the stigma of a deeper black than the nervures. Head, antennal scape,
body, and legs covered with stiff long white hairs. Metanotum with
three keels, the outer slightly converging towards the apex, finely,
closely shagreened. Female.

Length, 7 mm.

Vertex sparsely, irregularly, the front closely and more strongly
punctured. Face and clypeus above shagreened, the apex of the latter
smooth. Basal slope of pronotum shagreened, the rest with scattered
punctures, especially in the middle. The mesonotum and scutellum are
more strongly punctured. The post-scutellum bears smaller scattered
punctures. Mesopleura with widely scattered punctures, except the
apex, which is finely, closely punctured. Propleurae impunctate, smooth,
and shining. Metapleurae closely, obliquely striated. Abdomen finely
punctured, the punctures becoming closer and stronger towards the
apex; the apical half of the last segment piceous and smooth.
MYZIINIDAE

MYZINE LATR. NON AUCT. = MEIRA AUCT.

Myzine (Meira) immaculatus, sp. n.

Black; the mandibles, except at the apex, labrum, antennal scape, tegulae, and legs rufo-testaceous, the basal three or four joints of the antennae of a darker rufous colour; the coxae black, except at the apex; wings fuscous-violaceous, the posterior pair paler, especially at the base. The antennal scape, occiput, apex of pronotum covered with short, the pleurae with longer rufo-fulvous hair; the apices of the ventral abdominal segments fringed with similar hair. Head smooth and shining, except the clypeus, which is opaque and closely, rugosely punctured. Pronotum closely, irregularly punctured. Mesonotum and scutellums smooth and shining. Metanotum closely, rugosely punctured, a furrow—smooth, deep, gradually narrowed towards the apex—down the middle of the basal half. Pro- and mesopleurae strongly, but not closely punctured, the hairs springing from the punctures. Abdomen finely, sparsely punctured, and with a transverse band of punctures across the apex; the last segment is aciculated and obscurely rufous or piceous towards the apex. Female.

Length, 13 mm.

Myzine (Meira) erythrostromus, sp. n.

Black, smooth, and shining. The head red, the tarsi of a darker red; an irregular transverse oval white mark on the sides of the second, third, fourth, and fifth abdominal segments, the marks becoming successively smaller; wings fuscous-violaceous, the posterior paler than the anterior; the nervures and stigma black; the pedicle of the second cubital cellule a little longer than the transverse cubital nervures, which are roundly curved; the recurrent nervure is interstitial; the antennal scape and base of pronotum covered thickly with longish fuscous hair; the pleurae, base of abdomen, its ventral surface more sparsely, and the legs thickly with white hair; mesopleurae closely, strongly punctured; the apex of metapleurae irregularly striated. The sides and apex of the metanotum somewhat strongly, broadly striated, the striae more or less curved; the smooth central basal part distinctly furrowed down the centre. Female.

Length, 16 mm.

Waterval No. 211, Zoutpansberg. November.

Mandibles and palpi black. Mesonotal furrows deep, converging slightly at the apex; the space between them, except in the centre at the base, punctured, the punctures large and clearly separated. Eyes slightly converging above; the hinder ocelli separated from each other by one-third the distance they are from the eyes. Scutellum strongly punctured, the apex smooth. Base of mandibles strongly, closely punctured; there is a wide furrow in front, near the middle. Calcaria pale, the tarsal spines pale rufous. Pedicle of basal abdominal segment twice longer than wide. Scutellum as long as the mesonotum, longer than it is wide at the base. The middle dorsal abdominal segments are tinged with piceous red. The
radius at its junction with the cubitus curves inwardly; the cubitus projects beyond it; the second recurrent nervure is obliquely sloped towards the stigma from below the middle; below the middle it is roundly curved; it is received at the base of the apical third.

Allied to *M. violaceipennis* Cam.*; in that species the mesonotal furrows commence near the base, the hair is black, as is also the oral region, and there is no white mark on the fifth abdominal segment.

**Plesia Jur.**

*Plesia reticulata* Cam.

Records Albany Museum, i, 300.

Waterval No. 211, Zoutpansberg. December.

*Plesia pacificatrix*, sp. n.

Black; the head and thorax densely covered with longish white pubescence, the abdomen with the white pubescence shorter and sparser, shorter and denser on the back in the centre; clypeus, mandibles except at the apex, a longish line, narrowed inwardly, on the sides of the pronotum, a narrower, continuous line of equal width on the apex, tegulae, an irregular, longish, triangular mark on the base of the mesopleurae, the narrow end above, the base straight, the apex irregular, with two slight rounded projections above the middle, the lower part straight; lines, dilated laterally towards the base, on the basal six abdominal segments, a broad curved line, rounded above on the sides of the seventh, nearer the apex than the base, and lines, dilated laterally, on the second to sixth, the central part of the first line narrow, the lateral dilatation triangular, straight, longitudinal on the inner side, the lines on the inner side roundly narrowed from the outer side towards the centre, and two small spots on the centre of the seventh, bright yellow; legs bright yellow; the coxae, trochanters, the basal half of the four front femora above, and the hinder more narrowly all round, and a line on the inner side of the tibiae, black; wings hyaline; the stigma rufo-testaceous; the nervures black; the third and fourth abscissae of radius equal in length; the recurrent nervures received at the same distance from the transverse cubital, the second recurrent roundly curved outwardly in the middle; the transverse cubital nervure in hind wings sharply, angularly broken above the middle. Male.

Length, 14 mm.

Waterval No. 211, Zoutpansberg. November.

Head and thorax closely, strongly punctured, densely covered with white pubescence; the mesonotum less and the metanotum more closely punctured than the head; clypeus with the apex broadly rounded; base of abdomen smooth, the rest punctured, the puncturation becoming gradually stronger towards the apical segment, which has the incision large, about one quarter longer than it is wide at the apex. The ventral segments are strongly punctured, the basal more closely, less strongly, and more regularly than the others.

* Records Albany Museum, i, 301.
Plesia transvaalensis, sp. n.

Black; the head and thorax densely covered with long white hair; mandibles except at apex, a small spot between the antennae, clypeus, a line on the base of the pronotum narrowed in the middle, a broader one of equal width on its apex, lines, dilated laterally, on the apices of the basal six segments, that on the second slightly, irregularly dilated in the middle, a line on the seventh, projecting at the apex along the incision, and with a small projection on the inner side in the middle, between the lateral lines, which are roundly curved and end in a sharp point at the base, the apex being broadly, roundly narrowed; the yellow lines on the apices of the second to fifth-ventral segments are broadly dilated laterally, that on the sixth is of almost equal width; there are two small spots on the seventh, all bright yellow; legs bright yellow; the coxae, trochanters, the four anterior femora, with almost the basal half above, the hinder less broadly all round, black; and there is a black line on the outer side of the four hind tibiae; wings clear hyaline, the stigma testaceous; the nervures black; the second abscissa of the radius is slightly longer than the third; the second transverse cubital is roundly curved posteriorly towards the second recurrent nervure, which has the anterior two-thirds and the posterior third slightly, obliquely sloped towards the apex of the wing; it is received at a distinctly less distance from the transverse cubital than is the first; the second recurrent curves obliquely outwardly to below the middle, where it is roundly curved; the lower part is sharply, obliquely sloped. The transverse median nervure in the hind wings is broken shortly above the middle, the lower and larger part is roundly, obliquely sloped. Male.

Clypeus strongly punctured, the punctures clearly separated, the apex with a shallow incision; front and vertex closely punctured, smooth at the sides of the ocelli; thorax closely, distinctly punctured; the metasternum more sparsely at the base, and more finely and closely at the apex; abdomen finely and closely punctured, the last stronger than the others, its incision large, about one-half longer than wide.

SCOLIIDAE.

Discolia Saus.

Discolia heterotrichia, sp. n.

Black; the hair on the head fuscous, on the top of the thorax of a darker fuscous colour; on the rest of the thorax, basal two dorsal abdominal segments, the apical in the centre, and on the basal ventral, black; on the sides of the third, fourth, and fifth dorsal, and narrower continuous bands on the whole of the first to fourth ventral, white; wings bluish-violaceous; the lower part of the apical cubital, the discoidal, anal, and the apex of the hind wings, hyaline. There is a reddish spot in the inner side of the eye incision, and the pygidium is red. Male.

Length, 19 mm.

Rietfontein No. 24, Pretoria District. December.
Head and thorax finely, closely punctured; the abdomen almost as strongly, but not so closely punctured; the apex of the scutellum is smooth. This species is very like *D. alaris* Saus. The two may be separated thus:—

The hair on the head and top of thorax fuscous, on the sides of the apical four abdominal segments white; a reddish spot on the eye incision; pygidium red *Heterotrichia*. The hair entirely black, eye incision immaculate, pygidium black. *Alaris* Saus.

**Discolia alaris** Saus.

Zoutpansberg District.

**Discolia melanaria** Burm.


**Discolia ruficornis**, var. *melanaria* Gribodo.


**Discolia pallidipilosella**, sp. n.

Black; the head, body, and legs densely covered with white pubescence; the third and following joints of the antennae red; the eye incision almost entirely, the mark prolonged shortly above and longer below along the outer edges, the mandibles broadly in the middle, and a narrow line on the outer orbits, yellowish-orange; wings fuscous violaceous. Male.

Length, 9-12 mm.


Upper part of the head sparsely, weakly punctured, the clypeus sparsely and much more strongly punctured. Pro- and mesonotum and the scutellum rather strongly and closely punctured, but with the punctures clearly separated; the centre of the scutellums narrowly smooth; the metanotum more closely and less strongly punctured, more sparsely at the central furrows. The calcaria are blackish, the tarsal spines white.

Looks like a small form of *D. ruficornis* F., but may be readily known by the hair being white instead of black.

**Discolia ruficornis** F.


**Discolia erythropygga** Burm.


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**Dielis Saus.**

**Dielis thoracica** F., var. *aureicollis* Lep.
Wáterstr. November.

_Dielis capensis_ Saus.

Black; the front, occiput, and the prothorax above densely covered with longish red hair; the rest of the thorax and the apices of the basal four abdominal segments covered with clear white hair, as are also the apices of the second, third, and fourth ventral segments; wings clear hyaline to the first transverse radial nervure, fuscous-violaceous beyond, the cloud roundly narrowed at the base; there is a cloud in the posterior wings which commences opposite the base of that in the anterior pair. Legs thickly covered with long white hair; the calcarea white. Female.

Length, 16 mm.


Head with a few scattered punctures at the ocelli and at the end of the vertex. Pronotum smooth; the mesonotum strongly punctured; a line of punctures on the base of the scutellum, and a larger, wider one on the sides of the apex; the middle of the post-scutellum is smooth, the sides at the base punctured, and there is a line of punctures at the apex. Metanotum more closely, but not so strongly punctured as the mesonotum. Abdomen smooth, shining, and with a violaceous tinge; before the apex of the segments is a transverse line of punctures, each bearing a white hair; the last segment is strongly, closely, longitudinally punctured.

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**POMPILIDAE.**

**Salius Fab.**

Black; the antennae, head, mandibles, palpi, the prothorax, except a black line down the centre of the pronotum, a broader one across its base and a still broader and more irregular one across the base of the prothorax, the mesopleurae, except round the edges, a small curved line in the centre of the metapleurae at the apex, the fifth and following segments of the abdomen, and the legs, yellowish-testaceous; wings deep fuscous-violaceous; the nervures black; the third abscissa of radius as long as the basal two united; the second recurrent nervure received shortly before the middle, roundly curved outwardly in the middle. Claws with two teeth. An irregular black line across the vertex, enclosing the ocelli and united to the eyes. Female.

Length, 20 mm.

Zusterstoom, Zoutpansberg. February.

The third joint of the antennae is nearly as long as the following two united; eyes distinctly converging above; the hinder ocelli separated from each other by about the same distance as they are from the eyes. Apex of clypeus transverse, with the sides broadly rounded; labrum large, semicircular; occiput broadly rounded, not much developed; apex of pronotum broadly rounded, margined with black, a shallow furrow down its centre; mesonotum and scutellum flat, smooth,
and shining; metanotum closely, transversely, not very strongly striated, the striae extending on to the upper half of the metapleurae; it is densely covered with black hair; the apex is transverse; the apical segments are covered with fulvous hair; the long spur of the hind tibiae does not reach to the middle of the metatarsus; the serration on the tibiae is not very strong; the tarsi are more strongly spinose.

Allied to S. jamisieri Guér. That species has no black line across the vertex, the mesonotum and scutellum are rufo-testaceous, the third antennal joint is shorter compared with the fourth, it being not much longer than it, the base of the pronotum is more distinctly rounded, not transverse as in lineaticollis, and it is densely covered with golden pile.

Salius dedjas Guér.

Pinetown, Natal. May. A small specimen, half the usual size.

Salius spectrum Smith.

Waterval. October.

Salius hilaris Sm.

Descr. of New Species of Hymen., 144, 16 (Pompilus).
Pietersburg. November.
A male is probably this species, at any rate it agrees with Smith’s short description, except that the apex of the abdomen is not ferruginous. The second abscissa of the radius is about one-fourth longer than the third; the third transverse cubital nervure is received near the base of the apical fourth; the second is broadly rounded outwardly, and is received shortly beyond the middle of the cellule; the transverse median nervure is rounded outwardly, and is received about three-fourths of the length of the latter beyond it; the accessory nervure in the hind wings is interstitial. Hinder ocelli separated from each other by one-half less the distance they are from the eyes. Tibiae and tarsi closely spinose; claws with a short tooth near the base; the apices of the tarsal joints are blackish, as are also the palpi. Only the scape of the antennae is present. The labrum is ferruginous.

Salius irenensis, sp. n.

Black; the antennae orange-red; a narrow line on the inner orbits, commencing at the ocelli and extending to the bottom, rufo-testaceous; the greater part of the outer orbits and of the occiput dark rufous; the fore femora from shortly before the middle, the apex of the four posterior, and the tibiae rufo-testaceous, as are also the tarsi, except the apices of the joints, which are black; wings fuscous-violaceous; the stigma and nervures black. The second abscissa of the radius fully twice the length of the third; the first transverse cubital nervure roundly curved; the
second straight, oblique; the third from shortly below the middle sharply, obliquely bent towards the base of the cellule; the first recurrent nervure is received close to the apex, the second shortly beyond the middle of the cellule, and is broadly rounded outwardly; the transverse median nervure is received distinctly beyond the transverse basal; the accessory nervure in the hind wings received very shortly before the cubitus; the hind ocelli are separated from each other by about half the distance they are from the eyes; head and thorax covered with black hair; claws with a stout basal tooth, shorter than the other; on the hinder legs this tooth is shorter and more slender. Male.

Length, 12–15 mm.

POMPILUS FAB.

Pompilus bretoni Guér.


I have an example of this widely spread African species from the Transvaal, and Mr. Janse has taken examples at Rietfontein in September, and at Pretoria, which have only the apical six or seven joints of the antennae rufous below, while in the type the flagellum is entirely rufous. The outer orbits may be lined with rufous.

Pompilus ancylineurus, sp. n.

Black; the antennae reddish-vermilion; the head, except the centre of the vertex and the front broadly, the mark roundly narrowed below, the apical half of the pronotum, tegulax, apex of mesonotum, scutellum, apical two segments of the abdomen, the fore femora except at the base, the apical half of the middle, the apex of the posterior, and the tarsi, ferruginous; the apices of the tarsal joints narrowly black; wings yellowish-hyaline; the apex from the second transverse cubital nervure, the radial cellule from the middle of the second abscissa of the radius, from shortly beyond the second recurrent nervure, and more broadly along the posterior margin, and about the apical fourth of the posterior wings fuscous, slightly tinged with violaceous; the second abscissa of the radius hardly one-fourth longer than the third; the first transverse cubital nervure almost straight, obliquely sloped; the second roundly curved backwards, the posterior part straight, oblique; the anterior half of the third obliquely sloped towards the base; the first recurrent nervure received in the apical fourth; the second in the middle of the cellule; the transverse median nervure interstitial; the accessory nervure in hind wings received shortly beyond the cubitus; hinder ocelli separated from each other by about the same distance as they are from the eyes. Apex of clypeus transverse, with the sides broadly rounded; apex of pronotum angled in the middle;
metanotum opaque, densely covered with black hair, the apex rounded; scutellum not much raised above the level of the mesonotum; temples broadly rounded, the occiput transverse. Female.

Length, 14 mm.
Doornfontein. November.
The third joint of the antennae is fully one-quarter longer than the fourth. Pygidium sparsely covered with longish black hairs.

**Pompilus erythrous** Cam.

**Anoplius (Pompilogastra ?) erythrous** Cam.—Records Albany Museum, i, 219.

**Pompilus desidiosus**, sp. n.

Black; the apical two-thirds of the hind femora and the hind tibiae red; the post-scuteellum and the sides of the apical slope of the metanotum densely covered with white pubescence; wings fuscous-violaceous; the stigma and nervures black; the third abscissa of the radius one-fourth of the length of the third; the second and third transverse cubital nervures broadly rounded, converging in front; the basal two abscissae of the radius broadly rounded; the third straight, oblique; the first recurrent nervure is received in the apical fourth, the second in the middle of the cellule; the transverse basal nervure interstitial; the accessory nervure in the hind wings received shortly beyond the cubitus, almost interstitial; hinder ocelli separated from each other by a slightly greater distance than they are from the eyes; apex of clypeus transverse; labrum large, semi-circular; the long spur of the tibiae is more than half the length of the metatarsus. Female.

Length, 9 mm.
Rietfontein. January.

Temples very short; the occiput not transverse; apical slope of metanotum depressed in the middle, the sides broadly rounded; claws bifid.

**Pompilus jansei**, sp. n.

Black; the head, with the mandibles, except the teeth and the antennae, dull-red; the prothorax more or less of a duller red; wings uniformly fuscous violaceous; the stigma and nervures black; the first and third transverse cubital nervures broadly, roundly curved; the recurrent nervures received in the middle of the cellules; the transverse median nervure roundly curved, received distinctly beyond the transverse basal; the accessory nervure in the hind wings received very shortly before the cubitus; the long spur of the hind tibiae one-third of the length of the metatarsus; claws bifid, the shorter claw stouter than the other. Female.

Length, 12 mm.
Waterval No. 211, Zoutpansberg District. November.

Clypeus transverse, the apex margined; labrum distinctly projecting; hinder ocelli separated from each other by the same distance as they are from the eyes; temples broadly rounded, densely covered with a silvery
pile; pubescence sparse and black; apical slope of metanotum finely, distinctly, and closely striated; abdomen as long as the head and thorax united, a little wider than the latter; pygidium finely, closely punctured; tibial and tarsal spines stout, the tarsi with the spines much more numerous and stouter than they are on the tibiae; they are longer on the apices of the joints; on the fore tarsi they are longer than on the others.

**Pomphilus comodus**, sp. n.

Black; a narrow, yellowish-white line on the apex of the pronotum; the spurs brown; wings hyaline, a fuscous-violaceous cloud on the apex, commencing at the apex of the radial cellule; the nervures and stigma black; the second cubital cellule large; the second abscissa of the radius almost four times longer than the third; the first recurrent nervure received in the apical fourth of the cellule; the transverse basal nervure intersitial; the accessory nervure in the hind wings received before the cubitus; pronotum, head, and coxae covered with moderately long, the metanotum more densely with longer white hair; hinder oceli separated from the eyes by almost the same distance as they are from each other. Male.

Length, 10 mm.

Warmberg, Zoutpansberg District. November.

Very similar to *P. longihirtus*, but readily known by the white line on the pronotum, and by the difference in the alar neuration; eyes almost incised on the inner side; apex of clypeus broadly rounded; the long spur of the hind tibiae two-thirds of the length of the metatarsus.

**Pomphilus longihirtus**, sp. n.

Black; the mandibles, except the teeth, and the underside of the basal three joints of the flagellum, dull-rufous; the tibiae and tarsi brownish; the spines brownish; wings hyaline, a curved cloud beyond the radius; the stigma and nervures black; the second abscissa of the radius fully one-third longer than the third; the transverse median nervure intersitial; the first recurrent nervure received at the base of the apical third of the cellule, the second very shortly beyond the middle; the second recurrent nervure broadly, roundly curved in the middle; the first and third transverse cubital nervures broadly, roundly curved, the second straight, oblique; the accessory nervure in the hind wings received before the cubitus; head, thorax, and apices of the abdominal segments covered with a silvery pile, the head, pronotum, and metanotum with longish white hair, the hair on the metanotum longer than on the head or pronotum; the eyes distinctly converge above; the oceli in a curve, the hinder separated from each other by a greater distance than they are from the eyes. Apex of clypeus broadly rounded; the long spur of the hind tibiae almost three-fourths of the length of the metatarsus; the claws sub-bifid. Female.

Length, 11 mm.

Warmberg, Zoutpansberg District. March and November.

Basal joint of fore tarsi with four long spines; pygidium covered with depressed silvery pile.

**Pomphilus acutiangulatus**, sp. n.

Black; the basal two abdominal segments and two large semicircular
marks on the basal half of the third, united at the base, reddish-orange; the base of the first black; a pale fuscous mark down the centre, united to a transverse narrower one on the apex; in the centre of the third is a semicircular fuscous mark; on the apex a broad transverse line, dilated in the middle, united to the basal central mark; the basal two ventral segments paler orange; wings fuscous-violaceous; the stigma and nervures black; the second cubital cellule shortly appendiculated; the first and third transverse cubital nervures roundly curved, the second almost straight, obliquely sloped; the transverse median nervure received very shortly beyond the transverse basal; the first recurrent nervure received near the apex, the second in the middle of the cellule; the anal nervure at the base is turned acutely downwards, forming a sharp angle; radial cellule wide; the basal two abscissae roundly curved, the third (which is shorter than the basal two united) straight, obliquely turned upwards; accessory nervure in the hind wings interstitial. Female.

Length, 11 mm.

Waterval No. 211, Zoutpansberg District. November.

Face and clypeus covered with a grey silky pile; the apex of clypeus transverse; eyes distinctly converging above; the hinder ocelli separated from each other by the same distance as they are from the eyes; pronotum large, as long as the mesonotum; metanotum more opaque than the mesonotum, its sides broadly rounded; tibial and tarsal spines black; the basal joint of the fore tarsi closely spinose below; there is no furrow on the metanotum, but its apical slope is slightly depressed, nor is there a furrow on the pronotum; the mandibles are broadly red in the middle. Allied to *P. proximatus* Sm.

**Pompilus leptacanthius**, sp. n.

Black; the basal six or seven joints of the antennae, the apex of the clypeus and of the labrum, mandibles, except the teeth, and the legs, red; the fore coxae behind, the middle, except broadly on the outer side, and the hinder, black; palpi dark testaceous; wings hyaline, distinctly tinged with violaceous; the stigma and nervures black; the apex from the end of the stigma clouded; the second abscissa of the radius hardly one quarter shorter than the third; the first transverse cubital nervure broadly, roundly, obliquely curved towards the fore part of the second, which is straight and oblique; the first recurrent nervure received near the base of the apical third, the second in the middle; the transverse basal nervure and the accessory interstitial. Female.

Length, 11 mm.


Eyes distinctly converging above, separated there by the length of the third antennal joint; hinder ocelli separated from each other by the same distance as they are from the eyes; apex of clypeus broadly rounded, as is also the apex of the pronotum; there is a fine longitudinal furrow outside the middle of the mesonotum; the apex of the metanotum forms a shallow, semicircular depression; temples short, broadly rounded; there are five long spines on the basal joint of the fore tarsi.
Homonotus Dbm.

Homonotus spoliatus, sp. n.

Black; a narrow but distinct line on the inner and outer eye orbits, the prothorax, mesonotum, scutellum, and tegulae, ferruginous; the wings uniformly fuscos-violaceous; the first abscissa of the radius longer than the third, which is half the length of the second; the first and second transverse cubital nervures obliquely sloped, the first more rounded than the second; the recurrent nervures received in the middle of the cellules; the transverse basal interstitial; the accessory nervure in the hind wing received very shortly before the cubitus; temples almost obsolete, the occiput slightly rounded outwardly; pronotum as long as the mesonotum and scutellum, the metanotum slightly longer than them; the third joint of the antennae shorter than the fourth. Male.

Length, 9 mm.

Waterval No. 211, Zoutpansberg District. November.

Metanotum as long as it is wide at the base; its sides at the apex bluntly, triangularly projecting; hinder ocelli in pits, separated from each other by a distinctly greater distance than they are from the eyes; apex of clypeus broadly rounded, the top more bluntly rounded; the long spur of the hind tibiae three-fourths of the length of the metatarsus; claws unequally bifid.

Aegina Schiodte.

Aegina varipalpis, sp. n.

Black; the head and pronotum densely covered with longish fuscos pubescence; smooth, shining; the metanotum closely, not very strongly, transversely striated; the basal five joints of the antennae, apical three-fourths of the mandibles, and the legs, red; the coxae and trochanters black; the apex of the second and the whole of the third joint of the maxillary palpi dark testaceous, the joints covered with a white pile; wings uniformly fuscos-violaceous; the stigma and nervures black; the second abscissa of the radius fully one-quarter longer than the third; the basal two transverse cubital nervures broadly, roundly curved; the apical abscissa of the radius straight, obliquely turned upwards; the first recurrent nervure received shortly before the base of the apical third of the cellule, the second broadly, roundly curved outwardly, received near the base of the basal third; the transverse median nervure is received shortly beyond the transverse basal; the accessory nervure in the hind wings shortly before the cubitus. Female.

Length, 12 mm.

Button's Kop. October.

Eyes slightly converging above, separated at the top by the length of the basal two joints of the flagellum; hinder ocelli separated from each other by half the distance they are from the eyes; temples sharply, roundly narrowed; the occiput transverse; clypeus wider than long, gradually narrowed to a point at the apex; the apical margin smooth and shining,
more broadly so in the middle; the tibiae and tarsi bear short black spines; the apical joint of the latter blackish; the long spur of the hinder calcaria does not reach to the middle of the metatarsus; third joint of the antennae fully one-fourth longer than the fourth.

*Agenia ornaticollis*, sp. n.

Black; the antennae, head, mandibles, palpi, prothorax, mesonotum, scutellums, the apex of the fourth and the whole of the following abdominal segments, and the legs, rufu-testaceous; wings hyaline; the stigma and nervures black; the third abscissa of the radius hardly one-quarter longer than the second; the first recurrent nervure received shortly beyond the middle, the second near the apex of the basal third of the cellule; the transverse median nervure distinctly beyond the transverse basal; the accessory nervure in the hind wings very shortly before the cubitus; there is a semicircular black spot in the centre of the base of the pronotum, and a smaller, somewhat triangular one in the middle of the propleurae; metanotum weakly, finely, transversely striated. Female.

Length, 11 mm.

Pretoria. November.

Eyes converging above, separated there by the length of the second and third antennal joints; hinder ocelli separated from each other by half the distance they are from the eyes; temples roundly narrowed; the occiput hardly transverse; apex of clypeus narrowed to a blunt point; the long spur of the hind tibiae is one-third of the length of the metatarsus; the tarsi are more densely covered with short black spines than the tibiae; the first transverse cubital nervure is oblique, slightly rounded, the second is straight, oblique.

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**Pseudagenia Kohl.**

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*Pseudagenia brunniceps* Lucas.

Die Hymen. Ost. Afrikas., Pompilidae, 60; Cameron, Sjöstedt, D. Kilimandjaro, 259.

Warmberg, Zoutpansberg District. September.

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**Aporus Spin.**

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*Aporus leucotrichius*, sp. n.

Black; the prothorax, except on the lower part, the mesonotum, and the tegulae, red; the wings fuscous, darker tinted beyond the second transverse cubital nervure; the stigma and nervures black; the transverse median nervure roundly curved outwardly, received shortly beyond the transverse basal; the two transverse cubital nervures broadly, roundly curved; the first nervure more bent than the second; the first recurrent nervure is received near the apex of the basal fourth of the cellule, the second slightly nearer the apex; the accessory nervure in the hind wings
is received shortly before the cubitus; the inner eye orbits from the antennæ to near the top are lined narrowly with pale yellow; the hinder ocelli are separated from each other by almost the same distance as they are from the eyes; temples almost obsolete, the occiput transverse; clypeus, face, scutellums, and the parts bounding them, densely covered with white pile; apical slope of metanotum densely covered with depressed white pubescence; tibial and tarsal spines long and black; the long spur of hind calcaria three-fourths of the length of the metatarsus. Male.

Length, 7 mm.
Pietersburg. December.

The eyes are curved on the inner side, and converge distinctly below; the antennal scape is yellowish-white in the centre below; the third antennal joint is nearly as long as the fourth.

**Jansea, gen. nov.**

Wings without a radial cellule; there are two cubital cellules; the two transverse cubital nervures are united to the stigma by a short pedicile, the second cubital cellule being narrowed to a point in front; it receives both recurrent nervures; there is no radius; the cubitus does not extend to the apex of the wings; the discoidal nervure is short; in the hind wings the radial, cubital, and diskoidal nervures are present, and extend to the apex of the wings, but there is no transverse cubital nervure; the accessory nervure is short; head, as in Pompilus, wider than the thorax; there is no malar space; tibiae spineless; abdomen sessile; claws simple; ocelli in a wide triangle; hind tarsi long, the basal two joints united as long as the tibiae; the anal nervure is straight, not curved down at the base.

The head and body are as in Pompilus. It is a genus easily recognized by the absence of a radius, and by the two transverse cubital nervures being united direct to the stigma. In the described genera they are united to the radius.

**Jansea longitarsis, sp. n.**

Black, shining, probably when fresh covered with a silvery pile; wings hyaline to the second transverse cubital nervure, fuscos to beyond it; the stigma and nervures black; the first transverse cubital nervure is roundly, obliquely curved towards the cubitus; the second is broadly rounded outwardly; apex of clypeus transverse, with the sides at the apex rounded; temples broad, rounded; the occiput not transverse; the third joint of the antennæ about one-fourth longer than the fourth; pronotum as long as the metanotum, and a little longer than the mesonotum with the scutellum. Male.

Length, 6 mm.
Pretoria. December.

Palpi long and black; the fore coxae are thicker and longer than the others; apex of metanotum broadly rounded; the first recurrent nervure is received close to the base, the second at double the distance from the apex.
SPHEGIDAE.

Astata Latr.

Astata albipilosella, sp. n.

Black; the first abdominal segment, except the basal slope, the second and third segments, red; the apices of the others piceous; the wings hyaline; the stigma and the nervures beyond its base pallid testaceous; the head, thorax, and base of abdomen densely covered with white pubescence; the ventral surface of abdomen, the apices of dorsal segments, and the legs, more sparsely haired; the hind tibiae and tarsi covered, but not thickly, with stiff black spines; metanotum closely reticulated, the basal striae roundly curved; the apical slope is more finely reticulated; mesonotum and apical half of scutellum closely punctured; the base of scutellum smooth and shining; front closely punctured, a wide furrow, with obliquely sloped sides, down its centre; the clypeus is more shining and closely punctured. Male.
Length, 11 mm.

Tachytes Panz.

Tachytes argenteovestita, sp. n.

Black; densely covered with silvery white hair, the pygidial area with depressed golden pile; the palpi and calcaria rufo-testaceous; the tibial and tarsal spines of a paler rufous colour; wings hyaline; the stigma and nervures testaceous; the radius thickened at the base, not much shorter than the second and third united; the second one-third of the length of the third; clypeus closely, distinctly punctured, the apical half more strongly than the basal; mesonotum alutaceous, the scutellum closely, distinctly punctured. Female.
Length, 14 mm.
Pietersburg. December.
The eyes converge above, separated there by the length of the basal two joints of the flagellum united. The silvery pile forms distinct bands on the apices of the abdominal segments. The middle of the clypeus is almost transverse; there is no distinct puncturation on the front and vertex; the first joint of the fore tarsi has six, the second and third two, the fourth one spine; there is no clear appendicular cellule in the fore wings.

Notogonia Costa.

Notogonia aterrima Sm.

Larrada aterrima Smith.—Cat. Hym. Ins., IV, 282, 27.
Pietersburg. December.
A distinct species. Characteristic is the clearly defined furrow down the basal half of the mesonotum. The wings have the apex clouded; the first abscissa of the radius is nearly as long as the second and third united;
the second about half the length of the third; the radial cellule short and wide, extending to the apex of the cubitus; the apical abscissa of the radius larger than usual, straight; the appendicular cellule longer than usual; there is a distinct, clearly defined furrow down the lower half of the front; the first transverse cubital nervure is broadly, roundly curved.

*Notogonia transvaalensis*, sp. n.

Black; densely covered with silvery pubescence, dense on the face, clypeus, and orbits; wings hyaline, tinged with violaceous; the apex with a fuscous margin; the nervures black; the second abscissa of the radius about one quarter shorter than the third; the apex of radius straight, obliquely sloped; the two recurrent nervures almost united at the cubitus, received at the apex of the basal third; the lower part of the first transverse cubital nervure is straight, obliquely sloped; the upper (and longer) is more sharply oblique, and slightly, broadly rounded; mesonotum and scutellum finely, minutely punctured; the metanotum with a fine keel down the basal half, the keel becoming finer towards the apex; it is obscurely, finely, transversely striated, the striae stronger and more widely separated on the sides of the apical half; the apical slope is more distinctly striated, the striae clearly separated and stronger on the sides; there is a closely striated belt on the centre of the basal half of the metapleurae, the striae longer on the middle; pygidium covered with silvery pubescence, closely, rather strongly striated, the lateral striae curved. Female.

Length, 12 mm.


Tibial and tarsal spines stout, black; the apex of the hind tibiae and the base of the outer hinder spur covered with pale golden pile.

*Notogonia brevicarinata*, sp. n.

Black; covered with silvery pile; the wings hyaline, distinctly tinged with violaceous; the apical margin in both wings clouded; the basal abscissa of the radius about one quarter shorter than the following two united; the second half the length of the third; the second recurrent nervure is received near the apex of the basal third; the two recurrent nervures are separated by slightly more than half of the second abscissa of the radius; the fore half of the first transverse cubital nervure is more obliquely bent than the posterior, and is slightly, roundly curved. On the centre of the basal fourth of the metanotum is a stout longitudinal keel, bordered by fine striae; the apical slope bears fine, widely separated striae; the lower apical part of the metapleurae irregularly, obliquely striated; the third and fourth joints of the antennae are equal in length; the eyes at the top are separated by the length of the third and half the length of the second antennal joints united; apex of clypeus broadly rounded; the vertical and longitudinal furrows on the mesopleurae smooth; pygidium twice longer than it is wide at the base. Female.

Length, 12 mm.

Pretoria. June.
**Notogonia pretoriaensis**, sp. n.

Black; covered with silvery pile, which forms broad bands on the apices of the abdominal segments; wings hyaline, distinctly tinged with violaceous; the stigma and nervures black; the first abscissa of the radius as long as the following two united; the second fully half the length of the third; the two recurrent nervures are almost united, and are received very shortly beyond the apex of the basal third; the first transverse cubital nervure is obliquely sloped, the anterior half slightly rounded, the posterior straight; it is bullated near the radius and below the middle; the base of the metanotum is weakly, the sides towards the apical slope more strongly striated; there is a longitudinal keel down the centre of the basal half; the apical slope is more strongly and regularly striated; the metapleurae not striated; the calcaria, tibial, and tarsal spines black; the claws without a tooth. Female.

Length, 14 mm.

Pretoria. May.

Base of mandibles densely covered with depressed white pile; palpi black, covered with white pile; the second and third joints united are as long as the scape; the third is a little longer than the fourth; the eyes at the top are separated by the length of the third antennal joint; the furrow down the base of the mesopleurae is distinct and closely crenulated; the longitudinal furrow is distinct and smooth; apex of clypeus broadly rounded, depressed in the middle; the wings are uniformly coloured; the radial cellule moderately long and wide.

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**Liris Fab.**

**Liris nigropilosellus**, sp. n.

Black; densely covered with black pubescence, which is longer and denser on the metathorax; wings uniformly fuscous-violaceous; the stigma and nervures black; palpi black; the apices of the joints testaceous; mesonotum and scutellum closely, distinctly punctured, the punctures distinct and clearly separated; the punctures on the scutellum more widely separated than they are on the mesonotum; the metanotum is more closely, regularly, and strongly punctured, as are also the pleurae; the abdomen is finely and closely punctured; the pile on the pygidium is black; eyes distinctly converging above, separated there by less than the length of the second and third antennal joints united; the first abscissa of the radius as long as the third; the second as long as the space bounded by the recurrent nervures, which is as long as the space bounded by the first transverse cubital and the first recurrent nervures; the second recurrent nervure is received shortly beyond the middle; the first transverse cubital nervure is broadly, roundly curved behind; the second at its junction with the cubitus is straight, forming an angle with the much larger anterior part; tibial and tarsal spines black. Male.

Length, 19 mm.

Rietfontein. November.
**Liris haemorrhoidalis F.**


Kranspoort. December.

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**AMMOPHILA KIRBY.**

**Ammophila ludovicus Sm.**


Kranspoort. December. One example of this well-marked large species.

**Ammophila ferrugineipes Lep.**


Waterval No. 211, Zoutpansberg District. December.

**Ammophila pulchricollis, sp. n.**

Black, densely covered with silvery pile; the antennal scape, the second joint, clypeus, mandibles to near the teeth, malar space, pronotum, except for a narrow line behind the middle, propleurae, tubercles, and tegulae, red; the legs and the basal three segments of the abdomen of a more ferruginous red; the hind coxae, except above, narrowly at the apex; their sides, except for a triangular space at the base and the apex narrowly; a broad line on the hind femora, commencing near the base, where it extends all round, and extending above to the base of the apical fourth, black; the hind tarsi of a darker red colour; the base of the second abdominal segment and its apex more broadly, the fourth and following segments, except narrowly at the apex, and the fourth to sixth ventral, black; wings hyaline, slightly tinged with fulvous; the nervures black; the second abscissa of the radius as long as the first and twice the length of the third; the third transverse cubital nervure broadly, roundly curved in a semicircle; the second is slightly, roundly curved, and slopes a little from the front; the first is obliquely sloped and broadly, roundly curved; the first recurrent nervure is received shortly before the middle; the second at the base of the apical fourth; mesonotum irregularly, transversely striated, the scutellum more finely and closely longitudinally striated; the metanotum irregularly, weakly striated laterally. Male.

Length, 22 mm.

Masemola.

Eyes slightly converging above; apex of clypeus broadly rounded, depressed, almost furrowed; the clypeus is short and broad; pronotum as long as the mesonotum; the basal third narrowed.
Ammophila transvaalensis, sp. n.

Black; the head and thorax densely covered with silvery pubescence and hair; the antennal scape, mandibles except the teeth, prothorax except at the base narrowly, tubercles, tegulae, and the legs, red; the anterior femora at the base behind, and the middle coxae, trochanters, femora, tibiae, and the hind legs behind, black; wings hyaline, distinctly tinged with violaceous; the nervures black; the first abscissa as long as the second, the third one-quarter of their length; the third transverse cubital nervure being obliquely curved from below the middle towards the top of the second; the first recurrent nervure received near the apex of the basal third; the second received half the distance from the second; mesonotum obscurely, transversely striated; the scutellum longitudinally, finely rugose, a distinct smooth furrow down its centre, the base of the furrow rounded, the apex acute; post-scutellum rugosely punctured; metanotum transversely, irregularly striated laterally; the centre more finely reticulated; there is no distinct central area; pleurae closely, not very strongly, punctured, the puncturation hid by the dense white pubescence; they are more densely pilose than the upper parts of the thorax. Male.

Length, 24 mm.

Eyes slightly converging below; clypeus longer than wide, its apex slightly, widely incised, or at least not transverse; there is a smooth tubercle in its centre; third antennal joint about one-fourth shorter than the fourth and fifth united; tarsal spines strong.

Allied to A. ferrugineipes Lep.; that species may be known from it by the basal five or six joints of the flagellum being red, by the clypeus being red, by the third transverse cubital nervure being more gradually rounded to the bottom, by the basal abscissa of the radius being about one-fourth longer than the second, and the hind tibiae and tarsi are red, not black, nor is there a distinct smooth furrow down the centre of the scutellum.

Ammophila maculifrons, sp. n.

Black; the head red, except for a large mark on the front, wider than long, not extending to the lower edge, nor to the eyes, and above extending shortly behind and enclosing the ocelli; below a line runs down the middle to the antennae; the basal four joints of the antennae, the fifth except above, the raised apical part of the prothorax, tegulae, and tubercles, red; the apical four segments of the abdomen blue; the legs red; the coxae, trochanters, and femora above, black; the hinder femora more broadly and longly above, and also broadly below, black; wings hyaline, the apex tinged with fuscous, the rest more slightly tinged with violaceous; the nervures black; the basal three abscissae of the radius of equal length; the basal two transverse cubital nervures straight, oblique, converging in front; the third converging in front from below the middle, the rest rounded; the first recurrent nervure received near the apex of the basal fourth of the cellule, the second at half the distance from the apex; pro- and mesonotum transversely striated, the metanotum closely reticulated in the middle, and closely, transversely striated; pleurae obscurely punctured, the lower half obscurely, obliquely
striated; apex of clypeus bluntly rounded, the middle almost transverse; hinder ocelli separated from each other by almost half the distance they are from the eyes. M·le.

Length, 18 mm.
Berea Park. December.
The third antennal joint almost as long as the following two united; the metanotum area becomes gradually roundly narrowed to a sharp point from the spiracles.

Ammophila caeruleornata, sp. n.
Black; the third and following segments of the abdomen blue; the mandibles, except the teeth, the propleurae, the sides of the pronotum, the mark narrower than the central black part, and the tegulae, red; the legs, with the coxae, four anterior trochanters, femora, and tibiae, of a darker red; wings hyaline, tinged with violaceous; the costa and nervures testaceous; the basal two abscissae of the radius equal in length, the third very slightly longer; the basal two transverse cubital nervures straight, oblique, converging in front, the third broadly, roundly curved; the first recurrent nervure received at the apex of the basal fourth, the second nearer the apex of the cellule. Male.

Length, 16 mm.
Berea Park. December.
The silvery pubescence dense; the hair on the front, vertex, outer orbits, and pleurae long and dense; eyes distinctly converging below; the hind ocelli separated from the eyes by a distinctly greater distance than they are from each other; pro-, meso-, and metanotum somewhat strongly, transversely striated, the mesonotum not quite so strongly as the rest; the scutellum more strongly and not quite so closely longitudinally striated; the post-scuteellum finely rugose, irregularly, longitudinally striated.

Ammophila dolichocephala, sp. n.
Black, densely covered with a silvery pile; the under side of antennal scape, mandibles to the teeth, pronotum, and tegulae, red; the first abdominal segment, the sides, ventral segment, and apex narrowly of the second, the third, the sides of the fourth and following segments and the ventral surface, the legs except the coxae, trochanters, and the femora to near the apex, of a more ferruginous red; the apical three joints of the four anterior tarsi and the hinder, except the basal joint and the base of the second, black; wings hyaline, slightly tinged with violaceous and fulvous; the stigma and nervures black; the first abscissa of the radius slightly longer than the second, which is four times longer than the third; the first recurrent nervure is received at the apex of the basal fourth, the second nearer the apex than it; the second transverse cubital nervure is straight; the third roundly obliquely turned towards its fore part; pronotum smooth, a little longer than it is wide at the apex; the narrowed basal part two-thirds of the length of the apical; metanotum irregularly, not very strongly punctured; a smooth space on either side of the apex; the sides from the tegulae irregularly, transversely striated; there is a narrow but distinct furrow down the centre, from the base to shortly beyond the
middle; scutellum closely, finely, longitudinally striated, the base in the centre smooth and shining; there is a smooth furrow down the middle, not extending to the base and apex; post-scuteellum stoutly striated; pleurae sparsely punctured, the punctuation hid by the dense white pile.

Male.

Length, 24 mm.


Eyes converging below; there is no malar space; clypeus distinctly longer than wide; the part below the eyes longer than the part above their bottom; the apex narrowed, depressed, and with a shallow incision at the end; in the centre is a longitudinal keel, commencing shortly above the middle and reaching to near the top of the apical fourth; the third antennal joint is fully one-fourth longer than the fourth, slightly shorter than the following two united; there is no blue tint on the apical abdominal segments.

Allied to *A. nasuta* Lep., from Oran., it having the longish clypeus of that species.

*Ammophila* (*Psammophila*) *tydei* Guil.


*Psammophila madeirae* Dahlb.—*Hym. Eur.*, i, 21 and 432.


*Ammophila klugii*—André, *l.c.* 85.


**Sceliphron Klug (Pelopoeus Auct.).**

*Sceliphron spirifex* Lin.


I have seen an example of this from the Transvaal.

*Sceliphron spinolae* Lep.


This is probably a variable species in size and coloration; the blue or violaceous tints vary in intensity; the alar nervures may be black or testaceous; only the basal (scape) joint of the antennae may be rufo-testaceous, or the basal six or seven may be so coloured. Saint Fargean calls the coloration of the basal antennal joints “luteous”; in my examples they are distinctly rufo-testaceous; the amount of the rufous coloration on the clypeus and mandibles varies, and it may be suffused with black. In one male the fore tarsi are luteous, with the base of the first joint black; Magrettii’s var. rufo-pictus has the oral region and the thorax red.

_Sceliphron chalybeum_ Smith.

Cat. Hym. Ins., IV, 229 (Pelopoeus).

_Sceliphron laevigatum_ Kohl.—Denk. d. Math.—Natur. Klasse, Kais. Akad. d. Wissen., 1906, 21; Verh., z-b., ges. Wien, XXXVIII, 155 (Polepoœus). The antennal joints two to five may be red, or the first three only; the mandibles are usually entirely red; the blue body colour may be variegated with violet or green.

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**Sphex L. Kohl.**

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_Sphex luteipennis_ Mosc.


_Sphex rufo-pennis._—André, Spec. Hym. iii, 151.

Preatoria.

_Sphex pelopiiformis_ Dbm.


Preatoria.

_Sphex levilabris, sp. n._

Black; the antennae reddish-brown below; the four front tibiae tinged with brown; the abdomen above distinctly tinged with blue-violaceous; wings fuscos-violaceous; the stigma and nervures black; the second abscissa of the radius a little shorter than the first, and half the length of the third; the second cubital cellule small, along the radius hardly half the length it is along the cubitus; the first recurrent nervure received shortly before the middle, the second almost interstitial, received very shortly beyond the transverse cubital; clypeus short, half longer than it is wide, about half the length of the labrum; its apex transverse, depressed; labrum smooth, shining, bare; the apex of clypeus fringed with long hair; apex of pronotum with a distinct rounded incision in the middle; metanotum finely, closely striated, more strongly on the outer edge than on the centre; the upper part of the metapleurae strongly, obliquely striated; abdominal petiole twice longer than wide. Female.
Length, 23 mm.
Kranspoort. December.
Third antennal joint not quite twice the length of the fourth; tarsal and tibial spines strong, brownish; claws unidentate; the mesopleuræ are obscurely, obliquely striated below the furrow; the lower basal part of the metapleuræ finely, closely, obliquely striated; the metapleuræ are tinged with greenish-blue.

*Sphex (Parasphex) albisectus* Lep.


*Sphex (Parasphex) trichionotus*, sp. n.

Black; the head and thorax densely covered with long grey pubescence; the third and following segments of the abdomen with a white pile; the seven basal joints of the antennæ, the mandibles, except the teeth, the tegulae, the dilated apex of the first, the basal three-fourths of the second abdominal segment, and the legs, except the coxae, the hind trochanters above, and the upper half of the sides, the hind femora above and the sides to shortly below the middle, red; the apex of the sixth and the seventh abdominal segment of a duller red colour; wings hyaline, the basal half tinged with fulvous, the middle with violaceous, the apex from the end of the radial cellule clouded with fuscous violaceous; the costa and the basal nervures rufo-testaceous; the apical black; the second cubital cellule in front one-fourth of the length of the posterior part; the second abscissa of the radius two-thirds longer than the third; the first transverse cubital nervure obliquely sloped, the posterior half rounded; the anterior straight and more sharply oblique; the recurrent nervures are received about the same distance from the transverse cubital. Male.

Length, 19 mm.

The apex of the clypeus is red, and has a semicircular incision in the middle, with a couple of small depressions on either side; eyes slightly converging below; mandibles broadly bidentate; scutellum flat, its centre impunctate; metanotum closely, transversely striated; in addition to the white hair, the head and thorax are covered with a silvery pile; abdominal petiole as long as the hind femora; the apices of the second to sixth segments are narrowly banded with obscure white; the apical ventral segment is gradually narrowed from the base to the apex, which is bluntly rounded.

This is a larger and stouter species than *S. albisectus* Lep. It is easily separated from it by the antennæ, legs, and apex of abdomen being red, by the incised apex of clypeus, by the second abscissa of the cubitus being almost of the length of the third, while in albisectus it is only half the length, and the basal half of the wings is tinged with fulvous; in albisectus hyaline like the apex, the nervures and stigma being black throughout in the latter.
**Sphez (Harpactopus) tyrannus** Smith.


**Sphez umbrosus** Chr.


**Sphez taschenbergi** Magretti.—Ann. Mus. Civ. Stor. Nat., Genova, (2) 1, VI.

**Sphez metallica** Taschenberg.—Zeits. f. d. g. Naturwiss. Halle, XXXIV, 414.

**Sphez erebus** Kirby.—Bull. Liver. Mus. iii, 15, 5; Forbes, Nat. Hist. of Sokótra and Abd-el-Kâri, 240, 12, pl. XV, f. 2.

Kranspoort. December.

Both the forms metallica and taschenbergi occur in Cape Colony. Mr. Krauze’s example is the var. metallica = erebus.

**Sphez (Isodonta) jansei**, sp. n.

Black; the head, thorax, and base of legs densely covered with longish pale-grey pubescence; the abdomen with a grey pile; mandibles, except the teeth, the apex of clypeus, the centre broadly (the red colour extending near to the middle in the centre), the sides narrowly, antennal scape, tegulae, and the legs, except the coxae, greater part of the trochanters, a streak on the basal outer half of the fore femora, the basal three-fourths of the middle behind, and the hinder with more than three-fourths, black; wings hyaline; the apex infuscated in front from the end of the radial cellule to the lower part of the third transverse cubital nervure, and the second transverse basal; the hind wings have the apex slightly infuscated; the second transverse cubital cellule large, of equal width, the two transverse cubital nervures straight, oblique, parallel, the third roundly, broadly curved from the top; the third abscissa of the radius as long as the first, about one-fourth as long as the second, less than the space bounded by the first recurrent and the second transverse cubital; the first recurrent nervure received near the apical fourth, the second at the apex of the basal third, i.e., at a distinctly greater distance than is the second; abdominal petiole fully four times longer than wide, about one-fourth longer than the hind coxae. Male.

Length, 23 mm.

Pretoria. February.

Eyes slightly, but distinctly converging below; clypeus clearly longer than wide, its apex transverse; hinder ocelli separated from each other by a greater distance than they are from the eyes; punctuation on the head and thorax sparse, minute; the metanotum finely, weakly, transversely striated; tibial and tarsal spines rufous; apical abdominal segment bluntly rounded above and below; the penultimate transverse.

Of the African species known to me the present comes nearest to *I. meruensis* Cam., which may be known from it by the wings, costa, and
basal alar nervures being fulvous, the scutellums rufous, as are also the basal six joints of the antennae; the second cubital cellule is longer along the radius and cubitus than along the transverse cubitalis, the third abscissa of the radius distinctly longer than the first, and about one-third of the length of the second, and the pleuræ and the ventral surface of the abdomen are largely rufous.

*Sphex (Isodonta) transvaalensis*, sp. n.

Black; the head, thorax, base of abdomen and of the legs densely covered with black hair; the clypeus with a silvery pile; wings fuscous-violaceous; the nervures black; the second cubital cellule large, oblique, of almost equal width; the first and second transverse cubital nervures oblique, the first slightly curved below the middle, the anterior part straight; the second straight, oblique; the first recurrent nervure received near the apex of the cellule, the second near the apex of the basal third; the second recurrent nervure is broadly curved outwardly with a short straight branch at its junction with the cubitus; claws stoutly bidentate at the base; the last ventral and dorsal segment broadly rounded, the latter with a fine keel down the middle at the apex; the penultimate ventral segment with a large triangular incision extending to its base; scutellum smooth in the centre, where there is a distinct shallow furrow; metanotum alutaceous, the apical slope more strongly than the rest. Male.

Length, 17 mm.
V. d. Merwe. December.

Mandibles bidentate, reddish to the teeth; clypeus with the centre margined and transverse at the apex, the sides broadly rounded; it is slightly longer than it is wide at the apex, the top is obscurely keeled in the middle; eyes distinctly converging above; ocelli separated from each other by a less distance than they are from the eyes; a fine furrow leads down to them, and there is an oblique one running to the outer; the centre of the inner orbits is bordered with silvery pubescence; abdominal petiole three times longer than wide.

*Ampulex* Jurine.

*Ampulex jansei*, sp. n.

Blue; the head, pleuræ, scutellum, apical segments of abdomen and legs, black, as are also the antennae; the underside of antennal scape, apex of clypeal keel, and the mandibles, rufous-testaceous; wings hyaline; the nervures black; a longish triangular cloud at the transverse median nervure, a shorter squarish one at the top of transverse basal touching the costa, one filling the basal third of the radial cellule, except in front, one in the apex of the first cubital cellule touching the transverse cubital nervure and filling the anterior three-fourths, the second cubital cellule entirely, this cloud extending into the discoidal, where it is twice its size; the second cubital cellule is about one-fourth longer along the cubitus than along the radius; apex of cubital cellule rounded; the first recurrent nervure is received nearer the first transverse cubital than is the second from the second. Female.
Length, 17 mm.
Pietersburg. November.

A stout keel runs from near the centre of the front to the inner side of the antennae. There is a triangular and a shorter rounded tooth on either side of the centre of the clypeus; the third joint of the antennae is almost as long as the following two united; pronotum longer than it is wide at the apex, which becomes gradually raised in the middle into a bluntly rounded point; the sides are bluntly margined; the central keel on the metanotum runs to the base of the apical fourth; the second converges roundly towards the apex; the third and fourth are united at the base; there is an irregular reticulated part at the apex of the first keel; the rest of the metanotum is closely, transversely striated; the apical slope is irregularly reticulated, the sides at the top projecting into stout, triangular teeth; the upper part of the metapleurae is stoutly, irregularly, obliquely reticulated, the reticulated band gradually widened towards the apex; the rest is smooth; the first abdominal segment has a distinct, twice wider than long, petiole; the second is of the same width at the base as it is at the apex, and has the sides rounded; claws dilated to shortly beyond the middle, the apex narrowed, curved; tarsi closely, strongly spinose; spurs dark-testaceous; on the depressed base of the pronotum are two stout, rounded keels; the silvery pubescence is dense on apex of pronotum, post-scutellum, apex of mesopleurae and of metapleurae, and the apical abdominal segments; the hair on the head, thorax, and legs is long and white.

Allied to A. nebula Sm.

Dolichurus Latr.

Dolichurus denticollis, sp. n.

Black; the apex and centre of clypeus, mandibles, the antennae and tarsi, rufo-testaceous; the apical joints of the antennae darker-coloured than the others; wings hyaline; the nervures and stigma black; a fuscous cloud behind the submedian nervure, and a narrower one, narrowed in front, behind the posterior part of the transverse basal, one filling the radial cellule, one, obliquely narrowed behind, beyond the middle of the first cubital cellule, one almost filling the second, and a semicircular one in front of the second recurrent along its anterior three-fourths; tegulae fuscous; the head, thorax, and legs covered with white down. Female.

Length, 6 mm.

Head opaque, finely, closely punctured, the inner orbits with a narrow, irregularly striated band; hind ocelli separated from each other by half the distance they are from the eyes; pronotum alutaceous, the depressed sides thickly covered with depressed silvery pubescence; the centre from the teeth furrowed, and bearing large, round, clearly separated punctures; the apex transverse, furrowed; the centre of mesonotum with a large, strongly punctured band, nearer the base than the apex; the furrows are complete; metanotum irregularly, transversely striated, with a central and three lateral longitudinal keels; the central straight, the
second converging towards its middle, the outer two more irregular; pro- and mesopleuræ opaque, alutaceous, densely covered with white pubescence; the metapleuræ smooth, shining, bare, with a stout oblique keel above the middle on the basal half; metanotal spines almost as long as they are wide at the base; abdominal petiole almost twice longer than wide.

Helioryctes Smith.

Helioryctes quadridentatus, sp. n.

Black; the abdomen and the legs, except the coxae and trochanters, rufo-testaceous; the palpi dark-testaceous; the wings dark fuscous-violaceous; the nervures and stigma black; the clypeus with two short stumpy teeth on either side of the middle; the coxal spine three-fourths of the length of the coxa, curved, narrowed towards the apex, which is testaceous; the tibiae with three rows of spines, the central row being the longer; the basal fourth bears no spines; the tarsi thickly, stoutly spinose, the four anterior more thickly than the posterior; the long spur of the hind tibiae extends shortly beyond the middle of the metatarsus; the anterior tibiae with the spines shorter and sparser than on the others; outer orbits, lower part of front and clypeus densely covered with silvery pubescence; head and pro- and mesothorax closely, somewhat strongly punctured, the propodeuræ more weakly, the mesopleuræ more strongly than the mesonotum, the latter with a deep, curved, crenulated furrow down the apex of the basal fourth; there is a crenulated furrow between the scutellum and post-scutellum; the depressions bordering the latter irregularly striated; the large semicircular area on the base of metanotum has a longitudinally striated band on the base; the rest is rather stoutly irregularly reticulated; the outer side is more widely, longitudinally striated, the outer keel ending in a short tooth; the apical slope is irregularly, transversely striated, the striae stronger on the outer edge; metapleuræ rather strongly, closely, obliquely striated, the striae more widely separated above than below; the abdomen becomes gradually narrowed towards the apex; the basal two segments are weakly, the others more strongly punctured, the last more strongly than the penultimate, and with the sides keeled; ocelli in a triangle, the hinder separated from each other by a slightly greater distance than they are from the eyes, to which they are united by a narrow, oblique furrow; a smooth line runs down from them to the antennæ. Fe-nale.

Length, 15 mm.

The first transverse cubital nervure is, below the pedicle, roundly curved backwards, the second is longer and obliquely sloped; the third is less roundly, obliquely sloped; mandibles closely, irregularly, obliquely striated.

The generic description given by Smith is defective, in as much as he has omitted to state that there is a spine on the hind coxae. The genus is not mentioned by Kohl in his generic revision of the Fossores, beyond copying Smith's description (Ann. K. K. Hof. Mus., XI, 387). Bingham, in his description of the Indian species (Fauna of Brit. India, Hymen. i,
271) states that Smith's West African *H. melanopyrus* has a long coxal spine. He also states that in the British Museum there is another species which stands in the collection under the name of *Paranysson abdominale* Guér., the description of which is very slight. In the Indian species (*H. assimilis* Bing.) the coxal spines are mere tubercles. There is no mention made by Smith of the four clypeal teeth found in my species, nor by Bingham in his Indian one.

**Gorytes Latr.**

*Gorytes transvaalensis*, sp. n.

Black; covered with a white primrose pile; the antennal scape and the basal three or four joints of the antennae except on the top, the apex of the clypeus, the sides more broadly than the centre, the basal half of the mandibles, almost the lower third of the inner orbits broadly, a line, widened laterally, on the apex of the pronotum, tubercles, tegulae, apical third of the scutellum, a narrow line down the apex of the propleurae, a band, triangularly widened backwards to near the base on the apex of the first abdominal segment, a narrower one, slightly dilated laterally on the second, a still narrower one, not dilated, on the third, almost the apical half of the fourth, the whole of the fifth and sixth and the sixth ventral, an irregular spot on the mesopleurae close to the tubercles, the legs, except the femora above, the hind tibiae and the basal joint of the hind tarsi, rufo-testaceous; wings hyaline, the radial cellule, except narrowly at the base, the second cubital cellule except narrowly behind, and the anterior fourth of the third, fuscous-violaceous; the stigma testaceous; the transverse anal nervure in the hind wing interstitial. Female.

Length, 6 mm.

V. d. Merwe. December.

Vertex from the posterior ocelli and the front bearing fine, but distinct punctures, which are larger and more numerous on the front than on the vertex; eyes slightly converging above, the hinder separated from each other by a little greater distance than they are from the eyes; mesonotum distinctly, but not very closely punctured; scutellum with a few weak punctures in the centre; metanotal area clearly defined and bearing about thirteen keels, the lateral and central reaching to the apex, the others to shortly beyond the middle; the rest of the metanotum is punctured like the mesonotum, as is also the mesopleurae; the propleurale furrow is striated closely on lower half; there is a curved punctured band on the base of the metapleurae, the rest bears fine, scattered punctures; pygidial area smooth at the base, the centre somewhat strongly punctured, the apex more or less irregularly striated; the dorsal segments of the abdomen are weakly, sparsely punctured; the second ventral strongly punctured, the others more weakly punctured, except at the base; there are four long spines on the basal joint of the fore tarsi, and one on the second and third; the hind tibiae and tarsi are sparsely covered with whitish yellow spines; apex of clypeus sinuated, depressed, clearly separated; third antennal joint not quite double the length of the fourth.
Stizus erythraspis, sp. n.

Black; the greater part of the head, of the prothorax, scutellums, the apices of the third and following dorsal segments of the abdomen, a line down the middle of the fourth and following the greater part of the ventral surface, the antennae and legs, ferruginous; the antennal scape, face, clypeus, except a ferruginous large mark on the top, roundly narrowed in the middle, labrum, mandibles, except the apex, a line on the apex of the pronotum, an oblique line, narrowed inwardly, in the centre of the first abdominal segment, on the outer third, and larger, wider spots, of almost equal width and rounded on the inner side in the centre of the second, third, fourth, and fifth, and similar spots on the sides of the third and fourth ventral segments, yellow; head, thorax, and base of abdomen densely covered with longish white pubescence, the rest of abdomen with the pubescence shorter and sparser; wings hyaline, largely tinged with fulvous, especially in front; the first transverse cubital nervures straight, oblique, the second and third oblique, roundly curved; the first recurrent nervure is received shortly before the middle; the second is broadly, roundly curved outwardly on the front half, and is received close to the apex of the cellule; the median cellule in hind wings emits two nervures. Female.

Length, 22 mm.

Watoval No. 211, Zoutpansberg District. November.

Head distinctly narrower than the thorax; clypeus wider than long, but not double; eyes slightly converging below; labrum wider than long, raised in the centre; malar space very short; the sides of the mesonotum, the top of mesopleuræ narrowly, and the tubercles, are ferruginous; tibiae and tarsi strongly spinose; hinder ocelli separated from each other by double the distance they are from the eyes; tegulae ferruginous in front, yellow behind; mesonotum and scutellum finely and closely punctured; the lower part of the occiput is black, the line widened in the middle.

This species comes close in some respects to S. devitzi Handl., a Cape species, but is larger; the two may be separated thus:

Antennæ broadly black in the middle, head and prothorax for the greater part black; the scutellums and legs at the base black, the wings tinged with fuscous, the nervures black. *Devitzi, Hand.*

Antennæ, head, and scutellums ferruginous, the legs not black at the base, the wings hyaline, tinged with fulvous, the nervures fulvous. *Erythraspis.*

Bembex Oliv.

Bembex olivata Dbm.


Bembex capensis Lep.


Bembex testaceicauda, sp. n.

Black; the head, thorax, and base of abdomen densely covered with longish white pubescence, the hair on the front and vertex whiter, more
silver in colour than the rest; basal three-fourths of the mandibles, labrum, clypeus, a line on the lower inner orbits extending above to the ocelli, the line roundly incised in the middle and obliquely narrowed above, two small transverse lines of equal width below the ocelli, a line on the outer orbits, the upper half obliquely narrowed, the prothorax, except for an interrupted line on the pronotum and two or three small spots on the pleurae, a line along the sides of the mesopleurae, a narrower interrupted one on the sides and apex of the scutellum, a large irregular line on the middle of the mesopleurae, narrowed above, becoming gradually widened below at the base and apex, the basal projection longer than the apical, which is roundly incised above, the whole lower part being roundly, broadly incised; the metapleurae yellow, with a large oblique mark on the basal half; the lower part narrowed and roundly curved; the yellow on the pleurae is tinged with rufous; abdomen with pale olive-yellow bands on the apical half of the segments; the last segment is entirely rufous; the basal black bands on the second and third segments are dilated semi-circularly on either side of the middle; the apical bands are dilated at the base in the centre, those on the third and fourth longer and more sharply so; ventral surface black; the first segment with a broad transverse yellow band on the outer edge, the second to fifth with smaller triangular ones, also on the outer side; the last with the apical half rufous; legs yellow; the tibiae and tarsi tinged with rufous; the coxae and trochanters more or less black behind, the fore knees slightly, the four hinder more distinctly, a line on centre of the fore femora behind on the lower part, a short one on its base, and a broader line on the posterior femora above, and the pulvillus, black; antennal scape pale-yellow; the flagellum rufous, black above; wings clear hyaline; the nervures black; the centre of the clypeus is rufous, with two irregularly pyriform black spots on the upper half.

This species is not unlike _B. capensis_ Lep. That species may be known by the clypeus being for the greater part black, by the mesopleurae being black, by the yellow on the abdomen not being pallid olive, and by the ventral segments having continuous yellow bands.

**Philanthus Latr.**

*Philanthus triangulum* F., *v. diadema* F.


Pretoria. January and November. Stellenbosch (Broom). The Stellenbosch example wants the central branch of the frontal mark.

*Philanthus spilaspis*, sp. n.

Black; the clypeus, except its lower side, the face, the cheeks; the mark on the latter sharply projecting upwards on the outsideside and more shortly and broadly in the middle; basal two-thirds of the mandibles; a line on the lower half of the outer orbits, narrowed slightly and gradually below, broadly, bluntly bilobated above; a line on the sides of the pronotum, slightly narrower than the dividing central part, tegulae, a small squarish spot on the middle of the scutellum, and three small marks on
the lower part of the front; the central broader and irregular; the latter\nmore transverse and curved, pale yellow; abdomen red; the basal\nsegment black, except at the apex broadly in the middle; the black lateral\napical part projecting inwardly at the apex; the sides and ventral surface\nlargely suffused with orange yellow; legs yellow, suffused with rufous;\nall the coxae and trochanters, the basal half of the fore femora, the\nmiddle to near the apex and the whole of the hinder, the hind tibiae, and\nthe basal half of the basal joint of the hinder tarsi, black; wings fuscous-
violaceous; the stigma and nervures black; the first and third abscessae\nof the radius almost equal in length and about one-fourth longer than the\nsecond; the first recurrent nervure is received shortly beyond the middle;\nthe second at less than half the length of the third absissa of the radius\nfrom the second transverse cubital nervure; the area on metanotum\nclosely, somewhat strongly, transversely reticulated, with a stronger keel\nrunning down the centre; it is triangular, and is as long as it is wide at\nthe base; the pubescence is pale and is longer on the metanotum and\nventral surface of the abdomen than elsewhere; the fine furrows bordering\nthe clypeus are broadly rounded at the sides above and below; apex\nof clypeus broadly rounded; the sides not projecting. Female.\n
Length 15 mm.\n
Pretoria. January.\n
Head, thorax, and abdomen at the base closely and somewhat strongly\npunctured; the third and following segments of the abdomen with the\npuncturation weaker and becoming gradually weaker towards the apical.\nThis species, of those known to me, comes nearest to P. loeflingii Dbm.,\nor what I make out that species to be. The main difference between them\nmay be best shown in synoptical form.\n
The yellow on the face projecting at the sides obliquely on to the front, which is\nimmaculate; the furrows bounding the clypeus forming acute angles; the meta-
notal area smooth and shining; the yellow on the outer orbits; a small oblique\nmark twice wider outwardly than it is along the eyes; the mandibles with a small\nyellow mark; the greater part of the scutellum and a line on the post-scute-
tellum roundly narrowed behind and a longish mark on the upper half of the mesopleurae;\nonly the basal half of the first abdominal segment black, the black trilobate at the\n apex, the legs black, except for a line on the apical half of the fore femora and\none on the middle tibiae below. 

*Hoeflingii* Dbm.\n
The yellow on the face not projecting laterally on to the front, which bears three\nsmall yellow spots; the furrows bordering the clypeus rounded at the angles; more\nthan the basal half of the mandibles yellow; metanotal area reticulated, opaque,\nthe outer orbits with a long broad yellow line; scutellum with small squarish mark\nin the middle; post-scutellum and mesopleurae immaculate; the first abdominal\nsegment black to near the apex; the legs with the four front femora in part; the\nfour front tibiae and the greater part of the tarsi rufous-yellow. *Spilaspis* Cam.\n
*Philanthus trichiocephalus*, sp. n.\n
Black; the head densely and, to a less extent, the thorax covered\nwith white pubescence, the hair on the metanotum longer and denser\nthan it is on the rest of the thorax; the clypeus, except for a small\nsquarish mark on the centre of the apex, which is prolonged laterally into\na curved line; on the sides is a large mark, as long as it is wide above, the\ntop with a rounded incision on the innerside; it is narrowed below and\nis separated from the lateral projection by a narrow black line narrowed\noutwardly; above the central mark on the face is a small mark, rounded
above, transverse below, and closely united to the clypeal mark—all pale yellow. On the lower half of the front is a large mark, gradually, roundly narrowed below from the top, and with an incision in the centre below, longer than wide and slightly narrowed below; a narrow continuous line on the apex of the pronotum; a narrow line on the post-scuteellum; a large transverse mark on the sides of the second abdominal segment, the apex roundly, irregularly narrowed from the outsides to the base, the two marks extending close to the middle of the segment; a narrow line on the apex of the second; a slightly broader one on the third; a still broader one, dilated in the middle, and one of equal width, and twice wider than long, on the centre of the fourth—pale yellow. The basal three joints of the flagellum, the apical joint, a broad line on the outer orbits, roundly narrowed in front, commencing on the outer half of the vertex and extending halfway down the eyes; the mandibles, tegulae, and the basal and apical segments of the abdomen, red. Legs of a similar red colour, the coxae, trochanters, and the base of the femora narrowly and irregularly, black; the outsides of the four hinder tibiae and the tarsi pale yellow; the apices of the tarsal joints red. Wings fuscous-violaceous, the hinder pair paler; the radial cellule darker tinted; the stigma rufo-testaceous; the second abscissa of the radius one-half of the length of the first, and hardly one-fourth of the length of the third; the first recurrent nervure is received at the apex of the basal third, the second at the apex of the basal sixth of the cellule; the cubital nervure in the hind wings interstitial. Male.

Length 12 mm.
Middelburg town.

Head and thorax closely, rugosely punctured; the vertex more strongly than the front and the scutellum and metanotum more strongly than the mesonotum. Clypeus sparsely punctured. There is a narrow, distinct, roundly curved furrow shortly above the middle of the mesopleurae. Eyes converging above, separated there by the length of the basal three joints of the antennae; they are margined on the innerside and have a slight incision above the middle.

The affinities of this species are with *P. flavolineatus* Cam., from Kilimandjaro; the two may be separated as follows:—

Two short lines on the lower part of the front; the flagellum entirely reddish below; the clypeus immaculate; the third abscissa of radius fully one-half the length of the third; the first recurrent nervure received beyond the apex of the basal third; a narrow yellow line on the apex of the second abdominal segment; the line on the fifth not dilated broadly in the middle, not wider than on the fourth, that on the fifth small and rounded at the base; the legs without yellow.

*Flavolineatus* Cam.

A large mark, widened above, on the lower part of the front; the flagellum only reddish at the base; the clypeus with a black mark in the centre below; the second abscissa of the radius one-fourth of the length of the third; the first recurrent nervure received at the apex of the basal third; no line on the apex of the second abdominal segment; the line on the fifth widened and wider than on the fourth; that on the fifth large and transverse at the base; the legs largely yellow.

*Philanthus transversus*, sp. n.

Black; the head in front below the antennae; the yellow laterally continued upwards above the antennae; the line obliquely narrowed
upwards, the top transverse; a three-pronged mark above the face on the front, its base broad, large, the central line longer, narrower, and straighter than the others, the greater part of the scutellum, and post-scutellum, whitish-yellow; a broad mark on the outer apical third of the first abdominal segment wider transversely than longitudinally; the sides of the second, the mark narrowed to a small square at the base, clearly separated; from this it becomes gradually, roundly widened to the apex; a broad transverse mark, rounded at the base, on the third and fourth, the third united by a narrow line along the apices of the segments; the apical segments and the second and following ventral segments, except for brownish lines on the apices, bright orange-yellow; the antennal scape below; the malar space; the outer orbits entirely below, more broadly above; the line continued along the vertex to near the outer ocelli; the line separated from the eyes on the upper half; the tegulae, a narrow line on the apex of the first abdominal segment; the second broadly in the middle, more narrowly on the outer side, where it separates the black in two, red; four front legs red, the middle tibiae yellow; the hind coxae, trochanters, and femora black; the tibiae yellow; the tarsi pale red; wings hyaline; the apex narrowly and slightly smoky; the costa, stigma, and nervures pale testaceous; the second abscissa of the radius shorter than the first and one-half the length of the third; the first recurrent nervure is received very shortly before the middle of the cellule. Male.

Length, 8–9 mm.

Densely covered with a short white pile; closely, rather strongly, punctured, the clypeus much more weakly than the rest; apex of clypeus transverse; area on metanotum large, opaque, punctured like the other parts; the bounding furrows weakly indicated, and there is a shallow, indistinct furrow down the middle; base of metapleural aciculated, the rest closely reticulated; the head is less closely punctured than the thorax, and the abdomen not so closely as the latter.

This species may be separated from the known South African forms by the transverse apex of the clypeus.

_Cerceris Latr._

_Cerceris erythrospila_, sp. n.

Black; the underside of the antennal scape, a band on the apex of the third abdominal segment, narrowed in the middle, laterally occupying the half of the segment, and the sixth, except at the sides, yellow; the underside of the antennal flagellum, mandibles except the teeth, tegulae, the sides and the apex, more widely of the first abdominal segment, and the greater part of the four hinder coxae, rufous; the four front tibiae anteriorly and the tarsi pale yellow; the apical joints of the four anterior tarsi tinged with rufous; the hinder tarsi black, except the basal three-fourths of the basal joint; wings hyaline; the apex with a smoky violaceous cloud at the apex of the radius and more broadly beyond the apex of the
third transverse cubital nervure; metanotal area strongly, longitudinally striated; pygidium strongly, irregularly punctured, the apex smooth, depressed. Male.

Length, 8 mm.

Face and clypeus densely covered with silvery pubescence; the rest of the head and the thorax densely covered with white hair; apex of clypeus in the centre almost trilobate; the lateral lobes yellow; puncturation strong and close, except on the ventral surface of the abdomen, where it is fine and sparse, the segments being also more or less aciculated; first abdominal segment three times longer than wide; the hypopygium widely incised, the lateral margins longish, triangular; there is a semi-circular spot on the sides of the third ventral segment at the apex.

*Cerceris armaticeps*, sp. n.

Ferruginous; the apical abdominal segments darker coloured, the antennal keel, a broad line, slightly narrowed towards the top, on the lower half of the inner orbits, the clypeus, except the central part all round and the inner half of the outer, a broad line on the inner half of the mandibles, a line on the apex of the pronotum, post-scutellum, a spot on the basal half of the tegulae, the sides of the first abdominal segment, the line gradually widened towards the apex, a line on the apex of the second, narrowed gradually inwardly, the centre of the segment with a row of dots, a broad band on the third, narrowed towards the centre, laterally extending to the apex of the basal fourth, the greater part of the second ventral and a broad line, narrowed inwardly, on the outer third of the third; wings hyaline; the radial cellule and the outer cubital fuscous-violaceous, the costa and stigma fulvous, the nervures blackish; both the basal two transverse cubital nervures are roundly curved; the first recurrent nervure is received at the apex of the basal third of the cellule. Female.

Length, 12 mm.

Warmberg. December.

The central upper part of the clypeus armed with a distinct triangular tubercle or tooth; tripartite, the upper part projecting outwardly, the lower (and larger) obliquely sloping inwardly; the labrum semicircular, bordered by a stout clearly separated keel, the central part flat; metanotal area stoutly, obliquely striated, except at the apex, where the striae are transverse; head and thorax closely, rather strongly, punctured; propleurae with curved striae; mesonotum longitudinally striated, the scutellum more strongly striated; the upper basal part of the metapleurae with fine curved striae, the lower half aciculated; abdomen strongly, closely punctured; the pygidium about four times longer than wide, closely punctured, the centre finely, irregularly reticulated, the ventral incision wide, widened towards the apex, commencing shortly behind the middle; the sixth to the eleventh joints of the antennae are black above.

*Cerceris jansei*, sp. n.

Rufous; the apical third of mandibles, the front, the mark extending as a small triangle behind and between the ocelli, a large mark on the outer
three-fourths of the outer orbits on the lower third, base of pronotum, mesonotum, the metanotal area except the outer basal half narrowly, a smaller triangular mark above it, the narrowed end above, the propleurae except at the apex above, the mesopleurae except the tubercles and an oval mark immediately below them; the mesosternum, metapleurae, a large irregular spot in the centre of the fourth and fifth segments; the apex of the pygidium, a line, rounded at the base, on the apical two-thirds of the fourth ventral; a large triangular one on the fifth and the greater part of the sixth, black; the basal four dorsal segments are tinged with yellow; wings hyaline, distinctly tinged with fulvous; the costa, stigma, and nervures rufo-fulvous; the first recurrent nervure is received shortly before the middle; the apex of the wings, from the apical transverse nervures, fuscous-violaceous; metanotal area at the base obliquely, at the apex transversely, striated. Male.

Length, 15 mm.

Waterval No. 211, Zoutpansberg District. November.

The clypeus projects roundly and obliquely on the lower three-fourths; the base is flat and is bordered above by a semicircular furrow; it becomes narrowed towards the apex, which is transverse and depressed; the sides are densely covered with pale golden pile from the top of the face, which is sparsely, weakly punctured and tinged with yellow on the inner half; the head, except the oral region, is closely, strongly punctured; the lower part of the outer orbits is more or less striated; propleurae with a few longitudinal striae, the rest of the thorax closely, strongly punctured, the punctures on the pleurae running into reticulations; abdomen sparsely punctured, the punctures becoming weaker towards the apex; pygidium almost impunctate, the basal two-thirds becoming slightly narrowed, the apex more distinctly narrowed; the incision in the hypopygium extends close to the middle; it becomes slightly, gradually narrowed inwardly, the base being rounded.

This species is nearly related to the Cape C. *melanospila* Cam.; they may be separated thus:

The black on the front extending behind the eyes; the metathorax entirely black; the metanotal area entirely, obliquely striated. *Melanospila.*

The black on the front not extending to the end of the eyes; the metanotum laterally red; the metanotal area not entirely, obliquely striated. *Jansei.*

_Cerceris O’Neill_ Cam.


Pretoria. November.

_Cerceris heterospila_, sp. n.

Black; the clypeus, a broad line extending from shortly above the middle of the eyes to the mandibles, the antennal tubercle, basal half of mandibles, a spot near the middle of the antennal scape, a transverse oval mark on the sides of the apex of the pronotum, tegulae, post-scutellum, an irregular spot on the base of the second abdominal segment, a larger transverse one on the sides at the apex, the three forming a triangle.

* Transactions South African Phil. Soc., XV, 221.
a band on the apex of the third, narrowed in the middle, broadly, roundly
dilated, laterally, the greater part of the sixth, the band rounded laterally,
and a small spot on the sides of the second to fifth ventral segments, yellow;
legs black; the greater part of the apical half of the fore femora, the
apical fourth of the middle, and the tibiae and tarsi lemon-yellow; the
apical joints of the fourth front tarsi, and the apex of the basal joint of
the hinder, rufous; the apical three-fourths of the second joint of the hinder
tarsi and the whole of the others black; wings hyaline; the apex from the
third transverse cubital nervure black; the stigma and nervures black;
metanotal area rugosely reticulated, furrowed down the centre; the third
to eighth and the apical joint of the antennae rufo-fulvous. Female.

Length, 8 mm.

Strongly, closely punctured, densely covered with white pubescence;
clypeus longish bell-shaped, transverse below, minutely tuberculate in
the middle; first abdominal segment three times longer than wide; basal
two-thirds of the pygidium strongly, deeply punctured, the punctures
distinctly separated; following the punctures is an aciculated space, there
being a row of punctures on the apex, which is transverse; the sides and
apex are bordered by a depression.

The spot on the base of the second abdominal segment may be absent,
and there may be narrow—more or less narrow—lines on the sides of the
fourth and fifth segments.

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**Crabro Fab.**

*Crabro simillimus* Sm.


Pretoria. March to July.

Probably common. The species is a Rhopalum, and is no doubt
variable as regards the yellow markings, e.g. there may be a transverse
irregular line on the scutellum, and the lines on the fourth and fifth
segments may be absent; there is a stoutly crenulated furrow at the base
of the metanotum, which has an indistinct triangular area; the sides are
bordered by a furrow; the area may be more or less striated; the mandibles
may be entirely black or have a reddish band near the apex; ocelli in a
triangle, the hinder placed opposite the end of the eyes; they are separated
from each other by about the same distance as they are from the eyes;
the pubescence on the head and thorax is dense.

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**Passaloecus Shuck.**

*Passaloecus striatifrons*, sp. n.

Black; the antennal scape except above tubercles, the fore tibiae
in front and the base of the four posterior pallid yellow; wings hyaline;
the nervures and stigma black; front slightly depressed, covered closely
with roundly curved striae; there is an irregular keel outside it, united to
the eyes by some weak transverse striae; the face, clypeus, and outer
orbits covered with silvery pile; on the apex of the clypeus, in the centre,
is a short tubercle; at the base of the scutellum is a wide, crenulated
furrow, with a keel in its centre, dividing it into two; metanotum, except
the apical slope, irregularly reticulated, the central and basal reticulations larger than the others; the apical slope opaque, surrounded by a stout keel, which forms a semicircular area; abdominal petiole stout, as long as the dilated apical part of the segment, along the ventral part of which it is continued as a stout keel; base of thorax transverse, stoutly keeled, the keel clearly separated behind; ocelli in a curve, the hinder separated from each other by double the distance they are from the eyes. Female.

Length, 4·5 mm.

The first transverse cubital nervure is obliquely sloped, a little rounded; the second is roundly curved outwardly; the second recurrent nervure is received near the middle of the cellule. Parapsidal furrows complete.

**Trypoxylon Latr.**

*Trypoxylon lissonotum*, sp. n.

Black; smooth, shining, the head, thorax, and femora covered with long, white pubescence; the face and clypeus densely with depressed silvery pile; wings hyaline, the nervures black; base of metanotum bare, smooth, and shining; from its outer edge run two oblique keels, which unite at the apex, forming a longish triangular area; a wide, smooth, not very deep, furrow commences at the end of the smooth part; from the outsides of the triangular area runs a shallow oblique furrow, with some transverse keels, the two not uniting at the apex; the space enclosed by them is irregularly, not very strongly, striated; the apical slope is opaque, deeply, widely furrowed, the furrow widest above; the sides are irregularly, obliquely striated; metapleuræ with a smooth, shallow furrow below; above this it is somewhat strongly, closely, obliquely striated, the striae more or less intertwining; upper half of front with distinct, shallow, round, clearly separated punctures, this part having a shallow furrow down the centre; first abdominal segment as long as the thorax and not much shorter than the following three segments united. Female.

Length, 10 mm.

Pretoria. April.

Palpi blackish, fusous towards the apex; the apex of the cubitus is roundly curved downwards; the recurrent nervure being received at the base of this curve; calcaria black.

**Pison Spin.**

*Pison transvaalensis*, sp. n.

Black; covered with silvery pubescence, dense on the clypeus and forming bands on the apices of the abdominal segments; wings hyaline, the nervures black; the second cubital cellule triangular; the pedicle slightly longer than the lower branches; the first broadly rounded; the second straight, oblique; the first recurrent nervure received shortly beyond the first transverse cubital; the second interstitial; the second abscissa of radius one-fourth of the length of the first; the first and second united are hardly so long as the third; the metanotum furrow with the basal and apical branches wide, the latter extending to the apex; the basal branches strongly, the apical not quite so strongly, distinctly, and
more closely transversely striated; the triangular part separating the basal furrows is prolonged as a stout keel down the basal half of the apical furrow; the rest of the basal part of the base is coarsely alutaceous, almost punctured, the apex irregularly, transversely striated; the apical slope is more strongly, transversely striated; the metapleurae closely, rather finely striated; head, pro- and mesothorax closely, distinctly punctured; the clypeus more finely than the front, its apex smooth and shining, broadly rounded; the hinder ocelli are separated from each other by a less distance than they are from the anterior; mandibles with a red band near the middle; the third and fourth joints of the antennae are equal in length; the abdomen is more finely and more closely punctured than the thorax; the basal segments more distinctly than the apical. Male.

Length, 7 mm.

Pretoria. July and November.

In one example the first recurrent nervure is received in the apex of the first cubital cellule.

This species may be known from the others known to me from the Cape by the apex of the clypeus being broadly rounded, not pointed or toothed.

*Pison denticeps*, sp. n.

Black; covered with silvery pubescence; the apex of the clypeus with a distinct triangular tooth in the middle; wings hyaline, the nervures black; the first transverse cubital nervure roundly oblique; the short second either entirely obliterated or indicated by a stump in front; the first recurrent nervure received in the apex of the first cubital cellule; the second interstitial broadly, roundly curved; the second abscissa of the radius about one-fourth of the length of the first; the metanotum has on either side of the base a strongly crenulated furrow, narrowed outwardly; the longitudinal furrow is wide, longish triangular, finely, closely, obliquely striated, and with a fine keel down the middle; the apical slope is more strongly, transversely striated; the sides bordering the basal furrow are finely, closely, rugosely punctured and irregularly striated, especially on the basal half; metapleurae finely, closely striated, the striae rounded at the base; head, pro- and mesothorax finely, closely punctured; the base of the abdomen is finely, closely punctured. Male.

Length, 5 mm.

Transvaal.

The third and fourth joints of the antennae are equal in length; the spurs are fuscous, at least at the base.

*Pison clypeatus*, sp. n.

Black; covered with silvery pubescence; the apical three or four joints of the tarsi rufo-testaceous; the tegulae fuscous; wings hyaline; the stigma and nervures black; the pedicle of the second cubital cellule shorter than the nervures, which are roundly curved, the first a little longer than the second; the cellule is moderately large and is longer along the transverse cubitals than along the cubitus; the first recurrent nervure is received very shortly before the transverse cubital; the second is interstitial and broadly, roundly curved; the first abscissa of the radius
is twice the length of the second; base of metanotum with a straight central and four or five irregular stout oblique striae; the central furrow is about four times longer than wide and is aciculated; the basal part of the metanotum is strongly aciculated, and the metapleurae strongly, closely, obliquely striated; pro- and mesonotum finely, closely punctured; their pleuræ much more strongly punctured; the longitudinal furrow on the mesopleurae wide, slightly curved, closely punctured; there is a narrower furrow at its base, extending above and below it; base of abdomen very finely, minutely punctured. Female.

Length, 7 mm.

Warmberg No. 211, Zoutpansberg District. October.

Clypeus in the centre gradually narrowed to a sharp point; the sides broadly, roundly curved inwardly. mandibles broadly red in the middle; the third joint of the antennæ is fully one-fourth longer than the fourth.
DIPLOPTERA.

VESPIDAE.

ICARIA SAUSS.

Icaria cincta Lep.


Icaria capensis Sauss.

Stett. Ent. Zeit., XXIII, 139.


POLISTES LATR.

Polistes maculipennis Sauss.


Polistes marginalis Fab.


Three specimens all different in coloration, one being the form figured by Saussure, Vespides, i, pl. VI, f. 2; the second paler, more testaceous in colour, and almost without the apical alar cloud, the third chocolate coloured.

Polistes smithii Sauss.


Rietfontein. December.

BELONOCASTER SAUSS.

Belonogaster grisca Fab.


B. rufipennis, Sauss.—Vespides, ii, 235 (non D.G.).
Warmberg. September.

_Belonogaster juncea_, Fab.
Lemana. October.

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**EUMENIDAE.**

_Raphiglossa Sauss._

_Raphiglossa flavo-ornata_ Cam.

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_Eumenes Latr._

_Eumenes maxillosa_ D.G.


_Eumenes lucasia_ Sauss.

_Zethus broomi_ Cam.—Records Albany Mus., i, 110.

_Eumenes rufolineata_, Cam.
Records of the Albany Mus., i, (4), 206; Sjostedt’s Kilimand. and Meru Expd., Hymen., 181.

_Eumenes maculinoda_, sp. n.

Black; covered with white pile; the clypeus, a small spot between the antennae, a short narrow line on the top of the outer orbits, antennal scape except above, a line on sides of pronotum, two short lines on post-scutellum, a line on the apex of first abdominal segment, and one on the second all round, light yellow; the basal slope of pronotum and its centre above between the yellow lines, the underside of first abdominal segment, a large mark, obliquely narrowed at the base, on the sides above, and two irregular, roundish marks on the apex of the second ventral, red; the third and fourth ventral of a paler red colour; legs reddish; the apex of the four anterior femora and the tibiae in front yellow; wings hyaline;
the apical half of the radial cellule smoky; the stigma and nervures black. Male.

Total length, 7 mm.

Pretoria. October.

Underside of flagellum of antennae brownish, darker at the base, the hook being also brown; head and thorax closely, strongly punctured; post-scutellum opaque, alutaceous, bluntly, obliquely narrowed towards the apex; apex of metanotum transverse, alutaceous; the sides rounded, a narrow, clearly defined furrow down the centre; metapleuræ smooth, pruinose; first abdominal segment about one-third longer than it is wide at the apex, the basal slope oblique, alutaceous; the second segment about one-half longer than it is wide at the apex, narrowed at the base; the apex more strongly punctured than the rest.

_Eumenes ornativentris_, sp. n.

Black; densely covered with white pubescence, the antennal scape, the flagellum except above, mandibles, clypeus, except for a black line, narrowed below, in the centre of the upper three-fourths; a minute spot between the antennæ, a slightly larger one on the top of the outer orbits, prothorax, tegulae, base of post-scutellum broadly, two spots close to each other and placed obliquely, on the sides of the metanotum; near the top, the abdominal petiole, except its basal fourth, the black there not extending to the outer edge, the sides of the apical two-thirds broadly, the black central line narrowed towards the base; and sharply, obliquely at the apex, which does not reach the end of the segment; a large semicircular mark on the basal half of the second segment; the red continued as a narrow line to the apex, the apices of the third, fourth, and fifth broadly, the whole of the sixth, of the basal ventral; two marks on the base and apex of the second, and the greater part of the others, red; a narrow yellow line on the top of the first and a broader one all round on the second; legs red; the hinder trochanters and the base of the femora black; wings hyaline, streaked with violaceous in front; the stigma and nervures black. Female.

Total length, 11 mm.

Waterval. November.

Clypeus about one-third longer than wide, its centre punctured, the obliquely sloped sides more finely punctured, the apex depressed, broadly, but not deeply roundly incised; the furrow on metanotum wide, becoming gradually widened towards the apex; first abdominal segment thick, about three times longer than it is wide at the apex, the basal third narrowed; the second is almost twice longer than it is wide at the apex; the apex is slightly reflexed and is more strongly punctured than the rest; the base is roundly narrowed.

_Eumenes jansci_, sp. n.

Black; largely marked with red and yellow; red are the basal six joints of the antennæ, mandibles, tegulae, legs, the first abdominal segment, except the base, and a pyriform black mark in the centre of the apex, the second segment to near the middle, the greater part of the
penultimate, and the whole of the last; yellow are the clypeus, a curved line on the lower part of the eye incision, a mark between the antennae, its lower part dilated laterally, the basal half of propleurae, its apex irregularly narrowed, a longish mark down the apex of the mesopleurae, narrowed below and with irregular edges, the base of the upper part rounded and with a shallow incision below, the centre of the scutellum broadly, the line of equal width, apical half of post-scutellum, the sides of the metanotum broadly, a transverse mark on the sides of the apex of first abdominal segment, having the black mark between them, a broad line on the apex of the basal fourth of the second segment, extending close to the middle, similar, but narrower, lines on the third and fourth, and narrow lines, narrowed in the middle, on the apices of the second to fourth ventral segments, pale yellow; wings hyaline, broadly fulvous in front, the radial cellule fuscous-violaceous; the costa and stigma fulvous. Female.

Total length, 23 mm.

Buttons Kop. October.

Head and thorax closely, but not very strongly punctured, densely covered with white pubescence; clypeus almost smooth, not one-quarter longer than wide, its apex broad, transverse; apex of post-scutellum broadly, roundly narrowed; furrow on metanotum shallow, not widened towards the apex; it is distinct on the apical half only.

Allied to E. lepelitieri Sauss. and E. merueusis Cam., from which it may be known by the base of the second abdominal segment being broadly red and without a black longitudinal line; the yellow colour is paler, and the transverse black line on the second segment is broader and nearer the middle; while the black line down the centre of the second ventral is absent from the two species mentioned.

_Eumenes lepelitieri_ Sauss.


Rietfontein. October.

_Eumenes pulchripennis_, sp. n.

Black; the antennae except the apical joints above, mandibles except at the apex, clypeus, a narrow line on the eye incision, a wider one on the outer orbits, prothorax, tegulae, apical half of scutellum, post-scutellum, the metanotum except the edges and the central furrow broadly, the sides and the outer edges above of the apical three-fourths of first abdominal segment and the second segment narrowly all round, red; the legs of a slighter lighter red, their hind tarsi fuscous; wings fuscous-violaceous; the nervures and stigma black; the second abscissa of the radius one-fourth of the length of the third; the second transverse cubital nervure broadly, roundly curved. Female.

Total length, 17 mm.

Kranspoort. December.
Head and thorax closely, strongly punctured; the head more closely and not quite so strongly punctured as the thorax, except the clypeus which is more strongly and less closely punctured than the front; it is as wide as long and has the apex transverse; base of thorax transverse, margined; apex of post-scutellum smooth, gradually bluntly narrowed towards the centre at the apex; sides of metathorax broadly rounded, the central furrow wide, slightly widened towards the apex, where its sides are oblique and striated; it is covered with white pubescence; abdominal petiole as long as the head and thorax united, slightly narrowed at the base; the base of the second segment is distinctly narrowed; the second segment is bell-shaped and is longer than it is wide at the apex; hinder ocelli separated from each other by about the same distance as they are from the eyes; palpi reddish and bearing a few stiff longish hairs.

_Eumenes spilocera_, sp. n.

Black; the antennae, except the scape above and the greater part of the sixth to ninth joints, the mandibles, clypeus, the greater part of the space between the antennae, a broad curved line in the centre of the eye incision, the prothorax, tegulae except near the base, scutellum except at the apex, post-scutellum except at the base, metanotum except in the centre, the black central line dilated at the base, a large mark on the mesopleurae, the part of it below the furrow smaller than that above it and narrowed obliquely below a longish mark below the hind wings, the first abdominal segment except for an irregular line on the apical fourth above, the line obliquely narrowed at the base and apex, the basal part longer than the apical, a large mark on the sides of the basal half of the second, the apical third except irregularly in the centre, and the sides and apex of the ventral surface broadly, irregularly, red; wings hyaline, fulvous behind the costa; the radial cellule fuscous-violaceous; the nervures black; the stigma testaceous; the second abscissa of radius one-third of the length of the third, which is rounding curved towards the costa. Female.

Length, 14 mm.

Olifants Rivier.

There is a broad yellow line on the inner eye orbits extending from the top of the clypeus to near the end of the lower part of the incision; an irregular line on the face below the antennae; a narrow line on the upper half of the outer orbits, not reaching to the top, and the keels at the sides of the scutellum, yellow; clypeus clearly longer than wide, the apex broad, transverse; it is sparsely, weakly punctured; front and vertex closely, but not very strongly punctured; a smooth space at the ocelli, the hinder of which are separated from each other by a slightly greater distance than they are from the eyes; thorax densely punctured and covered, especially above, with white pubescence; metanotal furrow hardly widened towards the apex, the sides broadly rounded; abdominal petiole clearly longer than the head and thorax united; apex of post-scutellum bluntly, roundly narrowed.
The two black and red species described above are closely related to *E. lucasia* Sauss. The three may be separated thus:

A yellow line on the pronotum, and on the apices of the basal two abdominal segments; the four front legs streaked with yellow; wings hyaline, except slightly along the fore margin; the clypeus not transverse. *Lucasia.*

Thomax and legs without yellow, the wings largely fulvous or violaceous, the clypeus transverse; wings uniformly fuscous-violaceous, the clypeus strongly punctured, as wide as long; tegulae strongly punctured; stigma black. *Pulchripennis.*

Wings fulvous, the apex fuscous, the stigma testaceous, the clypeus smooth, longer than wide, tegulae smooth.

*E. lucasia* Sauss. has been taken by Mr. Janse in the Transvaal. It is one of the most widely distributed of the African species of Vespidae.

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**Synagris Latr.**

*Synagris mirabilis* Guér.

Bingham, Ann. and Mag. Nat. Hist., (7), XII, 47.


*Synagris xanthura* Sauss.

Stadelmann, Die Hym. Ost-Afr., 29 and 39; Cameron, Sjostedt’s Kilimandjaro and Meru Exped., Vespidae, 183; Magretti, Ann. di Mus-Civ., Genova, (2), i, 613.

Waterval. April.

*Synagris calida* L.


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**Rhynchium Spin.**

*Rhynchium signiferum,* sp. n.

Rufous; the underside of the antennal scape, clypeus, mandibles, face, a large spot on the lower half of the front, transverse above, but with four slight, rounded dilatations, gradually narrowed from the top to the bottom, where it is united to the yellow on the face, the mark being wider than long, a line on the lower edge of the eye incision and the mandibles, bright yellow; a narrow line bordering the frontal yellow mark, a large mark on the front and vertex, extending laterally almost to the eyes, gradually narrowed to a point behind, united to the black occiput by a narrow line, mesonotum, basal three-fourths of the scutellum, a narrow line bordering the base of the metanotum, the mesopleurae except for a semicircular mark at the top above, and a longish line, narrowed above, on the lower apical three-fourths, mesosternum, basal slope of first abdominal segment, and the second, third, and fourth, the second largely tinged with rufous laterally, a longish triangle in the centre of the second ventral, and the whole of the third and fourth, black; legs of a paler red, the four hinder coxae and femora black behind; wings hyaline, suffused largely with fulvous in front; the radial cellule violaceous; the apical nervures black; the posterior and stigma fulvous. Male.

Length, 11 mm.

Waterval. November.
Front of the head weakly and sparsely, the outer orbits much more strongly and closely punctured; the clypeus smooth, a little longer than it is wide; the apex with a shallow, rounded incision; thorax closely punctured, the metapleurae finely, closely, obliquely striated, except at the base; there are some scattered punctures; the first and second transverse cubital nervures approach closely in front; head and thorax densely covered with white pubescence, which forms a longish fringe on the apex of the metanotum laterally; there is a small triangular tooth on the centre of the hind coxae behind; antennal spine, long, stout, and curved.

*Rhynchium perfidiosum*, sp. n.

Deep black; the underside of the flagellum of the antennae dark red; the second and following segments of the abdomen light, reddish brown; wings uniformly fuscous-violaceous. Female.

Length, 14 mm.
Waterkloof. December.

Clypeus a little longer than wide, sparsely, weakly punctured, the apex transverse; the upper part of the head and the thorax closely punctured; post-scutellum prominent, the apex bluntly striated; the first abdominal segment is cup-shaped; the second is as long as broad, smooth; claws testaceous.

The male has the clypeus yellow, tinged with testaceous; it is as wide as long and has the apex transverse; the antennae are reddish testaceous, dark fuscous above; there is a large black mark, obliquely widened above, on the basal two-thirds of the second segment; in both sexes there is a large, semicircular depression on the basal half of the second ventral segment, rounded, with a slight incision in the centre; it becomes gradually narrowed from the top on the apical slope; metanotum bluntly rounded; the lower edge bears two blunt teeth, united below; shortly beyond these is a stout keel; the scutella are alutaceous, impunctate; the base and the apex more narrowly of the mesopleurae are smooth; the centre is more deeply and closely punctured than the mesonotum; the metanotum is more strongly, more rugosely punctured than the mesonotum; the centre is closely, not very strongly punctured.

*Rhynchium stironotum*, sp. n.

Head and thorax dark ferruginous, a curved transverse line across the ocellar region, reaching to the eyes, roundly, bluntly, shortly dilated in the middle behind, and more longly and narrowly in front; the lower and larger part of the mesopleurae and the whole of the metapleurae, black; abdomen orange-yellow; antennae rufous, the apical two or three joints above; legs dark red, the tarsi lighter coloured; wings fuscous violaceous; the stigma and nervures black. Female and male.

Length, female 14 mm.; male 13 mm.

Clypeus, except above, strongly, but not closely punctured, the apex with a rounded incision, the outer edges forming triangular teeth; the upper part of the head and the thorax closely, rather coarsely
punctured; the mesopleurae more deeply and strongly punctured than the mesonotum; the metanotum sparsely punctured at the base, more strongly and closely at the apex; post-scutellum short above, crenulated, the apex with a steep slope and strongly punctured; there are two keels down the centre of the mesonotum; they converge towards the apex, and are more distant from the base than from the apex.

The male is similarly coloured, except that the clypeus is yellow, is a little longer than wide and has a rounded incision; there is a more distinct black mark on the base of the abdomen; it is obliquely narrowed behind.

*Rhynchium fallax* Sauss.

Vespides, iii, 175.


Saussure says that the sides of the metathorax are armed with three spines, which is the case with the above recorded example; but above the three are two shorter ones united at the base, followed by two short stumpy tubercles; the upper two of the three are of the same size, but the second is thicker; the lower one is shorter; there is a slight depression on the apex of the scutellum in the centre; apex of post-scuteellum broadly rounded.

*Rhynchium transvaalense*, sp. n.

Black; the antennae, the head except the stemmaticum, an irregular mark below it, a spot outside the upper edge of the eye incision, prothorax, the sides and apex of the scutellum, post-scutellum, metathorax, the upper half and the lower third of the apex of mesopleurae, the last abdominal segment, the basal ventral, the tegulae and legs, red; wings hyaline, slightly tinged with yellow in front to near the parastigma, fuscous-violaceous beyond. Female.

Length, 17 mm.


Clypeus pyriform, slightly longer than wide; the apex depressed, margined by keels, transverse, sparsely, weakly punctured; prothorax distinctly punctured, the punctures clearly separated; the basal half of the mesonotum weakly, sparsely punctured; the rest and the scutellum smooth; the base of the post-scutellum smooth; the rest coarsely punctured, the apex with a steep slope; the sides of the metanotum are smooth at the base, the rest rather strongly punctured, the punctures round and clearly separated, intermixed with striae on the insides; the apex on the outsiderside is armed with three short stout teeth; mesopleurae strongly, closely punctured, the metapleurae much more weakly and sparsely punctured; abdomen punctured, the middle segments more strongly and closely than the others.

*Rhynchium marginiscutis*, sp. n.

Black; the antennae except the apical three joints above, the head except a squarish mark incised in the middle below, and the occiput, the prothorax, tegulae, apical fourth of scutellum, post-scutellum, metathorax, upper half and apex of mesopleurae and legs, red; the basal and apical segments of the abdomen and more or less of the ventral surface of a
dark red; wings hyaline, tinged with yellow, to near the parastigma, the rest fuscous-violaceous; the costa and basal nervures fulvous, the stigma testaceous; head and thorax covered with white pubescence, the abdomen with a white pruinose pile. Female.

Length, 13 mm.

Warmberg. December.

Clypeus pyriform, as long as wide; the apex depressed, shortly, but distinctly bidentate, strongly, closely punctured, the top and sides smooth; front and vertex strongly, closely punctured, except behind the ocelli, where it is much more finely and sparsely punctured; thorax strongly and closely punctured, except on the base of the metapleuræ where it is smooth, the rest being sparsely and much less closely punctured; the outer edges are serrate; the apex of the scutellum is depressed, the depression crenulated and forming a distinct border; apex of post-scutellum broadly rounded; the second transverse cubital nervure is almost straight and is obliquely sloped.

Apart from the differences in coloration and in size, this species may be known from R. transvaalensis by the strongly punctured mesonotum and scutellum; by the crenulated border on the apex of the latter, and by the broader, more strongly punctured clypeus. A more closely allied species is R. meyeri Cam. from Meru, Massai Land; it is larger, the clypeus is longer and is more finely and closely punctured; the black mark on the vertex is transverse in front and is narrowed behind; the mesopleuræ are only red above the basal longitudinal furrow, there are three stout teeth on the sides of the metonotum; the apical five joints of the antennæ are black and the basal segment of the abdomen is black.

The affinities of this species and transvaalense are with laterale F. (africanum Saus.) and meyeri Cam. The following table shows the salient points of distinction between them:

1 (4) Thorax strongly punctured above.
2 (3) Black mark on vertex narrowed behind, transverse in front, apical five antennal joints black, metanotum with three lateral teeth, basal segment of abdomen black, length 16 m.m.—

Meyeri Cam.
3 (2) Black spot on vertex not narrowed behind, incised in front; apical three antennal joints black, metanotum untoothed; basal segment of abdomen rufous, length 12 m.m.—

marginiscutis.
4 (1) Thorax smooth above.
5 (6) Antennæ with the apical joints not marked with black, the pleuræ immaculate, sides of abdomen yellow.—Laterale F.
6 (5) Apical joints of antennæ black above, pleuræ largely black, the sides of abdomen not yellow.—

Transvaalense.

ODYNERUS LATR.

Odynerus determinatus, sp. n.

Black; the clypeus, a mark, twice longer than wide, widened and rounded above and with a minute point in the middle, on the lower half
of the front, a small spot behind the top of the eyes, the antennal scape and the first joint of the flagellum below, a line on the base of the thorax, narrowed in the middle, a narrow line on the apex of the first abdominal segment, with an oblique oval spot united to its base on the outer edge, a wider line on the second all round, the ventral one with two rounded incisions on the base, and lines on the sides of the third, fourth and fifth, yellow; legs yellow; the coxae and trochanters black behind; the four front femora brownish behind at the base, the hind femora black; wings hyaline; the apical two-thirds of the radial cellule fuscous-violaceous; the stigma and nervures black. Male.

Length, 7 mm.

Waterval. December.

Clypeus sparsely, distinctly punctured; the apex with an incision which becomes gradually narrowed from the apex to the base, i.e. almost triangular; head and thorax closely punctured; the base of the metapleurae with a smooth triangular space, sparsely punctured on the base, on the lower part; sides of scutellum with a broad raised longitudinal keel on the sides; the sides of the post-scutellum with a blunt tubercle; the scutellum has an oblique slope; in the middle of the apical two-thirds is a smooth line which becomes gradually widened towards the apex; the apex of the post scutellum is bluntly rounded; the first and second segments are finely, closely punctured; the base of the second more sparsely than the rest; there is a more strongly punctured band on the apex.

**Odynerus tegularis**, sp. n.

Rufo-testaceous; the antennae darker coloured, a narrow line round the sides and base of the mesonotum, the scutellar depression and a triangular spot covering the depression, an irregular spot on the basal half of the second abdominal segment, and a line dilated at the base, on the basal half of the third, black; wings fuscous-violaceous, the posterior paler. Female.

Length, 10 mm.

Saileka. February.

Clypeus a little longer than wide, the apex broad, transverse, strongly punctured; the punctuation on the head and thorax is strong and close; the pubescence dense and white; post-scutellum roundly, broadly depressed above, the sides projecting into teeth; the first abdominal segment is cup-shaped, longer than it is wide at the apex, shortly pedunculated; the second is longer than wide, depressed in the centre of apical third; there is a distinctly defined crenulated furrow near the apex, which is smooth and strongly reflexed; the basal two segments are closely, strongly punctured; almost the apical half of the third and fourth are finely punctured; the second ventral segment is more strongly punctured, except for a large smooth space, furrowed down the centre on the basal half; the tegulae are larger than usual and are strongly, closely punctured.

**Odynerus penetratus**, sp. n.

Black; the clypeus, a spot, longish, rounded above, gradually narrowed below, above the antennae, a small spot in the eye incision, a short line
on the top of the outer orbits, the antennal scape and basal three of
four joints of the flagellum, prothorax, tegulae, slightly more than the
basal half of the scutellum, the mark with an incision in the centre or
the apex, an interrupted line on the post-scutellum, the metathorax,
except the central furrow, the tubercles, the first abdominal segment
except at the base and apex, and a more obscure spot on the sides of the
second, red; a narrow line on the top of the first abdominal segment;
a wider one, dilated at the sides, on the second, and a triangular spot on
the sides of the second ventral, yellow; legs red; wings fuscous-hyaline,
suffused with a deeper violaceous tint in front. Female.

Length, 9 mm.
Rietfontein. August.

Clypeus one-half longer than wide, sparsely, weakly punctured, the
apex with a broad, rounded incision; front, vertex, and thorax closely,
strongly punctured; base of thorax transverse, the apex broadly rounded,
densely covered with a white woolly pile; sides of post-scutellum tuber-
culate at the base, the apex smooth, transverse; first abdominal segment
triangular, becoming gradually widened from the base to the apex, which
is, as is also the apex of the second, weakly, sparsely punctured; as are
also, if any thing more strongly, the apices of the third and fourth.

Odynerus spoliatus, sp. n.

Black; red are the clypeus, mandibles except the inner edge, a large
triangular mark, wider than long, its apex rounded and with a slight
rounded incision, on the vertex, the lower part of the eye incision, broadly
above, the outer orbits, the line above continued to the ocelli and obliquely
narrowed, the pronotum to near the middle of the pleurae, tegulae,
scutellums, the metanotum except in the centre, the red extending on to
the pleurae, a spot on the mesopleurae between the tubercles and the
furrow, its apex with two oblique slopes, the top one shorter than the
lower; immediately below it is a longer and narrower oblique line;
abdomen black; on the sides of the first abdominal segment is a large
oblique mark, transverse, narrower on the outer than on the inner side,
a similar, but larger mark on the sides of the second, wider on the inner
than on the outer side, the outer side being transverse, through reaching to
the outer edge, the fourth and fifth are red, black at the base, the sixth
is entirely red; the ventral segments are red, except the base of the fourth
and fifth; the first segment narrowly and faintly above, the second and
third all round are yellow; wings fulvous-hyaline; the radial cellule
smoky; the costa and stigma fulvous; the nervures black, the basal
paler. Female.

Length, 14 mm.
Kranspoort. December.

Clypeus as broad as it is long, its apex depressed in the middle, almost
shortly bidentate, sparsely, weakly punctured; the front, vertex, and
thorax closely, somewhat strongly punctured; apex of post-scutellum
broadly rounded; sides of metanotum broadly rounded and densely
covered with longish white pubescence; abdomen smooth, the basal
segment is shortly pedunculated; the second segment is as wide as long.
The male has the clypeus, a line on the lower side of the eye incision and the underside of the antenneal scape bright yellow; the yellow line on the apex of the third abdominal segment is widely interrupted; the black marks on the basal two abdominal segments are shorter and at the apex do not extend to the outer edges; there is only a narrow basal band on the metapleurae; the yellow line on the apex of the second ventral is dilated twice in the middle and more largely triangularly at the outer edges.

*Odynerus indecorus*, sp. n.

Black, with the following parts red: the antennae except the apical six joints above, the mandibles except the inner edge, clypeus, a mark almost as wide as long, and slightly, roundly narrowed below, a broad line round the eye incision, the outer orbits, the line on them continued more narrowly round the outer edge of the vertex, prothorax, except the lower fourth, a broad curved line on the scutellum, commencing laterally at the basal fourth; the central apical part narrower, post-scutellum, the metanotum except the base and centre narrowly, an oblique wide conical spot on the upper basal part of the mesopleurae; from its lower edge a line, widened towards the apex, runs obliquely to the lower edge of the pleurae; outside this, near its centre, is a line about one-third of its length; above its base is a shorter oblique line, three times longer than wide; beyond the top of the last is a smaller spot. The abdomen is red with the following black marks: a large mark on the first, narrowed in the middle, the incision gradually narrowed towards the inner side, the basal black part narrower and broader than the apical, which has the branches sharply pointed, there is a large, somewhat similar mark in the centre of the second, the basal part clearly shorter and wider than the apical, both becoming gradually narrowed obliquely to the middle, a mark on the middle of the first ventral, narrowed at the base, becoming gradually widened towards the apex, the third to near the apex and the base of the fourth narrowly, black; the apex of the first above, and the second and third all round, yellow; wings fulvous-hyaline; the apex fuscous-violaceous. Female.

Length, 13 mm.

Dunbrody.

Clypeus as broad as long, closely, rather strongly punctured, the apex transverse; the rest of the head more closely punctured and densely covered with white pubescence; scutellum flat; the post-scutellum with a curved crenulated keel near the base, its apex broadly rounded; sides of metanotum broadly rounded; second abdominal segment hardly one-fourth longer than wide; the abdominal segments are weakly, sparsely punctured.

*Odynerus euryspilus*, sp. n.

Black; the antennae, mandibles except on the inner side, clypeus, a broad mark on the centre of the lower half of the front, its upper part united to a line on the lower part of the eye incision by one of equal width, the enclosed black part being oblique, of equal width and longer than wide; the sides of the vertex behind, through the black on it being
obliquely narrowed, the outer orbits, prothorax, scutellums, metathorax, except the base of the pleurae to shortly beyond the middle; the sides of the first abdominal segment slightly more broadly than the black central part, which is of equal width to near the apex, where it is slightly, roundly narrowed; the apex projects laterally into a sharply pointed spine; the apex narrowly, a large irregularly oval mark on the sides of the second segment; the black mark at the base extends to the outer edge, at the apex it is prolonged as a wider one, not half the length of the basal; its centre is roundly curved.

*Odynerus scripticeps*, sp. n.

Black; with the following yellow or orange-yellow marks on the head and thorax: clypeus, mandibles except at the apex, a large triangular spot on the front, a broad line filling the eye incision, the mark projecting outwardly above, a broad line on the upper two-thirds of the outer orbits, obliquely narrowed above and gradually narrowed below, the antennae, prothorax, tegulae, scutellum, except at the base and apex, post-scuteillium, two large marks on metanotum, extending on to the pleurae, slightly narrowed and obliquely truncated below, a large broad mark on the base of the mesopleurae, commencing near the top and reaching to the top of the lower fourth, the part below the furrow narrower and more obliquely sloped than the upper one; the abdomen cloured yellow like the thorax, with the following black markings: a longitudinal line down the centre of the first abdominal segment, united to a broader transverse one at the apex, this apical line not reaching to the apex of the segment in the middle, on the second is a large mark somewhat like a reversed Y; it becomes gradually narrowed from the base to the apical transverse branch; this is roundly curved at the base; the apex roundly dilated on either side of the centre; there is a rounded mark on either side of the third segment; the first ventral segment is entirely black; there are two fuscous or black spots near the apex of the second; the third to fifth have broad trilobate black lines; legs of a paler yellow colour than the body, the coxae, base of four front trochanters, the whole of the hinder and the base of the hind coxae, black; wings hyaline, suffused with fulvous in front; the apex fuscous-violaceous; the costa fulvous; the stigma and nervures black. Female.

Total length, 12 mm.

Kranspoort. December.

Clypeus wider than long, closely, strongly, punctured; the apex with a shallow rounded incision; the upper and outer parts of the head and the thorax closely, strongly punctured; the apex of the post-scuteillium smooth, transverse, and with a straight, oblique slope; at the base it is continuous with the scutellum; the sides of the metanotum are broadly rounded; the first abdominal segment is distinctly pedunculated at the base, and is a little narrower than the second, which is about one-fourth longer than wide.

I have a specimen of this species which was named for me by the late Mr. Frederick Smith, of the British Museum, *O. bellatulus* Sauss. I can, however, see no great resemblance to Saussure's figure, nor does it agree with his description
DESCRIPTION OF A NEW SPECIES OF STAPELIA.

BY N. E. BROWN, A.L.S., Kew.

Stapelia leenderitziae N. E. Brown. caulæ erecti, 7·5 - 10 cm. longi, 1 - 1·3 cm. crassi, 4 angulares, velutino-puberuli, prope medium florentes et ramosi. Flores bini vel solitarii. Pedicelli 2 - 2·3 cm. longi, 4 - 4·5 mm. crassi, velutini. Sepala 8 - 9 mm. longa, lanceolata vel ovata-lanceolata, acuta, velutina. Corolla magna, campanulata lobis patentibus extra puberula, intra profunde transversim rugosa et usque ad medium tubi pilis longis purpureis conspersa, atropurpurea; tubus 7·5 - 8 cm. longus, 8 - 10 cm. diam.; lobi 5·5 - 6·4 cm. longi, basi 3·8 - 4 cm. lati, elongato-deltoidi, acuti. Corolae exterioris lobi 4 mm. longi, suberecti, profunde bifidi, fusco-purpurei; lobi interioris erecti, inaequaliter bipartiti, fusco-purpurei, segmentis exterioribus aliformibus oblongis 6 mm. longis, 4 mm. latis apice denticulatis, segmentis interioribus subulatis.

Habit somewhat lax, with erect stems, decumbent at the base, 3 - 4 in. high, 3⁄8 - 1⁄2 in. square, with slightly concave sides, toothed at the angles, velvety-puberulous, flowering near the middle and usually branching near the place of flowering; teeth not very prominent, tipped with a minute rudimentary leaf 1⁄4 - 3⁄8 in. long. Flowers usually two together, sometimes solitary.

Pedicels 3⁄4 - 1 in. long, 2 - 21⁄2 in. thick, velvety-puberulous. Sepals 4 - 41⁄2 lin. long, 11⁄2 - 2 lin. broad, lanceolate or ovate-lanceolate, acute, velvety-puberulous. Corolla with a large cup-shaped tube and spreading lobes, puberulous all over the outside, inner surface everywhere rugose with very prominent transverse ridges, thinly covered with long dark purple hairs on the lower half of the cup, glabrous on the upper half and lobes, dark brownish-purple or blackish-purple; tube about 3 in. long, 3 - 4 in. in diameter at the mouth; lobes 21⁄2 - 23⁄4 in. long, about 11⁄2 in. broad at the base, whence they taper in a nearly straight line to the acute apex, not ciliate. Outer corona lobes about 2 lin. long, sub-erect, divided to below the middle into two subulate erectly-divergent acute segments, with or without a minute tooth in the notch between them, glabrous, purple-brown. Inner corona lobes erect, glabrous, blackish-purple, divided to the base into an outer oblong wing 3 lin. long and 2 lin. broad, irregularly toothed at the top, and an inner triquetrous-subulate horn slightly longer than the wing and slightly recurving over it. Follicles erect, parallel, 41⁄2 - 51⁄2 in. long, about 3⁄8 in. thick, fusiform, softly puberulous, mottled with dark green or dull purple on a lighter ground.

Transvaal: near Heidelberg, Miss R. Leenderitz, 2464.

Described from a living plant and a flower preserved in formalin, sent to Kew by Miss Leenderitz, who discovered it in November of last year. The very long cup-shaped tube distinguishes this remarkable species from all the other known members of the genus, its nearest ally being S. nobilis N. E. Br., next to which it should be placed in accordance with the arrangement of the species in the Flora Capensis.
VOORLOPIG BERICHT OVER DE FOSSILE FLORA VAN HET
DISTRIKT ERMELO.

DOOR DR. E. C. N. VAN HOEPEN, M.I.

In de maand Oktober is door de heer C. J. Swierstra en mijzelf op enige plaatsen in het Distrikt Ermelo, uit zandsteen, behorende tot de Karroo-
formatie, palaeontologies materiaal verkregen, waaromtrent ik hier enige
mededelingen wil doen.

In de eerste plaats bestaat het materiaal alleen uit planteresten; fauna
is niet gevonden. Het gesteente, waarin deze flora voorkomt, een grove,
vooral op de laagvlakken zeer glimmerrijke, dikbankige, soms dundelaagde
zandsteen, is zeer ongeschild door de fijne nervation der planteresten op te
nemen, zodat meestal slechts een algemene afdruk met kontourlijnen
aanwezig is.

De eerste indruk, die deze resten geven, is dat ze vóór hun afzetting
aan een belangrijk water-transport zijn onderhevig geweest. Slechts zeer
zelden vindt men b.v. een ongeschond blad, terwijl de grote hoop uit
gebroken en gescheurde fragmenten bestaat. Deze resten zijn m.a.w.
afkomstig van planten, die op een andere plaats groeiden dan waar nu de
resten gevonden worden.

Het karakter dezer flora is zeer eigenaardig. Het meest voorkomend
fossiel is een blad met Zamites habitus. Het heeft een afgeronde top, van
nervation is echter niets te zien; duidelijk is wel, dat een hoofdnerf
ontbreekt. Onder de nu in dit Museum aanwezige stukken bevindt zich
van deze vindplaats ook een fragment van een Cordaites blad met duidelijke
nerven. De Cordaitace zijn bovendien vertegenwoordigd door talrijke
zaden waarvan twee soorten zijn te onderscheiden. Deze zaden zijn in vorm
zeer goed bewaard gebleven, alleen de oppervlakte is onduidelijk. De ene
soort komt in algemene vorm overeen met Cordaispermum Gutbieri, de
andere met de zaden van Cordaitanthus anomalous. Sphenophyllum is
aanwezig in twee bladjes van 13 tot 15 mm. lengte en een breedte van
6 mm. aan de top. In het midden zijn ze tot halverwege ingesneden.

Bovendien is een fragment van een stamgedeelte van dit geslacht
aanwezig met slechts één onduidelijke knoop. Behalve de genoemden,
zijn er nog vele andere, determineerbare bladen, waarvan echter niet
direct kon worden uitgemaakt tot welk geslacht ze behoren.

Merkwaardig van deze flora is echter het totaal ontbreken van
Glossopteris. Er is zelfs geen spoor van dit geslacht gevonden. Of dit
aan toevallige omstandigheden moet worden toegeeschreven of aan het
werkelijk ontbreken ervan kon nog niet worden uitgemaakt.

Binnenkort hoop ik op deze plaats een nadere beschrijving dezer flora
te kunnen geven.
AANTEKENINGEN OVER ENIGE WEINIG BEKENDE MUNTSTUKJES VAN ZUID-AFRIKA.

DOOR DR. J. W. B. Gunning.

In 1892 kwam ik in de Vrijstaat in 't bezit van drie kleine geldstukjes die hier afgebeeld zijn.

Op de voorzijde ziet men een vliegende duif met een olijftak in de bek; aan de keerzijde in een halve cirkel boven aan het woord Griqua, onder het woord Town. Daartussen de waarde $\frac{1}{2}$, $\frac{1}{2}$ en IIII. Deze drie stukjes bevinden zich in de verzameling van het Transvaal Museum. Behalve deze drie bestaat er nog een van tien-pence, van hetzelfde type als de vijf-pence, behalve dat de waarde is uitgedrukt in arabie se cijfers "10" in plaats van romeinse cijfers "X". De waarden van een kwart- en een halve-penny zijn geslagen in koper, die van vijf- en tien-pence in zilver. Of nog andere waarden hebben bestaan heb ik niet kunnen ontdekken. De enige afbeelding, die ik heb kunnen vinden, is van de waarde van tienpence.*

Deze geldstukjes zijn klaarblijkelijk zeer zeldzaam;† ik vind de tien- en vijf-pence stukjes vermeld in Spink's Numismatic Circular voor 1895,

† Behalve het Transvaal Museum zijn er in Zuidafrikaanse Museums geen exemplaren voorhanden, behalve in Kaapstad, terwijl zelfs het Brits Museum in Londen alleen de waarden van $\frac{1}{2}$ en $\frac{1}{2}$ bezit.

De geschiedenis dezer munten is min of meer in duister gehuld. De eerste aantekening daaromtrent is van Rev. John Campbell, die in 't begin van de vorige eeuw Zuid-Afrika bezocht voor het Londens Zendinggenootschap.

Hij schrijft* sprekende van de vooruitgang in beschaving van de Griquas, "It was likewise resolved, that as they (the Griquas) had no circulating medium amongst them, by which they could purchase any small article, such as knives, scissors, clothes, etc., supposing a shop to be established amongst them, which they were anxious that there should be, they should apply to the Missionary Society to get silver pieces of different value coined for them in England, which the missionaries would take for their allowance from the society having Griqua Town marked on them. It is probable that, if this were adopted, in a short time they would circulate among all the nations round about, and be a great convenience".

Wanneer dit voorstel van de Eerwaarde Heer Campbell tot uitvoering is gekomen kon niet worden uitgevonden, evenmin hoe groot de uitgave was, zelfs het Londen Zendinggenootschap kon hier omtrent geen uitsluitsel geven. De Eerw. R. Wardlaw Thompson zegt in antwoord op een aan hem gericht schrijven: "Enige jaren geleden heb ik gehoord van "tokens" die door het genootschap geslagen zijn toen de Griqualand Staat nog in Griqualand West was. Ik geloof dat deze "tokens" in die tijd in grote getale in gebruik waren, omdat andere pasmunt niet verkrijgbaar was. De duif en olijftak zijn het zinnebeeld van ons genootschap daarbij in gebruik van het begin zijner geschiedenis. De "house flag" van ons zendingschip "John Williams" en andere schepen is drie duiven in zilver op een purpere grond, en op al de uitgaven van ons genootschap zijn de duif en de olijftak, die een natuurlijk symbool zijn van een genootschap, dat de verbreiding van het evangelie ten doel heeft.

Het is jammer dat men in die tijd weinig gewicht hechtte aan het bewaren van zulke voorwerpen of zelfs van gedrukte boeken, die in verschillende delen van de wereld door het genootschap gedrukt waren. Hoewel er een Museum is over meer dan honderd jaren geschiedenis van dit genootschap, was er geen spoor te vinden van deze munten."

De enige andere aantekening hieromtrent vond ik in het werk van "Hofstede".† "In 1812 werden zij (de Griquas) door Eerw. John Campbell bezocht, die een reeks van zeer wijze regulaties voor hen samenstelde, waardoor het Londens Genootschap en het godsdienstige publiek in Engeland zodanige gedachten kregen van de buitengewone vooruitgang der beschaving van de bastards, dat zij werkelijk de kosten en moeiten niet ontzagen om zilveren en koperen stukken gelds voor hen te doen munten in een tijd, toen die gekleurd niet het geringste denkbeeld hadden van het nut van een metalen standaard voor waarde, en toen hun gehele handel met de Kolonie niet zo hoog ging als tot 50 pond sterling in het jaar.

Om de dwaasheid dezer menslievendheid nog te vergroten, was er een engelse inscriptie op, terwijl zelfs de kolonisten niets anders dan Hollands verstonden—engelse woorden, terwijl de enige taal, door de bastards gebruikt en door hun zendelingen onderwezen, was de hollandse.

† H. J. Hofstede, Geschiedenis van de Oranje Vrijstaat, 1876, bladz. 89.
Op de ene kant stond de waarde der munt, op de andere "Griqualand West", en de voorstelling van een duif met een olijftak in haar bek. De duif des vredes vloog spoedig weg en het geld ging mee, waarvan nooit een enkele farthing in omloop was.

En de wetten van dat volk? lezers! die zijn slechts te vinden in de beroemde reisbeschrijvingen van die eerwaarde heer zelf”.

Bij de bovenaangehaalde afbeelding van het tien-pence stuk in Atkins vinden wij het volgende kurieuse bijzchrift:—

"Griqua Town".

"Griqualand West, in de diamantvelden van Zuid-Afrika. Het schijnt op de gewone manier in bezit te zijn gekomen ongeveer in 1850, toen het ongeveer vier honderd blanke inwoners had. Het was bij de Britse bezittingen in November 1871 ingelijfd. "Bayne" veronderstelt, dat de volgende “tokens” uitgegeven zijn door het Londense Zendinggenootschap voor de Griquas, een gemengd ras van Hollanders, Hottentotten en Kaffers, die zich in de nabijheid van de Kolonie Natal gevestigd hadden. Ik heb getracht inlichtingen in te winnen bij de agenten van het genootschap, maar ben niets te weten gekomen dat deze veronderstelling zou rechtvaardigen”.

Het was aan de heer Atkins klaarblijkelijk evenmin als aan de heer Bayne bekend, dat de Griquas in het jaar 1861 overgebracht werden van Philippolis naar Griqualand Oost, in die tijd Nomansland genoemd.*

De volgende punten zijn derhalve nog niet opgelost:—

In welk jaar zijn de munten geslagen?

Gedurende welke jaren zijn zij in gebruik geweest?

Tot welk bedrag is dit geld in omloop gebracht?

* In verband hiermede is het niet van belang onthoudt hier te vermelden dat door de Griquas toen zij van Griqualand West naar Griqualand Oost overgebracht waren een soort Republiek gevormd werd onder Adam Kok, met een bestuur, gelijkende op de republiekinse regeringsvorm in de Oranje Vrijstaat.

Dr. L. Peringuey, de geachte directeur van het Zuidafrikaanse Museum te Kaapstad, zond mij ter inzage een noot van £1, waarvan een afbeelding hierbij gaat, die deze republiek in Griqualand Oost meende uit te geven.

Het origineel deze noot is tans in het Zuidafrikaanse Museum te Kaapstad. Dr. Theal, hierover ondervraagd, schrijft:—

"Toen Adam Kok van de Vrijstaat naar Griqualand Oost trok, ging zijn raad met hem mee, en deze nam de naam van "Volksraad” en was een parodie van die in Bloemfontein’.

De bovenvermelde noot, die te Mont Curray heet uitgegeven te zijn, is klaarblijkelijk door deze “HoogEd. Volksraad” uitgegeven.
ANNALS MEDEDELINGEN
OF THE VAN HET
TRANSVAAL MUSEUM

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ON THE PARASITIC HYMENOPTERA COLLECTED BY
MR. A. J. T. JANSE, TRANSVAAL.

By P. Cameron.

Very little has been written on the parasitic Hymenoptera of the Transvaal. The material collected so industriously by Mr. Janse (whose study is the Lepidoptera, not the Hymenoptera) forms a very welcome contribution towards our knowledge of that part of South Africa. In my paper on the parasitic Hymenoptera of the South African Museum, Capetown (Annals of the South African Museum, v, 17-186), I was only able to record, from the material in the museum's collection, thirteen species from the Transvaal. I am very glad to be able to record, from the rearings of Mr. Janse, the larval hosts of a number of the species.

TENTHREDINIDAE.

Arge pretoriaensis, sp. n.

Dark blue, densely covered with a white pile, the sides of the pronotum to shortly below the middle, the mark triangular, the narrowed end at the base, the tegulae, a large mark on the upper part of the mesopleurae, extending from the base to near the apex, the lower part obliquely narrowed to an acute point from the apex to the base; the apex rounded, with an incision in the middle at the oblique furrow; the antennae darker coloured than the body, densely covered with black pubescence. Wings hyaline, iridescent, the nervures and stigma blackish fuscous, the base of the stigma pale. Female.

Length, 7 mm.


Head hardly, if at all, dilated behind the eyes. Second abscissa of radius about one-fourth longer than the third, which is of the same length as the fourth; the first transverse cubital nervure is fainter than the
others, the second is slightly roundly curved, the third much more distinctly so; the first recurrent nervure is received shortly behind the middle, the second near the base of the cellule; the first transverse median nervure near the base of the apical third. Antennal fovea clearly defined, with sharp, projecting bounding keels, which approximate, but do not meet, below. The costal and basal alar nervures are paler than the apical.

*Arge transvaalensis*, sp. n.

Black, densely covered with a white pile, the upper part of the head and of the thorax with the black, tinged with blue; the face, clypeus, except below, outer orbits, and the prothorax, except narrowly and irregularly below, yellowish testaceous; the antennae, palpi, and mandibles black; the abdomen rufo-testaceous, a broad black band on the sides of the first, second, and fourth to seventh dorsal segments. Wings hyaline, tinged with yellow, the costa and nervures testaceous, except the basal two abscissae of the radius, the cubitus except the basal abscissa, the second transverse cubital and the anal nervure which are black; the second abscissa of the radius is about one-fourth shorter than the third, the first transverse median nervure is received in the middle of the cellule. Temples distinctly roundly dilated behind the eyes; there is no antennal area, only a keel on the inner side of the antennae. Legs with the coxae, trochanters, femora, base of tibiae narrowly, their apex more broadly, the apex of the basal two joints of the four front tarsi, the base and apex of the hinder pair and all the other joints black, the rest testaceous. There is a fuscous cloud, longer anteriorly than along the radius, in the base of the radial cellule, one in the apex of the first cubital of equal width at the base, the basal (and larger) hyaline part being triangular and this cloud is continued into the second cubital cellule where it is wider along the cubitus than along the radius.

Allied to *A. dirce*, Kirby.

*Athalia himantopus*, Klug.


ICHNEUMONIDAE.

ICHNEUMONINI.

*Ichneumon transvaalensis*, sp. n.

Dark rufous, the central part of the propleurae, the apex of the mesopleurae above and more narrowly below, the mesosternum and the base of the metapleurae, black; the centre of the mesonotum and of the metanotum darker coloured than the sides; legs coloured like the body, the four anterior tarsi darker coloured, the posterior black. The antennal scape rufous, the flagellum black, the ninth to eighteenth joints of the flagellum for the greater part yellowish-white. Wings hyaline, very iridescent, the stigma rufous, the costa and nervures black; the discocubital nervure with a minute stump, the recurrent nervure angled above
the middle and with a short but distinct stump on the outer side of the angle; it is received shortly beyond the middle of the areolet, which is narrowed in front, the nervures almost meeting there; the transverse median nervure is received shortly beyond the transverse basal. Head, thorax (especially the upper part), and legs densely covered with white pubescence. The areola is clearly longer than wide, the base open, the apex rounded inwardly, the sides outwardly, the inside in the centre irregularly longitudinally, the sides irregularly transversely striated. Head and thorax strongly, closely punctured, the metathorax more strongly than the rest, the scutellum less closely than the mesonotum, with its base smooth. Female.

Length, 11 mm.

Fountains (Pretoria). April.

Basal three segments of the abdomen closely punctured, the first more strongly than the second, the latter than the third, which is weakly punctured at the apex. Gastracoeli deep, strongly striated; the part between them is more strongly striated than the rest of the segment.

**HOLCICHNEUMON, gen. nov.**

Clypeus transverse, armed in the centre with two small teeth or tubercles. Labrum prominent. Scutellum not raised above the mesonotum, its sides stoutly keeled, furrowed inside the keels; both are separated at the apex. Metathorax broadly rounded, regularly areolated; the areola longish, the basal half of equal width, the apical obliquely narrowed; the basal area almost square, of equal width; the spiracles longish, linear. Areolet four-angled, the transverse cubital nervures meeting in front; disco-cubital nervure broken by a stump; the transverse median nervure received shortly beyond the transverse basal. Post-postiole smooth; it becomes gradually widened towards the apex; gastracoeli moderately large and deep; the seventh segment is as long as the sixth. Tarsi closely spinose beneath and with longer spines on the apex. Antennae dilated towards the apex. Ventral keel on segments 2-4.

Characteristic of this genus are the transverse, bituberculate clypeus and the scutellum deeply grooved laterally.

**Holcichneumon testaceus, sp. n.**

Testaceous, the orbits narrowly bordered with yellow, the face, clypeus, mandibles, malar space, and pleuræ tinged with yellow; the tips of mandibles, stemmaticum and two broad lines on the mesonotum, commencing near the base and extending to the apex, black, the lines on the mesonotum bordered with pale yellow; legs coloured like the body, the hind tibiae infuscated, their tarsi black. Flagellum of antennæ black, the apex infuscated, the eleventh to seventeenth joints white. Covered with a white pile; the head and thorax closely punctured, the scutellums smooth; the lateral furrows on the scutellum deep, bordered outwardly by stout keels which do not meet behind. Areola fully one-half longer than wide, the apical half narrowed, the base transverse, the apex rounded inwardly; the basal area large, almost square, being of equal width.
Basal segment of abdomen smooth, the others closely, weakly punctured. Gastracoeli large, striated outwardly, the inner side deep and smooth. Female.

Length, 13 mm.

The pubescence is short, sparse, and white. The face and upper part of the clypeus are strongly, but not closely, punctured; the front smooth, the vertex punctured. Thorax closely punctured, the metanotum more strongly than the rest. Scutellum smooth, the base sparsely, weakly punctured, each puncture with a hair. The second and following abdominal segments are weakly closely punctured. The temples are short, obliquely rounded.

Listrodromini.

Ctenochares, Foer.

Ctenochares xanthomelas, Bé.

Cf. Cameron, Annals of South African Museum, V, 177. A single example of this widely distributed species.

Cryptinae.

Cryptini.

Osprynchotus, Spin.

Osprynchotos ruficeps, Cam.


Osprynchotus capensis, Guér.


The male varies in length from 15 to 25 mm.

Alriada, gen. nov.

Areolet pentagonal, twice longer along the radius and cubitus than along the transverse cubital nervures, the recurrent nervure received in the middle; transverse median nervure received behind the transverse basal; transverse cubital nervure in hind wings broken shortly below the middle; disco-cubital nervure broadly rounded, unbroken. Metanotum smooth, shining, with two complete keels, the basal farther removed from the base than is the apical from the apex; the spiracles small, almost circular. Mesonotal furrows extending from the base to the apex. Lower half of face bordered by wide, deep furrows. Clypeus separated from the face, slightly, broadly depressed in the middle. Labrum prominent, rounded below. Mandibles depressed in the middle at the apex. Occiput margined, not transverse. Eyes large, converging below; the malar space short. Abdominal petiole becoming gradually, but not much, widened from the base to the apex, smooth, the second and third segments closely distinctly punctured, the second raised at the base. Antennae much longer than the body, slender, slightly thickened towards the apex,
near which is a broad white ring. Legs slender, the fore tibiae more than twice the length of the tibiae. Claws short. Metapleural keel complete, stout. Head wider than the thorax.

The type of this genus is a slender, uniformly luteous species, with clear hyaline wings. I refer it to the Mesostenini from the form of the areolet, which, although larger than is usual with that tribe, has the second nervure faint and it is not narrowed in front as it is in the Cryptini. There is no described genus with which it can be compared. Characteristic is the face with the sides deeply furrowed and the depressed clypeus.

*Alriada spilocephala*, sp. n.

Luteous, the flagellum of antennae, except the apex of the tenth and the eleventh to seventeenth joints which are clear white; a mark on the centre of the vertex and upper half of the front, the mark narrowly dilated for a short distance along the keel on occiput and roundly narrowed below, the apex of mandibles and the apical fourth of the ovipositor, black. Wings hyaline, the stigma and nervures black, the second transverse cubital nervure and the disco-cubital nervure beyond the middle bulleted. Female.

Length, 7 mm.; terebra, 3 mm.

Smooth and shining, the second and third abdominal segments closely, rather strongly, the fourth weakly, punctured. There is a short, sparse, white pubescence.

*Mesostenus albilabris*, sp. n.

Black, shining; the thorax red, the lower part of the propleuræ, prosternum, the centre of mesosternum, a triangular mark along the apex of the furrow and the metasternum, black; the apical half of the eighth and the ninth to fourteenth joints of the antennæ and the labrum, white; the clypeus tinged with brown, the palpi blackish-fuscous, the middle of basal abdominal segment dark rufous. Wings hyaline, the nervures black, the posterior part of the stigma fuscous, the disco-cubital nervure largely bulleted at the base of the apical third, the recurrent nervure largely in the middle; it is received at the base of the apical third of the areolet, which is twice longer than wide. Parapsidal furrows crenulated; the mesonotum smooth; scutellum strongly but not very closely punctured. The centre of the basal part of the metanotum is smooth at the base and apex, the rest finely, closely, irregularly striated, with scattered punctures; the outer part is strongly punctured, the punctures clearly separated, the basal two-thirds of the apical part strongly, closely, irregularly striated; the apex less strongly, more regularly, striated, with the striae distinctly separated. Propleuræ smooth, with a striated belt near the base. Mesopleuræ closely, irregularly reticulated, a closely, obliquely striated band below the tubercles, the apex smooth near the top. Metapleuræ more strongly and closely punctured than the mesopleuræ, the lower part near the centre more or less obliquely striated; the parts beyond the apical furrow striped. Mesosternum more strongly and regularly punctured than the mesopleuræ. First abdominal segment smooth, except narrowly at the base; there is a conical depression near the base of post-petiole, and
along its sides a wide curved furrow; the second and third segments are closely, rather strongly punctured, the others sparsely and weakly so.

Female.

Length, 10 mm.; terebra, 14 mm.

Lemana (Zoutpansberg District). November.

Face closely, irregularly, longitudinally striated in the centre, the lower part of this striated part bordered by curved furrows; the sides above with a few weak punctures. Clypeus and labrum smooth, shining, sparsely covered with white hair; the front and vertex smooth, shining, punctured between the ocelli. Legs black, the four anterior femora and tibiae largely infuscated, the anterior more largely so than the middle; the second, third, and base of fourth joint of the hinder tarsi white; the tarsi covered with short white spines.

This species, of those known to me, comes nearest to *M. lissonotus*, Cam.; the following are the essential differences between the two:—

Length, 17 mm.; labrum and base of first abdominal segment black, the third and fifth abdominal segments with the apices white; base of metanotum strongly punctured throughout, a keel between the ocelli. *lissonotus*, Cam.

Length, 10 mm.; labrum white, base of first abdominal segment rufous, the third and fifth abdominal segments without white, base of metanotum striated and punctured only in the middle; no keel between the ocelli. *albilabris*, Cam.

**Hemitelini.**

**Valoga, gen. n.**

Metanotum closely, transversely striated; there are two keels down the middle of the basal half; the spiracles small, round. The only transverse cubital nervure is short, the radius and cubitus nearing each other at it; the recurrent nervure is received four times its length beyond it; transverse median nervure almost interstitial; the disco-cubital nervure rounded, unbroken; the transverse cubital nervure in hind wings broken shortly below the middle. Third joint of antennae longer than the fourth; there are twenty-seven antennal joints. There is a raised tubercle in the centre of the face near the clypeus, which is not clearly separated from the former. Malar space furrowed, one-third of the length of the eyes. Ocelli in a curve, separated from the eyes by a slightly greater distance than they are from each other. Occiput margined. Scutellum raised, smooth, keeled laterally at the base. Basal three abdominal segments closely striated; the first becomes gradually widened from the base to the apex; the ovipositor is half the length of the abdomen. The wings are clouded.

This genus may be known by the absence of areae on the metanotum. It is not unlike the South African genus *Lievella*, Cam., which wants also the first transverse cubital nervure, but it has the metanotum regularly areolated.

**Valoga nitidisentis, sp. n.**

Black, the pro- and mesothorax and the metapleurae red; flagellum of antennae dark red, joints fourth to seventh and the twelfth and following, blackish; the fore legs testaceous, the middle of a darker testaceous
colour, black at the base, the spurs dark testaceous. Head, thorax, and apical segments of abdomen covered with white pubescence. Wings hyaline, a wide pyriform cloud behind the transverse basal and transverse median nervures, the narrowed end in front, the posterior rounded; it does not reach to the costa, but extends to the posterior edge of the wings; there is a large, irregular pyriform cloud, narrowed in front extending from the anterior to the posterior part of the wing; it commences at the base of the disco-cubital nervure; the apex is clouded; there is a fainter cloud in the front of the posterior wings beyond the middle at the transverse radial nervure. Head closely punctured, the face more strongly than the vertex, the clypeus smooth at the apex, as is also the malar space; the temples shining, not very closely punctured. Mesonotum irregularly, rather strongly and closely transversely striated, the scutellum smooth; the metanotum closely irregularly transversely striated. Pleurae closely, rugosely punctured, the puncturation strongest on the metapleurae. The striae on the basal three abdominal segments are strong and clearly defined. Female.

Length, 4 mm.; terebra, 2 mm.

Pretoria. February.

The tegulae are black; the base of the costa is white. Outside the clouds the alar nervures are pale.

*Lienella annulata*, sp. n.

Black, shining; covered with a white pubescence, which is longest and densest on the face and metanotum, shorter and denser on the legs than on the body; the antennal scape, the basal three or four joints of the flagellum except above, mandibles, the four front legs and the posterior trochanters rufous; the palpi long and white; wings hyaline, the stigma, costa, and nervures black; a dark fuscous cloud extends from the base of the radius to the end of the areolet, and posteriorly near to the anal nervure, the cloud becoming slightly roundly narrowed behind; the disco-cubital nervure broken by a minute stump, the transverse cubital nervure in the hind wings broken shortly below the middle. The base of hind tibiae annulated with pale yellow. Male.

Length, 5 mm.

Valdesia (Zoutpansberg District). November.

Front depressed in the middle, closely transversely striated. Face opaque, the clypeus shining, sparsely punctured, the vertex more closely, the temples more sparsely and weakly punctured. Third and fourth joints of the antennae almost equal in length. Middle lobe of mesonotum somewhat strongly punctured, a furrow, bordered by smooth and shining spaces down the middle, the lateral lobes irregularly, obliquely or transversely striated, the centre smooth, the striae wide and deep; those near the apex roundly curved. Depression at the base of scutellum wide, with two keels down the middle. Scutellum not very closely punctured, the sides keeled. Metanotum regularly areolated, the areola three times longer than wide, obliquely narrowed at the base, where it is united to a triangular area; the other areas are coarsely, irregularly reticulated—striped,
Propleurae almost smooth, the apex stoutly striated, the striated band narrowed above. Mesopleurae closely punctured at the base above, the apex smooth, narrowly above, widely below, the rest irregularly striated. Metapleurae closely, rather strongly punctured. Base of first abdominal segment acciculated, the apex with a broad band of curved striae on either side; the basal half of the second segment more strongly and regularly striated; the other segments smooth.

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**PIMPLINAE.**

**Acornitini.**

*Acronus melanarius*, sp. n.

Black; the sides of the clypeus broadly above to the commencement of the rounded apex, the mandibles except the teeth, and the apical seven or eight joints of the antennae, rufous; wings, fusceous violaceous, highly iridescent, the nervures and stigma black. Antennae as long as the abdomen and longer than the head and thorax united, thirty-jointed, the pubescence microscopic, the third joint a little longer than the fourth. Transverse median nervure interstitial; the disco-cubital broken by a distinct stump, the recurrent nervure with two bullae and received one-third of its length beyond the transverse cubital; the transverse cubital nervure in hind wings broken near the bottom. Pubescence on metanotum dense, moderately long, black; on the rest of the body it is sparse, except on the base of the abdomen. **Male.**

Length, 25 mm.; wing stretch, 57 mm.

Waterval (Zoutpansberg District). November.

Head finely, closely punctured; a fine keel between the antennae, a broader, rounded one down the middle of the face, not reaching to its apex; it is separated from the clypeus by a wide, not very clearly defined, furrow, which is wider and deeper on the sides. Apex of clypeus broadly rounded. The curved mandibles have the basal part striated, the striae becoming gradually stronger. Malar space half the length of the eyes. Apex of clypeus broadly rounded. Hinder ocelli separated from each other by half the distance they are from the eyes. Upper part of thorax opaque, alutaceous, the pleurae finely, closely punctured; metanotum with two irregular keels down the middle, the sides bordered by a more distinct one; the apical slope bordered by keels all round, the keels forming a closed area, roundly narrowed at the top, the upper keel waved; on either side of this is another area, three times wider than long, commencing near the middle of the central area; it is transverse at the apex and wider than long. Abdomen alutaceous; on the sides of the basal segment is a keel, which curves round the inner side of the spiracles at the base. The head is not so wide as the thorax; the temples are broadly, roundly dilated.

Allied to *A. niger*, Enderl.
ACOENITINI.

*Paracollyria carinifrons*, sp. n.

Black, smooth and shining; the head, including the mandibles, except the apex narrowly, palpi, antennal scape, prothorax, and anterior legs, red; the eighth to fourteenth joints of the flagellum except above and the fifteenth to eighteen or nineteen entirely yellowish-white; wings fuscous violaceous; there is a tripartite cloud of irregular shape in the fore wings, it commences near the costa, half-way between the stigma and apex of the wings, outside the transverse cubital nervure, from which it is clearly separated and of the recurrent nervure which it almost touches and where it becomes widened; disco-cubital nervure broken by a stump. Male.

Length, 11 mm.

Waterval (Zoutpansberg District). November.

Face and clypeus sparsely, weakly punctured; the latter depressed on either side of the apex. Front depressed, a narrow but distinct keel down the middle. Hinder ocelli separated from the eyes by the same distance as they are from each other. Malar space as long as the eyes, a narrow furrow down it. Parapsidal furrows deep, the base smooth, the rest stoutly crenulated. Base of post-scutellum with two large foveae, longer than wide, rounded at the apex. Middle of metanotum with two keels forming a deep channel, slightly widened and rounded at the apex; the part on either side is smooth to near the middle, the rest closely, strongly reticulated, this part being bordered laterally and at the apex by a keel. The first abdominal segment is as long as the following two united. Antennae twenty-nine-jointed, the last joint thickened, the three behind it narrowed to a bluntly rounded point on the under side, clearly separated. There is a bulla on the disco-cubital nervure and two on the recurrent; the recurrent nervure is separated from the transverse cubital by a slightly greater distance than its own length. There is an area, lengthened and narrowed on the outer side, on either side of the apical slope of the metanotum.

Allied to *P. ruficollis*, Cam., from Rhodesia, of which only the female is known.

OPHIONINAE.

Ophionini.

*Heniscospilus pallidiceps*, sp. n.

Pallid testaceous; the head for the greater part pale yellow, the antennae rufous, the wings clear hyaline, highly iridescent, the costa, stigma, apex of transverse basal nervure broadly and the basal abscissa of the radius testaceous, the other nervures black; there are two horny points, both with long curved processes; the basal one is wide, almost bilobate at the base, the sides rounded, it becomes gradually narrowed to
a point and is nearly as long as it is wide at the base; the second point is not quite so long as the top of the posterior one, runs parallel with the radius, is slightly curved downwards at the base and is twice longer than wide; the basal abscissa of the cubitus is slightly roundly curved, and is a little more than half the length of the recurrent nervure; the transverse median nervure is received behind the transverse basal. Sides of scutellum keeled; its apical slope strongly striated. Base of metanotum finely, closely punctured; the base of the posterior part irregularly reticulated, the rest more strongly, roundly striated. Upper half of metapleurae finely, closely punctured, the lower closely, rather strongly, obliquely striated; the sternum, pro- and mesopleurae are almost smooth; the sternum and abdomen (especially at the base) are more rufous in tint than the rest of the body. Female.

Length, 24 mm.

Bred.

Sheath of ovipositor shortly projecting, black. First abdominal segment as long as the scutellum and metanotum united, a little longer than the second, its apex nodose, twice the width of the base. The disco-cubital nervure is roundly curved towards the horney points shortly before the middle. Tibiae spineless, the apices of the tarsal joints with short weak spines. Temples moderately long, obliquely roundly narrowed. Hind ocelli almost touching the eyes. Apex of clypeus bluntly rounded.

*Enieospilus transvaalensis*, sp. n.

Dark rufo-ferruginous; the eye orbits narrowly lined with pale yellow, the line on the outer wider than the inner, but not half the width of the orbits, the line continued more narrowly behind the ocelli, the hinder of which touch the eyes. Base of metanotum finely, closely, distinctly punctured, the middle with some fine striae; the rest is closely, somewhat strongly, reticulated. Propleurae finely, closely striated, the striae oblique, rounded above, the upper side at the base and the lower edge smooth. Mesopleurae for the greater part finely, closely, obliquely striated. Metapleurae more strongly obliquely striated, the striae becoming stronger below. Scutellum keeled laterally to beyond the middle, closely, distinctly punctured, the apical slope irregularly striated. Wings hyaline, the costa and stigma sordid testaceus, the nervures black; the horny points without processes; the basal irregularly triangular, with the three angles rounded; at the base it is as long as it is at the apex; the second point is conical, rounded at the base and apex; the lower part narrowed. The disco-cubital nervure is rounded backwards near the centre, the apical part straight, the angle at the junction rounded; it is unbroken. As usual the apical abdominal segments are infuscated. Female.

Length, 18 mm.

Pretoria. September.

The pubescence is dense, white, and short. The transverse keel on the base of the metanotum is distinct.
The relationship of this species is with *E. rufus*, Bé.; the two may be separated thus:

The hind orbits entirely yellow, the yellow line on the inner broad, dilated in the middle below, the basal horny point oblique, conical, longer than it is wide in front; the hind ocelli separated from the eyes, metanotum without a transverse keel on the top of the striated part.

The inner and outer orbits only narrowly yellow, the inner line not dilated below, the basal horny point triangular, not longer than wide, the hinder ocelli not separated from the eyes, metanotum with a distinct basal transverse keel. *transvaalensis* Cam.

**Pleuroneuropion rotundistriatus**, sp. n.

Rufo-testaceous; the apical abdominal segments infuscated, the wings hyaline, the costa and stigma ferruginous, the nervures blackish, the transverse basal nervure and the basal abscissa of the radius lighter coloured, tinged with ferruginous; the outer orbits tinged with yellow.

Sides of scutellum stoutly keeled on basal half; the apical slope finely, closely striated. The extreme base of metanotum smooth, the rest of the basal part finely, closely striated, more strongly laterally than in the middle; the upper part of the apical slope transversely striated, the rest more strongly striated, the striae roundly curved, running into reticulations on the sides. Propleurae punctured, the punctures large and clearly separated above, finer and closer below, the centre more or less striated. Mesopleurae more strongly punctured all over; the metapleurae much more strongly, obliquely punctured, the punctures almost forming striae. Face closely, the clypeus less closely punctured; the labrum closely and strongly punctured. Hinder ocelli almost touching the eyes. The pubescence dense and white. First abdominal segment distinctly longer than the scutellum and metanotum united; the apex nodose, fully twice wider than the base. Female.

Length, 24 mm.

Kourulene (Zoutpansberg District). December.

The transverse cubital nervure in the hind wings is broken at the top of the posterior fourth, where it is sharply angled; the two abscissae are straight and obliquely sloped. Temples half the length of the top of the eyes. Parapsidal furrows weakly indicated on the basal slope of the mesonotum.

This species is smaller than *P. pruinosus*, Cam.; the following are the chief differences between the two:

The hinder orbits entirely clear whitish yellow: the scutellar keels white, densely covered with white pubescence, the costa black, apex of metanotum reticulated, the transverse cubitus in hind wings broken at the top of the apical third, the fore part rounded. *pruinosus* Cam.

The hinder orbits with the inner half obscure yellow, the scutellar keels ferruginous, not densely haired, apex of metanotum roundly transversely striated: the transverse cubitus in hind wings broken at the posterior fourth, the fore part straight. *transvaalensis* Cam.

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**Campoplegini.**

**Campoplex transvaalensis**, sp. n.

Black, the head and thorax densely covered with white pubescence, the flagellum of antennae almost fuscous, the sides of the post-petiole, of
the second abdominal segment broadly below, the third, fourth, and fifth almost entirely, the sixth not so broadly and the seventh entirely, ferruginous; the mandibles except the teeth and the palpi pale yellow; the four front legs whitish, the coxae black, the femora darker coloured, the pale colour suffused with fuscous; the hind legs black, the femora obscure dark rufous; the tibiae with a broad pale band commencing near the base and extending to shortly beyond the middle; the spurs white. Wings clear hyaline, the stigma and nervures black, the areolet four-angled, it being distinctly angled where the recurrent nervure is received at the apex of the basal fourth; in front the transverse cubital nervures unite; the transverse median nervure is received shortly beyond the transverse basal; the apical longitudinal nervures in the hind wings are faint; the cubitus is broken shortly below the middle. Female.

Length, 10 mm.

Warmberg (Zoutpansberg District). March.

Eyes distinctly incised on the inner side. Face closely, somewhat strongly punctured, almost reticulated; the vertex closely, but not quite so strongly, punctured. Thorax closely punctured, the puncturation on the metathorax closer; on the mesopleurae the punctures are larger and more widely separated. There are no keels on the metanotum, the apical slope of which is widely furrowed, the apical half of the furrow being distinctly, transversely striated. The lower part of the propleurae is strongly obliquely striated.

*Pimplomorpha nigro-ornata*, sp. n.

Rufo-testaceous; the antennae, tips of mandibles, ocellar region, three large marks on mesonotum, the central wider and shorter than the others, a minute spot on either side of the metanotum at the base, a conical spot on the base of mesopleurae below, a streak on mesosternum, an irregular spot at the base of the post-petiole, a distinct line on either side of the basal half of the second segment, two squarish spots on the base of the third, a semicircular mark on the sixth and the basal half of the first ventral, black; wings hyaline, the nervures and stigma black. Female.

Length, 11 mm.; terebra, 9 mm.

Van der Merwe (Pretoria District). November.

The pubescence is short, dense, and white; the puncturation on the head and thorax dense and close; it is stronger on the metanotum, which has the apical slope rather strongly transversely striated in the middle; there is an indistinct, longer than wide, areola, the posterior and apical keels of which are indistinct. The second abdominal segment is closely striated. The apical nervures in the hind wings are faint; the transverse cubital nervure is broken shortly below the middle, the recurrent nervure is largely bullated at its junction with the cubitus. There are two fuscous spots on the occiput. The pleurae and scutellum are largely yellow.

May be known from *P. trilineata*, Cam., the type of the genus (Annals of South African Museum, V, 96) by the base of the metanotum having only two small marks, not the basal half black, by the dorsal abdominal segments being marked with black lines and spots and by the second being striated.
Amorpha densipilosella, sp. n.

Black; densely covered with silvery pubescence, the antennal scape rufous, the mandibles, except the teeth, palpi, and tegulae, yellow; the abdomen rufo-testaceous, the basal segment entirely, the second above except at the apex, the greater part of the basal half of the third, the mark roundly narrowed at the apex, a longish conical mark in the middle of the basal half of the fourth, a similar but smaller mark on the fifth, and the greater part of the apical, black; the genital sheath black; the second and third ventral segments yellow. Legs rufo-testaceous; the hind coxae and basal joint of hind trochanters black, the four anterior coxae black at the base; the four anterior trochanters and the apical joint of the posterior yellow; the spurs pale, the hind tarsi blackish. Wings hyaline, the stigma testaceous, the nervures black; the areolet with a pedicle longer than the branches, the outer of which is a little longer than the inner; the recurrent nervure received near the centre; the disco-cubital nervure is bullated widely beyond the middle, the recurrent nervure is still more widely bullated, the transverse median nervure interstitial; the apical nervures in the hind wings are faint, almost obsolete. There is a short keel near the base of the metanotum; from it a keel runs obliquely to the sides, its apex reaching to the apex of the basal fourth for the meta- notum; an indistinct keel borders the outer edge and one runs from the spiracles to the coxae; the spiracles are small, oval, twice longer than wide. Hind ocelli separated from each other by double the distance they are from the eyes. Male.

Length, 6 mm.

Pretoria. 27th February.

Antennae slightly longer than the body, densely covered with a microscopic pile. Head and thorax closely punctured, the punctures on the scutellum more widely separated than they are on the mesonotum; on the base of the metanotum they are weaker; the apical slope of the latter is strongly alutaceous, impunctate, more or less transversely striated. The pubescence on the head and metanotum is denser than elsewhere. The post-scutellum is striated on the apical half.

Androna, gen. nov.

Wings without an areola, the recurrent nervure received beyond the transverse cubital; the transverse median interstitial; the transverse median nervure in hind wings unbroken, the apical longitudinal nervures being obliterated; the stigma large, gradually narrowed to a point in the middle, angled where the transverse cubital nervure is received at the apex of the basal third; the radius issues from the middle of the stigma. Metanotum regularly areolated, with three central and three lateral areae; the areola longer than it is wide at the apex; it is closed at the base; the spiracles are small, oval; there is a large, wide spiracular area. Abdominal petiole clearly dilated at the apex; the other segments are compressed, but stout; the ovipositor in the known species is shorter than the abdomen. Head transverse, the temples short, roundly narrowed. Apex of clypeus
broadly rounded, not separated from the face in the middle; the sides above with a distinct fovea, from which runs below a narrow furrow. Eyes large, parallel; there is a short, but distinct, malar space. The hind metatarsus is more than one-third of the length of the tibiae; the spurs of normal length; the claws simple; antennae shorter than the body. The scutellum is flat, or at least not much raised above the mesonotum, which has no indications of furrows.

The affinities of this genus are clearly with *Pimplamorpha*, Cam.; that genus may be known from it by the apex of the first abdominal segment not being swollen, but gradually dilated; by the clypeus being more distinctly separated from the face, by the recurrent nervure not being received clearly beyond the transverse cubital, by the apical longitudinal nervures in the hind wings being clearly traced and the transverse median distinctly broken; the pterostigma is longer and not so thick in the middle; the radial cellule is narrower, not so much widened in the middle, the scutellum is more convex, and the metanotum is less distinctly areolated, the basal areas, including the areola, being not clearly defined.

The following table may aid in the determination of the species of *Androna* described here:—

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mesonotum for the greater part black.</td>
</tr>
<tr>
<td>2</td>
<td>Mesonotum with only two continuous yellow lines, the face and clypeus yellow. <em>variventris</em>.</td>
</tr>
<tr>
<td>3</td>
<td>Mesonotum with two lines and a large square mark in the centre of the apex, the face and clypeus broadly black in the middle. <em>spilopus</em>.</td>
</tr>
<tr>
<td>4</td>
<td>Mesonotum rufo-testaceous.</td>
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<tr>
<td>5</td>
<td>The black line on the metanotum extending from the base to the apex, the back of the basal two abdominal segments entirely black. <em>flaviceps</em>.</td>
</tr>
<tr>
<td>6</td>
<td>The black lines on the metanotum and the basal two abdominal segments not reaching to the apex.</td>
</tr>
<tr>
<td>7</td>
<td>The black on the metanotum not narrowed to a fine point, of equal width throughout.</td>
</tr>
<tr>
<td>8</td>
<td>The head for the greater part pale yellow, the mesosternum black, the black in centre of second abdominal segment wider than the outer testaceous part. <em>latimaculata</em>.</td>
</tr>
<tr>
<td>9</td>
<td>The head without yellow, the sternum immaculate, the black on second abdominal segment narrower than the outer testaceous part. <em>fuscicornis</em>.</td>
</tr>
<tr>
<td>10</td>
<td>The black on the metanotum narrowed to a fine point. <em>basiorumata</em>.</td>
</tr>
<tr>
<td>11</td>
<td>The metathorax entirely black, the second abdominal segment lined laterally with black. <em>flavo-orbitalis</em>.</td>
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</tbody>
</table>

*Androna variventris*, sp. n.

Black; the face except for a short black line below each antenna, the clypeus, mandibles except the teeth, the eye orbits except opposite the ocelli, antennal scape, a line down the sides of the mesonotum, commencing near the apex and continued to the base where it is dilated and
then along the outer edge to the tegulae, the scutellar keels, basal two-thirds of the scutellum, the base of propleurae, a triangular mark on the apex above, the tubercles, base of mesopleurae narrowly, a wide mark along the lower half, irregularly, roundly incised on the apical half above, more regularly and deeply on the basal half below, the apical half obliquely narrowed to a narrow point, a semicircular mark below the hind wings, a line, dilated at the base, on the top, along the keel and the spiracular area from the spiracles, pale yellow. The second and third ventral segments are pale clear yellow, the others and the apices of the third, fourth, and fifth dorsal, rufo-testaceous. Wings hyaline, the stigma fuscous, the nervures black. Legs pallid yellow, the hind femora broadly above, the hind tibiae except near the middle and the hind tarsi, black. Male.

Length, 7 mm.

Pretoria. October.

Head and thorax closely punctured, the clypeus less strongly and more sparsely than the face; its apex is broadly rounded, the lateral foveae large, deep; the front is closely, rather strongly striated; the apical slope of the metanotum transversely striated, the striae weak in the middle of the posterior median area; the areola is large, twice longer than it is wide at the apex, which is transverse; towards the base it is roundly narrowed from the middle. The second abdominal segment is aciculated.

*Androna spilopus*, sp. n.

Black; the eye orbits moderately broadly, more broadly above, where there is a triangular incision, the malar space entirely, the apex of the clypeus, the mark with a wide shallow incision above and with a shorter, deeper incision in the centre of the apex below, a large mark, of equal width, longer than wide, in the middle of the apical half of the mesonotum; from the outer edges of this a line runs to the base of the mesonotum and is then continued along the top of the mesopleurae, the basal part between the two being dilated; a line on the upper part of the pronotum, which becomes gradually widened towards the apex, a broader line of equal width on the lower part of the propleurae, the tubercles, a broad mark on the lower part of the mesopleurae, straight above, rounded below, and with the apical third roundly narrowed, a large irregular mark on the lower half of the metapleurae, the mark continued to the posterior median area of the metanotum, the scutellum, its keels and the ventral surface of the abdomen, clear yellow; a narrow testaceous line on the apex of the first abdominal segment, and broader testaceous lines, rounded at the base, on the others. Legs rufo-testaceous, the coxae and trochanters pale yellow, marked behind with black, the knees paler, more yellowish in tint, the hind tibiae darker, broadly black at the base and apex. Wings hyaline, the nervures and stigma fuscous. Female.

*Androna flaviceps*, sp. n.

Rufo-testaceous; the head, prothorax, the sides and two lines on the base of the mesonotum yellow, the stemmaticum, metanotum, upper edge of metapleurae, first abdominal segment, upper part of second, a semi-circular mark on the base of the third and the greater part of the apical two segments above, black; legs coloured like the body, the last joint of
the tarsi blackish; wings hyaline, the stigma fuscous, the nervures black, the recurrent nervure largely bullated, received one-fourth of the length of the transverse cubital nervure beyond the latter. Flagellum of antennae fuscous, a broad obscure yellow band beyond the middle, the scape for the greater part yellow. Metanotum regularly areolated, the areola four times longer than wide, the base narrowed gradually to a sharp point, the apex transverse; the puncturation is much stronger than it is on the mesonotum; the posterior median area is transversely striated. The striation on the second abdominal segment is weak. Male.

Length, 6 mm.
Pretoria. October.

This species is clearly con-generic with *P. flavo-orbitalis*, from which it may be known by the paler, more yellowish colour of the body, by the yellowish head and prothorax, and by the second abdominal segment being entirely black above, it being also less strongly striated.

*Androna latimaculata*, sp. n.
Rufo-testaceous; the head pale yellow, the scape of antennae pale yellow, the flagellum black, fuscous below on the basal half, the stemmataum black, the mark continued on to the vertex, it becoming gradually narrowed behind, mesosternum, a large mark of equal width, three times longer than wide, on the basal three-fourths of the metanotum, the basal fourth of the first abdominal segment, the basal half of the second and the greater part of the following segments above, black; the legs paler coloured; tarsi fuscous. Male.
Length, 5 mm.
Pretoria. March.

*Androna fuscicornis*, sp. n.
Rufo-testaceous; without yellow, except on the mandibles, which are pale yellow with black teeth; the stemmaticum, the mark rounded behind, a mark of equal width and two-and-a-half times longer than wide, its apex transverse on the basal two-thirds of metanotum, the basal fourth of the first abdominal segment, a narrow line, widened at the base, on the basal two-thirds of the second, and wide marks on the base of the following segments, the apical two larger than on the others, black; and the basal ventral segment is narrowly black at the base; antennal scape pale testaceous, the flagellum fuscous, darker at the base. Wings hyaline, the stigma and nervures fuscous, the former paler in front. The apex of the areola and the posterior median area transversely striated. Pleural smooth. Legs paler coloured than the body; a line near base of the hind tibiae and a wider one on the apex, the base and apex of the hind tibiae and the hind tarsi fuscous. Wings hyaline, the stigma and nervures fuscous. Abdomen almost twice the length of the thorax, the ovipositor two-thirds of its length. Female.
Pretoria. February.
The centre of the face and of the clypeus tinged with rufous, as well as the middle of the front; the former two are covered with short white pubescence. Metanotum closely and rather strongly transversely striated.

...
the base of the areola finely, closely punctured. Pleurae finely closely punctured, the metapleurae more strongly and closely than the rest. The second abdominal segment is closely striated.

*Androna baisornata*, sp. n.

Pale yellow; the flagellum of the antennae, except at the base, where it is fuscous, the tips of mandibles, stemmaticum, the lower part of the occiput, a line on the sides of the mesonotum, continued down the sides and round the apex of the scutellum, continued broadly down the centre of the basal three-fourths of the metanotum, the apex of the latter line being acutely pointed, the basal third of the first segment of the abdomen, a line, one-third of the width of the segment, down the basal two-thirds of the second, a semicircular mark on the base of the third, and larger, more irregular marks on the others, black. The base of the legs pale, the rest coloured like the body, except the base of the hind tibiae narrowly, the apex more broadly and the tarsi fuscous. Wings hyaline, the stigma and nervures fuscous. Male.

Length, 5 mm.; terebra, 4 mm.


The yellow on the face and occiput runs into rufous; the mesonotum is rufous except in the centre of the apical half; the abdomen is for the greater part rufous. The amount of the rufous colour probably varies and may indeed be a discolouration.

The male has no black round the scutellum, the line on the metanotum is shorter and of equal width, not sharply pointed at the apex, and the abdominal black marks are smaller.

Length, 7 mm.; ovipositor, 2 mm.

Pretoria. February.

Covered with a short white pile, the head and thorax closely, distinctively punctured, except for a smooth band over the mesopleural depression; the metathorax is more coarsely punctured than the rest; the top of the areola is smooth, the rest of it and the posterior median area less closely, rather strongly transversely striated. Abdomen smooth, the second segment longitudinally aciculated, almost striated on the apical half. The antennae are stout, of equal thickness and are as long as the head, thorax, and basal segment of the abdomen united. The areola is long, narrow, and of equal width.

*Androna flavo-orbitalis*, sp. n.

Rufous; the inner orbits broadly pale yellow, the antennae, metathorax, the first abdominal segment, a broad line down the sides of the back of the second segment, the back of the fourth, the whole of the following segments, the hind coxae, trochanters, and the base of the hind tibiae, black; wings hyaline, the stigma and nervures black; the recurrent nervure is almost interstitial and is received outside the transverse cubital; it is largely bullated in front; the transverse median nervure is interstitial; the apical nervures in the hind wings are very faint, almost obliterated. Metanotum completely areolated; the areola three times longer than wide, the basal half obliquely narrowed to a sharp point at the base; its apical half and the posterior median area are closely, transversely striated;
the rest is closely, distinctly punctured; the metathorax is more densely covered with white pubescence than the rest; the spiracles are oval. Female.

Length, 7 mm.; terebra, 3 mm.

Bronkhorstspruit (E. Pretoria District). December.

Covered with a minute white pile; the head and thorax closely punctured, the latter more strongly than the former. Antennal scape testaceous below. Clypeus not clearly separated from the face, but with large foveae at the sides above. There is a smooth tubercle on the top of the face. The post-petiole is closely, but not very strongly, striated.

Silavoga, gen. nov.

Post-costal nervure with a short straight nervure, having a short curved transverse nervure on the top; transverse median nervure received distinctly beyond the transverse basal; the areolet distinctly appendicated, the second nervure the longer and roundly curved; the recurrent nervure received near the apex; disco-cubital nervure unbroken, broadly roundly curved. Transverse cubital nervure in the hind wings broken above the middle. Metanotum with a narrow area extending from the base to the apex, and two large, wide lateral ones; the spiracles curved, narrow, three times longer than wide. Clypeus not separated from the face, its apex broadly rounded. Basal slope of scutellum keeled; the post-scutellum bordered by stout oblique keels. Abdominal petiole as long as the following two segments united, slender, the apical half thicker than the basal, the spiracles placed shortly beyond the middle. Mandibles bluntly edentate. Occiput and cheeks margined. Antennae long and slender, much longer than the body. Sheath of ovipositor projecting, large, broad, curved. Cerci longish. Abdomen broad, but compressed, the segments laterally becoming wider towards the apex. Legs slender, long, the hinder coxae two-and-a-half times longer than wide, the claws simple.

This genus of Ophioninae may be easily known by the curious nervure on the post-costal, a nervure not found, so far as I know, in any other Ichneumon. It fits in best with the Campoplegini, but in my opinion a new tribe should be formed for it.

Silavoga longicornis, sp. n.

Luteous; the tarsi darker coloured, the flagellum of antennae, tips of mandibles and stematicum, black; covered with a short, white down; the wings hyaline, the stigma pale testaceous, the nervures blackish, the disco-cubital and recurrent nervures largely bullated. Head closely, rather strongly punctured, the thorax not quite so strongly punctured, the scutellum not quite so strongly as the mesonotum. Flagellum of antennae densely covered with short stiff black pubescence. Female.

Kourulene (Zoutpansberg District). August.

Paniscini.

Paniscus melanocistis, Holm.

Paniscus natalensis, sp. n.

Rufo-ferruginous; the antennae blackish, the scape and base of flagellum ferruginous; wings hyaline, the costa and stigma sordid testaceous, the nervures black, the disco-cubital nervure broken by a distinct stump; the second transverse cubital nervure largely bullated behind; the recurrent nervure roundly curved outwardly between the bullae; the disco-cubital nervure broken by a distinct stump; the transverse cubital nervure in the hind wings is broken close to the bottom of the anterior fourth. Scutellum not very strongly keeled to near the apex. Metanotum closely, distinctly, transversely striated; a shallow, narrow longitudinal furrow down the centre of the basal half. The first abdominal segment is twice the length of the second; its apex is finely closely punctured; the ventral surface and apical segments are spotted with fuscous. Female.

Length, 14 mm.
Colenso, Natal.

The face, clypeus, and orbits are tinged with yellow. Face and clypeus closely punctured, the latter more strongly than the former, and separated from it, but not very distinctly. Apex of mandibles broadly black; Ocelli not in a black patch, the hinder clearly separated from the eyes. Tarsi closely spinose. Calcaria and comb black. Parapsidal furrows shallow but distinct.

This species is stouter than melanocotis, from which it may be known by the blackish, not rufous, flagellum of the antennae, by the more deeply tinted ferruginous colour, which is not tinged with yellow, by the recurrent nervure being only roundly curved in front, while in melanocotis the curve extends from the top to bottom; in it, too, the transverse cubital nervure in the hind wings is broken at the bottom of the top third, in the present species at the top fourth.

Paniscus nigrocandis, sp. n.

Rufo-ferruginous; the flagellum of the antennae, the apex of mandibles, a spot in the hollow behind the tegulae and the sixth and following segments of the abdomen, black; wings hyaline, the costa fuscous, the stigma pale testaceous, the nervures black, the disco-cubital nervure broadly rounded, unbroken, the recurrent nervure broadly rounded, the transverse cubital nervure in hind wing broken at the bottom of the fore fourth. The hind ocelli touch the eyes; they are not in a black patch; the orbits are pale yellow. Scutellum distinctly keeled to the apex. Metanotum closely transversely striated, more strongly in the centre than on the sides. Face and clypeus closely punctured, the former raised in the middle; the latter bounded above at the sides by a short distinct furrow. First abdominal segment not twice the length of the second; the abdomen is fully twice longer than the head and thorax united. Male.

Length, 11 mm.
Kranspoort (Pretoria District). December.

Tibiae and tarsi closely spinose. The eye orbits are pale yellow. The parapsidal furrows are not indicated.
TRYPHONIDAE.

Bassini.

*Bassus lotatorius*, Fab.

Cameron, Annals South African Museum, V, 131.

Pretoria. May and September.

This is now practically a cosmopolitan species. It would be interesting to know the Dipteron it is parasitic on in South Africa.

BRACONIDAE.

Braconinae.

*Iphicmlax havelandi*, Cam.


Waterval (Zoutpansberg District). November and December.

The male does not differ appreciably in coloration from the female; it is smaller, that in the collection being hardly 10 mm. long, and is also more slenderly built than the female.

*Iphianlax pretoriaensis*, sp. n.

Black; a wide streak along the sides of the apical two-thirds of the mesonotum, a curved mark near the centre of the scutellum, and the mesosternum dark blood-red; wings fuscous, a mark on the base of the stigma, prolonged in front and behind at the apex, the central black part being wider than the yellow prolongations and with the base rounded, orange yellow; there is a narrow oblique cloud in the lower apical two-thirds of the first cubital cellule reaching the apex at the end of the first abscissa of the cubitus and is prolonged below the cubitus; outside the fore part of the recurrent nervure is an irregular pyriform cloud, the fore part of which is dilated at the base, along the cubitus. Basal two segments of abdomen irregularly, the following three strongly, more regularly striated; the first segment has a stout keel down the middle; the striae are more or less oblique, the lateral furrow is wide, smooth, striated at the base. The area on the base of the second segment is large, wider than long, finely closely obliquely striated; its keel extends to the apex of the segment, which is depressed on either side of it, the striae there being few and curved. The suturiform articulation is wide and strongly, but not closely, striated; the lateral area is smooth on the inner side, finely closely striated on the outer; the furrow on the base of the fourth is deep, narrow, crenulated; the apices of the segments are smooth.

Allied to *I. durbanensis* Cam. (Annals South African Museum, V, 43.).

*Iphianlax pictus*, Bé.

*Braccon pictus*, Brullé, Hymén, IV, 426.


Waterval (Zoutpansberg District). November.
Iphianlax varipalpis, Cam.
Annals South African Museum, V, 49.
Lemana (Zoutpansberg District). October.

Vipio transvaalensis, sp. n.
Rufous; the head paler, brighter in tint, the antennae, tips of mandibles, trophi, stemmaticum, a broad line, twice wider than long, on the base of mesonotum, a narrower longer one on the sides, continued on to the base of scutellum, the apical slope of metanotum largely, the mesosternum, the under side of the fore femora and apical joint of the trochanters, black; wings fuscous, an oblique hyaline irregular cloud in the first cubital cellule continued as a small roundish cloud beyond the cubitus on the outer side of the recurrent nervure, the stigma and nervures black, the base of the stigma testaceous. Male.

Length, 10 mm.; terebra, 17 mm.

Kranspoort (Pretoria District). December.

Front and vertex smooth, shining, the face finely sparsely punctured. Mesonotum and apical half of scutellum with large, widely separated punctures; the scutellar basal furrow crenulated. Metanotum closely and slightly more strongly punctured than the mesonotum. Pleuræ smooth, the apex of metapleural weakly punctured. Abdomen with the basal four segments closely rugosely punctured, the punctures becoming weaker from the first; the triangular area on the second and third is more finely punctured, especially on the inner side. The oblique furrows and the first transverse one are crenulated; there is a narrow smooth one on the apex of the third segment. There is a not very clearly defined keel down the middle of the metanotum.

In the table of the South African species of Vipio, I have given in the Annals of the South African Museum, V, 59 and 60, this species would run near to Vipio longicandis, Cam., with which it cannot be confounded, e.g. the ovipositor in the latter is 30 mm. long.

Vipio melanopus, sp. n.
Rufous; the antennæ, tips of mandibles, trophi, stemmaticum, three marks on the mesonotum, the anterior conical, not much longer than it is wide at the base, the lateral longer, extending from the base to the apex, the sides and apex of the scutellum broadly, the mesosternum, the greater part of the mesopleuræ and the greater part of the legs, black; wings fuscous, with the usual hyaline spots at the base of the stigma; the stigma and nervures black. Female.

Length, 7 mm.; terebra, 17 mm.

Pleisieskloof (Pretoria District). 22nd December.

Head smooth, the sides of the face broadly, weakly, but distinctly, punctured. Mesonotum strongly, sparsely punctured, except in the centre at the apex, where the puncturation is much closer. The scutellum has a few scattered punctures in the centre of the apex, where there is a central keel. Metanotum closely, strongly punctured, a furrow with a keel in the middle down its centre. Pro- and meso-pleuræ smooth, the meta-pleuræ punctured, but much less strongly than the metanotum. Basal
four segments of the abdomen closely, strongly, almost rugosely punctured, less strongly so on the sides of the second at the base and still less strongly and more shining on the sides of the third; the oblique furrows on the third are clearly defined and straight. The knees, apical half of middle femora, the greater part of the posterior and the basal half of the middle tibiae below are rufous. Pubescence on thorax, including metanotum, white.

In my table, l. c. supra, this species runs to maculiceps, which has the head maculate with black.

*Vipio (?) pallidiventris*, sp. n.

Ruco-testaceous; the ventral surface pallid yellow, the antennae, stemmaticum, almost the apical half of the mandibles, a wide mark, almost twice longer than wide, rounded at the base, transverse at the apex, towards which it becomes gradually, but not much, narrowed; on the middle lobe, a longer, narrower one, obliquely narrowed towards the apex, on the lateral lobes, the marks reaching to the base of the stigma, a line on the sides of the mesosternum, transverse on the inner, rounded on the outer side, the apex rounded and clearly separated, a large mark, twice longer than wide, on the apical three-fourths of the first abdominal segment, reaching to the apex, a mark, fully three times longer than it is wide at the base, it becoming gradually narrowed towards the apex on the second, and two longish triangular marks on the third, fourth, and fifth segments; the first to fifth and the basal half of the sixth, closely longitudinally striated. The metanotum with a large ovoid belt of irregular longitudinal striae, the base and apex being free from them; the metapleurae punctured, the punctures clearly separated and distinct. Antennae longer than the body, the third joint not much shorter than the fourth. Wings hyaline, the apex slightly clouded, the stigma fuscous on the front, livid testaceous on the posterior half. Male.

Length, 8 mm.

Groenvlei (Pretoria District). January.

This is not a typical *Vipio*; the abdominal segments, for example, want the oblique furrows; the trophi appear to be different, being apparently as in *Bracon*, but I am not certain about this and, having only a single specimen, I do not care to dissect it. The general form of the body and the neuration are as in *Vipio*, including the short radial cellule. The apical abscissa of the radius is longer than the basal two united; the second is one-fourth longer than the first; the first transverse cubital nervure is obliquely sloped, so that the second cubital cellule is much narrowed in front.

Bacuma, Cam.

*Bacuma rufa*, sp. n.

Rufous; the antennae, the face, front, the vertex to the fore half of the temples, the centre behind continued down the occiput as a triangle, mandibles and the mesonotum, black; wings fuscous, a somewhat triangular cloud behind the transverse basal and transverse median nervure
along the first transverse cubital nervure, its apex obliquely truncated, a wider cloud extending from the base of the cubitus to the base of the radius, from the stigma to the posterior edge of the wing and a small one on either side of the second transverse cubital extending slightly and roundly on to the radial cellule, yellowish hyaline, the stigma black, its base, except in front, yellowish; the nervures black, yellowish along the central cloud; the base of the hind wing narrowly hyaline and there is an oval longish cloud at the base of the cubitus. Abdomen closely, strongly reticulated punctured, the basal slope of the first and the apical two segments smooth; the area on base of second segment smooth at the base, the rest closely longitudinally striated; ventral surface whitish, the basal four segments marked with black. Female.

Length, 16 mm.; terebra, 33 mm.

"Transvaal."

Head below the antennae sparsely covered with black hair; there are a few hairs above them. Mesonotum sparsely covered with black hair; the rest of the thorax and the legs more densely covered with white pubescence. The third abscissa of the radius is longer than the basal two united; the recurrent nervure is received in the apex of the first cubital cellule. Front depressed, neither distinctly keeled nor furrowed. Face coarsely reticulated, the reticulations finer below.

May be known from the two described species of Bacuma (maculiventris, Cam., and jumipennis, Cam., Annals South African Museum, V, 68 and 69) by the red body and legs.

_Hormiinae._

_Hormius_, Nees.

_Hormius testaceus_, sp. n.

Testaceous; the flagellum of the antennae, the lower part of the mesopleurae and the sides of the mesopleurae black, the legs of a paler colour than the body; wings hyaline, the stigma pale, the nervures of a darker testaceous colour; the first transverse cubital nervure sharply obliquely sloped, so that the second cubital cellule is much narrowed in front; the first abscissa of the radius is a little longer than the second; antennae twenty-two jointed. Metanotum reticulated. Female.

Length, 2·5; terebra, 3·5 mm.

Pretoria. December.

Smooth, shining, bare; first abdominal segment clearly separated, as wide as long, the second nearly as long as the third and fourth united.

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_Rhogadinæ._

_Rhogas_, Nees.

The following is a synoptical table of the species of Rhogas described in this paper:

1 (2) Red; the head and apex of the abdomen black, the pterostigma black. *erythrostomus.*

2 (1) Testaceous; including the pterostigma.
3 (4) The mesopleurae, metanotum, and base of abdomen, black.

4 (3) Thorax and abdomen immaculate.

5 (6) Apex of hind femora and upper part of pleurae black.

6 (5) Legs and pleurae immaculate.

7 (8) Front striated (pterostigma uniformly coloured, the legs coloured like the body).

8 (11) Antennae entirely black.

9 (10) A large black mark on the metanotum, the first abscissa of the radius shorter than the second, which is a little longer than the first transverse cubital.

10 (9) Metanotum immaculate, the first abscissa of radius longer than the second, which is as long as the first transverse cubital nervure.

11 (8) Antennae at the most fuscous, the base of flagellum paler than the apex (the stigma pale, fuscous near the apex, the nervures fuscous).

12 (13) Second cubital cellule distinctly narrowed towards the apex, one-half longer than wide, the basal two abdominal segments paler than the others.

13 (12) Second cubital cellule not narrowed towards the apex, twice longer than wide, the basal two abdominal segments not paler than the others.

**Rhogas erythrostomus**, sp. n.

Rufo-testaceous; the head, antennae, the third and following segments of the abdomen and the sheath of the ovipositor, black; the oral region and the mandibles except the teeth, dark red; the palpi black, covered with white pubescence; wings hyaline, the costa pale, the stigma black, the nervures fuscous; the legs coloured like the body, the apex of the hind tibiae and the four hind tarsi black. Female and male.

Length, 8–9 mm.


Covered with a short white pubescence, which is longest on the metanotum. Face in the middle closely irregularly striated, almost reticulated, the sides punctured. Centre of front smooth and shining, the sides finely irregularly striated, the vertex opaque, coarsely alutaceous, more or less striated. Mesonotum closely, irregularly punctured, the scutellum more strongly punctured. The transverse depression at the base of the metanotum stoutly crenulated. Metanotum closely rugosely punctured, the apical slope striated; the keel hardly extends to the middle. Pleurae closely punctured, the apex of the propleurae striated. Basal two abdominal segments closely irregularly striated, more strongly in the centre than on the sides; the central keel distinct; the basal two-thirds of the third segment finely closely striated.

The head is not quite transverse, the temples are rounded, narrowed, the occupit roundly incised. Parapsidal furrows narrow, shallow. The
palpi vary in colour from black to fuscous. First abscissa of radius not half the length of the second; the second cubital cellule of equal width throughout, about one-fourth longer along the radius than along the transverse cubitales. The colouration of the tarsi and the palpi varies, the latter from black to fuscous.

**Rhogas melanospilus**, sp. n.

Head, thorax, and abdomen except the apical third of the first segment, the second except the sides, and the third except the sides and apex, which are pale yellow, rufo-testaceous; the antennae blackish, except the basal three-fourths of the scape; the stemmaticum, the basal three-fourths of the mesopleureae broadly above, the post-scutellum and the part bordering it, and the metathorax except the apex below, black; the rufous colour on the base of the first abdominal segment is largely tinged with black; wings clear hyaline, iridescent, the costa and stigma pallid yellow, darker towards the apex; the second cubital cellule is narrowed towards the apex. Metanotum finely, closely, transversely striated, the central keel distinct, as it is also on the first abdominal segment. Male.

Length, 4 mm.

Rietfontein No. 57 (Pretoria District). September.

Temples distinctly, obliquely, roundly narrowed; the occiput not transverse. Head, pro- and mesothorax shagreened, covered with a white pubescence, the lower part of the propleureae obscurely striated, the apex of the mesonotum more strongly longitudinally striated. Palpi long, pallid yellow. The abdomen is smooth, except the basal segment.

**Rhogas plurilineatus**, sp. n.

Testaceous, the stemmaticum, face, the greater part of the clypeus, the greater part of the outer orbits, the pleurae above, the meso- more broadly than the pro-pleureae and the latter than the meta-pleureae, the antennae dark rufous, darker towards the apex; the sides of the basal two abdominal segments and the whole of the others tinged with rufous; legs coloured like the body, but paler, the apex of the hind femora slightly, the apical fourth of the middle, the apical half of the posterior and the end joint of the tarsi, black. Wings clear hyaline, the stigma pale testaceous, the nervures darker, almost black; the basal abscissa of radius one-third of the length of the second; the second cubital cellule almost twice longer than wide; the basal abscissa of radius roundly curved towards the costa. Basal three segments of the abdomen closely, distinctly striated, the third with the apex smooth. The front immediately below the ocelli is strongly transversely striated; the hollowed lateral part is blackish and is finely longitudinally striated.

The amount of black on the face varies, and the red down the sides of the abdomen may run into black; the black on the upper side of the pleurae may change to rufous. Parapsidal furrows shallow. The punctuation on the head and thorax is close. The furrow at the base of the scutellum is strongly crenulated. Male.

Length, 5–6 mm.


A variable species probably as regards coloration.
Rhogas varicarinatus, sp. n.

Rufo-testaceous; the basal two segments of the abdomen paler coloured, the flagellum of antennae, tips of mandibles and stemmaticum black; wings clear hyaline, the costa and stigma pallid, the latter infuscated behind; the first abscissa of radius three-fourths of the length of the second; the second cubital cellule distinctly narrowed in front, the second transverse cubital nervure one-fourth shorter than the first. Metanotum infuscated, its keel distinct. The keel on the first abdominal segment is weak, on the second it is obsolete; the first is weakly striated, the striae stronger towards the apex; the apical segments are tinged with rufous and fuscous. Temples sharply obliquely narrowed, the occiput roundly incised. Male.

Length, 4 mm.

Pretoria. October.

Rhogas varinervis, sp. n.

Testaceous; stemmaticum, an irregularly triangular mark in the centre of the metanotum on the basal half, the antennae, mandibular teeth, and the apices of the tarsi black; wings clear hyaline, the costa and stigma testaceous, the basal nervures, the base and apex of cubitus pale, the others darker coloured; first abscissa of radius three-fourths of the length of the second; the second cubital cellule of equal width, not one-fourth longer along the radius than it is along the transverse cubitals. Parapsidal furrows shallow. The keel on the metanotum extends shortly beyond the middle; the keels on the basal two abdominal segments are fine, but distinct; the segments are irregularly striated in the middle, the striae intertwining; the second furrow is wider than the others and is more strongly crenulated; the third is narrower and smooth on the apex. Male.

Length, 8 mm.

Pretoria. February.

The pubescence is dense, short, and white; it is longer on the metanotum. Temples rounded, not much narrowed.

Allied to R. melanocerus, Cam. (also from the Transvaal); the latter may be known from it by the black costa, stigma, and nervures.

Rhogas pallidipalpis, sp. n.

Testaceous; the antennae, stemmaticum, and tips of mandibles black; wings hyaline, the costa and stigma pale testaceous, the nervures paler; the second cubital cellule of equal width, not one-fourth longer along the radius than it is along the transverse cubitals; legs coloured like the body, the tips of tarsi slightly infuscated. The keels on the metanotum and the basal two abdominal segments are weak; the furrow between the second and third segments is weakly crenulated; the first and second segments are finely closely longitudinally striated, almost reticulated. Parapsidal furrows distinct on the basal half. Male.

Length, 6 mm.

Kranspoort (Pretoria District). December.

Temples rounded, not much narrowed, the occiput transverse. Head and thorax finely closely punctured, the latter more strongly than the
former; the apex of the mesonotum longitudinally striated. Apex of mesopleuræ closely finely striated, the centre smooth and shining. Basal segment of abdomen closely longitudinally striated and punctured, the striae more distinct on the apex; the sculpture on the second is almost similar, the third is closely weakly punctured; the second furrow is weakly crenulated. The pubescence is short, dense, and white.

*Rhogas striatifrons*, sp. n.

Testaceous; the antennæ darker coloured on the apical half, the tips of mandibles, the stemmaticum and the greater part of the apical joint of the tarsi black; wings clear hyaline, highly iridescent, the costa, nervures, and stigma pallid testaceous; basal abscissa of radius half the length of the second, the second cubital cellule of equal width, one-fourth longer along the radius than along the transverse cubitalis. Basal three segments of abdomen closely, distinctly striated, the first more strongly on the sides and in the centre; the keels are not clearly defined. Male.

Length, 6 mm.

Pretoria. August.

Temples slightly rounded, distinctly obliquely narrowed. Head and thorax finely, closely punctured, the front distinctly striated, the striae on the sides obliquely sloped. There is a striated belt on the basal half of the pronotum. The apex of the hind femora is infuscated.

*Rhogas transvaalensis*, sp. n.

Rufo-testaceous; the legs much paler than the body, the basal third of the antennæ dark testaceous, the rest black, the metanotum and basal segment of the abdomen infuscated; wings clear hyaline, the stigma with the basal half white, the apical pallid fuscosus, the nervures pale testaceous, the second cubital cellule not quite twice longer than wide, the first abscissa of the radius about one-third of the length of the second. Metanotum obscurely transversely striated, the keel distinct. Basal two abdominal segments obscurely, finely striated, the keel on the first distinct, but not so stout as that on the metanotum, that on the second is weaker. Temples broadly, roundly narrowed, the occiput transverse. Male.

Length, 4 mm.


The apex of the mesonotum is irregularly longitudinally striated. Pleurae more strongly shagreened than the mesonotum. Parapsidal furrows indicated on basal slope only.

**Doryctini.**

*Xenolobus*, gen. n.

Wings with three cubital cellules, the second not half the length of the third, wider along the radius than along the cubitus; the radial cellule long, reaching to the apex of the wing, the radius issuing from the basal third of the stigma; the recurrent and anal nervures interstitial; the transverse median nervure received not far from the centre. Base of metanotum with two large raised coloured lobes, narrowed and rounded
at the apex, longer than wide, extending slightly beyond the middle, there
being a triangular space at the apex between them; from the top of it a
furrow runs to the apex. The basal two and the basal half of the third
segments are closely longitudinally striated, the basal two with a not very
strong keel down the centre; there is a narrow but distinct furrow between
the second and third segments; the basal segment sessile, longer than
wide, and a little longer than the second; occiput and cheeks margined.
Eyes incised on inner side. Legs stout; the fore tarsi not much longer
than the tibiae; the metatarsus as long as the following two joints united.
Spiracles small, round.

The antennae are in the male fully longer than the body and taper
towards the apex. The head is cubital, narrower than the thorax,
the occiput is roundly incised; the wings are large, yellowish hyaline and
spotted with fuscous. The parapsidal furrows are distinct on apical half.
First abscissa of radius about one-fourth of the length of the second.

The type of the genus has much more the look of one of the Exothecini
than of the Doryctini, especially in its large size and colouration. In
the arrangement of Šéppligeti (Gen. Ins., Brac., 63) this genus would come
in near Gymnobracon and Osmaphila. It should be readily known by the
two large roundly raised lobes on the metanotum and by the incised eyes.

*Chelonus rufus*, sp. n.

Rufous; the antennae, tips of mandibles, the four posterior tarsi,
the apical joints of anterior and the hinder tibiae black; wings yellowish
hyaline, a large fuscous triangular cloud along the outer apical three-
fourths of the transverse basal nervure, the apex all round from near the
base of the stigma except for a large irregular oval hyaline cloud extending
from near the costa to near the posterior margin, it extending into the
first cubital cellule as a triangular projection along the radius, the apical
fourth of the hind wings, the cloud extending backwards along the margin
as a double triangle, of which the posterior is the larger and longer.
Thorax and legs covered with short, white pubescence. Male.

Length, 18 mm.

Pretoria. November.

Sides of face broadly, irregularly transversely striated; the ocelli
bordered by curved pyriform foveae, the space between which and the
eyes is striated. Pro- and mesonotum punctured, the depressed apical
central part of the latter longitudinally strongly striated, the striae more
or less twisted. Scutellum sparsely punctured, the parts bordering it stoutly
striated. Metanotal lobes shagreened, the rest irregularly reticulated;
the apical slope smooth, with two transverse stout keels. Basal two
segments of the abdomen closely striated, the striae on the first more or less
twisted, that on the apical half of the second much finer than on the basal,
the striae on the basal half of the third finer than on the apex of the second.

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**Cheloniae.**

*Chelonus rufoscapus*, sp. n.

Black; a broad yellowish white band of equal width on the basal fourth
of the abdomen, the antennal scape and the legs, except the coxae, red;
the palpi white; wings hyaline, the stigma and nervures black, the basal nervures at the base and the transverse basal nervure testaceous; tegulae black. Densely covered with a white pile. Female.

Length, 3·5 mm.

Pretoria. October.

Antennae sixteen-jointed, as long as the head and thorax united. The upper inner orbits with a closely longitudinally striated border; the sides of the face closely obliquely striated. Mesonotum finely, closely punctured, the apical half in the centre reticulated, the reticulations square. Scutellum closely, minutely punctured, the basal furrow crenulated. Metanotum and pleuræ alutaceous, the former more strongly than the latter; there is a keel down its centre. Base and middle of abdomen striated, the latter more closely and finely than the former. Basal two abscissæ of radius equal in length, thicker than the third; the cubitus is roundly curved, bullated at the base, the transverse cubital nervure is bullated in front.

Allied to C. curvimaculatus, Cam. (Annals South African Museum, V, 34), from which it may be known by the red scape and legs.

Gastrotheca trimaculata, sp. n.

Rufo-testaceous; the stemmaticum, the hinder part of the vertex and the occiput black, the whole forming one mark and three large marks on the mesonotum, black; wings slightly, but distinctly tinged with fuscous, the base paler, more yellowish in tint, the stigma and nervures black. Female.

Length, 5 mm.

"Cape" is the locality noted on the specimen. Face shagreened, the front and vertex smooth, the mesonotum finely punctured, the scutellum more finely punctured; the metanotum with a shallow furrow down the middle. Abdomen closely, distinctly, longitudinally striated, the striae interlacing; the terminal spines four times longer than wide, straight, of almost equal width; separated by a wider space than the outer edge, which is serrate. The second abscissa of the radius is fully three times longer than the first.

Allied to G. furcata, Guér., which may be known from it by there being no black on the hinder part of the head and only two black lines on the mesonotum.

Gastrotheca melanocera, sp. n.

Rufo-testaceous; the head, except the centre of the vertex, paler, more yellowish in tint; the apex of abdomen broadly infuscated, the antennæ, stemmaticum, tips of mandibles and claws black; wings hyaline, largely and deeply tinged with fuscous, the costa and stigma deep black, the nervures of a lighter black colour, the nervures testaceous, the apical darker in tint. Female.

Length, 5 mm.

Lemana (Zoutpansberg District). October.

Rather densely covered with short fulvous pubescence. Face, oral region and malar space paler, more yellowish in tint than the rest of the
head. Parapsidal furrows shallow, not reaching to the scutellum. Apex of mesonotum depressed in the middle, reticulated. Scutellum almost smooth, shining. Metanotum shagreened, broadly round at the apex, with the sides slightly projecting. Pleurae almost smooth. Abdomen closely reticulated, more strongly towards the apex than at the base, which is transverse with the outer edges projecting; the apical teeth about four times longer than wide and narrowed towards the apex.

*Gasterotheca areolata*, sp. n.

Rufo-testaceous; the antennae, apex of mandibles, stemmaticum and sheaths of ovipositor black; covered closed with short white down; wings hyaline, tinged with fulvous, the costa and nervures black, the nervures testaceous. Female.

Length, 7 mm.

Waterval (Zoutpansberg District). December.

Centre of face with a smooth broad keel which becomes gradually widen ed (but not much) from the base to the apex. Sides of face, front and vertex rugose, the latter two more strongly than the former; the top of the eye orbits obliquely, closely striated behind. Mesonotum trilobate, the middle lobe not narrowed to a point at the apex and with a shallow furrow down the centre; it is followed by a strongly longitudinally striated depression; there is a narrower oblique furrow on the outer lobe on the apical half. Scutellum finely rugose; it is followed by a smooth, shining depression, with a keel down the centre. The base of metanotum with a large, almost semicircular depression or area in the centre, bearing some stout striae; this is followed in the centre by a large triangular area, the keels bounding it being curved towards the apex; it is irregularly transversely striated and has down the centre two keels which slightly converge towards the apex; there are a few transverse keels between them; the sides of the metanotum are margined by a keel. Pleurae smooth except for a few striae in the central hollow. Mesopleurae finely, closely, indistinctly punctured; there is a wide oblique furrow on the base near the top, this furrow being striated moderately strongly and extends from the base to the apex. Except at the depressed base the metapleurae are rugosely, obliquely punctured. Abdomen closely, rugosely reticulated with a narrow keel down the centre of the basal half; this central keel is enclosed by a broad rufous-fuscous mark, which extends beyond it; the apical spines are long—about five times longer than they are wide at the base—and become narrowed towards the apex; the part between them forms a broad crenulated round curve, the sides at the apex being also crenulated.

*Minanga bimaculata*, sp. n.

Rufo-luteous; the antennae and a wide longish line on the lateral lobe of the mesonotum, black; wings hyaline, the costa, parastigma, and stigma black, the nervures testaceous, darker coloured beyond the stigma. Female.

Length, 4.5 mm.

Transvaal.
Smooth and shining; the apex of mesonotum sparsely, weakly punctured; the scutellum more strongly and weakly punctured. Metanotum with three broad, longitudinal smooth keels down the centre; inside them, near the middle, are two stout transverse keels; outside them is a shallow wide depression, with a few irregular transverse striae; the outer side is coarsely, mostly longitudinally striated, almost reticulated. Pleurae smooth, the base of the metapleurae with a closely, finely striated band. On the basal third of the abdomen, down the centre, are three stout keels, the outer converging and uniting with the central; the space between them at the base is transversely incised, the sides projecting; at their apex is a similar area, but longer and wider at the base, which is formed by the transverse keel at the apex of the basal lateral keels; these areas are stoutly transversely striated; they are bordered by transverse striae, outside of which, and beyond them, the segment is irregularly rather strongly and closely reticulated; on the apex are two rounded incisions, the part separating the two forming a longish triangular tooth; outside the incisions the apex is irregularly toothed. The basal abscissa of the cubitus is slightly roundly curved towards the costa; the second is broadly roundly curved backwards; the apical abscission of the radius is as long as the basal two united.

*Phanerotoma curvimaculata*, sp. n.

Luteous; the apex of the antennae fuscous, a large rufo-fuscous mark on the centre of the second segment; it becomes gradually widened towards the apex, where there is a semicircular incision; the third segment is fuscous, except on the sides and for an incision, longer than wide, transverse at the base, rounded at the apex in the centre; the legs are similarly coloured, but paler, and with the apex of the hind tibiae and the hind tarsi infuscated. Wings hyaline, iridescent, the stigma and para-stigma pallid testaceous; the first transverse cubital nervure broadly, roundly curved, the much shorter second straight, and oblique. Female.

Length, 5·5 mm.

Face bluntly keeled down the centre, smooth; the space on either side of the keel closely, finely obliquely striated. Front closely, irregularly obliquely striated and with a smooth furrow down the centre. Vertex irregularly closely punctured. Prothorax finely punctured, the pleurae more or less striated. Mesonotum finely reticulated, more finely so at the base. The scutellum forms almost an equilateral triangle, and is finely irregularly striated; the parts bordering it are more strongly obliquely striated. Base of metanotum closely, irregularly striated; the apical slope irregularly reticulated. Mesopleurae obliquely striated, the striae more or less interlacing. Upper half of metapleurae irregularly punctured, the lower irregularly obliquely striated. Basal two segments of abdomen somewhat strongly, closely, irregularly striated, the other finely rugulose, and more densely covered with white pile than the others.

*Phanerotoma pallidipes*, sp. n.

Rufo-testaceous; the abdomen and legs pallid yellow, the third abdominal segment darker coloured (perhaps discoloured); the apex of
the hind femora narrowly and the apical fourth of the hind tibiae dark fuscous; wings clear hyaline, the apical half of the stigma and the radius fuscous, the apical abscissa of the radius broadly roundly curved towards the costa; the basal third of the second abscissa of the cubitus obliterated; the first transverse cubital nervure broadly, roundly curved; the second about one-third of its length, thinner, straight, oblique; the first recurrent nervure is received very shortly beyond the first transverse cubital; the apical half of the first cubital cellule has a faint fuscous cloud. Head, pro- and mesothorax finely, closely punctured, the head more strongly, than the thorax, the clypses more shining and less closely punctured, the apical half of the scutellum smooth. The parts bordering the scutellum strongly striated. Basal half of metanotum longitudinally rugose; the apical closely reticulated. Propleurae and prosternum pallid yellow, almost smooth. Mesopleurae finely, closely rugosely punctured, as are also the metapleurae, but they bear also some striae. Basal two segments of abdomen with shallow clearly separated punctures, the third finely, closely rugose. Female and male.

Length, 4.5 mm.
The space between the ocelli is black.
Pretoria. November and December.

*Phanerotoma curvicarinata*, sp. n.

Similar as regards size and coloration to *P. pallidipes* described above; the two may be separated thus:

Apex of scutellum punctured like the base, a stout transverse keel on the top of apical slope of metanotum, basal two segments of abdomen finely, closely, longitudinally striated, the basal third with a curved keel on either side, the two converging towards the apex.

Apex of scutellum smooth, no transverse keel on metanotum, basal two segments of abdomen with scattered punctures and without longitudinal keels. *pallidipes*.

The basal two abdominal segments are pallid yellow like the legs, which have the apex of the hind femora, a band near the base of the hind tibiae and their apical third rufo-testaceouis. The apical abscissa of the radius is not roundly curved towards the costa as in *pallidipes*, but almost straight, oblique; the apical abscissa of the cubitus is faint, almost obsolete.
Pretoria. December.

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**Sigalphinae.**

*Foersteria nitida*, sp. n.

Black; the head and thorax smooth and shining, the apex of the femora and the base of tibiae broadly rufo-testaceouis; wings clear hyaline, the nervures fuscous, the stigma and parastigma black; the abdomen almost opaque, finely longitudinally alutaceous, almost striated. Female.

Length, body and ovipositor, 4.5 mm.
Bronkhorstspruit (Pretoria District). December.

Metanotum finely, closely reticulated, more or less irregularly longitudinally striated. Parapsidal furrows deep, not reaching to the apex of the mesonotum. The second abdominal segment is slightly but distinctly longer than the third Radius roundly curved, the radial cellule sharply-
pointed at the apex; in front it is bordered by a distinct nervure which extends beyond the radius; the recurrent nervure is received at the base of the apical fourth of the first cubital cellule; the cubitus ends shortly beyond the transverse cubitus; the anal nervures is a little longer than it. There is a narrow, smooth, shining line down the middle of the second and third abdominal segments. Head fully as wide as the thorax. The basal alar nervures are paler than the apical. The amount of testaceous colour on the legs appears to vary.

I place this species in *Foersteria* rather than in *Sigalphus*, because the second abdominal segment is longer than the third.

**Agathidinae.**

*Disophrys erythrops*, sp. n.

Rufous; the antennae black, the wings fuscous, the first cubital cellule except along cubitus, an irregular cloud along the outer side of the recurrent nervure, extending below it to the anal nervure, a cloud before the transverse basal nervure, a smaller one before the transverse median and a still smaller one on its outer side, and one in the base of the radial cellule in the posterior wings, hyaline. Metanotal areola smooth, triangular, appendiculated; there is a large irregular lateral area; the keel bounding it is roundly curved; from its middle a straight keel runs to the apex, there being a rounded keel outside this.

Face closely punctured, the front and vertex smooth. Pro- and mesothorax weakly, sparsely punctured, the furrows weakly crenulated. The basal part of the metanotum smooth in the centre, the sides with broken striae; the apical part in the centre closely, strongly, the sides sparsely, irregularly striated. The lower mesopleural furrow is shallow and is strongly crenulated. Male.

Length, 10 mm.

Waterval (Zoutpaansberg District). November.

Head, thorax, and legs covered closely with a white pile. The alar stigma is pale ochraceous except at the apex; the nervures at the hyaline spaces are pale, the other nervures are darker, especially on the outer edges. Palpi of a paler rufous colour than the head. The suture between the first and second abdominal segment is deep laterally, very shallow in the centre. Areolet about one-fourth shorter along the radius than along the cubitus; the first transverse cubital nervure is roundly curved.

Allied to *D. rufa*, Cam. (Annals South African Museum, V, 38) which may be known from it by the head being largely marked with black.

*Crassomicrodus curvis nervis*, sp. n.

Luteous; the antennae except the base and inner side of the scape, the back of the second abdominal segment broadly in the middle, the sheath of the ovipositor and the tarsi, black; wings fuscous hyaline; lighter coloured at the base, the stigma and nervures black, the transverse cubital nervure roundly curved, becoming gradually thickened in front, the end oblique, the first transverse cubital nervure straight, oblique, the second roundly curved, the recurrent nervure with the front half
roundly curved backwards, united to the first transverse cubital. Meta-
notum with two rows of areae of three each; the central in both narrower
than the lateral; the anterior central becoming gradually widened towards
the apex; the posterior becoming narrowed; the posterior is wider than
the anterior. Female.

Length, 7 mm.
Pretoria. 26th March.

The top and sides of the face punctured, but not strongly or closely.
There is a curved keel, roundly narrowed below, on the middle of the
front. Mesonotum closely punctured; trilobate, the middle lobe short,
ending in a keel; the sides of the lateral lobes at this keel obliquely sloped,
irregularly obliquely striated. Scutellar depression large and bearing
three straight keels. Pro- and mesopleurae finely and closely, the upper
half of the metapleurae more strongly punctured, the lower closely,
irregularly obliquely striated. Scutellum strongly, but not very closely
punctured, it becomes gradually roundly narrowed to the apical fourth,
which has the sides straight and the apex transverse. Post-scutellum
depressed; it becomes gradually narrowed to a sharp point, and is followed
by a keel.

MICROGASTERINAE.

*Apanteles*, Foer.

The species of this useful genus of *Braconidae* appear to be numerous
in South Africa. The species here described may be separated as follows:—

1 (8) Legs rufo-testaceous, the sides of the basal abdominal seg-
ments testaceous.

2 (3) The basal two abdominal segments broadly rufo-testaceous,
the abdomen broader and shorter than the thorax; the areolet
half closed. *eurygaster*.

3 (2) The basal abdominal segments narrowly testaceous, the
abdomen as long and narrower than the thorax.

4 (5) The centre of the metanotum and its outer edges keeled,
the stigma testaceous. *fuscinervis*.

5 (4) The metanotum not keeled, the stigma fuscous.

6 (7) The apex of the hind femora, of the hind tibiae, more
broadly, and the hind tibiae, black; the pleurae shining.

7 (6) The hind legs not marked with black, the pleurae opaque.

8 (1) Legs largely black, the rest not rufo-testaceous.

9 (10) The basal ventral segments rufo-testaceous, the basal trans-
verse nervures forming a broad, rounded curve, without an
angle, between the stigma and the cubitus. *africanus*.

10 (9) The basal ventral segments black, the basal transverse
nervures bluntly angled between the stigma and cubitus.

*transvaalensis*. 
Apanteles eryygaster, sp. n.

Black; the sides of the basal two abdominal segments broadly rufo-testaceous, the legs of a deeper rufo-testaceous colour, the hind legs with the coxae, apex of hind femora narrowly, of the hind tibiae more broadly and the hind tarsi black; wings hyaline, the stigma and the transverse cubital nervures fuscous, the basal nervures pale; the second cubital cellule is twice longer than it is wide at the apex, where it is almost closed; the anterior part of the cubitus is almost twice longer than the posterior. Metanotum smooth and shining, a narrow keel down the middle, the sides and apex more strongly keeled. First abdominal segment as long as it is wide at the apex, the base in the middle widely depressed; the second segment is a little longer than the third. Genital armature testaceous, black at the apex. Male.

Length, 3 mm.

Pretoria. May.

Head and thorax densely covered with short white pubescence. The central keel on the metanotum is striated on either side. The abdomen is broader than it is with the other species and the areollet shows an approach to the closed one of Microgaster.

Apanteles africanus, sp. n.

Black; the anterior legs except the coxae, the middle except the coxae, trochanters and basal half of femora and basal ventral segment, testaceous; the hind legs black, the basal third of the tibiae and of the tarsi very narrowly testaceous, the calcaria whitish testaceous; wings hyaline, the stigma fuscous, the nervures pale, the transverse radial nervure broadly rounded. Palpi almost white. Head and thorax shagreened, the metanotum hardly more strongly than the rest, its sides margined. First abdominal segment about one-fourth longer than wide, the second segment shorter than the third; the back has a bluish tinge. Female.

Length, 3 mm.

Pretoria. Bred.

The cocoon is clear white. Head and thorax covered with short, white pubescence. The scutellum is bounded by a crenulated furrow laterally.

Apanteles fuscinervis, sp. n.

Black; the sides of the first abdominal segment and of the second rufo-testaceous; the line on the first becoming gradually widened towards the apex, that on the second narrow, of equal width, the basal half of the ventral surface similarly coloured; the legs of a brighter rufo-testaceous colour, the hind coxae, apex of hind femora, more than the apical third of the hind tibiae and the hind tarsi, black; wings hyaline, the costa, stigma, and nervures pale testaceous. Metanotum finely, closely punctured all over; there is a weak keel down the centre and the sides and apex are bounded by stronger keels. Male.

Length, 3·5 mm.

Rietfontein No. 57 (Pretoria District). July.
The first abdominal segment is about one-fourth longer than it is wide at the apex; the second is shagreened and is longer than the third. The furrow bordering the scutellum is wide and is irregularly crenulated.

*Apanteles transvaalensis*, sp. n.

Black; shining, legs black, the front pair except the coxae, the apex of middle femora, their tibiae and tarsi, the basal half of the hind tibiae, the basal joint of the hind tarsi at the basal fourth and the base of the other joints very narrowly, testaceous, as are also the calcaria; wings hyaline, the stigma dark fuscous, paler at the base, the nervures pale, except the hinder part of the transverse cubital, which is fuscous. Palpi testaceous. Face covered densely with white pubescence, the thorax more sparsely pilose. Female.

Length, 2 mm.

Pretoria. April.

Head and thorax shagreened; the metanotum finely punctured; there are two faint keels on its base, converging towards the base, and two more distinct ones on the apex converging towards the apex. Basal segment of the abdomen distinctly longer than it is wide at the apex, coarsely shagreened; the other segments very shining, slightly tinged with blue; the second and third are not clearly separated. The front part of the transverse cubital nervure is slightly longer and distinctly thinner than the posterior; it is roundly angled outwardly at the junction. Antennae covered with a fuscous, microscopic pile.

*Apanteles testaceolineatus*, sp. n.

Black; the sides of the basal two abdominal segments above pale testaceous, the line on the second widened towards the apex, that on the second towards the base, the ventral surface of a more reddish testaceous colour; legs rufo-testaceous; palpi pale testaceous; wings hyaline, the stigma and nervures fuscous, the basal nervures paler; the transverse cubital nervure not much narrowed posteriorly. Female.

Length, 3 mm.

Smooth and shining; sparsely covered with a white microscopic pile; the metanotum finely punctured, not keeled. First abdominal segment about one-half longer than it is wide at the apex; the second is about one quarter shorter than the third, which has a triangular testaceous mark on the sides, wider than that on the second. The transverse cubital nervure is wider than the others. Legs densely covered with a white pile, the hind coxae are black, the apex of the hind tibiae and the hind tarsi infuscated.

*Apanteles testaceioventris*, sp. n.

Black; the ventral surface rufo-testaceous, the sides of the first and second dorsal segments pale testaceous, that on the first widened towards the apex, that on the second narrower, of equal width; legs testaceous, the hind coxae black, the apex of the hind femora narrowly, of the hind tibiae more broadly (the apical fourth) and the hind tarsi black, the base of the tarsal joints testaceous; wings hyaline, the stigma and nervures black; the posterior part of the transverse cubitus shorter than the
anterior and forming a distinct angle at the junction; the stump of the cubitus forms a sharp narrow angle with it. Metanotum shining at the base, punctured, the punctures distinct and clearly separated, the rest is closely punctured; this apical part being less than the basal. Male.

Length, 3 mm.

First abdominal segment hardly one-half longer than it is wide at the apex; its apex, on the black central part, smooth in the middle, the sides closely punctured. The second segment is fully half the length of the third.

This species is closely related to A. testaceolineatus, here described; it may be known from it by the black apex of hind femora and tibiae and tarsi, by the shorter, more acutely angled posterior part of the transverse cubital nervure and by the less closely punctured basal part of the metanotum.

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**BLACINAE.**

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**Cyclocormus, gen. nov.**

Head not margined, if anything, wider than the thorax; the temples roundly narrowed; the clypeus separated from the face. Antennae longer than the body, thirty-five-jointed; the third joint, if anything, shorter than the fourth. The first abscissa of the radius not one-fourth of the length of the second, which is slightly roundly curved; the transverse median nervure is received shortly beyond the transverse basal; anal nervure roundly curved, not interstitial; the second discoidal cellule open at the apex, the nervure being very faint, if not obliterated beyond the anal nervure.

The discoidal and cubital cellules are separated; the apical nervures in the hind wings are obliterated. Tarsi shorter than the tibiae. Metanotum short, broadly rounded behind, without areae or keels. Mesopleurae without a furrow.

In the arrangement of Szépligeti (Gen. Ins., Braconidae, 138), this genus would come near *Blacus*, Nees., which may be readily separated from it by the third antennal joint being longer than the fourth, by the margined vertex and cheeks, by the mesopleurae being furrowed, and by the tarsi being also as long as the tibiae. The antennae appear to have more joints than *Blacus*, which has only seventeen in the female.

**Cyclocormus luteus**, sp. n.

Pale luteous; the head and legs paler coloured than the body, the apical half of the antennae and the base and apex of the abdomen infuscated, as are also the apices of the basal joints of the flagellum of the antennae narrowly; wings hyaline, the stigma fuscous, its base and the parastigma pale. Smooth and shining, almost bare. Female.

Length, 2·5 mm.; terebra, 3 mm.

Pretoria. October.

First abscissa of radius two-thirds of the length of the transverse cubital nervure.
MACROCENTRINAE.

Macrocen
trus luteus, sp. n.

Luteous; the flagellum of antennae, stemmaticum, and the tips of the mandibles black, the antennal scape darker coloured than the head; the hind tibiae black, except at the base, the tarsi infuscated; wings hyaline, the stigma and nervures black, the parastigma pale; the first abscissa of radius half the length of the second; the first transverse cubital nerve one-third longer than the second; the second abscissa of cubitus and the radius in the hind wings roundly curved. Mesonotum distinctly tribolate, the furrows crenulated; there is a wide, transversely striated band between the middle lobe and the base of scutellum. Smooth and shining, the face closely punctured, more weakly and sparsely on the sides than in the centre. Male.

Length, 10 mm.

Doornfontein (Pretoria District). January.
The antennae are slender and about one-half longer than the body. The long spur of the hind tibiae is about half the length of the metatarsus. The transverse median nervure is not quite interstitial, being received very shortly beyond the transverse basal.

Macrocen
trus pallidistigmas, sp. n.

Luteous; the stemmaticum and apical half of mandibles black, the antennal scape luteous, the basal half of flagellum fuscos, the apical black; wings hyaline, the stigma and parastigma pallid livid testaceous, the costa testaceous, the nervures black; the first abscissa of the radius nearly two-thirds of the length of the second, and shorter than the first transverse cubital; the two transverse cubital nervures and the third abscissa of the cubitus are largely bullated; the latter is roundly curved, as is also the radius in the hind wings on the basal half. Male.

Length, 9 mm.

Rietfontein No. 57 (Pretoria District). February.
The sides of the front are obscurely striated; the face is finely closely punctured. Mesonotum smooth, the furrows obscurely crenulated. Metanotum closely punctured, the punctures on the apical half running into reticulations. Propleurae smooth at the base, the rest for the most part rather strongly punctured; the mesopleurae closely but not so strongly punctured; the metapleurae more strongly and more irregularly punctured.

Macrocen
trus latisulcatus, sp. n.

Luteous; the legs at the base pale; the stemmaticum and mandibular teeth black; the antennae fuscos, the basal third luteous; wings hyaline; the basal half of stigma pale, the apical fuscos, the nervures black, the first abscissa of the radius slightly but distinctly longer than the second. Parapsidal furrows smooth. Metanotum opaque, finely transversely striated, more strongly on the apical half; the metapleural furrow wide, narrowed at the base, stoutly, widely crenulated. First abdominal segment and the base of the second finely, closely striated. Propleurae sparsely, weakly punctured, the furrow regularly striated; the mesopleurae
finely, distinctly, closely punctured all over, the metapleuræ much more coarsely and more closely punctured. Female and male.

Length, 6 mm.; terebra, 7 mm.
The pubescence is short and white.

*Macrocentrus nigro-ornatus*, sp. n.

Luteous; the stemmaticum, mandibular teeth, the greater part of the metanotum, the first abdominal segment and the basal half of the second, black; wings hyaline, the stigma fuscous, pale at the base and in front, the nervures black, the first abscissa of the radius about two-thirds of the length of the second, the second transverse cubital nervure about two-thirds of the length of the first; the cubitus at the second cubital cellule roundly curved. Parapsidal furrows smooth; the metanotum shagreened, the basal two segments of the abdomen finely closely striated. Propleuræ smooth, the mesopleuræ smooth above and at the apex, the rest punctured, but not very strongly or closely, the metapleuræ more strongly and closely punctured. Female.
Length, 5 mm.; terebra, 5 mm.
Pretoria. October.
The legs, especially at the base, are paler, more yellowish in colour.

*Macrocentrus annulicornis*, sp. n.

Luteous; the joints on the basal half of the flagellum narrowly annulated with black on the apex, the apical half of the flagellum fuscous; the stemmaticum and mandibular teeth black; wings hyaline, the stigma and parastigma pallid, livid testaceous, the costa testaceous at the base, the nervures in the fore wings black, in the hinder pale; the first abscissa of radius fully three-fourths of the length of the second, which is as long as the first transverse cubital nervure; the third abscissa of cubitus is rounded and is largely bullated at the base. Female.
Length, 7 mm.; terebra, 7 mm.
Pretoria.
The legs are paler coloured than the body; the scutellar depression is large and strongly striated.

The following is a synoptical table of the species of *Macrocentrus* described above:—

1 (2) Stigma black, the second abscissa of radius three times longer than the first. *luteus*.
2 (1) Stigma pallid testaceous, the second abscissa at the most twice the length of the first.
3 (4) The metanotum and base of abdomen for the greater part black. *nigro-ornatus*.
4 (3) The metanotum and base of abdomen immaculate.
5 (6) The antennæ with the joints of their basal half marked with black. *annulicornis*.
6 (5) The antennal joints not marked with black.
7 (8) Pterostigma testaceous throughout, the first abscissa of the radius two-thirds of the length of the second; length 9 mm. \textit{pallidistigmus}.

8 (7) Pterostigma fuscous, broadly pale at the base, the first abscissa of the radius as long as the second; length 6 mm. \textit{latisulcatus}.

\textbf{Alyshinae.}

\textit{Coelalysia}, \textit{gen. nov.}

Metanotum irregularly areolated; the spiracles small, longish oval. Parapsidal furrows deep, distinctly defined, converging towards the apex. Scutellum large, flat. Post-scuellum raised, the sides bordered by stout raised keels. Radial cellule large; the first abscissa of the radius one-fourth of the length of the second, which is shorter than the first transverse cubital nervure; the recurrent nervure is received in the second cubital cellule; the radius issues from the apical fourth of the stigma; the second discoidal cellule is open at the apex below, the nervure being distinctly bullated there. Mesopleural furrow crenulated. The first abdominal segment is striated, the others smooth and shining, with narrow furrows. The third antennal joint is distinctly shorter than the fourth.

The eyes are rather small, oval; the malar space is not half their length. Clypeus separated from the face, which is more convex and rounded. The upper mandibular tooth is longer and more sharply pointed than the lower; the two are clearly separated. Calcaria short, the claws slender, simple. The second cubital cellule is large, narrowed towards the apex and five-angled; the transverse median nervure received beyond the transverse basal.

In the arrangement of Szépligeti (Gen. Ins., Braconidae, p. 205), this genus runs near to the little known genus \textit{Symphanes}, Foer., which may be known from it by the third and following abdominal segments not being clearly separated, by the metanotum not being keeled, and by the third and fourth antennal joints being of equal length.

\textit{Coelalysia lutea}, sp. n.

Luteous; the flagellum of antennae, inner mandibular tooth, ocelli, the greater part of the sixth and the following two abdominal segments, black; the hind tibiae and metatarsus blackish; wings hyaline, the stigma and nervures black. Smooth and shining; the metanotum with a stout keel down the middle, the sides with a thinner keel which curves roundly outwardly at the base; on the sides of the apical slope is a rounded keel. Apex of first abdominal segment distinctly, but not closely, longitudinally striated, the other segments smooth and shining. The third joint of the antennae is distinctly shorter than the fourth. The space between the parastigma and stigma is pale. Male.

Length, 4 mm.

Waterval (Zoutpansberg District). December.

The metathorax is densely covered with longish white pubescence, its base is smooth; in the centre of the apex are two keels which roundly
converge towards each other at their top, outside them is a short, roundly curved keel; the sides are bordered by a broadly rounded keel. The metapleurae has a distinct, crenulated, longitudinal furrow.

CHALCIDIDAE.

Cratocentrus, Cam.

*Cratocentrus auropilosus*, sp. n.

Black; the antennae, lower edge of the clypeus, the lower half of the front and face broadly, the vertex behind the ocelli, the line broadest in the middle, the outer orbits narrowly, the malar space, the base and apex of pronotum, the latter from the apex to the crenulated ridge, more than the apical half of the pro-pleurae, the lower half except narrowly at the base, the scutellum, the mesopleurae at the base above, the mesopleural furrow, the base of the first abdominal segment from shortly beyond the slope, the basal third of the second segment, its apex narrowly and the ventral surface, the terminal segment except for a black triangular mark on the base above, extending near to the middle, the sheath of the ovipositor except at the apex and the legs, red; the hind femora except round the top and lower edge on the outer side, black; there are thirteen short, broad teeth on the hind femora, the basal one larger than the others. Wings hyaline, the apex clouded, the cloud rounded at the base; a narrow, curved cloud runs from the stigmal branch; the nervures black. The body and legs are densely covered with silvery pubescence; there is a broad band of depressed golden pubescence on the basal half of the second segment on the sides, not extending to the central third; the apical segments are also covered with golden pubescence. Female.

Length, 9 mm.; terebra, 4 mm.

Pretoria. Bred.

Head and thorax closely, rugosely punctured; the basal slope of the pronotum smooth, the apex coarsely reticulated, as is also, but more closely, the scutellum; the space bordering the post-scuteellum and a furrow on the base of the metanotum crenulated; the apex of the latter is longitudinally striated; this striated central part is bordered by a stout roundly curved keel, which is continued more narrowly down the outer edge of the apex; the upper outer part is densely covered with longish depressed silvery white pubescence; the lower edge projects into a bluntly rounded reddish tooth. The mesopleural depression has the upper two-thirds finely closely striated, the lower part is smooth, bare, and shining. The lower edge of the sheath of the ovipositor is irregularly punctured. The apex of the scutellum below is bordered by a furrow, which projects bluntly in the middle and has a furrow behind it.
PERILAMPIDAE.

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Perilampus, Latr.

Perilampus testaceitarsis, sp. n.

Black, shining; the flagellum of the antennae rufous, the tarsi testaceous, black at the apex; wings hyaline, the nervures testaceous. Head, shining, the hinder part of the vertex and the occiput transversely striated distinctly, but not very closely. Pro- and mesonotum umbilically punctate, the apex of the latter more strongly than the rest; the scutellum is still more strongly umbilically punctate. Pleurae smooth and shining, the raised apex of the propleurae coarsely reticulated. Metanotum smooth and shining, bare, a crenulated furrow at the base; a furrow, widened above, down the centre; there is a keel down its middle with two transverse keels on either side of the centre.

Length, 5 mm. Female.

Pretoria. September.

The scutellum has the sides and apex margined, the latter more strongly than the former, and with the centre narrowly transverse. The mandibles are of a darker red than the antennae; their teeth black. The fore tibiae are red at the base and apex in front; the hind femora have a bluish tint.

Chalcis, F. sec.

Chalcis transvaalensis, sp. n.

Black; the legs bright red, the base of the four anterior coxae and the femoral teeth black; the apex of the anterior femora broadly, of the middle more narrowly, a spot on the apex of the posterior, the base and apex of the four anterior tibiae, a band near the base of the hinder and a broader one on the apex, white; the lower part of the antennal scape obscure red. Wings hyaline, the nervures black. Tegulae white. Femoral teeth ten in number, the basal two small and close together. Female.

Length, 4 mm.

Head strongly punctured, the vertex behind the ocelli umbilically so; the sides at the depression weakly, the face and clypeus strongly, irregularly punctured. Thorax above, with the scutellum umbilically punctate; the metanotum coarsely reticulated. Abdomen smooth, the apical segments fringed with white pubescence. Female.

Length, 4 mm.

Bred.

Propleurae aciculated, the mesopleurae smooth, the lower part and the sternum reticulated; there are five distinct foveae bordering the lower half of the base. Metapleurae reticulated like the metanotum except for an aciculated space at the base above. The malar space margined on the inner side. There is no clearly defined areola on the metanotum; the centre is without an areola and is bordered by two oblique keels, forming longish areae. The apical lobes of the scutellum are short, broadly rounded and hollowed. Sides of metanotum broadly rounded, untoothed.
The apical abdominal segments form a short broad sheath, showing an approach to Phasgonophora or Trigonuura as in C. capensis, Cam. (Rec. Alb. Mus., I, 311) to which this species is closely allied.

Note.—In my description of capensis, l. c., in the fourth line from the bottom of the page, for “mesonotum” read “mesopleurae”.

Oncochalcis, Cam.


Uncochalcis lissostoma, sp. n.

Black; the tegulae, apex of anterior femora, the black part obliquely narrowed towards the apex, a spot on the apex of the hind femora above and the tibiae, pale yellow; the apex of the middle femora and the tarsi reddish testaceous; the hind femora from shortly behind the middle red, the black basal mark roundly narrowed; there are eleven distinct teeth, followed by six minute ones close together, the termina, one short, broad, indistinct. Apex of scutellum broadly rounded and fringed with silvery hair. The face, cheeks, and metapleura densely covered with long silvery pubescence; the second and following abdominal segments fringed with silvery hair. Wings clear hyaline, the nervures black; the tegulae whitish yellow. Female.

Length, 4 mm.

Groenvlei (Pretoria District). January.

Bred.

Face and clypeus smooth; the sides of the vertex strongly, obliquely striated; the occiput irregularly, obliquely, reticulated-striated. Pro- and mesothorax umbilically punctured all over, the prothorax finer than the rest. Metanotum strongly reticulated, without an areola; it is short, with the sides broadly rounded. Sheath of ovipositor broad, projecting.

Allied to O. rotundata, Cam. (Zeits., f. Hymen, ü Dipter, 1905, 231) which is also from South Africa and has, like the present species, the apex of the scutellum not bilobate, the hind femora, too, being entirely red.

Eurytominae.

Eurytoma transvaalensis, sp. n.

Black; the head, thorax, and apical segments of the abdomen densely covered with silvery white pubescence; the under side of the antennal scape rufous beneath, the legs white, the coxae, the greater part of the four anterior femora—about the basal three-fourths—and the posterior to near the apex, black; the tibiae are tinged with fulvous more or less broadly in the middle—the fulvous tint varying in depth, inclining to black in one example—the apical tarsal joint fuscosus to black; wings clear hyaline, the nervures pale testaceous. Female.

Length, 3.5 mm.

Pretoria. Bred.

Antennae stout, the flagellum densely covered with white pubescence; the third joint becoming gradually thickened towards the apex, about one-quarter longer than the fourth. Parapsidal furrows clearly defined,
deep, straight, converging towards the apex. Sides of metanotum broadly rounded, the middle depressed, finely obliquely striated on the upper half, the lower with fine striae which form almost reticulations. The last abdominal segment forms a longish triangular projection; the apex of the sheath of the ovipositor is testaceous. The abdomen is hardly so long as the meso- and metathorax united; the petiole is short. Marginal vein distinctly thicker and not quite so long as the post-marginal; the stigmal vein ending in a semicircular thickening.

The colouration of the legs probably varies.

Allied to E. capensis, Wlk., and E. natalensis, Cam.

**Eurytoma palliditarsis**, sp. n.

Black; the head, thorax, apical segments of abdomen and legs densely covered with white pubescence; the antennal scape, mandibles, palpi, and legs rufo-fulvous, the hind tibiae at the base and apex and the hind tarsi white; the flagellum of the antennae testaceous, infuscated above; wings hyaline, the nervures whitish. Female.

Length, 2·5 mm.

Pretoria. September “from a gall”.

Flagellum of antennae stout, covered with white pubescence; the third joint about one-fourth longer than the fourth. Metanotum obscurely striated, the top and outer edges bordered by a keel, which is broadly rounded above, and there is a straight keel down the centre. The marginal vein is distinctly longer than the post-marginal, and is distinctly longer than it, and projects only very slightly beyond the stigmal vein, which is semicircularly dilated below.

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**IDARNINAE.**

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**Tetragonaspis**, Mayr.

**Eukoebela (†) testaceipes**, sp. n.

Black; the antennal scape, the pedicle, the legs, the apical segments of the abdomen above, and the ventral segments testaceous; the face, clypeus, oral region, palpi, and mandibles of a darker, more rufous, testaceous colour; the flagellum dark rufo-testaceous; wings clear hyaline, the nervures dark testaceous, the stigmal branch paler. Female.

Length, 2·5 mm.; terebra, 8 mm.

Pretoria. Bred.

Head and thorax, except the metanotum (which is smooth and shining), opaque, the abdomen smooth, shining. Joints of flagellum wider than long. The post-marginal branch is a little longer than the marginal; the stigmal branch is two-thirds of its length. Parapsidal furrows distinct, curved roundly, not commencing at the base of the mesonotum, but at the sides, distant from the base. Scuteellum large, quadrangular, of equal width, longer than wide. Ocelli in a curve, the hinder widely separated, placed close to the eyes. The antennae are not much thickened towards the apex; the third joint is longer than thick and longer than the fourth.
Metanotum shorter than the scutellum. Temples very short, the occiput not transverse. The hinder ocelli are placed before the end of the eyes. The scutellum has not "longitudinal grooved lines".

The species described above does not fit into any of the described genera. It is clearly related to *Idarnes*, Walker (which, according to Ashmead, Mem. Carnegie Mus., I, 238, is identical with *Tetragonaspis*, Mayr., cf. also Mayr., Wiener Ent. Zeit., XXV, 164), and *EuKoebelea*, Ashm.

It differs from *Idarnes*, Wlk., sec. Ashm., in the body not being metallic and in the joints of the antennae not being twice longer than thick; from *EuKoebelea* in the ocelli not being "arranged nearly in a straight line", but almost in a triangle as in *Idarnes*; from both it differs in the scutellum not having two longitudinal grooved lines; the scutellum otherwise is as in these two genera, being flat, broad, and quadrate. In body form it is like *Tetragonaspis* as figured by Mayr. (Verh. z-b. Ges. Wien., XXXV, pl. xii, f. 28), but has the post-marginal branch in the wings much shorter as compared with the marginal, the temples, too, being less developed.
DESCRIPTIONS OF TRANSVAAL MICRO-LEPIDOPTERA.

By E. MEYRICK, B.A., F.R.S.

II.

A further instalment of interesting material is here described, partly as before, from the collection of Mr. A. J. T. Janse, partly from specimens in the Transvaal Museum collected by Mr. C. J. Swierstra. There is a marked generic relationship between this fauna and that of Southern Europe, whence it was probably mainly derived.

PTEROPHORIDAE.

Trichoptilus congrualis, Walk.

Haenertsburg in December (Swierstra).

Oxyptilus secutor, n. sp.

Male, 19 mm. Head and thorax fuscous, apex of patagia whitish. Palpi two and a quarter, obliquely ascending, fuscous, basal joint whitish, second joint with two whorls of whitish-tipped scales, terminal joint whitish along posterior edge. Abdomen fuscous, mixed with whitish. Forewings cleft from middle, segments slender, first acute, second rather dilated posteriorly, with apex produced, termen very obliquely concave; fuscous, in disk and towards base of dorsum partially suffused with light greyish-ochreous, along costa suffused with dark fuscous and sprinkled with whitish; a blackish dot beneath costa near base, one in disk at one-third, surrounded, except above, with whitish suffusion, and one at lower angle of cleft; a whitish spot on lower margin of first segment at base; narrow whitish fasciae crossing both segments at one-third and two-thirds of length, apical area of both segments suffused with pale ochreous; some black scales along lower part of termen of second segment; cilia grey, on costa white barred with dark fuscous, elsewhere irregularly mixed with white and black scales, with white bars at tornus and apex of both segments. Hind wings dark grey; cilia purplish-rosy-grey, on dorsum with scattered white and a few black scales, with a rather broad black scale-projection about three-quarters.

Pretoria, in December (Janse); one specimen.

Platyptilia molopias, Meyr.

Haenertsburg and Woodbush Village, in December (Swierstra). In African specimens there are usually more scattered black scales on posterior half of dorsum of hind wings; in Indian and Ceylon examples black scales in this position are scanty at best, whilst in African examples they are sometimes rather numerous; on the anterior half of dorsum they are, of course, numerous in both forms. From the larger and more conspicuously marked direptalis the species may be distinguished by the different position of the dorsal scale-projection of hind wings, which in molopias is truly central (being also less triangular), i.e. placed so that its centre coincides with the centre of dorsum, whilst in direptalis it is post-median, being so placed that its anterior edge is in centre of dorsum.
Psclnophorus aulotes, n. sp.

Male, 14–15 mm. Head ochreous-brown, orbits and a frontal bar white. Palpi one, slender, ascending, appressed to face, brownish. Antennal ciliations minute. Thorax ochreous-brown, anteriorly white. Abdomen pale ochreous-brownish lined with white, towards base white, anal tuft white. Fore wings cleft from near middle, segments acute, first narrow, second very narrow; light ochreous-brown; a slender white costal streak, edged on both sides with blackish irration, from base to middle, costal edge thence to cleft blackish; a white longitudinal mark in disk at one-third; a blackish dot on lower angle of cleft; some blackish irration along dorsum from base to cleft; a narrow white streak along upper margin of second segment from near base to apex; some black scales along lower margin of both segments posteriorly; costal cilia from cleft to apex white, with blackish marks towards base and in middle of segment, and mixed with blackish on posterior third, remaining cilia ochreous-brownish, becoming blackish-grey on lower margin of both segments towards apex, with black basal dots at apex of both segments, on upper margin of second segment with some white scales. Hind wings dark grey; cilia bronzey-grey.

Woodbush Village, in December (Swierstra); two specimens.

Adaina gentilis, n. sp.

Male, 15–17 mm. Head yellowish-fusceous, white between antennae (damaged). Palpi, hardly over one, snow white. Antennal ciliations nearly one. Thorax whitish-yellowish, tinged with grey, anteriorly white. Abdomen whitish-grey-yellowish striped with white, with lateral series of blackish dots. Fore wings cleft nearly from middle, segments rather narrow, acute; whitish-yellowish, somewhat tinged with grey in disk; costa narrowly white from base to beyond middle; a fine line of dark fuscous suffusion along anterior portion of fold, more or less marked; a small dark grey spot on base of cleft, and another less marked midway between this and base of wing; a small blackish-grey mark on costa beyond cleft; blackish dots at extremities of veins two, three, four, seven, and ten; two or three blackish scales at apex of each segment; cilia whitish-grey tinged with yellowish, on costa yellow-whitish. Hind wings grey or pale grey; cilia ochreous-grey-whitish.

Pretoria, in October and December (Janse); two specimens. Closely allied to the European microdactyla, but palpi somewhat shorter, white (in microdactyla towards apex infuscated), fore wings with segments somewhat narrower and more acutely pointed, quite without dark fuscous sprinkling.

Marasmarcha, Meyr.

I find that verax Meyr., pavida Meyr., and crepuscularis Meyr., are all properly referable to this genus and not to Pterophorus; the African species of the two genera approach one another closely, and cannot in fact be discriminated without careful examination of the distinguishing character in the venation. I find timidus Meyr., however, to be a true Pterophorus.
**Marasmarcha atomosa**, Wals.

Groenvlei (N.E. Pretoria District), in January (Janse); one specimen. This is a common Indian species, of which the larva feeds in pods of the cultivated *Cajanus* and *Dolichos*, and is probably introduced with its food plant.

**Marasmarcha pacifica**, n. sp.

Male, 16-18 mm. Head yellowish-fuscous, between antennae whitish. Palpi one-and-a-half, white, second joint with a fuscous lateral streak above. Antennae whitish, ciliations two-thirds. Thorax whitish-yellowish, shoulders sometimes white. Abdomen whitish-yellow. Fore wings cleft from three-fifths, segments acute, first moderate, second narrower; whitish-yellowish; costa, dorsum from base to cleft, and upper edge of second segment more or less suffused with white; more or less faintly defined broad streaks of pale brownish suffusion above dorsum from base to one-third, in disk from near base to cleft, along lower portion of second segment, and some undefined suffusion in first segment; cilia pale ochreous-greyish, white towards base except on termen of both segments, where it is rather darker ochreous-grey, on costa wholly white. Hind wings light grey; cilia ochreous-grey-whitish.

Moorddrift, in October (Swierstra); three specimens.

**Pterophorus furfurosus**, n. sp.

Female, 19 mm. Head ferruginous-ochreous, narrowly white between antennae. Palpi hardly over one, whitish. Thorax brownish-ochreous, anteriorly whitish. Abdomen white, with dorsal and lateral pale ochreous lines. Fore wings cleft from about three-fifths, segments acute, first moderately broad, second narrower; ochreous-white, suffused with brownish-ochreous except towards anterior half of costa and upper half of second segment; some slight dark fuscous suffusion along dorsum anteriorly, and in disk on a line from one-third to cleft; a well-marked blackish dot before lower angle of cleft; a line of black irroration along posterior half of lower margin of both segments; cilia rosy-grey, whitish tinged towards base, on costa white, at apex of second segment with a white bar. Hind wings dark grey; cilia rosy-grey.

Pretoria, in October (Janse); one specimen.

**Pterophorus ambitiosus**, n. sp.

Male, 19-20 mm. Head light grey-yellowish, fillet white. Palpi one and a quarter, very slender, dark fuscous, internally white. Antennae whitish, ciliations two-thirds. Thorax yellowish-white. Abdomen pale yellowish striped with white. Fore wings cleft from three-fifths, segments moderate, acute; yellow-whitish, sometimes partially tinged with fuscous; cilia white, grey on posterior half of lower margin of both segments, and towards tips on posterior half of upper margin of second segment. Hind wings grey-whitish or whitish-grey; cilia whitish, sometimes tinged with grey.

Pretoria, in October and November (Janse); two specimens.

**Pterophorus invidiosus**, n. sp.

Female, 21 mm. Head whitish-yellowish, between antennae white. Palpi nearly two, white, terminal joint with a black lateral line. Thorax
yellowish-white. Abdomen whitish-yellowish, towards base white. Fore wings cleft from near middle, segments rather narrow, acute; whitish-ochreous-yellow, tinged with greyish-ochreous in disk from base to cleft; a cloudy grey mark on base of cleft; cilia pale ochreous-grey, on costa yellow-whitish. Hind wings grey; cilia pale ochreous-grey.

Pretoria, in March (Janse); one specimen.

Pterophorus lienigianus, Z.

Pretoria, in December and March (Janse); two fine specimens. This species is widely distributed in Europe, India, and Ceylon; the larva feeds on Artemisia vulgaris in Europe, but it may have other food plants.

Stenoptilia longalis, Walk.

Woodbush Village, in December (Swierstra).

Orneodidae.

Orneodes libraria, n. sp.

Female, 16 mm. Head and thorax white, mixed with grey. Palpi very long, porrected, white suffusedly irrorated with fuscous except on upper margin and apex of joints, second joint with dense rough projecting scales above and at apex beneath, terminal joint short, obliquely ascending. Abdomen white, mixed with fuscous. Fore wings whitish, sprinkled with grey, basal area and first segment suffusedly irrorated with grey; a narrow fascia at one-fifth indicated by dark fuscous margins, on first segment forming a small dark fuscous spot; a quadrate dark fuscous spot on first segment at one-third; a moderate median fascia of fuscous irroration, edged with dark fuscous and then with white, widest on fifth segment, divided on first segment into two spots; a quadrate similar spot on first segment at three-quarters; a narrow similar subterminal fascia, forming a single spot on first segment, on third and fourth segments abruptly much broader, projecting inwards and suffused with dark fuscous; a black dot at tip of each segment; cilia grey, with oblique whitish bars on margins of markings. Hind wings whitish, sprinkled with fuscous, with dots of blackish irroration indicating margins of fasciae; apical dots and cilia as in fore wings.

Pretoria, in October (Janse); one specimen. The dark fuscous expansion of subterminal fascia on third and fourth segments is a characteristic feature.

Orneodes spicifera, n. sp.

Male, 12 mm. Head and thorax white, forehead and patagia sprinkled with fuscous. Palpi very long, porrected, white suffusedly irrorated with dark fuscous, second joint above with dense rough projecting scales diminishing to apex, terminal joint very short, almost concealed in scales of second joint. Abdomen white, irregularly mixed with brownish and black, segmental margins clear white. Fore wings ochreous-whitish, irrorated with grey; markings irrorated with dark fuscous and edged with white; two small spots on costa near base; an ill-defined fascia before one-third, forming a small distinct spot on costa, towards dorsum dilated and strongly white-edged anteriorly; a moderately broad median fascia,
widest on fifth segment, divided into two spots on first segment; a quadrate spot on costa at three-quarters; a rather irregular subterminal fascia, widest on third and fourth segments, divided into two spots on first segment; a black dot at tip of each segment; cilia pale grey, darker grey on fasciae, with white oblique bars on white lines. Hind wings with ground colour as in fore wings; four narrow white fasciae on all segments, edged with dark fuscous (representing margins of median and subterminal fasciae); apical dots and cilia as in fore wings.

Pretoria, in January (Janse); one specimen. Might be mistaken for a small *Huebneri*, but palpi totally different (in *Huebneri* with long ascending terminal joint).

*Microschismus* celetias, n. sp.

Male, 12 mm. Head fuscous. Palpi extremely long (seven), fuscous sprinkled with darker, white towards base beneath, terminal joint very short, tip white. Antennae fuscous dotted with whitish, filiform, moderately ciliated (one). Thorax fuscous sprinkled with dark fuscous and whitish. Abdomen dark fuscous, segmental margins mixed with whitish, anal tuft suffused with whitish. Posterior tibiae and tarsi white.

Fore wings formed as in *antennata*; brownish, irrorated with dark fuscous and blackish; costa with about seven white dots between base and three-fifths; a spot of blackish suffusion at base of second cleft, and a bar of dark fuscous suffusion between this and dorsum; two somewhat curved approximated and partially confluent white lines crossing all segments beyond two-thirds of wing; a white subterminal line, retracted inwards on first segment and more strongly on sixth; a white costal dot before this line, and a small white costal spot before apex; a blackish dot at apex of each segment, edged with white anteriorly; cilia grey, sprinkled with dark fuscous, obliquely barred with white on lines, base and tips white at apex of segments. Hind wings grey irrorated with blackish; a praepapical series of very obscure minute whitish dots; cilia grey sprinkled with dark fuscous, with obscure series of faint oblique pale bars.

Woodbush Village, in December (Swierstra); one specimen.

*Microschismus* ctenias, n. sp.

Male, 18–21 mm. Head, thorax, and abdomen dark fuscous, anal tuft light brownish. Palpi extremely long (7–8), dark fuscous, terminal joint relatively short, whitish except towards base. Antennae whitish, shortly bipectinated, pectinations dark fuscous, slender, ciliated. Legs dark fuscous, posterior tibiae and all tarsi whitish. Fore wings formed as in *antennata*; fuscous suffusedly irrorated with dark fuscous, base of clefts two to five suffused with dark fuscous; about eleven minute white strigulae on posterior half of costa; minute whitish strigulae or dots on other segments at one-third and two-thirds of length and before apex; cilia fuscous sprinkled with dark fuscous, with faint oblique whitish bars, base and tips whitish at apex of segments. Hind wings rather dark fuscous; median and three posterior series of minute whitish dots on each segment. Cilia fuscous, with faint oblique whitish bars.

Ngeleni, W. Pondoland, in May (Swinney); Camperdown, Natal, in April (Leigh); two specimens.
Philoniidae.

Pharmacis assecula, Meyr.

Haenertsburg, in December (Swierstra).

Tortricidae.

Tortrix psoricodes, n. sp.

Male, 19 mm.; female, 20–23 mm. Head and thorax in male pale whitish-ochreous with a grey longitudinal mark on patagia, in female brown or light yellow-ochreous somewhat sprinkled with brown. Palpi rather long, ochreous-whitish suffusedly irrorated with brown or fuscous. Antennal ciliations in male whorled (one and a half). Abdomen pale greyish, anal tuft of male whitish-ochreous. Fore wings sub-oblong, costa anteriorly moderately arched, posteriorly nearly straight, in male without fold, apex obtuse, termen slightly sinuate, somewhat oblique; glossy whitish-ochreous, strewn with small spots and strigulae of grey and dark fuscous scales arranged in transverse series, in female more or less mixed with ferruginous between these; markings indicated in male by fuscous, in female by ferruginous suffusion, but very undefined or hardly traceable, viz., a moderately broad central fascia angulated in middle, a costal patch, and a large blotch extending along termen; cilia whitish-ochreous or pale ochreous, in female more or less mixed with ferruginous, with more or less marked dark fuscous sub-basal shade. Hind wings in male grey, in female pale grey, indistinctly spotted with darker and tinged at apex with whitish-ochreous; cilia whitish, with grey sub-basal line.

Haenertsburg and Woodbush Village, in December (Swierstra); three specimens.

Tortrix prona, n. sp.

Male and female, 13–14 mm. Head and thorax pale ochreous, thorax sometimes brownish tinged. Palpi pale ochreous, second joint somewhat sprinkled with fuscous towards base. Antennal ciliations in male three-quarters. Abdomen grey, anal tuft whitish-ochreous. Fore wings sub-oblong, costa anteriorly rather strongly, posteriorly slightly arched, in male without fold, apex obtuse, termen slightly sinuate, rather oblique; pale ochreous more or less striated with fuscous, on costa with some dark fuscous strigulae; markings fuscous, partially edged with dark fuscous or ferruginous-ochreous or both; basal patch obscurely indicated, outer edge obtusely angulated in middle but more or less obsolete; central fascia rather narrow on upper half, dilated posteriorly on lower half but very ill-defined there, anterior edge well marked, nearly straight, moderately oblique; costal patch rather small, semicircular; an oblique dark fuscous or ferruginous-ochreous striga towards termen below middle; cilia pale ochreous. Hind wings grey; cilia ochreous-whitish, with grey sub-basal shade.

Haenertsburg, in December (Swierstra); Pinetown, Natal, in January (Leigh); four specimens.

Tortrix furtiva, n. sp.

Male, 16–17 mm. Head, palpi, and thorax blackish-grey, thorax indigo tinged, its posterior half whitish-ochreous. Antennal ciliations, one.
Abdomen whitish-grey. Fore wings sub-oblong, costa moderately arched, without fold, apex obtuse, termen hardly sinuate, oblique; whitish-ochreous or pale ochreous, with a few scattered blackish specks; costal edge dark fuscous towards base; a blackish dot in disk at two-thirds, and one on dorsum slightly anterior; cilia whitish-ochreous. Hind wings pale whitish-grey; cilia grey-whitish.

Haenertsburg, in December (Swierstra); three specimens.

**Epichorista ionephela**, Meyr.

Haenertsburg, in December (Swierstra).

**Argyrotoxa hectora**, n. sp.

Female, 15–16 mm. Head, palpi, and thorax yellow-ochreous tinged with ferruginous. Abdomen grey. Fore wings elongate, slightly dilated, costa moderately arched, apex obtuse, termen almost straight, oblique; ochreous-yellow; a transverse ferruginous blotch on costa at one-quarter, reaching half across wing; a transverse series of three or four undefined dots of dark fuscous or blackish raised scales crossing wing at two-fifths, but these are little marked and sometimes more or less obsolete; a moderate or rather narrow straight ferruginous fascia from middle of costa to dorsum before tornus, and a similar fascia from costa near apex running into it below middle, sometimes marked with a few dark fuscous scales; sometimes one or two slight dots of dark fuscous scales near termen above middle; cilia pale ochreous-yellowish. Hind wings rather dark grey; cilia grey-whitish, with dark grey sub-basal line.

Pretoria, in November and March (Janse); two specimens.

**Cnephasia opsaria**, n. sp.

Male, 13–14 mm. Head, palpi, and thorax dark grey irrorated with whitish. Antennal cilia, one. Abdomen light grey. Fore wings elongate, moderate, costa gently arched, apex obtuse, termen hardly rounded, oblique; white, partially tinged with grey, transversely striated with grey, costa and termen suffused with grey; markings dark grey, partially edged with black irroration; a suffused basal fascia; a moderate somewhat curved ante-median fascia, in one specimen broken up into costal and dorsal spots and a longitudinal mark in disk between them, in this specimen anterior half of disk somewhat suffused with whitish-yellowish; a rather narrow central fascia from middle of costa to two-thirds of dorsum, broadest on costa, obtusely angulated in middle, anterior edge with an abrupt narrow projection below middle; a semi-oval costal patch, a small spot on costa beyond it, another at apex, and a roundish spot towards termen above middle, sometimes confluent with costal patch; cilia grey sprinkled with whitish, towards base sprinkled with blackish-grey, with a blackish-grey median line. Hind wings grey; cilia grey-whitish, with a grey line.

Pretoria, in October (Janse); Woodbush Village, in December (Swierstra); two specimens.

**Cnephasia captiva**, n. sp.

Male, 10 mm. Head and palpi fulvous-yellow. Antennae grey, cilia, one-quarter. Thorax fulvous-yellow, with two leaden-grey
stripes. Abdomen dark grey. Fore wings sub-oblino, costa moderately arched, without fold, apex round-pointed, termen faintly sinuate, oblique; seven to termen; yellow-fulvous; costal edge blackish towards base; a leaden-grey triangular patch extending on dorsum from base to two-fifths and reaching more than half across wing, and a leaden-grey spot on costa at one-fifth, these representing basal patch; a somewhat curved blackish transverse line near beyond these, nearly followed by a somewhat curved narrow leaden-grey fascia; a straight blackish line from a triangular spot on middle of costa to three-quarters of dorsum, nearly followed by a straight narrow leaden-grey fascia suffusedly edged with blackish scales; a nearly straight leaden-grey fascia from three-quarters of costa to termen above tornus; posterior area beyond this suffused with blackish, enclosing a leaden-grey spot on termen beneath apex; cilia pale fulvous-ochreous, towards tornus suffused with grey. Hind wings dark fuscous; cilia dark grey.

Haenertsburg, in December (Swierstra); one specimen.

Cnephasia ergastularis, n. sp.

Male, 14 mm. Head and palpi fulvous-ochreous, crown centrally whitish tinged. Antennae grey, ciliations one. Thorax dark grey, mixed with ochreous. Abdomen grey. Fore wings elongate, moderate, slightly dilated, costa moderately arched, without fold, apex round-pointed, termen straight, oblique; seven to termen; bronzy-yellow-ochreous; markings dark leaden-grey edged with blackish; a basal patch with angulated outer edge running from one-quarter of costa to one-quarter of dorsum, enclosing two spots of ground colour; a moderate ante-median fascia, furcate on dorsum; a moderate straight fascia from middle of costa to three-quarters of dorsum, confluent beneath with a narrower irregular fascia near beyond it; an irregular fascia from five-sixths of costa to termen above tornus; some scattered dark strigulae on termen; cilia ochreous-whitish. Hind wings grey; cilia grey-whitish, with a grey sub-basal shade.

Haenertsburg, in December (Swierstra); one specimen. This and the preceding are allied species of peculiar facies, and I have no doubt that Argyrotoxa tigrina, Wals., which is very similar, belongs here also, though I have not seen a specimen.

EUCOSMIDAE.

Spilonota conica, n. sp.

Male, 16-17 mm. Head and thorax dark grey, mixed with whitish. Palpi grey. Antennae with notch almost at base of stalk. Abdomen grey. Fore wings elongate, rather narrow, posteriorly slightly dilated, costa slightly arched, with strong fold from base to slightly beyond middle, apex obtuse, termen straight, rather oblique; fuscous suffusedly irrorated and strigulated with white; a large blackish-fuscous patch extending along costa from base to three-quarters, slightly whitish-sprinkled and strigulated on costa with whitish irroration, its lower edge reaching two-thirds across wing and triangularly indented with white suffusion in middle of wing, so as to form angular prominences before and beyond this; an
erect triangular dark grey tornal spot marked with blackish, reaching half across wing; apical portion of costa blackish, with pairs of whitish strigulae; ocellus margined laterally by thick silvery streaks, and containing two short black marks; cilia grey with rows of white points, round apex and upper part of termen and beneath tornus suffused with blackish. Hind wings with three and four stalked; rather dark grey; cilia grey, slightly whitish sprinkled.

Pretoria (Janse); Woodbush Village (Swierstra); in December; two specimens. Approaches rhothia, but the antennal notch is much nearer base.

**Eucosma malacodes**, n. sp.

Female, 16 mm. Head fulvous-ochreous. Palpi moderate, sub-ascending, ochreous-grey-whitish, terminal joint grey. Thorax grey, irrorated with grey-whitish. Abdomen grey. Fore wings elongate, moderate, costa slightly arched, apex obtuse, termen sinuate, somewhat oblique; grey, sprinkled with grey-whitish; costa grey-whitish, shortly strigulated with blackish iroration; a pale fulvous-ochreous apical patch, extending along costa to middle, and along termen to tornus, marked with several irregular oblique blue-leaden strigae from costa, its lower portion forming the ocellus, which is margined anteriorly with obscure blue-leaden suffusion and posteriorly with a pale golden metallic streak, and contains three elongate black dots; cilia grey, basal half irrorated with whitish and dark grey and limited by a line of blackish iroration, outer half prismatic-submetallic; towards tornus sprinkled with whitish. Hind wings with three and four stalked; grey, darker posteriorly; cilia grey-whitish, with dark grey sub-basal shade.

Pretoria, in December (Janse); one specimen.

**Eucosma riciniata**, n. sp.

Male, 15–16 mm. Head and palpi dark fuscous. Antennae simple. Thorax dark fuscous, patagia mixed with white except on shoulders. Abdomen grey. Fore wings elongate, costa gently arched, without fold, apex obtuse, termen sinuate, little oblique; white; a dark fuscous basal patch striated with bluish-leaden-grey, outer edge running from two-fifths of costa to two-fifths of dorsum, rather curved; costa from this to apex dark fuscous, with seven pairs of fine white strigulae; space between basal patch and central fascia grey on costal third, with several grey marks in remainder; central fascia broad, ill-defined, grey, obliquely interrupted above middle, somewhat mixed with brownish, and with two black marks on posterior edge in and below middle; a fuscous streak beneath dark costal edge from this to apex, marked with oblique leaden-grey strigulae rising from costal pairs; ocellus margined laterally by silvery streaks and above by a black mark, and containing two black dots near upper portion of posterior edge; apex and upper part of termen chestnut-brown, with a white terminal mark below apex; cilia blackish-grey sprinkled with white, with a broad white tornal patch. Hind wings with dorsal edge thickened, three and four stalked; grey; cilia whitish, with two grey shades.

Haenertsburg, in December (Swierstra); two specimens.
Eucosma scenica, n. sp.

Male, 15 mm. Head ochreous, crown suffused with fuscous. Palpi light ochreous, second joint anteriorly suffused with fuscous. Antennae simple. Thorax red-brown, mixed with blackish. Abdomen dark grey, anal tuft pale ochreous mixed with brownish. Fore wings elongate, costa gently arched, without fold, apex obtuse, termen straight, rather oblique; reddish-brown; basal patch formed by suffused blackish striation and somewhat marked with dark bluish-leaden, edge irregular, obtusely angulated below middle; space between this and central fascia partially suffused with white, especially towards dorsum, with some scattered blackish strigulae, on costa with two pairs of whitish strigulae, along its posterior edge with an irregular blue-leaden stria thickened in disk; central fascia blackish-fuscous, moderately broad, narrow towards costa, posterior edge rounded-prominent above and below middle, marked with a blue-leaden spot in middle and another toward dorsum; posterior half of costa blackish, marked with four pairs of whitish strigulae, whence proceed short oblique blue-leaden marks, space round these fulvous-brown; ocellus formed by two approximated thick rosy-silvery streaks, between which is a rather curved series of four black dots, above this is a patch of rosy-whitish and blue-leaden suffusion, followed by a blackish patch extending to apex, containing a blue-leaden mark near termen beneath apex, followed by two white terminal dots; cilia grey sprinkled with white points, with a dark fuscous sub-basal shade, on tornus suffused with whitish. Hind wings with three and four stalked; dark grey; cilia pale grey, with darker sub-basal shade.

Haenertsburg, in December (Swierstra); one specimen.

Bactra scrupulosa, n. sp.

Male and female, 13–14 mm. Head, palpi, and thorax pale whitish-ochreous tinged with grey, palpi hardly over two. Antennal ciliations in male one. Abdomen light grey. Fore wings elongate, costa gently arched, apex obtuse, termen straight, oblique; greyish-ochreous or whitish-ochreous, with some strigulae of black iroration on margins; costa with oblique silvery-whitish strigulae, posteriorly paired, whence arise more or less marked irregular whitish striae crossing wing, variable in development; basal patch indicated by a triangular spot of blackish suffusion representing angle in disk, and some slight iroration elsewhere; central fascia represented by an oblique patch of blackish suffusion in disk; two transverse blue-leaden marks and some scattered fine black strigulae towards termen; cilia pale grey or whitish, with two little-marked fine dark lines. Hind wings grey; cilia whitish, with two grey lines.

Woodbush Village (Swierstra); Albert Mine, Pretoria District (Janse); in December and January; three specimens.

Bactra hebetata, n. sp.

Male, 12–13 mm. Head ochreous-whitish. Palpi two, whitish, suffused with grey on basal half and beneath, terminal joint with blackish sub-apical ring. Antennal ciliations, one. Thorax ochreous-whitish, mixed with grey and sprinkled with black. Abdomen grey. Fore wings elongate, costa
gently arched, apex obtuse, termen rounded, oblique; light grey, irregularly sprinkled with darker; costa blackish, marked with oblique whitish strigulae, posteriorly paired and giving rise to short bluish-leaden marks; basal patch indicated by striae of blackish irroration, and an elongate discal patch of blackish suffusion representing angle; central fascia represented by an oblique dark streak from costa, an irregular patch of blackish suffusion in disc, edged posteriorly by a white spot, and some darker suffusion towards dorsum, in which is a triangular sub-dorsal patch of whitish-ochreous suffusion edged above with black; ocellus small, edged laterally with bluish-leaden, veins within ft suffused with black; space above this marked with black lines on veins, limited above and posteriorly by an oblique bluish-leaden line from post-median pair of costal strigulae; cilia grey sprinkled with white points, with a white basal streak along termen. Hind wings rather dark grey; cilia grey, with darker sub-basal shade.

Woodbush Village, in December (Swierstra); two specimens.

*Polychrosis inculata*, Walk.

Pretoria, in March (Janse); one specimen. Hitherto I have only seen this from Mauritius, where it is common.

*Argyroploce orthacta*, Meyr.


Pretoria, in October (Janse).

*Argyroploce sistrata*, n. sp.

Male and female, 17–20 mm. Head brownish, mixed or partly suffused with indigo-blackish. Palpi porrected, ferruginous-brownish mixed or suffused with dark fuscous. Thorax dark fuscous, somewhat whitish sprinkled, crest ferruginous. Abdomen in male whitish-fuscous, in female dark fuscous. Posterior tibiae in male clothed with dense long rough whitish hairs above and beneath, in female more shortly rough-scaled. Fore wings elongate, moderate, posteriorly dilated, costa gently arched, apex rounded, termen slightly rounded, somewhat oblique; seven indefinite, apparently to apex; dark purplish-fuscous, with irregularly scattered small raised spots of leaden-metallic scales; basal patch and central fascia indicated by irregular blackish marks and suffusion, but undefined, latter followed by an undefined spot of deep red-brown suffusion above middle; beyond an obtusely angulated line from three-quarters of costa to tornus, the posterior area is suffused with ochreous-whitish, except a more or less developed apical patch of red-brown suffusion, and an oblique blackish striga or spot from above middle of termen; cilia leaden-grey with two blackish lines, beneath tornus whitish mixed. Hind wings in male pale grey, in female dark grey; dorsum in male clothed with long hairs; under surface in male with a roundish patch of blackish-grey modified scales below middle of disc; cilia in male ochreous-whitish, round apex suffused with grey, in female grey-whitish with grey sub-basal shade.
Woodbush Village (Swierstra); Pinetown, Natal (Leigh); in December and January; nine specimens.

*Laspeyresia chelias*, Meyr.

Pretoria, in October (Janse); one specimen. The species was described from Ceylon; it has probably been introduced with some cultivated leguminous plant.

**Gelechiidae.**

*Epiphthora crystallista*, n. sp.

Male, 10 mm. Head and thorax white with a few dark fuscous specks. Palpi white, second joint sprinkled with dark fuscous except apex, scales rather projecting at apex beneath, terminal joint very short (one-third). Antennae white. Abdomen whitish. Fore wings narrow-lanceolate, long-pointed; white, sprinkled with black specks suffused with brownish, especially along costa and dorsum and on two longitudinal streaks in disc above and below middle, upper extending from base to three-quarters, lower shorter, and three longitudinal marks before and beyond tornus and at apex; cilia white, sprinkled with blackish points except towards tornus, with a blackish apical line. Hind wings with emargination nearly rectangular, produced apex over one-third; light grey; cilia whitish-grey-ochreous.

Pretoria, in August and September (Janse); two specimens. I note here that *Epiphthora*, Meyr., supersedes *Didactylota*, Wals., and that I consider *Proactica*, Wals., also only a synonym.

*Photodotis*, n. g.

Head with appressed scales; ocelli present; tongue developed. Antennae four-fifths, in male ciliated, basal joint moderate, without pecten. Labial palpi long, recurved, second joint thickened with dense projecting scales forming a short tuft beneath, terminal joint as long as second, thickened with appressed scales slightly rough anteriorly, pointed. Maxillary palpi very short, filiform, appressed to tongue. Posterior tibiae clothed with hairs above. Fore wings with two from angle, three absent, four approximated to two, seven and eight stalked, seven to costa, eleven from middle. Hind wings one, elongate-trapezoidal, termen obliquely bisinuate beneath apex, cilia one and a half; three and four somewhat approximated, five rather bent, six and seven parallel.

Probably allied to *Aristotelia*.

*Photodotis prochalinna*, n. sp.

Male and female, 10–11 mm. Head pale whitish-ochreous, sometimes with a few dark fuscous scales. Palpi ochreous-whitish, second joint sprinkled with dark fuscous towards base, with a broad dark fuscous supra-median band, terminal joint with black supra-median band and some black scales near base. Antennae white ringed with dark fuscous. Thorax ochreous-whitish, posteriorly with three black marginal dots, patagia whitish-ochreous sprinkled with dark fuscous. Abdomen dark fuscous, anal tuft ochreous-whitish. Fore wings elongate, rather narrow, costa gently arched, apex obtuse, termen very obliquely rounded; dark grey closely irrorated

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with white points or partially suffused with ochreous-whitish, especially towards dorsum anteriorly; two spots of black suffusion beneath costa near base, alternating with whitish suffusion; an ochreous-yellow oblique irregular streak from costa before middle, reaching half across wing, and an ochreous-yellow dorsal spot opposite its apex, these margined anteriorly by a curved transverse streak of blackish suffusion which also fills the space between them; an ochreous-yellow transverse spot in disc at three-quarters, connected with costa by a spot of dark fuscous suffusion, and with a smaller dark fuscous spot adjacent beneath; a small white spot on costa beyond this, whence a curved ochreous-yellowish streak runs near margin round costa and apex; apical and terminal edge whitish, with several dark fuscous dots; cilia fuscous, with blackish sub-basal line round apex, and several rows of white points. Hind wings grey; cilia light grey, base whitish-ochreous.

Pretoria, in October and February (Janse); two specimens.

*Epihectis ochrocosma*, n. sp.

Male, 14 mm. Head ochreous-white. Palpi white, second joint with a broad ochreous band irroration with blackish, terminal joint somewhat thickened with scales, with blackish supra-median band and sub-basal ring. Antennal cilia one-quarter. Thorax ochreous-whitish, shoulders somewhat sprinkled with grey. Abdomen whitish-grey-ochreous, two basal segments dorsally suffused with yellow-ochreous. Fore wings elongate, rather narrow, costa gently arched, apex round-pointed, termen extremely obliquely rounded; fuscous, irregularly sprinkled with white; three light reddish-ochreous longitudinal streaks from base to about one-third, upper receiving an oblique white strigula from costa; three white longitudinal streaks between and beyond these below middle of wing; discal stigma black edged with light reddish-ochreous, connected by a white line along upper margin of cell, plical hardly indicated, second discal connected with dorsum by a blackish spot edged with light reddish-ochreous; posterior area streaked with pale reddish-ochreous on veins and along termen; a series of very undefined blackish dots along posterior part of costa and termen; cilia pale brownish irroration with dark fuscous, with two dark fuscous lines. Hind wings grey; cilia light grey.

Moorddrift, in October (Swierstra); one specimen.

*Parapectris*, n. g.

Head with appressed scales; ocelli present; tongue developed. Antennae four-fifths, basal joint moderate, without pecten. Labial palpi very long, recurved, second joint thickened with dense scales, laterally compressed, somewhat rough beneath and finely furrowed, above with rather rough scales towards apex, terminal joint shorter than second, considerably thickened with scales, pointed. Maxillary palpi very short, filiform, appressed to tongue. Posterior tibiae rough-haired above. Fore wings with two from angle, six out of seven near base, seven and eight stalked, seven to costa, eleven from middle. Hind wings over one, trapezoidal, apex pointed, termen obliquely sinuate beneath apex, cilia one: three and four connate, five somewhat approximated, six and seven stalked.
Allied to Gelechia, of which it has the neuration, but the palpi are rather like those of Metzneria.

*Parapsectris tholaea*, n. sp.

Female, 17 mm. Head and thorax pale ochreous, shoulders and a central line sprinkled with dark fuscous. Palpi whitish-ochreous, second joint approximated, with dark fuscous at base and on upper half except apex, terminal joint with broad supra-median band of dark fuscous irroration. Abdomen pale ochreous suffused with grey. Fore wings elongate, rather narrow, costa gently arched, apex pointed, termen extremely obliquely rounded; pale ochreous, veins and costa suffusedly streaked with rather dark fuscous irroration; an irregular broad fuscous streak extending along dorsum from one-quarter to tornus, where it terminates abruptly in a darker transverse spot, surmounted by a blackish dot; a blackish dot beneath costa at base, one on fold almost at base, one on fold at one-fifth, two on upper edge of dorsal streak anteriorly, one towards costa at one-third, and one in disc before middle; the streaks on veins are suffused and more or less confluent posteriorly; cilia fuscous, sprinkled with dark fuscous towards base. Hind wings dark grey; cilia fuscous.

Van der Merwe Station, near Pretoria, in December and March (Janse); two specimens.

*Gelechia extincta*, n. sp.

Female, 14 mm. Head, palpi, antennae, and thorax dark ashy-fuscous, palpi with two or three whitish scales below middle on median and terminal joints. Abdomen bronzy-grey. Fore wings elongate, rather narrow, costa gently arched, apex pointed, termen faintly sinuate, very oblique; six out of seven near base; dark ashy-fuscous, obscurely streaked with blackish irroration on veins; plical stigma represented by three or four ochreous-whitish scales; cilia dark ashy-grey. Hind wings one, apex moderately produced, pointed; grey; cilia grey.

Pretoria, in November (Janse); one specimen.

*Thriophora*, n. g.

Head with appressed scales, side tufts loosely spreading; ocelli present; tongue developed. Antennae with basal joint moderate, without pecten. Labial palpi long, curved, ascending, second joint with very long loosely spreading tuft of scales beneath, terminal joint as long as second, slender, acute. Maxillary palpi very short, filiform, appressed to tongue. Posterior tibiae clothed with long hairs above. Fore wings with two from angle, three absent, seven and eight stalked, seven to costa, eleven from middle. Hind wings almost one, trapezoidal, termen somewhat sinuate beneath apex, cilia one and a quarter; three and four connate, five somewhat approximated, six and seven parallel.

Allied to the Indian genus Dactylethra.

*Thriophora ovulata*, n. sp.

Female, 12 mm. Head and antennae white. Palpi white, second joint with a median patch of blackish irroration. Thorax white, shoulders sprinkled with blackish. Abdomen whitish. Fore wings elongate, costa gently arched, apex obtuse, termen rounded, rather strongly oblique; ochreous-white, sprinkled with black points; a rather large suffused
roundish ferruginous-ochreous spot sprinkled with black in disc at one-fifth; three similar spots representing stigmata, plical slightly before first discal, much more irrorated with black than the others; a similarly coloured terminal fascia, broadest towards costa; some slight irregular pale ferruginous-ochreous suffusion scattered elsewhere about disc; cilia white, sprinkled with black points. Hind wings and cilia ochreous-whitish.

Pretoria, in January (Janse); one specimen.

*Brachmia malacogramma*, Meyr.
A second specimen sent by Mr. Janse has vein nine of fore wings out of seven near base.

*Brachmia panchlora*, n. sp.
Male, 15 mm. Head, palpi, antennae, thorax, abdomen, and legs pale yellow-ochreous, antennal ciliations very short. Fore wings elongate, costa gently arched, apex rounded-obtuse, termen rounded, rather oblique; two and three stalked, seven and nine stalked, seven to apex, eight absent; pale yellow-ochreous, costa somewhat yellower; cilia concolorous. Hind wings and cilia whitish-ochreous; six and seven approximated at base.

Pretoria, in March (Janse); one specimen.

**Cosmopterygidae.**

*Stathmopoda luminata*, n. sp.
Female, 12 mm. Head whitish-yellowish, collar ferruginous-orange. Palpi ochreous-whitish. Thorax ochreous-yellowish, posterior extremity ferruginous-orange. Abdomen light grey, each segment with ferruginous transverse line. Fore wings elongate-lanceolate; ochreous-yellow; markings grey, slightly edged with fuscous; costal edge dark grey towards base; a sub-costal spot near base; a moderately broad, somewhat oblique fascia before middle, connected on dorsum with a triangular patch occupying more than apical third of wing, its anterior edge inwardly oblique, confuence of these edged above with ferruginous; cilia pale ochreous-grey, becoming whitish-ochreous towards tornus. Hind wings pale grey; cilia whitish-ochreous.

Pretoria, in December (Janse); one specimen. Allied to *auriferella*, but dark anterior fascia differently placed.

*Limnoecia phragmitella*, Stt.

Pretoria, in November (Janse); one specimen. Not previously recorded from South Africa, but a very wide-ranging insect, though generally overlooked on account of the retired habits of the imago; the larva can be found abundantly in the seed-heads of *Typha*.

**Oecophoridae.**

*Hednophora*, n. g.
Head smooth-scaled; ocelli present; tongue absent. Antennae three-quarters, in male simple, basal joint elongate, rather broad, sub-concave beneath, without pecten. Labial palpi moderately long, curved, ascending, second joint loosely scaled at apex, terminal joint shorter than second, slender, acute. Maxillary palpi very short, drooping, filiform. Anterior tibiae and tarsi short, thickened with scales, posterior tibiae clothed with
long hairs above. Fore wings with slight tufts of scales on surface; two from near angle, seven and eight stalked, seven to costa, eleven from middle. Hind wings under one, ovate-lanceolate, cilia two; three and four connate, five to seven nearly parallel.

Allied to Cryptolechia. The characters of antennae of male are taken from a second species of the genus of which the material is not sufficiently good for description.

_Hedrophora pyritis_, n. sp.

Female, 14 mm. Head whitish-yellow, with a broad red stripe on crown. Palpi yellow-whitish. Antennae whitish-greys. Thorax red, with two pale yellow stripes. Abdomen ochreous-whitish. Fore wings broad-lanceolate, apex produced, acute; crimson-red, irregularly marked with short longitudinal streaks of pale yellow and purple-lilac; a suffused blackish-grey streak mixed with indigo-bluish along costa throughout, leaving extreme costal edge whitish, its lower edge with projections reaching discal stigmata; stigmata blackish, plical slightly beyond first discal, resting on apex of a triangular blackish-grey blush-mixed dorsal blotch extending on dorsum from one-quarter to four-fifths; a blackish-grey streak mixed with indigo-bluish along termen; cilia pale ochreous, towards base rosy tinged, with a few grey scales. Hind wings and cilia ochreous-whitish.

Haenertsburg, in December (Swierstra); one specimen.

_Scythridae._

_Thekris justicia_, n. sp.

Male, 16 mm. Head and thorax whitish-grey-ochreous. Palpi whitish, terminal joint and upper part of second suffused with grey anteriorly. Antennae grey, cilia of three-quarters. Abdomen whitish-ochreous. Fore wings elongate-lanceolate, acute; five present; greyish-ochreous suffused with ochreous-whitish; plical and second discal stigmata rather large, black, widely remote; cilia whitish-grey-ochreous. Hind wings with four and five stalked; dark grey; cilia ochreous-grey.

Pretoria, in December (Janse); one specimen.

_Elachistidae._

_Elachista nymphaea_, n. sp.

Male and female, 8 mm. Head, palpi, and thorax white. Abdomen light grey. Fore wings lanceolate; ochreous-white; a broad ochreous or ochreous-brown fascia beyond middle, narrowed downwards, sprinkled with black towards costa anteriorly, and with a large black dot on its anterior edge representing plical stigma; a similarly coloured apical spot connected with this fascia by a bar in disc; cilia grey, sprinkled with black points towards base, with a black median line. Hind wings rather dark grey; cilia grey.

Pretoria, in October and February (Janse); two specimens.

_Elachista gypsophila_, n. sp.

Male and female, 9–10 mm. Head, palpi, antennae, thorax, and abdomen ochreous-white, palpi in male suffused with dark grey towards base. Fore
wings lanceolate; ochreous-white; plical and second discal stigmata small, black, plical at about middle of wing, first discal represented in female by a single black scale obliquely before plical and near costa; cilia ochreous-white. Hind wings and cilia ochreous-white, cilia in male yellowish tinged towards base.

Beynspoort (near Pretoria) and Pretoria, in December and January (Janse); two specimens. Very near the European *trialomea*, but distinguished by ochreous-white hind wings.

*Mendesia aganopa*, n. sp.

Male, 11 mm. Head, palpi, antennae, and thorax white. Abdomen ochreous-whitish. Fore wings rather broad-lanceolate, pointed; white; cilia white. Hind wings and cilia ochreous-whitish; no additional branch of vein seven.

Rietfontein No. 57 (N.E. Pretoria District), in February (Janse); one specimen.

**Gracillariidae.**

*Lithocolletis encaeria*, n. sp.

Male, 6 mm. Head and thorax bronzy-ochreous, face white. Antennae and abdomen grey. Fore wings lanceolate; golden-bronzy-ochreous, posteriorly slightly sprinkled with blackish points; a very short slender white median streak from base; a very slightly indicated slender whitish somewhat angulated fascia at one-quarter; a slender white fascia at one-half, angulated above middle, margined anteriorly with a few black scales; a white spot on costa at three-quarters, and one on dorsum opposite, irregularly margined with black scales, between these is a group of black scales in disc; a triangular white spot on costa hardly before apex, beneath which are some black scales along termen; cilia pale ochreous, beyond a blackish median line ochreous-whitish. Hind wings grey; cilia pale grey.

Pretoria, in October (Janse); two specimens.

*Epicephala pyrrhogastra*, Meyr.

From examination of further specimens the ochreous-reddish colour of abdomen appears to be that of the chitinous substance, the scales being grey and white as described; the same peculiar reddish colour is apparent in other parts of the body and head if denuded.

*Epicephala barbitias*, Meyr.

A second female and what is probably male of same species, sent by Mr. Janse, taken at Pretoria in February and March; female quite like type-example; abdomen (broken in type) whitish-grey; male differs in having dorsal white streak less marked, tending to break up into oblique streaks, with small blackish spots above it before and beyond middle, markings towards apex forming four pairs of fine oblique light fuscous strigulae from costa and termen meeting at acute angle and somewhat marked with whitish, separated with dark fuscous, apical black dot limited anteriorly by a hardly curved white line (instead of having a V-shaped line within it) abdomen with large whitish-ochreous claspers and anal tuft; this might possibly be a distinct species, but in other respects the similarity is such as to suggest that the specimens are sexes of the same species.
Plutellidae.

Coleophora triflava, n. sp.

Male and female, 12 mm. Head and thorax white, with a pale yellowish central stripe, upper part of face pale yellowish. Palpi white. Antennae white ringed with ochreous-fuscous, basal joint white with rough tuft of projecting pale yellowish scales in front. Abdomen light grey. Fore wings elongate-lanceolate, long-pointed, acute; ochreous-yellowish, towards costa and apex suffused with ferruginous-brown; a strong white costal streak from base to near apex; white streaks along fold and dorsum from base, meeting at tornus; cilia whitish-ochreous, at apex with a brownish bar, on costa white. Hind wings grey; cilia pale greyish.

Bultfontein (N.E. Pretoria District), in December and January (Janse); two specimens.

Coleophora scaleuta, n. sp.

Male and female, 14–15 mm. Head brownish-ochreous, suffused on sides with whitish. Palpi whitish, second joint with brownish-ochreous lateral streak and short apical projection of scales beneath. Antennae dilated near base, white ringed with brownish-ochreous. Thorax white, shoulders brownish-ochreous. Abdomen pale greyish. Fore wings elongate-lanceolate, apex produced, acute, in male with a rather long expansible greyish hair pencil on under surface from base beneath costa; brownish-ochreous; a whitish costal line from base to beyond middle; veins marked with suffused whitish lines; some scattered fine black scales on plical line and lower margin of cell, and between veins on costal half; cilia ochreous, tips whitish. Hind wings grey; cilia pale greyish.

Pretoria, in January and March (Janse); Durban, Natal (Leigh); three specimens.

Coleophora halmodes, n. sp.

Female, 10–12 mm. Head and thorax white, with a faint ochreous-grey central streak, shoulders tinged with ochreous-grey. Palpi whitish, externally tinged with grey. Antennae white, sometimes suffused with grey above. Abdomen whitish. Fore wings elongate-lanceolate, long-pointed, acute; white, somewhat sprinkled with fuscous; second discal stigma indicated by a small obscure darker dot; cilia ochreous-whitish, on costa whiter, round apex tinged basally with fuscous. Hind wings pale grey; cilia ochreous-whitish.

Pretoria, in October and February (Janse); two specimens.

Batrachedra granosa, n. sp.

Male, 9–12 mm. Head and thorax ochreous-whitish. Palpi loosely scaled anteriorly, whitish, second joint irroration with dark fuscous except apex, terminal joint with two slight wings of dark fuscous iroration. Abdomen ochreous-grey-whitish. Fore wings very narrowly lanceolate; whitish-ochreous, sprinkled with dark fuscous; plical and second diskal stigmata dark fuscous, remote; the dark fuscous scales tend to form marginal dots on posterior part of costa and termen; cilia pale whitish-ochreous. Hind wings pale grey; cilia ochreous-grey-whitish.

Pretoria, in September (Janse); two specimens.
Batrachedra saurola, n. sp.
Female, 18 mm. Head and thorax ochreous-white. Palpi white, mixed with fuscous externally except towards apex. Antennae greyish-ochreous. Abdomen pale greyish-ochreous. Fore wings very narrowly lanceolate, acute; pale whitish-ochreous; a small blackish dot beneath costa near base; plical and second discal stigmata rather large, blackish; cilia pale whitish-ochreous. Hind wings light grey; cilia pale greyish-ochreous.
Woodbush Village, in December (Swierstra); one specimen.

Epermenia praefumata, n. sp.
Female, 11–14 mm. Head whitish. Palpi moderate, whitish, second joint suffused with dark fuscous. Thorax whitish, sometimes partially brownish-tinged, shoulders suffused with dark fuscous irroration. Abdomen ochreous-whitish. Fore wings elongate-lanceolate; pale brownish-ochreous tinged with whitish, more or less streaked with light brown in disc and much suffused with light brown on posterior third; costa suffused with grey and sprinkled with black points; discal stigmata small, black, remote; some irregular black iroration on posterior third; small scale-projections of a few black scales on dorsum at middle, three-quarters, and tornus; cilia pale greyish-ochreous, round apex and upper part of termen suffused with grey and closely irrorated with black. Hind wings grey or whitish-grey; cilia pale grey or whitish.
Groenvlei (N.E. Pretoria District), Pretoria, in December and January (Janse); three specimens.

Tineidæ.
Nepticula fluida, n. sp.
Pretoria, in September (Janse); two specimens.

Nepticula grandinosa, n. sp.
Pretoria, in September (Janse); one specimen.

Opostega bellicosa, n. sp.
Female, 7 mm. Head ochreous-white, frontal tuft blackish-fuscous. Antennæ grey, eyecaps ochreous-white. Thorax ochreous-white. Abdomen light grey. Fore wings lanceolate, acute; pale whitish-ochreous; a transverse dark fuscous spot on costa slightly beyond middle, reaching nearly half across wing; very small dark fuscous costal and terminal opposite transverse marks close before apex; a minute black apical dot; cilia pale whitish-ochreous. Hind wings and cilia grey.
Pretoria, in October (Janse); one specimen.
Opostega cirrhaca, n. sp.

Female, 10 mm. Head and thorax white. Abdomen pale greyish-ochreous. Fore wings lanceolate, apex caudate; shining white; oblique fuscous streaks from costa and dorsum beyond middle, costal rather longer and suffused with ochreous towards apex; apical fifth of wing suffused with yellow-ochreous; cilia whitish-ochreous, at apex with a black dot. Hind wings and cilia pale grey, slightly yellowish-tinged.

Woodbush Village, in December (Swierstra); one specimen.

Phyllobrostis calcaria, n. sp.

Female, 13 mm. Head pale ochreous-grey tinged with whitish. Palpi short. Antennae grey, beneath whitish. Thorax ochreous-whitish. Abdomen grey-whitish, with golden-ochreous basal segmental bands. Fore wings lanceolate, apex produced, caudate; five absent, nine connate with six; ochreous-whitish; cilia ochreous-whitish. Hind wings linear, lanceolate; three absent, five closely approximated to seven anteriorly; six out of seven in middle of wing; pale grey; cilia ochreous-whitish.

Pretoria, in November (Janse); one specimen.

Phyllobrostis argillosa, n. sp.

Male, 10 mm. Head and thorax light brownish-ochreous. Palpi very short. Antennae fuscous. Abdomen greyish-ochreous. Fore wings lanceolate, acute; five present, nine separate; brownish-ochreous; costal edge dark fuscous towards base; cilia pale brownish-ochreous. Hind wings lanceolate; three out of two, five out of seven in middle of wing, six and seven stalked; grey; cilia pale ochreous.

Kranspoort (N.E. Pretoria District), in December (Janse); one specimen.

Bucculatrix frangulella, Göze.

Pretoria, in October (Janse); one specimen, which I am unable to distinguish from the typical European form. Possibly the food plant (Rhamnus) is planted in gardens.

Bucculatrix facilis, n. sp.

Male, 7–8 mm. Head whitish, with some dark fuscous hairs towards centre. Thorax whitish, partially suffused with light brownish. Abdomen grey, anal tuft whitish. Fore wings lanceolate, acute; ochreous-white; markings pale brown sprinkled with dark fuscous; a slender costal streak from base to first blotch; oblique blotches from costa before and beyond middle, not reaching half across wing; an indistinct blotch along dorsum from base to near middle; a blotch on dorsum beyond middle, its anterior edge marked with a minute black dot representing plical stigma; an inwardly oblique blotch from termen above tornus, nearly reaching second costal blotch, marked above with a strong black dot (second discal stigma); a transverse spot just before apex; cilia whitish, with a few dark fuscous points round apex. Hind wings grey; cilia pale grey.

Pretoria, in November and December (Janse); two specimens.

Bedellia cathareuta, n. sp.

Male and female, 9–10 mm. Head white, with a brownish-ochreous frontal bar. Antennae pale greyish-ochreous. Thorax white, shoulders
tinged with pale ochreous. Abdomen whitish. Fore wings narrowly elongate-lanceolate, acute; pale brownish-ochreous, with a few scattered dark fuscos specks; a narrow streak of white suffusion along costa from base to about three-quarters; dorsal area as far as fold suffused with whitish; cilia pale whitish-ochreous, on costa anteriorly white. Hind wings and cilia ochreous-whitish.

Pretoria, in August and December (Janse); two specimens. Immediately distinguished from *somnulentella* by the whitish hind wings.

*Tischeria zestica*, n. sp.

Male and female, 7-8 mm. Head and thorax whitish-ochreous, face paler. Antennae ochreous-whitish. Abdomen prismatic whitish-grey. Fore wings lanceolate, acute; yellow-ochreous or light yellowish; markings formed by grey suffusion sprinkled with dark fuscos; a streak along costa throughout; a narrow oblique fascia from two-thirds of costa to tornus, sometimes interrupted; a similar fascia in middle of wing is indicated in male, and slightly in one female, and in male basal area is also suffused with dark iroration, in one male the wing is almost wholly suffused with grey and irrorated with dark grey; cilia whitish-ochreous, round apex sprinkled with dark fuscos points towards base, with a dark sub-basal line. Hind wings whitish-grey or light grey; cilia ochreous-whitish.

Pretoria and Warmberg (Zoutpansberg District), in September, February, and May (Janse); six specimens. Nearly approaches the European *marginea*; apparently a variable species.

*Copobathra*, n. g.

Head with appressed scales; ocelli present; tongue absent. Antennae one, in male moderately ciliated, basal joint very long, flattened, beneath with pecten of scales. Labial palpi moderately long, slightly curved, sub-ascending, with appressed scales, terminal joint shorter than second, tolerably pointed. Maxillary palpi long, straight, clothed with scales, appressed beneath head. Posterior tibiae clothed with long hairs above. Fore wings with two from angle, five and six out of seven, seven to costa, eight out of seven, eleven from middle. Hind wings one-half, linear-lanceolate, cilia five; two-four parallel, five and six apparently out of seven.

Allied to *Opogona*; the maxillary palpi are peculiar.

*Copobathra menodora*, n. sp.


Van der Merwe Station (near Pretoria), in December (Janse); one specimen.

*Tineola chloristis*, Meyr.

Male and female, 12-16 mm. A true *Tineola*; fore wings with seven and eight usually separate. Recognizable by its relatively rather broad wings.
**Tineola nesiastis**, n. sp.

Female, 18 mm. Head pale dull fulvous. Palpi dark fuscous, terminal joint short, pale ochreous. Antennae and thorax dark purplish-fuscous. Abdomen fuscous. Fore wings elongate, rather narrow, costa gently arched, apex obtuse, termen very obliquely rounded; dark purplish-fuscous, obscurely blackish-sprinkled; a small round whitish-ochreous spot in disc at three-quarters, just beyond cell; cilia fuscous with several dark purplish-fuscous lines. Hind wings purplish-bronzy-fuscous; cilia fuscous. Pretoria, in December (Janse); one specimen.

**Melasina undulata**, n. sp.

Male, 23 mm.; female, 28 mm. Head, palpi, and thorax yellow-whitish, thorax in female tinged with greyish-ochreous; palpi moderately long, with loosely appressed scales. Antennae whitish, pectinations in male: a six; b four. Abdomen in male grey-whitish, in female grey. Fore wings sub-oblong, moderately broad, costa slightly arched, apex obtuse, termen straight, oblique; ochreous-yellow-whitish, in male with very faint indications of deeper strigulae, in female transversely strigulated throughout with light yellowish-grey; cilia yellow-whitish, in female irrorated with grey. Hind wings in male yellow-whitish irrorated with grey, in female rather dark grey; cilia white, with grey ante-median line.

Moorddrift (Swierstra), one male; Bandolier Kop (Gough), one female; both taken in October, and I have no doubt of their being sexes of the same species; *stupea*, Wallgr. (described as an *Euplocamus*), would seem to be a nearly allied species, but the head is described as ferruginous.

**Adelidae.**

**Ceromitia laureata**, n. sp.

Male, 18 mm. Head with mixed white and dark fuscous hairs. Labial palpi rather long, clothed with very long rough projecting white, and a few dark, fuscous hairs; with scattered dark fuscous lateral bristles; maxillary palpi as long as labial, filiform, porrected. Antennae white, ringed with fuscous towards base, moderately ciliated (one) towards base. Thorax dark fuscous with a few whitish hairs. Abdomen dark fuscous. Fore wings elongate, costa moderately arched, apex obtuse, termen obliquely rounded; purple, suffusedly irrorated with blackish; a broad suffused yellow sub-median streak from base to middle; a suffused yellow elongate mark in middle of disc; some scattered white scales tending to form several fine white strigulae on posterior half of costa, and a fine interrupted curved line from two-thirds of costa to tornus; cilia grey, with dark grey sub-basal line. Hind wings rather dark bronzy-grey; cilia grey.

Haenertsburg, in December (Swierstra); one specimen.

**Ceromitia phyrsima**, n. sp.

Male and female, 15-17 mm. Head pale ochreous-yellowish, back of crown whitish. Labial palpi short, grey-whitish; maxillary longer than labial, porrected. Antennae whitish, in male towards base with fine moderately
long ciliations (two). Thorax light greyish-ochreous. Abdomen whitish-grey, anal tuft ochreous-whitish. Fore wings elongate, costa moderately arched, apex obtuse, termen very obliquely rounded; light greyish-ochreous, with a few whitish scales, and irregularly strewn with small groups and dots of blackish scales; cilia pale greyish-ochreous, towards tips whitish. Hind wings purplish-bronzy-grey; cilia grey, towards tips whitish.

Pretoria, in February and December (Janse); Camperdown and Durban, Natal, in April and September (Leigh); four specimens. Of these, one has veins eight and nine of fore wings stalked in both wings, one in one wing only, the others have them separate.
THE LIFE-CYCLE OF THEILERIA PARVA — THE CAUSE OF EAST COAST FEVER IN CATTLE IN SOUTH AFRICA.

A GENERAL REVIEW.

By Dr. Richard Gonder, at present in the Transvaal.

(From the Government Veterinary Bacteriological Laboratory, Onderstepoort, Pretoria, South Africa.)

In a previous communication* I reported on the developmental stages of Theileria parva (Piroplasma parvum, Babesia parva) in the organs of cattle, and demonstrated the various stages, and I am now able to explain practically the whole life-cycle of this parasite. I then mentioned (1) that Theileria parva (as I call the parasite of East Coast fever), with Bettencourt, Franca, and Borges, cannot be identified with Babesia mutans (Piroplasma mutans); and (2) that the forms found in the organs of cattle represent a specific stage in its life-cycle, the forms of which stage are of great importance from a diagnostic point of view. Recent investigations have completely corroborated my previous statements.

I divided the development of the parasite of East Coast fever in the organs into two generations—distinguishable by their morphology—i.e. agamogonous and gamogonous. As indicated by the name, the former signifies certain forms which multiply agametically, that is to say, forms which are not capable of performing a sexual function. It is only after the elimination of nuclear substance (reduction of nucleus) that parasites result from these agamogonous stages which develop into the gamogonous generation. The gamogonous generation then supplies sexual forms which copulate when they obtain access to the stomach of the transmitting host.

It is generally known that every protozoon undergoes a process of fertilization in its life-cycle; this fertilization acts on the organism as a regulating mechanism. The propagation or multiplication of the protozoon is not of necessity connected with fertilization; it may precede or succeed it. In the course of the phylogenetic evolution of parasites, and especially of the blood protozoa, a definite alternation of generations has developed. The original host is undoubtedly the transmitter (Ektoparasite) in which copulation and the succeeding encystment or an agamogonous development takes place. In the intermediate host (man or animal) the further agametic multiplication proceeds, ending in the progamogonous or gamogonous generation, that is to say, with the formation of the proper sexual individuals. The latter are only able to undergo further development in the transmitting agent.

In addition to this typical fertilization (the copulation of male and female cells), we know of another form, namely, parthenogenesis, where the nucleus undergoes a process of self-fertilization. This phenomenon is extremely important for the explanation of relapses in protozoan diseases. It also plays an important rôle in the question of immunity. In protozoan diseases, in which parthenogenesis of the corresponding parasites occurs, we rarely if at all meet with an absolute immunity. It is a relative immunity designated *immunitas non sterilisans*. If we meet with a protozoan disease where the female form (macrogametocyte) cannot undergo parthenogenesis, we know that in most cases as soon as the man or animal recovers, a complete immunity is effected.

I have given this general review for the better understanding of the life-cycle of *Theileria parva*, and as will be seen later, many facts in that cycle, and many conditions of the disease itself, can be explained by the biology and physiology of the protozoan.

In South Africa, the tick which is of chief importance and with which I have experimented exclusively in the latter part of my investigations is *Rhipicephalus appendiculatus*. *Rh. evertsi*, which is also a transmitter of East Coast fever, was only used at the commencement of my investigations.

It is well known that the parasite of East Coast fever does not pass through the egg, but the tick can only transmit the diseases in either the nymphal or imago stage. For the completion of its cycle the tick requires three changes of host. If a larval tick attaches itself on an animal suffering from East Coast fever, it leaves the host as soon as it is replete, the length of time it remains on the host depending chiefly on the external temperature, a fact which is the cause of many difficulties in the study of the East Coast fever parasite in the tick itself. After having dropped off the animal, the larval tick moults sooner or later, according to external favourable or unfavourable climatic conditions. Warmth undoubtedly influences the rapid development of ticks. It is only after the tick has moulted into the nymphal stage that it seeks a new host, where it again becomes repleted. It leaves this second host to moult again for the second time in order to finally arrive at the imago stage on the third host. It leaves this third host either as a male, which has no other task than to mature and to fertilize the female, or as a female to become fertilized and to replete itself with a great quantity of blood necessary for the formation of eggs. If the tick has been infected as a larva, it can only transmit the disease in the nymphal stage; if it has become infected as a nymphal, it can only transmit the disease as an imago.

An infected tick purifies itself completely from all infection once it has bitten an animal. If infected as a larva it can only become re-infected as a nymph, but never as an adult tick. It only transmits the disease in the last stage if it has infected itself in the previous stage as a nymph. Its purification can be effected by biting on any mammal; an ox is not exclusively necessary. As far as is known, *Theileria parva* is only pathogenic for cattle. The biological peculiarity in the cleansing of the ticks from infection has been made use of in South Africa for the combating of East Coast fever.
A reference to the plate will help to explain the whole life-cycle of *Theileria parva*, and the more important forms of the parasite as seen in the microscope are shown.

With the bite of an infected tick, small uninuclear forms arrive in the blood circulation of cattle, and undergo further development in the organs, more especially in the lymphatic and haemo-lymphatic glands, in the bone marrow, and in the spleen (figure 1). These small parasites represent the sporozoites or, according to Hartman's nomenclature, the agametes of the first or metagametic generation. They are only found after the ticks have moulted, that is, at the time when the tick is ready to seek a new host. I have not yet been able to trace these forms in cattle, and I have not found them in clean ticks (not infected), control ticks, or in ticks which have become purified by biting.

If we carry out a systematic puncture of the glands and an occasional puncture of the spleen, commencing on the first day of the disease—that is to say from the day on which the tick attaches itself—we are able to trace the further development of the parasite. The superficial cervical and precrural glands are the most convenient for puncturing purposes. The first forms of the parasites are occasionally found on the twelfth or thirteenth days, but it is difficult to state the exact date, as the incubation time varies in the different experiments. These parasites reach the size of about 0·8 to 1 micron, and at first are found free. During the following days they are seen intracellularly, i.e. in the large lymphocytes, and very rarely in other leucocytes. They grow in size rapidly within the next few days (figures 2, 7a, and 7b). These agametes increase in size, and after multiplication of the nuclei grow into agamonts which finally split up into as many segments as there are nuclei. On an average the agamont measures about 10–12 microns, rarely 12–15 microns.

Naturally the larger ones contain the greater number of nuclei. In the intracellular forms a considerable number of segments, agametes of the second generation, are frequently found, caused by double infection. As a result of this parasitism, the lymphocyte is destroyed and accordingly it is not surprising to meet irregularly formed agametes if the infected lymphocyte dies off before the agamont has divided into its daughter forms.

Division of the nuclei takes place by amitosis; in exceptional cases we meet indications of primitive mitosis in moist fixed smears or sections. The number of nuclei increases very considerably by successive fission processes, and may amount to more than forty or fifty. The form of the nuclei and their structure is characteristic for the process of agamogony. The nuclei do not possess an envelope, they have an irregular rugged form and no compact structure. During life they do not appear very refractile, they do not show much affinity for the various stains. When stained with haemotoxylin or giemsa, fixed and treated by the moist method, the stain easily escapes from the nuclei. The development of the agametes from the youngest to the full-grown agamonts (figure 2a and b, figure 6a and b) and to succeeding schizogony into agametes (merosoites) can repeat itself.
It must be stated that in the animal the disease commences with the appearance of these agamogonous forms. The temperature begins to rise, and reaches the maximum with the formation of the gamogonous forms; the gamont which does not produce any more agametes divides into gamonts (figure 9a) after its nuclei have eliminated the vegetative substance (figures 8a and 8c) by the formation of chromidia, and the process of reduction.

These gamonts increase both in size and in numbers of nuclei, and finally divide up into gametocytes which invade the red corpuscles, and now represent the parasite of East Coast fever known under the name of *Theileria parva*.

The gamogonous forms are clearly distinguishable from the agamogonous form by their nuclei. The youngest gamonts (figures 9b and 10c and b) measures about 0.8 micron, and possess a strongly refractile nucleus which takes the various stains intensively. In advanced stages (figures 11-13a and b) the nuclei possess distinct karyosomes, and occasionally in the youngest forms, along with the main nucleus, a second smaller nucleus is found, which may be compared with the blepharoplast of the flagellum, and which is of importance for the systematic position of our parasites.

The multiplication of the nuclei in the gamonts takes place by a primitive mitosis in such a way that the karyosome splits the two fragments of the nucleus. Finally the gamont divides into gametocytes (figure 14a and b) after leaving a residual body staining blue with giemsa. As already stated, the nuclei are characterized during life by strong refraction, and accordingly are easily distinguishable from the granules of the lymphocytes, although contrary to what is seen in the agamogonous forms, their shape is more regular, being almost oval.

Usually the intracellular gamonts supply a far greater number of gametocytes than those that are free. This is partly due to double infections similar to what is found in intracellular agamogonous forms. The schizogony of the reduced agamonts within the lymphocytes (figure 8b) and the further development of the young gamonts may take place at the same time, so that naturally there are a great number of gametocytes present. In many cases I could count 150-200 gametocytes, the products of the gamonts in one single lymphocyte.

The evolution forms of *Theileria parva* of the gamogonous and agamogonous stages as described above have been known for some time under the name of Koch's bodies or plasma bodies. They have been the subject of much discussion, especially after Martin Meyer believed he had found similar bodies in other diseases, including piroplasmosis. As I personally have seen preparations of Martin Meyer, and not having been able up to the present in a single case of piroplasmosis or other disease of a protozoan origin, to trace forms which could be mistaken for cycle forms, I must say that the so-called reaction products, as designated by Martin Meyer, have nothing to do with the so-called Koch's bodies.

I have been able to follow up the segmentation during life of the gamonts into gametocytes, and to demonstrate these and other stages both in cattle and ticks in their natural state. With the large material
The Life-Cycle of Theileria Parva.
placed at my disposal at the Government Veterinary Bacteriological Laboratory, for protozoological studies, amounting to about 80–100 head of cattle used in East Coast fever experiments, I frequently had the opportunity of controlling my observations.

In the intracellular forms it occasionally happens that through the dissolution of the lymphocyte, these escape and invade the blood corpuscles as gamonts. It also sometimes occurs that very small free gamonts are seen in the lymphatic glands, etc., which, without reaching any great size, divide into gametocytes. Such small gamonts can finally further divide into gametocytes in the blood corpuscles, but I very rarely succeeded in tracing their development in the blood. Mistakes can easily occur, since the parasite very rapidly leaves the corpuscles when the blood is brought into different physiological conditions—a fact which can also be noted under the microscope. The formation of "cross-forms" as a rule takes place in the organs.

The gametocytes in the blood are sufficiently well known, as is also the rapid increase of their numbers. With such a heavy infection of the blood, one is struck with the fact that no pathological lesions are found in the red corpuscles, and only towards the end of the disease may a slight anisocytosis be observed. If a further development, or rather if an increase would take place in the blood, one would expect to find changes in the red corpuscles such as are found with the malaria-plasmodia of apes, parasites found in bats, Babesia mutans, etc., either due to the liberation of the toxines, or by the simple mechanical influences caused by immigration and emigration of parasites into and out of the corpuscles. In the stages of the East Coast fever parasite found in the blood, we do not notice such changes of the corpuscles, and the absence of such changes can be explained by the life-cycle as explained before. With the formation of the gametocytes, the cycle of Theileria parva in the animal arrives at a definite conclusion—the animal either recovers or dies.

In cattle which recover from the disease, a general decrease of the parasites is noted in the blood after the crisis. The agamogonous forms disappear, and with this the fever gradually subsides. The gamogonous stages do not develop beyond the formation of gametocytes, these are the endoglobular parasites. Since we do not find parthenogenesis, the animal is completely protected against relapses, and recovery leaves a complete sterile immunity. No tick can infect itself on this animal and no infected tick can infect such a beast.

In my studies I also had an opportunity of seeing cases ending rapidly with death (acute forms of East Coast fever), in which I could not detect any parasites in the blood or gamogonous forms in the glands, but only the agamogonous stages. Therefore I am of opinion that in the first instance agamogonous forms are those which cause the disease, or which, in other words, possess the toxines. In some of the experiments of Doctor Theiler, undertaken for the purpose of immunizing cattle, I have noticed agamogonous stages in the blood after inoculation, and it may be expected that these animals will prove immune to the disease.
The transmission of the disease with blood has hitherto not been successful, and this may be explained by the fact that the gametocytes do not develop any further, and do not undergo parthenogenesis. If it is possible to transmit the disease with blood, such can certainly only be the case at the beginning before gamogonous forms appear. In the transmission experiments with organs, as undertaken at the Laboratory, agamonts are inoculated, that is, forms which are capable of further development.

The parasite in the red corpuscle can only undergo further development after it has entered into the tick. The gametocytes contained in the blood then develop further. When copulation occurs in the tick, micro- and macrogametocytes can be distinguished in the blood. The gamocyte, which is ring-shaped or pear-shaped, takes either on the elongated or so-called bacillary form, or it grows into a broad ring or becomes more pear-shaped. The former represents the microgametocytes, the latter the macrogametocytes. (Figures 16 and 17.)

After the infected blood corpuscles have reached the stomach of the tick, the parasites emigrate within the first half-hour. A great number perish. Only the mature gametocytes grow into gametes and mix with each other. The microgametes contain a distinct small nucleus similar to the centrosome or blepharoplast (Browazek and Hartman) of other organisms, which acts as the initial agency for the development.

The fertilized macrogamete (figure 18) "rounds off" after a karyomyoxis and from this the ookinete results and similar to other blood parasites takes the shape of a retort changing into that of a gregarine, and finally grows into the elongated ookinete. The ookinetes can be recognized by their activity—they double back and stretch out rapidly, and show contractile movements like gregarines.

The forms given in figures 19–22, I have as yet found only in infected ticks on the eve of moulting. During the moulting process, I was unable to trace any intermediate forms which would lead from the ookinetes to the agametes of the first generation (sporozoites) as shown in figure 1. With the formation of the agametes the evolution of Theileria parva is complete, and when these agametes find their way into a beast the described cycle commences afresh.

Recently some publications have been made by Nuttall, Fantham, and Porter on Theileria parva, in which the evolution cycle of the East Coast fever parasite has been studied in stained dry preparations. Since these investigators did not mention in any way the evolution forms in the organs, and their investigations have not come to a conclusion except in regard to the already known facts, such as number and shape of the blood parasites, I cannot enter into any discussion for the time being.

I only wish to repeat that my observations have been made on living material, and with preparations fixed by moist methods, and I wish to draw attention to the detailed illustrated report due to appear shortly in the "Archiv. fur Protistenkunde", and in the report of the Government Veterinary Bacteriologist of the Transvaal, in which I have particularly referred to literature on the subject.
Explanation of the Plate.

Figure 1. Agametes of the first generation (metagametes).
Figure 2, a and b. Agamont with one nucleus.
Figure 3, a and b. Agamonts with several nuclei.
Figure 4, a and b. Medium-sized agamonts.
Figure 5, a and b. Large agamonts with numerous nuclei.
Figure 6, a and b. Agamonts undergoing schizogonie.
Figure 7, a and b. Agametes.
Figure 8, a and b. Reduction forms of agamonts.
Figure 9, a and b. Segmentation of reduction forms of agamonts.
Figure 10, a, u, and b. Young agamonts.
Figure 11, a, u, and b. Medium sized agamonts with several nuclei.
Figures 12-13, a, u, and b. Large agamonts with numerous nuclei.
Figure 14, a, u, and b. Agamonts undergoing schizogonie.
Figure 15, a, u, and b. Free gametocytes.
Figure 16, a, u, and b. Gametocytes in the red blood corpuscles.
Figure 17, a, u, and b. Micro- and macrogametes in the stomach of the tick.
Figure 18, a, u, and b. Copulation.
Figure 19, a, u, and b. Karyomyxis.
Figures 20-21, a, u, and b. Formation of the ookinetes.
Figure 21, a, u, and b. Retort forms of ookinite.
Figure 22. Ookinite.
LAMBLIA SANGUINIS (Nov. Sp.).

By Dr. B. Gonder (with one figure in text).

The study of the flagellate genus Lamblia has lately received more attention through observations made in the case of dysentery, in which disease flagellates, especially Lamblia, have been found in large numbers (Prowazek, Bohne, and others). Although the question as to the pathogenicity of this protozoon is still undecided, yet it is probable that in combination with other organisms it may have a harmful effect.

Up to the present Lambliae have been found only in the intestines of rats, mice, cats, rabbits, and the human subject, and organisms similar to Lamblia have been found in the stomach of ruminants. It needs further investigations to determine as to whether or not these observations are of practical importance. I think, therefore, that it is interesting from a biological point of view to give a short description of a Lamblia which has been found in the blood of a bird.

During the present year, in the Veterinary Bacteriological Institute of the Transvaal, a large number of different species of birds has been shot for the purpose of making experimental investigations with the blood of these birds. The heart-blood of all birds used in connection with these investigations was carefully examined before these experiments were carried out for the presence of parasites or other organisms. By chance a blue hawk (Elanus coeruleus) was received, in whose heart's-blood was found an actively motile parasite, which on careful examination proved to be Lamblia.

This bird had been only recently shot and had died as a result of the wounds received on the head and wing. It is natural that some may say
that this infection of the heart-blood with *Lamblia* has occurred as the result of invasion from the intestines, but the microscopical examination of the intestines for this parasite was negative. Also other organs, such as the liver and spleen, have not shown the presence of this parasite. The fact that the blood did not show the presence of other organisms or bacteria, with the exception of *Haemoproteus* (a very common parasite of birds), is a proof that invasion from the intestines had not occurred.

We have had then to do with a real parasite of the blood, which parasite has been recognized only as an intestinal one up to the present time.

I have found this parasite (see figure) only in the heart cavities, and there it was present in fairly large numbers. In the smears taken from the surface of the endocardium one could find the parasites in each field of the microscope. The length of the parasite without the flagellum is about 12 μ, and the breadth measures about 8 μ, seen from above or below. The eight characteristic flagella have nearly the same length, and they are nearly as long as the body of the parasite, that is about 12 μ.

The motions are extraordinarily active and are due to the lashing movements of the flagella, and also to the contractions of the body. The double axial rod (Mittelrippe of Benson), together with its system of fine fibrils, probably plays a large part in producing these contractile motions. These fine fibrils, which connect the basal corpuscles of the flagella together and which also have a connection with the Mittelrippe, give to the flagellate the well-known bilaterally symmetrical form when seen from the side, and the characteristic shape of a pear with a stalk when seen from above or below. In comparison with other known *Lambliae*, such as those of the mouse and human subject, the sucker-like depression of this parasite is smaller. With this apparatus the parasite can fix itself to the endocardium.

Morphologically, *Lamblia sanguinis*, as I will call this flagellate, does not differ markedly from other *Lambliae*. It chiefly resembles *Lamblia muris*; the two nuclei are situated closely to the sides of the parasite. Their shape is elongated. In immediate contact with each of them there is situated a distinct basal corpuscle, and from each of these basal corpuscles there arises a remarkably fine and delicate fibril. These two fine fibrils pass to two other basal corpuscles situated anteriorly, from which arise the two antero-lateral flagella. These two fibrils, which connect these latter corpuscles with those situated in contact with the nuclei, form the anterior portion of the border of the concave depression known as the "peristome area".

From these before-mentioned anterior basal corpuscles there pass two flagella which, originating as fine fibrils, pass forwards, and inter-crossing turn round to pass along the borders of the parasite on either side, and passing to two other basal corpuscles situated about the middle of the *Lamblia* become free. A further pair of fibrils originate from these same anterior corpuscles, and pass on the lower aspect of the parasite in an almost straight line to two other basal corpuscles situated one on either side close to the tail, where they become free. Both pairs of flagella represent the anterior and posterior lateral pairs of flagella.
Between the outermost pair of anterior basal corpuscles a second pair of these corpuscles are situated from which arises the Mittelrippe or double axial rod. These two axial rods are situated very closely together and pass backwards in a straight line. At their ends are situated two basal corpuscles from which the tail flagella arise. Finally, near the middle of the Mittelrippe, are present two basal corpuscles from which the ventral pair of flagella arise. These latter flagella at first run parallel to each other in serpentine fashion, but towards their termination they diverge.

There still remains to be mentioned the curious body situated immediately under the site of origin of the ventral flagella. This corpuscle has an irregular form, but shows a fibrillar structure as seen in other Lambliae.

Thus our Lamblia sanguinis differs from other known Lambliae in the peristome area, being first, smaller; second, it is in part bordered by the fibrils connecting the nuclei to the basal corpuscles, from which arise the antero-lateral pair of flagellae. Also the nuclei are situated very close to the sides of the organism.

Encystment could not be proved.
DESCRIPTION OF A NEW TRANSVAAL FISH OF THE FAMILY CYPRINIDAE.

By Paul A. Methuen, F.Z.S.

Genus Labeo.


*Tylognathus*, Heckel, l.c.; Günth., l.c.


*Labeo transvaalensis*, sp. n.—In giving the following description, which is based on two specimens caught by Mr. T. Jenkins in the Crocodile River, I regret that an examination of type specimens of *Labeo rosae* Steind. has not been possible; however, closely as this specimen of *Labeo* agrees with the description of the above-mentioned Transvaal fish given by Mr. Boulenger * in his Monograph of the African Fishes, I am satisfied that the differences between the two are sufficiently patent to warrant the separation of this Cyprinid from any known species.

Mr. Hewitt, of the Albany Museum, Grahamstown, first recognized this fish as being distinct from *Labeo rosae* by a comparison of the size of the eye. In *Labeo rosae* the eye is four to four and a half times in the length of the head, about half the interorbital width; in *Labeo transvaalensis* the same measurements are five and one-third respectively. Another outstanding feature is that the pectoral is relatively smaller than that of *Labeo rosae*. If any faith can be pinned in colour of spirit specimens then *Labeo transvaalensis* is generally goldenish; the colour of *Labeo rosae* is given as: “Grey above, silvery white beneath.”

Description: Body rather strongly compressed. Total length, excluding caudal, two and three-fifths to three times depth. Head four and a half times in total length; its width about two-thirds its length. Snout rounded. Eye lateral in middle of head, five times in length of head, one-third interorbital width. Width of mouth with lips two and three-quarter times in length of head. Inner surface of lower lip without papillary striations or transverse plicae; both lips with several rows of conical papillae, the outer row of the upper lip longer than the rest, and forming a marked fringe; rostral flap entire, with slight incipient crenulations. Barbel small, somewhat obscured by the folds of the skin. Tubercles on snout small, not conspicuous as in *Labeo cylindricus* Peters, most with crater-like scars.

Dorsal III 11-12; notched; equally distant from anterior border of eye and caudal; longest ray a little longer than head. Anal III 5; just fails to reach root of caudal. Pectoral shorter than head, not nearly reaching root of pelvic, first ray of which falls below third and fourth branched rays of dorsal (length of pectoral to head 9-10 : 11).
Caudal deeply notched and crescentic.
Caudal peduncle as long as deep.
Scales, 39 - 40 \( \frac{7}{8} \), e.g. 5 between lateral line and root of pelvic : 18 round caudal peduncle.
Colour: Grey above; flanks lighter, silvery to goldenish-grey; cheeks and below generally goldenish white; fins light grey, the paired tinged with gold below at base.
Total length, excluding caudal, 247 mm.
Locality: Crocodile River, Rustenburg District, Transvaal.
Type and co-type in the Transvaal Museum.

P. 252, line 8: delete "e.g."
TRANSVAAL CRUSTACEA.

PART I.

On a Collection made by Mr. J. Hewitt and the Rev. Noel Roberts.

By Paul A. Methuen.

This collection, which Mr. Hewitt has been kind enough to hand over to me to work out, was made during the years 1909 and 1910. Most of the specimens were taken in the immediate neighbourhood of Pretoria; some, however, came from further afield, Kimberley and Warkerstroom being among the recorded localities. A few tubes contain specimens taken in the Eastern Province.

After a cursory examination of the collection the following genera were recognized or suspected as being represented:—

Branchiopoda: Streptocephalus, Estheria.

Cladocera: Daphnia, Ceriodaphnia, Simosa, Moina, Bosmina, Chydorus, Leydigia, Macrothrix.

Copepoda Gymnoplea: Broteas, Diaptonus.

Copepoda Podoplea: Cyclops, and some Harpactids.

Ostracoda: Cypris.

In the vicinity of Pretoria, which lies 4471 feet above the sea-level, the habitat of these little creatures is rain puddles, small pools, and vleis, all liable to desiccation during the winter months, and dams in which, as a rule, one will find water all the year round. The most abundant of the entomostracan fauna appears to be species of Cyclops, Harpactids, and a species of Moina. In places Bosmina longirostris G. O. Müller, and Leydigia quadrangularis Leydig, were taken in numbers. The occurrence of Bosmina here is not without interest. The genus is recorded from German East Africa by Weltner (7), but there appears to be no record from South Africa previous to the present. Its distribution is probably a matter of some importance, and has been largely used by Smith (6) to illustrate the Antarctica theory which was first advanced by Hooker to account for a certain similarity existing between the Cape and South American and Australian floras. However, it is hoped in a later part to introduce a discussion of this theory, which will be illustrated by a South African fresh-water Gammarid which has lately come to light.

Cladocera.

Moina bellii Gurney (Pl. I., Fig 1), taken in the Orange Free State at Kroonstad, by Major E. Eckersley, R.A.M.C., and described by Gurney (2) in 1904: a description and figures of the female only were given. In the specimens from Pretoria the setose spines on the telson vary from six to eight in number, in addition to the forked spine and minute serrated seta springing from its base, both of which are always present; also the anterior margins of the two terminal claws (fig. %), as well as the posterior margins, are partly setose. Gurney has figured two minute spines in
their place, springing from the base of these claws. A concavity above
the eye in both female and male is evident. In addition to the ventral
margin of the carapace being setose for about two-thirds of its length
the hinder margin is also setose, but the setae on this part are minute.

In the male (fig. 3) the antennules are not ciliated; they have indica-
tions of segmentation and bear anteriorly at about a quarter of their length
a single fine hair, and distally three curved bristles and a bunch of delicate
processes, papilla tipped. The male is somewhat smaller than the female
and naturally not so deep in proportion.

Localities:—Transvaal: Wakkerstroom; pond near Rifle Range,
Pretoria; Villieria, Pretoria; Muckleneuk, Pretoria; Roberts Heights,
Pretoria.

*Bosmina longirostris* O. F. Müller, var. nov. (?) *africana australis*
(Pl., Fig. 2; Pl., Fig. 3). Female: length as in text figure from head
to tip of posterior horns of carapace 0·40 mm., depth, 0·32; male:
length 0·33, depth, 0·19. The length measurements would vary slightly,
since the size of the posterior horns (fig. 3) of the carapace are not constant
in size. These structures may be rather short and smooth or somewhat
longer and notched along the central margin; they always possess a slight
upward curve.

The female is sub-globular in form. The carapace at its dorso-posterior
extremity forms an obtuse angle; about six fairly long hairs are seen on
the ventral margin towards the head region. The anterior part of the
head is evenly rounded; the eye is rather small. The antennules are
fairly long. The telson bears in front of the long plumose setae a small
spine, and towards its extremity two other small spines. The terminal
claws are provided with two continuous series of setae, the proximal series
stouter and longer than the distal.

Locality:—Transvaal: Rifle Range Pond, Pretoria.
Chydorus caroliniae Methuen.—Described from Lake Chrissie in 1910 (4). Mr. Hewitt’s specimens agree in every particular with this species.

Locality.—Transvaal: Wonderboom, Pretoria.

Leydigia quadrangularis Leydig (Pl., Fig. 4).—Up to the present one good and two doubtful species of Leydigia have been described from South Africa. In 1904, Gurney (loc. cit.) described one he called L. africana, from Kroonstad. In 1907, Brady (1) described L. propinqua Sars, from Natal, and in 1910 I described one from Lake Chrissie in the eastern Transvaal (loc. cit.), calling it L. trispinosa. It is now evident that neither africana nor trispinosa have any claims to be separated from previously known species. Mr. Gurney, writing to me a little time ago, suggested that trispinosa was synonymous with the widely distributed propinqua. However, after a second examination of my species and of others caught in the Transvaal by Mr. Hewitt, and after re-reading Mr. Gurney’s description of L. africana, I have been led to the conclusion that, according to Lilljeborg’s (3) key, the Transvaal and Orange Free State species of the high veldt should be regarded as being L. quadrangularis. I am very grateful to Mr. Gurney for his opinion on the subject, but I cannot bring myself to think that the high veldt species is L. propinqua, owing to points of difference in the shape of the carapace, the nature of the striations or markings on the same, the length of the hairs on the inferior margin of the labrum, the nature of the terminal claws of the telson.

The chief differences between the two species L. propinqua and L. quadrangularis appear to be these:—

L. quadrangularis: both terminal claws of telson provided with a basal spine; carapace without striations; hairs on inferior margin of labrum minute.

L. propinqua: the two terminal claws of telson without basal spine; carapace striated; hairs on inferior margin of labrum comparatively long.

The arrangement of the spines and setae on the margin of the telson is distinct in both species.

Specimens Mr. Hewitt took near Pretoria, L. trispinosa from Lake Chrissie, and, I suggest, L. africana from Kroonstad, possess those characters which have been given above for L. quadrangularis. Leydigia was first recorded from South Africa by Sars (5), who described L. propinqua (acanthocercoides Fischer) from Knysna (low country), in the Cape Colony. In his remarks about the species he says: “From the Australian species, described by the author as L. australis, it is at once distinguished by the very distinct scupluring of the shell, and, moreover, by the smaller size of the ocellus, as well as by the form of the tail. In the latter respect it more resembles the L. quadrangularis Leydig, a species also found in Norway, but in that form the terminal claws have each a distinct denticle at the base which is wanting in the present species, while the sculpture of the shell is also different.” (Page 19.)

Fig. 5 has been introduced to show the nature of the spines on the posterior part of the carapace, which appears to have minute thickenings,
each localized in a way such as to give the appearance of regular arrangement; these thickenings, however, do not extend over the whole of the carapace.

**Reference Literature.**


(3) Lilljeborg, W. "Cladocera Sueciae." Upsala, 1900.


**Explanation of Plates.**

The figures have been drawn with the aid of a camera lucida.

**First Plate.**

Fig. 1.—Lateral view of a male *Moina bellii* Gurney.

2.—Lateral view of a female *Bosmina longirostris* var. nov. (?) *africana australis*.

3.—Lateral view of a young (?) male *Bosmina longirostris* var. nov. (?) *africana australis*.

**Second Plate.**

4.—Part of the posterior margin of the carapace of a female *Leydigia quadrangularis* Sars.

5.—Telson of a female *Bosmina longirostris* var. nov. (?) *africana australis*.

6.—Posterior horns of carapace of *Bosmina longirostris* var. nov. (?) *africana australis*, indicating the extent of variation of this structure in the species.
1. MOINA BELLI (Gurney).

2. 3. BOSMINA LONGIROSTRIS (O. F. Muller).
4. LEYDIGIA QUADRANGULARIS (Leydig).

5. 6. BOSMINA LONGIROSTRIS.
A Check-List of the Birds of South Africa

Being a record of all the species known to occur south of the Zambezi-Cunene line (the 16th degree of south latitude)

BY

Dr. J. W. B. GUNNING
President, South African Ornithologists' Union

AND

ALWIN HAAGNER, F.Z.S.
Colonial Member, British Ornithologists' Union
Honorary Member, Royal Hungarian Bureau of Ornithology
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PRETORIA
The Government Printing and Stationery Office
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INTRODUCTION

We herewith present to students of South African Ornithology our "Check-list of South African Birds", with all additions and revisions up to date. We have adopted Dr. Reichenow's "Vögel Afrikas" as the foundation of this list, as his is the only complete modern work on African Ornithology, and as he has evidently bestowed much time and care on the subject of the nomenclature of South African birds. Where we have cause to differ from Dr. Reichenow's conclusions we have added in the Appendix explanatory notes; as is also the case with all additions to the Avifauna of South Africa since Mr. Sclater's Check-list was published.

Species remarked upon in the Appendix are prefixed with an asterisk.

The boundary taken is roughly the 16° of S. Lat., viz., a line formed by the Cunene River on the east and the Zambesi River on the west; continued to the coast on the 16° of S. Lat., and not by the great southward bend of the river, which makes the boundary range from 15° to 19° S. Lat.
A Check-List of the Birds of South Africa.

Struthionidae.

\textit{Struthio L.} 1758.

   \textit{R. 3.} Selater IV, p. 525.

Spheniscidae.

\textit{Spheniscus Briss.} 1760.

   \textit{R. 5.} Sel. IV, p. 516.

Columbidae.

\textit{Colymbus Briss.} 1760.

   \textit{R. 6.} Sel. IV, p. 509. \textit{(Podicipes cristatus.)}

   \textit{R. 7.} Sel. IV, p. 511. \textit{(Podicipes nigricollis.)}

   \textit{R. 8.} Sel. IV, p. 513. \textit{(Podicipes capensis.)}

Procellariidae.

\textit{Diomedea Linn.} 1758.

   \textit{R. 9.} Sel. IV, p. 495.

   \textit{R. 10.} Sel. IV, p. 499.

   \textit{R. 12.} Sel. IV, p. 505. \textit{(Thalassogeron layardi Salv., 1896.)}
Thalassogeron Ridg. 1884.


    Sel. IV, p. 501.

Phoebastria Rchb. 1852.


Procellaria Linn. 1758.

    R. 15. Sel. IV, p. 475. (Majaqueus aequinoctialis.)


Oestrelata Bp. 1855.

15. Oestrelata macroptera (A. Sm.). 1840. Long-winged Petrel or Cape Parson. Langvleugel Stormvogel.


Daption Steph. 1826.


Puffinus Briss. 1760.


   Scl. p. 469.

   Prion Lac. 1801.

   R. 27. Scl. IV, p. 488.


27. Prion desolatus (Gm.). 1788. Narrow-billed Blue Petrel. Walvisvogel.
   R. 30. Scl. IV, p. 491.


   Oceanodroma Rehh. 1852.


   Hydrobates Boie. 1822.

   R. 34. Scl. IV, p. 465. (Procellaria pelagica.)

   Oceanites Keys. Blas. 1840.


   Fregetta Bp. 1855.


   LARIDAE.

   Stercorarius Briss. 1760.


34. Stercorarius pomarinus (Temm.). 1815. Large White-necked Skua.
   Grote Withals Roofmeeuw.
   R. 38. Scl. IV. p. 455.
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<td>42</td>
<td>Sterna cantiaca Gm.</td>
<td>1788</td>
<td>Sandwich Tern.</td>
<td>Grote Zeezwaluw</td>
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<td>43</td>
<td>Sterna dougalli Mont.</td>
<td>1813</td>
<td>Roseate Tern.</td>
<td>Paradijs Zeezwaluw</td>
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<td>44</td>
<td>Sterna macrura Naum.</td>
<td>1847</td>
<td>Arctic Tern.</td>
<td>Kust Zeezwaluw</td>
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<td>45</td>
<td>Sterna hirundo Linn.</td>
<td>1758</td>
<td>Common Tern.</td>
<td>Visdiefje</td>
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<td>46</td>
<td>Sterna vittata Gm.</td>
<td>1788</td>
<td>Kerguelen Tern.</td>
<td>Zuidelijke Zeezwaluw</td>
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<td>47</td>
<td>Sterna minuta Linn.</td>
<td>1766</td>
<td>Little Tern.</td>
<td>Dwerg Zeezwaluw</td>
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<td>48</td>
<td>Sterna minuta saundersi Hume</td>
<td>1877</td>
<td>Pale Tern.</td>
<td>Lichte Zeezwaluw</td>
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<tr>
<td>49</td>
<td>Sterna balaenarum (Strickl.)</td>
<td>1852</td>
<td>Damara Tern.</td>
<td>Damara Zeezwaluw</td>
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<td></td>
<td><em>Hydrochelidon</em></td>
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<td>50</td>
<td>Hydrochelidon leucoptera (Schinz.)</td>
<td>1815</td>
<td>White-winged Black Tern.</td>
<td>Witvleugel Zeezwaluw</td>
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   R. 70. Scl. IV, p. 430.
   
   *Anous Steph.* 1826.

   R. 72. Scl. IV, p. 446.

   R. 74. Scl. IV, p. 449.

**SULIDAE.**

*Sula Briss.* 1760.


   R. 81. Scl. IV, p. 21. (Sula leucogastra.)

**PHALACROCORACIDAE.**

*Phalacrocorax Briss.* 1760.

   R. 84. Scl. IV, p. 4.

   R. 86. Scl. IV, p. 8.

   R. 88. Scl. IV, p. 5.

60. *Phalacrocorax africanus* (Gm.). 1788. Reed Cormorant or Crown Duiker. Afrikaanse Aalscholver of Riet Duiker.
   R. 89. Scl. IV, p. 9.

   *Anhinga Briss.* 1760.

   R. 90. Scl. IV, p. 13. (Plotus rufus.)

**PELECANIDAE.**

*Pelecanus Linn.* 1758.

   R. 92. Scl. IV, p. 25.
63. **Pelecanus rufescens Gm. 1788.** Pink-backed Pelican. Roodrug Pelikaan.
   
R. 93. Scl. IV, p. 27.

**ANATIDAE.**

**Erismatura Bp. 1832.**

64. **Erismatura maccoa (A. Sm.). 1837.** Maccoa Duck. Maccow Eend.
   

**Thalassornis Eyt. 1838.**

65. **Thalassornis leuconotus Eyt. 1838.** White-backed Duck. Witrug Eend.
   
R. 95. Scl. IV, p. 150.

**Nyroca Flem. 1822.**

   
R. 97. Scl. IV, p. 147. (Nyroca erythrophthalma.)

**Spatula Boie. 1822.**

67. **Spatula clypeata (Linn.). 1758.** European Shoveller. Slop.
   

68. **Spatula capensis ([A. Sm. ] Eyt.). 1837.** Cape Shoveller. Kaapse Slop.
   
R. 100. Scl. IV, p. 145.

**Anas Linn. 1758.**

69. **Anas undulata Dubois. 1839.** Yellow-billed Duck. Geelbek Eend
   

70. **Anas sparsa [A. Sm.] Eyt. 1838.** Black Duck. Zwarte Eend.
   

71. **Anas erythrorhyncha Gm. 1788.** Red-billed Teal. Roodbek Eend.
   
R. 107. Scl. IV, p. 141 (Poecilonetta erythrorhyncha.)

72. **Anas capensis Gm. 1788.** Cape Wigeon. Kaapse Smee-Eend.
   
R. 108. Scl. IV, p. 138. (Nettion punctata.)

73. **Anas punctata Burch. 1822.** Hottentot Teal. Gevlekte Eend.
   
R. 109. Scl. IV, p. 139. (Nettion punctatum.)

**Dendrocygna Sw. 1837.**

74. **Dendrocygna viduata (Linn.). 1766.** White-faced Duck. Nonnetje Eend.
   

75. **Dendrocygna fulva (Gm.). 1788.** Whistling Duck. Fluit Eendtje.
   

**Nettapus Brandt. 1836.**

76. **Nettapus auritus (Bodd.). 1783.** Dwarf Goose. Dwerg Gans.
   
Annals of the Transvaal Museum.


Chenalopex Steph. 1824.

   R. 117. Scl. IV, p. 128. (Alopochen aegyptiacus.)

Plectropterus Steph. 1824.

   R. 118. Scl. IV, p. 115.

Casarca Bp. 1838.

   R. 120. Scl. IV, p. 131.

CHARADRIIDAE.

Haematopus Linn. 1758.


Arenaria Briss. 1760.


Glareola Briss. 1760.

   R. 125. Scl. IV, p. 333. (Glareola pratincola.)


   R. 128. Scl. IV, p. 336. [Galactogrisea emini (Shelley).]

Cursorius Lath. 1790.

   R. 134. Scl. IV, p. 323.

   R. 135. Scl. IV, p. 325.

Rhinoptilus Strickl. 1850.


   R. 140. Scl. IV, p. 328. (*Rhinoptilus seebohmi*)

*Squatarola* Leach. 1816.

   R. 142. Scl. IV, p. 359. (*Squatarola helvetica*)

*Charadrius* L. 1758.

   R. 145. Scl. IV, p. 362. (*Aegialitis geoffroyi*)

   R. 146. Scl. IV, p. 363. (*Aegialitis asiatica*)

   R. 148. Scl. IV, p. 366. (*Aegialitis alexandra*)

   R. 149. Scl. IV, p. 371. (*Aegialitis marginata*)

   R. 149a. Scl. IV, p. 373. (*Aegialitis marginata pallida*)

   R. 150. Scl. IV, p. 374. (*Aegialitis pecuaria*)

   R. 152. Scl. IV, p. 370. (*Aegialitis venusta*)

   R. 153. Scl. IV, p. 364. (*Aegialitis hiaticula*)

    R. 155. Scl. IV, p. 367. (*Aegialitis tricollaris*)

*Stephanibyx* Rchb. 1852.


    R. 158. Scl. IV, p. 358.

_Hemiparra Fil._ 1865.

104. Hemiparra leucoptera (Rchw.). 1889. Long-toed Pied Lapwing.  
Bonte Kieviet.  

_Hoplopterus Bp._ 1831.

Zwarte Kieviet of Sporen Kieviet.  
R. 165.  Scl. IV, p. 352.  (Hoplopterus armatus.)

_Xiphidiopterus Rchb._ 1852.

R. 170.  Scl. IV, p. 348. *

_Lobivanellus Strickl._ 1841.


_Oedicnemus Tem._ 1815.

R. 175.  Scl. IV, p. 315.


**DROMADIDAE.**

_Dromas Payk._ 1805.


**SCOLOPACIDAE.**

_Recurvirostra Linn._ 1758.


_Himantopus Briss._ 1760.

R. 180.  Scl. IV, p. 380.  (Himantopus candidus.)

_Numenius Briss._ 1760.

R. 182. Sel. IV, p. 388.

Terekia Bp. 1838.


Totanus Bechst. 1803.

R. 186. Sel. IV, p. 402. (Pavonecella pugnax.)

R. 187. Sel. IV, p. 392. (Totanus glottis.)

R. 188.

R. 189. Sel. IV, p. 390. (Totanus calidris.)


Tringoides Bp. 1831.

R. 193. Sel. IV, p. 399. (Totanus hypoleucus.)

Calidris Cuv. 1800.


Tringa. Linn. 1758.


R. 197. Sel. IV, p. 408. (Tringa subarquata.)


Gallinago Leach. 1816.

R. 201. Sel. IV, p. 414. (Gallinago major.)

Rostratula Vieill. 1816.  

R. 204. Sel. IV, p. 418. (Rostratula capensis.)  

OTIDIDAE.  

Otis Linn. 1758.  

R. 205. Sel. IV, p. 308.  

R. 207. Sel. IV, p. 300.  


of Dikkop Koraan.  


R. 217. Sel. IV, p. 305.  


139. Otis ruficrista A. Sm. 1836. Red-crested Bustard. Bos Koraan  
of Roodkuif Koraan.  

140. Otis afroides A. Smith. 1831. White-quilled Bustard. Witvleugel  
Koraan.  


Koraan.  

GRUIDAE.  

Bugeranus Glog. 1842.  

143. Bugeranus carunculatus (Gm.). Wattled Crane. Lelkraan.  
R. 227. Sel. IV, p. 278.  

Anthropoides Vieill. 1816.  

144. Anthropoides paradisea (Licht.). 1793. Blue Crane. Blauwe Kraan-  
vogel.  
R. 228. Sel. IV, p. 281. (Tetrapteryx paradisea.)
Annals of the Transvaal Museum.

Balearica Briss. 1760.


JACANIDAE.

Actophilus Oberh. 1899.


Microparra Cab. 1877.


RALLIDAE.

Rallus L. 1758.

   R. 237. Scl. IV, p. 244.

Crex Bchst. 1802.

   R. 238. Scl. IV, p. 246. (Crex pratensis.)


Limnocorax Ptrs. 1854.

151. Limnocorax niger (Gm.). 1788. Black Crake. Zwarte Kwartel Koning.

Ortygometra Leach. 1816.


Coturnicops Bp. 1856.


Sarothrura Heine. 1888.


156. Sarothrura lineata (Sw.). 1837. Streaked Crake. Gestreepte porceleinhoentje.
   R. 249. Sel. IV, p. 255.

   *Porphyrio* Briss. 1760.

   R. 253. Sel. IV, p. 266. (*Porphyrio madagascariensis*.)


   *Gallinula* Briss. 1760.

   R. 255. Sel. IV, p. 262.

   R. 256. Sel. IV, p. 264.

   *Fulica* Linn. 1758.

   R. 257. Sel. IV, p. 270.

   *Podica* Less. 1831.

   R. 259. Sel. IV, p. 274.

**TURNICIDAE.**

*Turnix* Bonn. 1790.


**PTEROCLIDAE.**

*Pterocles* Tem. 1815.


   R. 265. Sel. IV, p. 186,

   Pterocurus Bp. 1856.


IBIDAE.

Ibis Cuv. 1817.

   R. 274. Scl. IV, p. 94.

   Geronticus Wagl. 1832.


   Theristicus Wagl. 1832.

   R. 278. Scl. IV, p. 100. (Hagedashia hagedash)

   Plegadis Kaup. 1829.

   R. 280. Scl. IV, p. 103. (Plegadis falcinellus)

   Platalea Linn. 1758.


CICONIIDAE.

Tantalus L. 1758.

   R. 283. Scl. IV, p. 49. (Pseudotantalus ibis)

   Anastomus Bonn. 1823.

   R. 284. Scl. IV, p. 41.

   Leptoptilos Less. 1831.

   Afrikaanse Maraboë.
   R. 286. Scl. IV, p. 46.

   Ephippiorhynchus Bp. 1855.

   R. 286. Scl. IV, p. 43.

   Abdinia Bp. 1855.

   R. 287. Scl. IV, p. 32.
Ciconia Briss. 1760.

   R. 288. Sel. IV, p. 37. (Ciconia alba.)


Dissoura Cab. 1850.

   R. 290. Sel. IV, p. 35.

PHOENICOPTERIDAE.

Phoenicopterus L. 1758.


SCOPIDAE.

Scopus Briss. 1760.

   R. 293. Sel. IV, p. 51.

ARDEIDAE.

Nycticorax Steph. 1819.

   R. 295. Sel. IV, p. 82. (Nycticorax griseus.)


Botaurus Steph. 1819.


Ardetta G. R. Gr. 1842.


   R. 300. Sel. IV, p. 86.
   R. 302. Scl. IV, p. 89.

   Erythrocnus Sharpe. 1894.

193. Erythrocnus rufiventris (Sund.). 1850. Rufous-bellied Heron.
   Roodbuik Reigertje.

   Butorides Blyth. 1848.

   R. 304. Scl. IV, p. 80.

   Melanophoyx Sharpe. 1894.

   R. 306. Scl. IV, p. 70;

   Roodkeel Reiger.

   Ardeola Boie. 1822.

   R. 308. Scl. IV, p. 75.

   Ardea Linn. 1758.


199. Ardea purpurea Linn. 1766. Purple Heron. Roode Reiger.


   Zwartkop Reiger.
   R. 312. Scl. IV, p. 60.


202. Bubulcus ibis (Linn.). 1758. Cattle Egret, Buff-backed Egret, or
   Tickbird. Bosluisvogel.
   R. 313. Scl. IV, p. 72.

   Herodias Boie. 1822.

   R. 316. Scl. IV, p. 68;


   R. 318. Scl. IV, p. 66.
COLUMBIDAE.

Vinago Cuv. 1817.

   R. 322. Sel. IV, p. 156.

   R. 324. Sel. IV, p. 159.

Columba Linn. 1758.

208. Columba phaeonota G. R. Gr. 1856. Rock Pigeon or Speckled Pigeon.
   Bos Duif.

   Geelpoot Bos Duif, Olivenduif.
   R. 330. Sel. IV, p. 163.

Turtur Selby. 1835.


   R. 342b.


Turturoena Bp. 1854.

216. Turturoena delagorguei (Del.). Crimson-winged Pigeon. Roodvleugel Duif.

Aplopelia Bp. 1854.

   R. 349. Sel. IV, p. 182.

Tympanistria Reichenb. 1852.

   R. 353. Sel. IV, p. 178. (Tympanistria bicolor.)
Chalcopelia Bp. 1854.


R. 354c.

Oena [Selby] Swainson. 1837.


PHASIANIDAE.

Numida Linn. 1766.


Guttera Wagl. 1832.


Pternistes Wagl. 1832.


Francolinus Steph. 1819.

229. Francolinus capensis (Gml.). 1788. Noisy Francolin or Cape Francolin. Kaapse Patrijs.


Roodvleugel Patrijs.  

R. 403. Scl. IV, p. 201. (Francolinus africanus.)

234. **Francolinus gariepensis** A. Sm. 1843. Orange River Francolin. Vrijstaat Patrijs.  

R. 410. Scl. IV, p. 207. (Francolinus jugularis.)*

236. **Francolinus shelleyi** Grant. 1890. Shelley’s Francolin. Shelley’s Patrijs.  


R. 416a.


R. 422.

*Coturnix Bonn.* 1791.

R. 429a. Scl. IV, p. 221.

242. **Coturnix delagorguei** (Delag.). Harlequin Quail. Bonte Kwartel.  

*Excalfactoria Bp.* 1856.

VULTURIDAE.

Ototypus Gray. 1841.


Lophogyps Bp. 1854.


Gyps Sav. 1810.


Pseudogyps Sharpe. 1873.


Neophron Sav. 1810.


   R. 440. Sel. III, p. 397. (Nicrosyrtes pileatus.)

FALCONIDAE.

Serpentarius Cuv. 1798.


Polyboroides A. Sm. 1830.


Circus Lacep. 1806.

   R. 443. Sel. III, p. 368. (Circus cineraceus.)


*Melierax* Gray. 1840.


*Kaupifalco* Bp.


    R. 453a.

*Astur* Lacep. 1801.


*Accipiter* Briss. 1760.


    R. 461a,
Micronisus Gray. 1840.


Circaetus Vieill. 1816.


Spizaetus Vieill. 1816.

R. 475. Scl. III, p. 301. (Eutolmaetus bellicosus.)


Hieraaetus Kaup. 1844.

R. 478. Scl. III, p. 299. (Eutolmaetes spilogaster.)

R. 480. Scl. III, p. 298. (Eutolmaetus pennatus.)

R. 481. Scl. III, p. 296. (Aquila wahlbergi.)

Lophoaetus Kaup. 1847.


Aquila Briss. 1760.


Buteo Cuv. 1800.


Machaerhamphus Westerman. 1848.

284. Machaerhamphus anderssoni (Gurney). 1865. Anderson’s Pern.  
Damara Wespendief.  

Helotarsus A. Sm. 1830.


Gypaetus Storr. 1784.

286. Gypaetus ossifragus meridionalis Keys. Blas. 1840. Southern  
Lammergeyer. Afrikaanse Lammergier.  
R. 495a. Sel. III, p. 320. (Gypaetus ossifragus.)

Gypohierax Rüpp. 1835.

287. Gypohierax angolensis (Gm.). 1788. Vulturine Sea Eagle. Bonte  
Zee Arend.  

Haliaetus Savig. 1809.


Pandion. Savig. 1809.


Milvus Cuv. 1800.

290. Milvus aegyptius (Gm.). 1788. Egyptian or Yellow-billed Kite.  
Geelbek Wouw.  


Pernis Cuv. 1817.


Elanus Savig. 1810.

293. Elanus caeruleus (Desf.). 1787. Black-shouldered Kite. Blauw  
Valkje of Witte Sperwel.  

Baza Hodgs. 1836.


Falco Linn. 1758.

R. 507.


*Cerchneis* Boie. 1826.


*Poliohierax* Kaup. 1847.


**STRIGIDAE.**

*Scotopelia* Bp. 1850.


*Bubo* Dum. 1860.


Asio Briss. 1760.


Pisorhina Kaup. 1848.

   R. 517. Scl. III, p. 254. (Scops capensis.)

Syrnium Savig. 1809.


Glaucidium Boie. 1826.


Strix Linn. 1758.

   R. 558. Scl. III, p. 237. (Strix flammea.)

   R. 559. Scl. II, p. 239.

PSITTACIDAE.

Poicephalus (Sw.). 1873.


   Neumann has separated this species into the undermentioned forms, which require confirmation:

(a) Poicephalus meyeri transvaalensis Neum. 1899.
   R. 565c.

(b) Poicephalus meyeri damarensis. Neum. 1898.
   R. 565d.


   Agapornis Selby. 1836.


MUSOPHAGIDAE.

Chizaerhis Wagl. 1827.


   Gallirex Less. 1844.


   Turacus Cuv. 1800.


   R. 608.

**CUCULIDAE.**

*Centropus Ill.* 1811.


*Clamator Kaup.* 1829.

   R. 628. Scl. III, p. 199. (*Coccystes serratus.*)

   R. 629. Scl. III, p. 198. (*Coccystes cafer.*)

   R. 630. Scl. III, p. 195. (*Coccystes jacobinus.*)

   R. 630². Scl. III, p. 197. (*Coccystes hypopinarus.*)

*Cuculus Linn.* 1758.


*Chrysococcyx Boie.* 1827.


*Metallococcyx Rchw.* 1896.

R. 645. Sel. III, p. 185. (Chrysococcyx smaragdineus.)

**INDICATORIDAE.**

*Indicator Vieill.* 1816.

356. Indicator indicator (Gm.). 1788. White-cheeked Honeyguide. Witwang Honigwijzer.
R. 646. Sel. III, p. 146. (Indicator sparrmanni.)


Prodotiscus Sundev. 1850.


CAPITONIDAE.

Lybius Herm. 1783.


   R. 672.

Tricholaema Verr. 1855.


Buccanodon Verr. Hartl. 1857.

   R. 698. Sel. III, p. 165. (Stactolaema woodwardi.)

   R. 701. Sel. III, p. 164. (Stactolaema sowerbyi.)

   R. 703. Sel. III, p. 163. (Stactolaema leucotis.)

Barbatula Less. 1837.


Trachyphonus Ranz. 1821.

PICIDAE.

*Iynx* L. 1758.


*Geocolaptes* Sw. 1831.


*Dendromus*, Sw. 1837.

   R. 746.

   R. 747a. Sel. III, p. 130. (Campothera abingdoni.)

376. *Dendromus smithi* (Malh.). 1845. Smith’s Woodpecker. Smith’s Specht.
   R. 748. Sel. III, p. 131. (Campothera smithi.)

   R. 749. Sel. III, p. 133. (Campothera bennetti.)

   R. 752.

   R. 753. Sel. III, p. 129. (Campothera notata.)

*Mesopicus* Malh. 1849.


   R. 763. Sel. III, p. 138. (Thripias namaquus.)

*Dendropicos* Malh. 1849.

   R. 765. Sel. III, p. 135. (Dendropicus cardinalis.)

   R. 766.
COLIIDAE.

Colius Briss. 1760.


   R. 777a.

   R. 782. Scl. III, p. 97. (Colius capensis.)

   R. 782a.


   Licht Roodwang Muisvogel.
   R. 783a. Scl. III, p. 100. (Colius erythromelon lacteifrons.)


TROGONIDAE.

Apaloderma Sw. 1837.

   R. 785. Scl. III, p. 121. (Hapaloderma narina.)

CORACIDAE.

Coracias Linn. 1758.


   R. 791.


**Eurystomus Vieill.** 1816.


*397. Eurystomus glaucurus* (St. Müll.). Madagascar Purple Roller.  
   Madagascar Geelbek Trouwpand.  
   R. 800.

**BUCEROTIDAE.**

*Bucorvus Less.* 1831.

   R. 802. Scl. III, p. 102. *(Bucorax cafer.)*

Bycanistes Cab. Heine. 1860.


**Lophoceros Hemp. and Ehr.** 1826.


   R. 817.


   Roodbek Boskraai of Neushoornvogel.  

   R. 827a. Scl. III, p. 117. *(Lophoceros damarensis.)*
ALCEDINIDAE.

_Halcyon Sw._ 1820.

   R. 832. Sel. III, p. 89.


   R. 833a. Sel. III, p. 89. (_Halcyon orientalis._)


412. _Halcyon senegaloides_ A. Sm. 1834. Mangrove Kingfisher. Vlei Visvanger.


_Ispidina Kaup._ 1848.


_Corythornis Kaup._ 1848.


_Alcedo Linn._ 1758.


_Ceryle Boie._ 1828.

   R. 854. Sel. III, p. 73.

   R. 855. Sel. III, p. 76.

MEROPIDAE.

_Melittophagus Boie._ 1828.


*Dicrocercus Cob. and Heine.* 1863.

421. Dicrocercus hirundineus (Licht.). 1793. Swallow-tailed Bee-eater Zwaluwstaart Bijenvreter.

*Aerops Reichb.* 1852.

R. 873. Sel. III, p. 61. (Merops boehmi.)

*Merops Linn.* 1758.


**UPUPIDAE.**

*Upupa Linn.* 1758.


*Irrisor Less.* 1831.


**CAPRIMULGIDAE.**

*Caprimulgus Linn.* 1758.

R. 896. Sel. III, p. 32.
R. 897. Sel. III, p. 36.


R. 900. Sel. III, p. 34.


R. 925. Sel. III, p. 25. (Cypselus barbatus.)

R. 925. Sel. III, p. 25. (Cypselus caffer.)

R. 928. Sel. III, p. 27. (Cypselus affinis.)
Tachornis Gosse. 1847.

R. 929b. Sel. III, p. 28. (Tachornis parva.)

Chaetura, Steph. 1825.


R. 933.

PITIDAE.

Pitta Vieill. 1816.


HIRUNDINIDAE.

Riparia Vorst. 1817.

R. 939. Sel. II, p. 282. (Cotyle cincta.)

R. 942. Sel. II, p. 284. (Cotyle riparia.)

R. 943. Sel. II, p. 283. (Cotyle paludicola.)

R. 948. Sel. II, p. 286. (Ptyonoprogne fuligula.)


Hirundo Linn. 1758.


Grote Streepborst Zwaluw.

Kleine Streepborst Zwaluw.


*Petrochelidon* Cab. 1850.

463. *Petrochelidon spilodera* Sund. 1850. South African Cliff Swallow
Krans Zwaluw.

*Psalidoprocne* Cab. 1850.

464. *Psalidoprocne holomelaena* (Sund.). Rough-winged Swallow. Kam-
vleugel Zwaluw.

R. 982a. Scl. II, p. 309. (*Psalidoprocne orientalis.*)

*Delichon* Moore. 1854.

R. 987. Scl. II, p. 278. (*Chelidon urbica.*)

MUSCICAPIDAE.

*Bradornis* Smith. 1847.


R. 989. Scl. II, p. 239. (*Bradornis murinus.*)

*469. Bradornis griseus* Rchw. 1882. Reichenow’s Flycatcher. Reiche-
now’s Vliegevanger.
R. 990.

Sheppardia Haagn. 1909.


Melaenornis G.R.Gr. 1840.

R. 998. Scl. II, p. 234. (Bradornis ater.)


Sigelus Cab. 1850.

R. 999. Scl. II, p. 219. (Tarsiger silens.)

Muscicapa Briss. 1760.


Alseonax Cab. 1850.


R. 1020.

Cryptolopha Sw. 1837.


Chloropeta A. Sm. 1847.


Bias Less. 1831.

\textit{Smithornis Bonap.} 1850.

   \textit{R.} 1038. \textit{Sel. II.} p. 248.

\textit{Hyliotra Sw.} 1827.


   \textit{R.} 1040a.

\textit{Lanioturdus Waterh.} 1838.

   \textit{R.} 1044. \textit{Sel. II.} p. 45.

\textit{Batis Boie.} 1833.

   \textit{R.} 1045. \textit{Sel. II.} p. 254. (Pachyprora capensis.)

   \textit{R.} 1048.

   \textit{R.} 1052. \textit{Sel. II.} p. 255. (Pachyprora molitor.)


   \textit{R.} 1053a.

   \textit{R.} 1056. \textit{Sel. II.} p. 257. (Pachyprora pririt.)


\textit{Platysteira Jard and Selby.} 1829.

   \textit{R.} 1057. \textit{Sel. II.} p. 252.
Stenostira Cab. Bonap. 1850.


Erythrocerus Hartl. 1857.

495. Erythrocerus livingstonei (Finsch and Hartl.). 1870. Livingstone’s Flycatcher. Livingstone’s Vliegevanger.

Trochocercus Cab. 1850.


[Bull. B.O.C. No. CXXXV, June, 1907.]

R. 1075. (Ibis, January, 1907.)

Tchitrea Less. 1831.

R. 1085. Scl. II, p. 261. (Terpsiphone perspicillata.)

R. 1086.

CAMPEPHAGIDAE.

Coracina Vieill. 1816.

R. 1092. Scl. II, p. 275. (Graucalus caesius.)

R. 1095. Scl. II, p. 274. (Graucalus pectoralis.)

Campephaga Vieill. 1816.


LANIIDAE.

_Eurocephalus_ A. Sm. 1836.

505. _Eurocephalus anguitimens_ A. Sm. 1836. Smith’s Wood-shrike. 
Bosklauwier. 

_Prionops_ Vieill. 1816.

Helmklauwier. 

_Sigmodus_ [Temm.] Bonap. 1850.

Helmklauwier. 

Zambesi Helmklauwier. 
R. 1115c. Scl. II, p. 50. _Sigmodus tricolor._

Roodkop Helmklauwier. 
R. 1116.

_Nilaus_ Sw. 1827.

510. _Nilaus brubru_ (Lath.). 1802. Brubru Bushshrike. Kleine Bos-
klauwier. 

Zwartoog Bosklauwier. 

_Pomatorhynchus_ Boie.

Tschagra Bosklauwier. 

513. _Pomatorhynchus australis_ (Smith). 1836. Three-streaked Bush 
Shrike. Kleine Roodvleugel Bosklauwier. 
R. 1126. Scl. II, p. 22. (Telephonus australis.)

514. _Pomatorhynchus australis congener_ Rchw. 1902. Eastern Three-
streaked Bush Shrike. Oostelike Kleine Roodvleugel Bos-
klauwier. 
R. 11264. Scl. II, p. 23. (Telephonus minor.)

515. _Pomatorhynchus senegalus_ (Linn.). 1766. Black-crowned Bush 
Shrike. Zwartkop Bosklauwier. 

Anchieta’s Bosklauwier. 
R. 1133. (Ibis, January, 1907.)
R. 1135. Sel. II, p. 43.

*Chlorophoneus Cab.* 1850.


R. 1140. (Ibis, January, 1907.)

R. 1141. Sel. II, p. 38. (*Laniarius olivaceus.*)

R. 1143.

R. 1145b. Sel. II, p. 40. (*Laniarius sulphureopectus.*)

R. 1151. Sel. II, p. 35. (*Laniarius quadricolor.*)

*Pelicinius Boie.* 1826.

R. 1153. Sel. II, p. 33. (*Laniarius gutturalis.*)

*Laniarius Vieill.* 1816.

R. 1165. Sel. II, p. 28. (*Dryoscopus guttatus.*)

R. 1166. Sel. II, p. 27. (*Dryoscopus ferrugineus.*)

R. 1166a.

Dryoscopus Boie. 1826.


Malaconotus Sw. 1827.

R. 1187b. Sel. II, p. 41. (Laniarius starki.)

Lanius Linn. 1758.


Urolestes Cab. 1850.

R. 1217. Sel. II, p. 3.

CORVIDAE.

Corvus L. 1758.


Heterocorax Sharpe. 1877.


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Oriolus Linn. 1766.

   R. 1238. Scl. I, p. 48. (Oriolus galbula.)


   R. 1243a.

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Buphagus Briss. 1760.


Creatophora Less. 1847.

548. Creatophora carunculatus (Gm.). Wattled Starling. Lelspreeuw.
   R. 1250. Scl. I, p. 23. (Dilophus carunculatus.)

Spreo Less. 1831.

549. Spreo bicolor (Gm.). 1788. Pied Starling. Witgat Spreeuw.

Cinnyricinclus Less. 1840.

   R. 1259. Scl. I, p. 44. (Pholidopterus leucogaster verreauxi.)

Lamprocolius Sund. 1836.


   R. 1266a. Scl. I, p. 41. (Lamprocolius sycobius.)
R. 1266. Scl. I, p. 40. (Lamprocolius chloropterus.)

*Heteropsar* Sharpe. 1890.

R. 1274. Scl. I, p. 37. (Lamprocolius acuticaudus.)

*Amydrus* Cab. 1851.


*Lamprotornis* Temm. 1820.

R. 1290. Scl. I, p. 35. (Lamprocolius australis.)


**Ploceidae.**

*Textor* Temm. 1828.


*Plocepasser* A. Sm. 1836.


*Sporopipes* Cab. 1847.

   R. 1310a.

Anaplectes Reichb. 1863.

   R. 1320. ScI, p. 74.

569. Anaplectes gurneyi (Shell.). 1887. Gurney’s Weaver. Gurney’s Wever.
   R. 1321. ScI, p. 76.

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Ploceus Cuv. 1817.

   R. 1327. ScI, p. 72. (Sycobrotus bicolor.)

572. Ploceus stictifrons (Fschr. and Rchw.). 1858. Spotted-headed Weaver Vlekkop Wever.
   R. 1328. ScI, p. 73. (Sycobrotus stictifrons.)

   R. 1347. ScI, p. 66. (Sitagra ocularis.)

*574. Ploceus ocularius crocatus (Hartl.). 1881. Northern Bottle-nest Weaver.
   R. 1347a.

   R. 1361. ScI, p. 56. (Hyphantornis nigriceps.)

576. Ploceus spilonotus Vig. 1831. Spotted-back Weaver. Bontrug Wever.
   R. 1362. ScI, p. 60. (Hyphantornis spilonotus.)

   R. 1374. ScI, p. 57. (Hyphantornis cabanisi.)

   R. 1380. ScI, p. 58. (Hyphantornis velatus.)

   R. 1381. ScI, p. 62. (Hyphantornis shelleyi.)

   R. 1388. ScI, p. 69. (Sitagra capensis.)

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*584. Ploceus castaneigula (Cab.). 1884. Large Yellow-winged Weaver. Grote Geelvleugel Wever.  
R. 1394.  

R. 1395. Scl. I, p. 68. (Sitagra xanthoptera.)  

Amblyospiza Sund. 1850.  


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*588. Pyrenestes granti Sharpe. 1908. Grant’s Weaver Finch. Grant’s Wevervink.  
Quelea Rchb. 1850.  

R. 1409b. Scl. I, p. 122. (Quelea quelea.)  

R. 1410.  

Pyromelana Bp. 1831.  


593. Pyromelana flammiceps (Sw.). Red-crowned Bishop Bird. Roodkop Kaffervink.  

Euplectes. 1837.

R. 1427. Scl. I, p. 130. (Pyromelana capensis.)


R. 1428. Scl. I, p. 133. (Pyromelana capensis xanthomelana.)

Urobrachya Bp. 1850.


Coliuspasser Rüpp. 1835.


R. 1437.


Diatropura Oberh. 1899.

603. Diatropura proene (Bodd.). 1783. Long-tailed Widowbird. Flap.
R. 1444. Scl. I, p. 139. (Coliopasser progne.)

Amadina Sw. 1827.

604. Amadina fasciata (Gm.). 1788. Cut-throat Weaver Finch. Roodkeel Wevervink.


Spermestes Sw. 1837.


   *Amauresthes Rchb. 1861.

   R. 1453. Sel. I, p. 111. (Spermestes fringilloides.)

   *Hypargos Rchb. 1863.

   R. 1455. Sel. I, p. 95. (Lagonosticta niveiguttata.)

   R. 1456. Sel. I, p. 96. (Lagonosticta margaritata.)

   R. 1459. Sel. I, p. 91. (Pytelia nitidula.)

   *Pytilia Sw. 1837.

   R. 1464.


   *Estrilda Sw. 1827.


   R. 1488c.

   R. 1488c.


   *Lagonosticta Cab. 1851.

621. Lagonosticta brunneiceps Sharpe. 1890. Little Ruddy Waxbill.  
Kleine Fazantje.  

Zuidafrikaanse Rood Fazantje.  

Jameson’s Fazantje.  


Oostelike Swie Fazantje.  
R. 1526.


R. 1529a. Sel. I, p. 102. (Estrilda angolensis.)

R. 1529b.

R. 1531. Sel. I, p. 104. (Estrilda granatina.)

R. 1533. Sel. I, p. 154. (Hypochera funerea amauroptera.)


R. 1537. Sel. I, p. 154. (Hypochera funerea nigerimma.)

**Tetraenura Rchb.** 1863.


**Steganura Rchb.** 1850.

   R. 1542. Scl. I, p. 149. (Vidua paradisea.)

**FRINGILLIDAE.**

**Passer Briss.** 1760.

   R. 1545. Scl. I, p. 163. (Passer diffusus.)


   R. 1547a.


**Philetairus A. Sm.** 1837.


**Petronia Kaup.** 1829.


**Alario Bp.** 1850.


   R. 1563a (p. 247).

**Poliospiza [Schiff.] Bp.** 1850.


   R. 1568. Scl. I, p. 177. (Serinus leucopterus.)
646. Poliospiza crocopygia Sharpe. 1871. Damara Seed-eater. Damara Sijsje.
   R. 1569. Sel. I, p. 176. (Serinus crocopygius.)

   R. 1570. Sel. I, p. 178. (Serinus angolensis.)


   R. 1584.

Serinus Koch. 1816.


   R. 1593.


Spinus Koch. 1816.

   R. 1603. Sel. I, p. 182. (Chrysomitris totta.)

Heliospiza Gunning. 1907.

   (Journal S.A.O.U., III, p. 208.)
R. 1604. Sel. I, p. 172. (Serinus imberbis rendalli.)

Emberiza Briss. 1760.

R. 1615. Sel. I, p. 186. (Emberiza major orientalis.)


Fringillaria Sw. 1837.


MOTACILLIDAE.

Motacilla L. 1758.


R. 1631.

Budytes Cuv. 1817.


R. 1639. Sel. I, p. 263. (Motacilla melanoccephala.)

   *Anthus Bechst.* 1807.


   R. 1649.


   *Tmetothylacus Cab.* 1879.

   R. 1665. (Journal S.A.O.U., June, 1906.)

   *Macronyx Sw.* 1827.


   R. 1659. Scl. I, p. 239.

ALAUDIDAE.


Leeuwerik.


690. *Mirafra africanoides* A. Sm. 1836. Fawn-coloured Lark. Vale
Leeuwerik.


693. *Mirafra damarensis* Sharpe. 1874. Damara Lark. Damara
Leeuwerik.

Leeuwerik.


697. *Mirafra africana* A. Sm. 1836. Rufous-naped Lark. Roodnek
Leeuwerik.

*Heteronyx* Claude Grant. 1908.

(Bull. B.O.C., CXLIV, June, 1908.)

*Pinarocorys* Shell. 1902.

Leeuwerik.
R. 1691. Scl. I, p. 207. (Mirafra nigricans.)

*Heterocorys* Sharpe. 1874.

700. *Heterocorys breviunguis* (Sund.). 1850. Short-clawed Lark. Kort-
nagel Leeuwerik.
Certhilauda Sw. 1837.


R. 1694. Scl. I, p. 228. (Alaemon semitorquata.)


R. 1697. Scl. I, p. 234. (Certhilauda rufula.)


R. 1697a.


(Bull. B.O.C., CXXXIV, May, 1907.)

Ammomanes Cab. 1851.


Galerida Boie. 1828.


Botha Shell. 1902.


Pyrrhulauda A. Sm. 1839.


Calandrella Kaup. 1829.

   R. 1724. Scl. I, p. 220. (Spizocorys conirostris.)


   R. 1729. Scl. I, p. 222. (Tephrocorys cinerea.)

PYCNONOTIDAE.

Phyllastrephus Sw. 1831.

   R. 1753.

   R. 1758. Scl. II, p. 68. (Chlorocichla flaviventris.)

   R. 1758b. Scl. II, p. 69. (Chlorocichla occidentalis.)

   R. 1761. Scl. II, p. 73. (Phyllastrephus flavistriatus.)

   R. 1763. Scl. II, p. 66. (Andropadus debilis.)

   R. 1770.


   R. 1773a.

Andropadus Sw. 1831.


   R. 1778. Sel. II, p. 70. (Chlorocichla oleagina.)

Pycnonotus Kuhl. (Boie.) 1827.


   Zwartkop Kuifkop.
   R. 1793. Sel. II, p. 64.

731. Pycnonotus barbatus tricolor (Hartl.). 1861. Damara Bulbul.
   Damara Kuifkop.


ZOSTEROPIDAE.

Zosterops Vig. Horsf. 1826.


   R. 1814.


   R. 1818.

NECTARINIIDAE.

Anthreptes Sw. 1837.


(Annals of the Transvaal Museum, January, 1909.)


* Chalcomitra Rchb. 1853.


(Bull. B.O.C., October, 1907.)

R. 1839.

R. 1842. Scl. I, p. 290. (Cinnyris fuscus.)

R. 1844. Scl. I, p. 291. (Cinnyris verreauxi.)

R. 1844a.

R. 1852. Scl. I, p. 287. (Cinnyris amethystinus.)

R. 1855. Scl. I, p. 289. (Cinnyris kirki.)

R. 1864. Scl. I, p. 286. (Cinnyris gutturalis.)

R. 1864a.

* Cinnyris Cuv. 1817.

R. 1876. (Bull. B.O.C., CXXIX, December, 1906.)


R. 1876.

758. Cinnyris shelleyi Alex. 1899. Shelley’s Sunbird. Shelley’s Suikerbekje. 


(Bull. B.O.C., CXLIII, May, 1908.)

R. 1893.

Nectarinia Ill. 1811.


(Bull. B.O.C., CXXIX, December, 1906.)

Promerops Briss. 1760.


CERTHIDAE.

Salpornis G. R. Gr. 1847.

R. 1912. Scl. I, p. 266. (Salpornis spilonotus salvadorii.)

PARIIDAE.

Parus L. 1758.


R. 1920a.


R. 1923a.

Parisoma Sw. 1831.


R. 1926a.

779. Parisoma layardi Hartl. 1862. Layard’s Titbabbler. Layard’s Mees.


Anthoscopus Cab. 1850.

   (Annals Transvaal Museum, August, 1909.)

783. Anthoscopus minutus (Shaw and Nod.). 1812. Cape Penduline Tit.
    Kapokvogel.

SYLVIIDAE.

*Sphenoeacus Strickl. 1841.

784. Sphenoeacus afer (Gml.). 1788. Cape Grass Bird. Grasvogel.
   R. 1948. Scl. II, p. 167. (Sphenoeacus africanus.)

    Oostelike Grasvogel.

    Grasvogel.

*787. Sphenoeacus transvaalensis C. Grant. Transvaal Grass Bird. Trans-
    vaal Grasvogel.
   (Bull. B.O.C., CXLIII, May, 1908.)

Melocichla Hartl. 1857.

*788. Melocichla mentalis orientalis (Sharpe). 1883. Rufous-fronted
    Thrush-Warbler. Roodborst Rietzanger.
   R. 1951o. (Ibis, July, 1908, p. 441.)

Cisticola Kaup. 1829.

    Grijsrug Rietzanger.

    Rietzanger.

*790. Cisticola strangei (Fras.). 1843. Grey-headed Grass-warbler. Grijs-
    kop Rietzanger.
   R. 1968.

791. Cisticola chiniana (A. Sm.). 1843. Smith’s Warbler. Smith’s Rietzanger.

   (See Annals Transvaal Museum, August, 1909.)

    Rietzanger.

794. Cisticola tinniens (Lcht.). 1842. Levailant’s Grass-warbler. Levail-
    lant’s Rietzanger.


R. 1990.


(Annals Transvaal Museum, January, 1909.)


**Heliolais Sharpe.** 1903.

R. 2004. (Bull. B.O.C., CXLIII, May, 1908.)

(Annals Transvaal Museum, August, 1909.)

**Hemipteryx Sw.** 1837.


Euryptila Sharpe. 1883.


Calamonastes Sharpe. 1883.


R. 2009.

Calamocichla Sharpe. 1883.


(Bull. B.O.C., CXLIII, May, 1908.)

Schoenicola Blythe. 1844.

815. Schoenicola apicalis (Cab.). 1850. Fantailed Reed-warbler. Paauwstaart Rietzanger.

Bradypterus Sw. 1837.


(Journal S.A.O.U., September, 1909.)


R. 2029. Sel. II, p. 95. (Phlexis victorini.)

Lusciniola Gray. 1841.

R. 2032. Sel. II, p. 102. (Bradypterus babaecula.)
Annals of the Transvaal Museum.

Locistella Kaup. 1829.

   R. 2033. Sel. II, p. 94.

Acrocephalus Naum. 1811.


Prinia Horsf. 1821.


Apalis Sw. 1833.

   R. 2058. Sel. II, p. 138. (Spiloptila ocularia.)


   (Bull. B.O.C., CXXVI, June, 1906.)


R. 2081. Sel. II, p. 126. (Chlorodyta neglecta.)

R. 2082. Sel. II, p. 125. (Chlorodyta flavida.)

*Camaroptera Sund. 1850.

R. 2093.

R. 2093v. Sel. II, p. 113. (Camaroptera sundevalli.)

R. 2094. Sel. II, p. 112. (Camaroptera olivacea.)


*Sylvietta Lafr. 1839.


*845. Sylvietta flecki (Rchw.). 1900. Fleck's Crombec. Fleck's Krombek
R. 2108.

(Ibis January, 1907.)

R. 2117. Sel. II, p. 117.

*Eremomela Sund. 1850.


R. 2128a.


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   R. 2127.

   *Phylloscopus Boie.* 1826.

   R. 2151. Scl. II, p. 84.

   *Hylolais Brehm.* 1828.

   R. 2157. Scl. II, p. 86. (Hylolais icterina.)

   *Sylvia Scop.* 1769.

   R. 2159. Scl. II, p. 82.

   R. 2160. Scl. II, p. 81. (Sylvia cinerea.)

**TURDIDAE.**


   R. 2174a. Scl. II, p. 57. (Crateropus kirki.)


*Pinarornis Sharpe.* 1875.
   (Bull. B.O.C., June, 1908.)*

*Chaetops Sw.* 1831.
   R. 2197. Sel. II, p. 163. (Chaetops aurantiacus.)
870. **Chaetops pycnopygius** (Strickl. and Sel.). 1852. Damara Rock Jumper. Damara Tapuit.

*Geocichla (Kuhl.) J. Gould.* 1836.
871. **Geocichla litsipsirupa** A. Sm. 1836. Groundscraper Thrush. Zuid-afrikaanse Lijster.
   R. 2208. Sel. II, p. 173. (Turdus litsipsirupa.)
   R. 2209. Sel. II, p. 172. (Turdus guttatus.)

*Turdus L.* 1758.
876. **Turdus libonyanus** (A. Sm.). Kurrrichane Thrush. Roodbek Lijster.
   Monticola Boie. 1822.


   *Thamnolaea Cab.* 1850.


   R. 2245. Sel. II, p. 188. (Myrmecocichla bifasciata.)

   *Myrmecocichla Cab.* 1850.


   R. 2248. Sel. II, p. 208. (Thamnolaea arnotti.)

   *Emarginata Shell.* 1896.


   R. 2255. Sel. II, p. 204.


   *Saxicola Bchst.* 1802.

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<td>899</td>
<td>Cossypha humeralis (A. Sm.)</td>
<td>1836</td>
<td>White-shouldered Robin Chat.</td>
<td>Witschouder Roodborstje</td>
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<td>R. 2327, Sel. II, p. 214</td>
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<tr>
<td>900</td>
<td>Cossypha caffra (L.)</td>
<td>1771</td>
<td>Cape Robin Chat.</td>
<td>Kaapse Roodborstje</td>
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<td>R. 2329, Sel. II, p. 213</td>
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<tr>
<td>901</td>
<td>Cossypha natalensis A. Sm.</td>
<td>1840</td>
<td>Natal Robin Chat.</td>
<td>Natal Roodborstje</td>
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<td>R. 2330, Sel. II, p. 210</td>
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<tr>
<td>902</td>
<td>Cossypha haagneri Gunning.</td>
<td>1909</td>
<td>Pondo Robin Chat.</td>
<td>Pondo Roodborstje</td>
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<td>(Annals of the Transvaal Museum, January, 1909.)</td>
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<tr>
<td>903</td>
<td>Cossypha bicolor (Sparrm.)</td>
<td>1787</td>
<td>Noisy Robin Chat.</td>
<td>Lawaaimaaker</td>
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<td>R. 2338, Sel. II, p. 209</td>
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<td>904</td>
<td>Cossypha heuglini Hartl.</td>
<td>1866</td>
<td>Heuglin’s Robin Chat.</td>
<td>Heuglin’s Roodborstje</td>
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<td>R. 2339, Sel. II, p. 211</td>
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<tr>
<td>905</td>
<td>Cichladusa arquata Ptrs.</td>
<td>1863</td>
<td>Morning Warbler.</td>
<td>Morgenster.</td>
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<td>R. 2347, Sel. II, p. 216</td>
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<tr>
<td>906</td>
<td>Erythropygia coryphaea (Less.)</td>
<td>1831</td>
<td>Cape Ground Robin.</td>
<td>Kaapse Grond Tapuit</td>
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<td>R. 2349, Sel. II, p. 229</td>
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R. 2350. Sel. II, p. 215. (Cosypha signata.)


(Bull. R.O.C., January, 1907.)


_Tarsiger Hodson_. 1844.


_Phoenicurus Vorst_. 1817.

R. 2373. Sel. II, p. 201. (Saxicola familiaris.)


_Erythacus Cuv._ 1800.

(Bull. R.O.C., CXXVI, June, 1906.)

_Aedon Vorst_. 1817.

R. 2381. Sel. II, p. 179. (Erithacus philomela.)

In the "Ibis" for 1905, p. 558, Mr. Ogilvie-Grant has shown that *Thalassogeron layardi* of Salvadore is merely a younger phase of *Diomedia cauta* of Gould.

79. Plectopterus gambensis (L.).

From the series of over a score of these birds living in the Zoological Gardens, it is impossible to say where *gambensis* ends and *niger* commences, so we are obliged to discard the latter species as invalid.

88. Rhinoptilus chalcoperus (Tem.).

Dr. Reichenow believes this bird to be identical with *R. albofasciatus* of Sharpe. In the "Ibis", 1900, p. 455, Boyd Alexander states his reasons for doubting the validity of Dr. Sharpe's bird, with which we must concur after comparison with the series in the Transvaal Museum. There is an obviously immature bird in the collection with narrow white edges to the wing coverts, and the middle tail feathers without white, the remainder being distinctly white tipped, or rather dirty tawny-white.

90. Rhinoptilus cinctus (Heugl.).

Dr. Reichenow unites *R. seebohmi* Sharpe with this species.

98. Charadrius venustus Fschr. and Rchw.

The Transvaal Museum contains a large series of skins of this tropical species, collected at Van Wijks Vlei, Carnarvon, West Central Cape Colony, by Lieutt. H. A. P. Littledale, of the K.O.Y.L.I., during the months of August to October. There are also three from Port Elizabeth, collected by J. G. Brown and R. H. Ivy.

214. Turtur capicola tropicus Rchw.

This is a paler form of *capicola*, but not so pale as *damarensis*, hence it stands intermediate between the Damaraland and typical birds. The habitat of *tropicus* Reichenow puts down as "East Africa from Ndussuma to the Northern Transvaal".


Dr. Reichenow, in his "Nachtrag", separates the green-coloured spotted dove from those which have blue-coloured spots on the wing. From the series of this bird in the Transvaal Museum we should decidedly unite the two birds, as Dr. Reichenow has done in vol. I of his "Vögel Afrikas". There are blue-spotted and green-spotted birds from different parts of South Africa; one with bottle-blue and green spots, and several with green spots edged with blue. Hence the name of *afra* Linn. must remain that of the South African bird.
225. Guttera lividicollis Ghigi.

235. Francolinus jugularis pallidior, Neum.
In the Bulletin B. O. C., No. CXXXIX, for January, 1908, p. 45, Mr. O. Neumann separates this form from the more northern and typical *jugularis*, Büttikofer. The latter therefore falls out of the South African list, while the locality of *pallidior* is given as German South-West Africa (south of the Cunene River; A. W. Eriksson, collector). Similar to gariepensis Smith, but everywhere paler, the belly being without the strong chestnut and black markings of *gariepensis*.

238. Francolinus coqui angolensis, Rothsch.
There are several examples in the Transvaal Museum collected by Roberts and Kirby in the Boror district, which are undoubtedly referable to this species, which is, however, not fully recognized by Reichenow.

240. Francolinus kirki Hartl.
In the Bulletin B. O. C., CXLI, for March, 1908, C. H. B. Grant records the procuring of this species at Beira. The Transvaal Museum contains two examples from Boror, Portuguese South-East Africa, collected by Messrs. Kirby and Roberts.

261. Kaupifalco monnogrammicus meridionalis (Hartl.).
Two specimens from North-Western Rhodesia in the Transvaal Museum seem referable to this sub-species, which is the Western form. Reichenow gives the locality of *meridionalis* as extending into Damaraland.

268. Accipiter minullus tropicalis Rchw.
The Museum contains two examples which seem referable to this species, viz., one from Rhodesia and one from Boror, Portuguese East Africa.

295. Falco peregrinus Tunst.
Two specimens in Transvaal Museum from Grahamstown and Pretoria.

301. Cerchneis vespertina (L.).
The specimens in the collection do not agree with Reichenow's description of *vespertina*, having pure white axillaries and under wing coverts; are thus referable to his rejected amurensis, Radde, which we will retain pending further investigations.

310. Bubo ascalaphus trothae Rchw.
In the January, 1906, number of the "Ornithologische Monatsberichte", Dr. Reichenow describes a new Eagle Owl from South-west Africa under the above name. Similar to B. ascalaphus, but smaller, with the brown, wavy lines on the abdominal feathers more profuse; the yellow-brown tone of the coloration has a tendency to a cinnamon shade, not ochreous, as is the case with the typical form, Hab. Keetmanshoop (Damaraland), coll. Von Trotha,
314. Asio leucotis erlangeri Og.-Grant.

In the "Ibis", October, 1906, p. 660, Mr. Ogilvie-Grant shows that the typical leucotis is the northern form, so that the South African bird was without a name; he gave to it the above name of erlangeri.

323. Poicephalus meyeri (Cretzschm.).

In the "Ornithol. Monatsberichte" for 1899 (p. 25) and the "Journal f. Ornithologie" for 1898 (p. 501) O. Neumann separates these two forms from the typical (northern) meyeri. As the series of Transvaal birds in the Museum vary enormously in tone and coloration, we fail to see justification for these separations, and would refer the matter for closer consideration.

327. Agapornis nigrigenis W. L. Scl.

The Museum contains a large series from North-Western Rhodesia, the Zambesi region above the Victoria Falls, and the Caprivi corner of German South-West Africa: as the latter is well within the boundary of South Africa, this bird becomes an addition to the list. It can easily be distinguished from the other members of the genus by its dark-brown, almost black, cheeks and throat, salmon-pink patch on the breast, and chestnut forehead.

333. Turacus corythaix phaebus Neum.

Neumann separates the Transvaal lourie under this name, on the grounds that the upper back, remiges, and tail is almost wholly glossed with blue; lower back and rump black with "iliac-steel-blue", not green gloss. As the Museum possesses birds from Knysna, Cape Colony, which are but slightly less blue than the Transvaal specimens, the validity of the species requires investigation.

335. Turacus reichenowi (Fschr.).

In the Bulletin B. Ornith. Club, No. CXL1 (March, 1908), Mr. C. H. B. Grant records the occurrence of this species at Beira, Portuguese South-East Africa. It differs from livingstomei in the back, wings and tail are glossed with steel blue, not green, as in that species.

362. Lybius zombae (Shelley).

The Transvaal Museum contains four examples of this bird, collected in the Boror district of Mozambique by Messrs. Kirby and Roberts.

374. Dendromus malherbi (Pass.).

Reichenow gives Zomba as included in the habitat of this bird, hence it must be included in our list.

378. Dendromus scriptoricaudus Rchw.

There are several specimens of this bird, collected in the Boror territory by Messrs. Kirby and Roberts.

382A. Dendropicos hartlaubi Malh.

The Museum collection contains a series from Boror (Kirby and Roberts), and one from near Sesheke on the Zambesi River (C. Wilde).
384. *Colius striatus minor* Cab.

Reichenow has retained Cabanis' separation of the Natal speckled coly on the grounds of its smaller size and darker throat.

386. *Colius colius damarensis* Rchw.

Reichenow has separated the Damaraland form of the white-backed mousebird under this name. It is paler than the typical species.

389. *Colius kirbyi* Sharpe.

The Bull. B. O. C., CXXXVII, contains the description of this new coly from Lydenburg (F. V. Kirby, leg.). It is of a fawn colour, the base of the primaries like the primary coverts chestnut. Head and throat hoary cream colour.

393. *Coracias weigalli* Dresser.

A pair was collected in the Boror district of Portuguese South-East Africa by Kirby and Roberts.

397. *Eurystomus glaucurus* (H. Müll.).

A single example, procured by Mr. P. A. Sheppard at Beira on the 31st March, 1906, is now in the Museum. (Vide Journal S.A.O.U. No. 1, vol. I, April, 1909, p. 38.)

484. *Hyliota rhodesiae* Haagner.

This species described by Haagner in the July, 1910, Journal S.A.O.U. in the Albany Museum, collected by Williams in the Matoppos, has the very distinct characteristic of a broad white bar across the outer tail feathers (possessed by no other Hyliota).


Described by Dr. A. Reichenow in the “Ornithologische Monatsberichte” for May, 1908, p. 81.

446. *Chaetura bôhmi* Schal.

The Transvaal Museum possesses examples of this swift, collected at Beira by P. A. Sheppard, and at Sesheke, Zambesi River, by C. Wilde.

469. *Bradornis griseus* Rchw.

The Albany Museum contains an example of this bird collected in the Matoppos by R. Williams (no date).


Nov. sp. collected by P. A. Sheppard at Beira. (Vide Annals Transvaal Museum, January, 1910.)

473. *Melaenormis ater* tropicalis (Cab.).

There is a specimen in the Transvaal Museum collected in the Boror district by Messrs. Kirby and Roberts.
478. Alseonax subadustus Shelley.
    Recorded from Gazaland, Southern Rhodesia, by C. F. M. Swynnerton in the "Ibis" for January, 1908, p. 89.

489. Batis sheppardi Haagner.
    This specimen was collected by P. A. Sheppard at Beira, two examples of which are now in the Transvaal Museum. (Vide Annals Transvaal Museum, January, 1909.)

490. Batis puella sroror Rchw.
    This species was recorded from Beira by C. H. B. Grant, and the Transvaal Museum contains specimens collected in the Boror district of Portuguese South-East Africa by Kirby and Roberts.

492. Batis erythrophthalma Swyn.

497. Trochoercus megalolophus Swyn.
    Described by Swynnerton in Bull. B. O. C., No. CXXXV, June, 1907.

498. Trochoercus albonotatus Sharpe.
    Recorded by Swynnerton in the "Ibis" for January, 1907, from Gazaland, Southern Rhodesia.

500. Tchitrea plumbeiceps (Rchw.).
    Recorded by Swynnerton from Southern Rhodesia in the "Ibis" for January, 1907. The Transvaal Museum has since received a good series from Sesheke, Zambesi, collected by C. Wilde.

509. Sigmodus scopifrons Ptrs.
    This shrike was recorded by C. H. B. Grant from Beira, and the Transvaal Museum has received an example from Mr. P. A. Sheppard, of that place. (Vide Journ. S.A.O.U., vol. I, No. 1, April, 1909.)

516. Pomatorhynchus anchietae Boc.
    Recorded from Gazaland, Southern Rhodesia, by C. F. M. Swynnerton in the "Ibis" for January, 1907.

520. Chlorophoneus bertrandi (Shelley).
    Mr. C. F. M. Swynnerton records this species from Southern Rhodesia. (Vide "Ibis", January, 1907.)

522. Chlorophoneus abbotti (Richm.).
    The Transvaal Museum contains two undoubted examples of this shrike, collected in the Woodbush, Northern Transvaal, by Mr. F. Vaughan Kirby.

528. Laniarius rufiventris hybridus Neum.
    A form of large puff-back, ranging from the Transvaal northwards to Rovuma. It is distinguished by the entire underside—from the crop to the vent—being of an ochreous colour.
545. Oriolus larvatus rolleti Salvad.
There is a series of this bird in the Transvaal Museum collected by Kirby and Roberts in the Boror district of Portuguese East Africa.

567. Sporopipes squamifrons damarensis Rchw.
Reichenow separates the Damaraland form (Vögel Afrikas, Nalhtray, p. 858) under this name.

574. Ploceus ocularius crocatus (Hartl.).
The Transvaal Museum contains a series of this bird, collected by Messrs. Kirby and Roberts in the Boror district.

584. Ploceus castancigula (Cab.).
Recorded from the Zambesi by Holub. (Vide Vögel Afrikas, band III, p. 94.)

586. Ploceus trothae Rchw.
Described by Dr. Reichenow in the "Ornith. Monatsb." for September, 1905 (p. 147), from Damaraland.

588. Pyrenestes granti Bowdler Sharpe.
Described by Dr. R. Bowdler Sharpe in the Bulletin B. O. C. for March, 1908 (No. CXLII), in honour of Mr. Claude Grant, who collected it at Beira.

590. Quelea erythrops (Hartl.).
The Transvaal Museum contains a series of nine skins collected in Pondoland, Southern Cape Colony, by Mr. C. G. Davies, M.B.O.U.

601. Colius passer macroura (Gm.).
Recorded from Zumbo on the Zambesi by Alexander.

612. Pytilia afra Gm.
There are specimens in the Transvaal Museum collected at Boror by Messrs. Kirby and Roberts. Mr. Claude Grant also records it from Gorongoza in the March, 1908, number of the Bulletin B. O. Club.

615. Estrilda astrild cavendishii Sharpe.

616. Estrilda astrild damarensis Rchw.
The former, described by Dr. Sharpe in 1900, was recorded from Inhambane by Peters. The latter is the western form, from Namaqualand northwards.

638. Passer melanurus damarensis Rchw.
Described by Reichenow in 1902. This is the western form of the Cape sparrow, characterized mainly by the deep black of the head and chest.

650. Poliospiza reichardi Rchw.

There are four examples of this seedeater in the Transvaal Museum, collected in the Boror district by Messrs. Kirby and Roberts.

659. Heliospiza noomei Gunning.


683. Tmphotylacus tenellus (Cab.).

Recorded from Irene, near Pretoria, by Mr. Lionel E. Taylor. (Journal S.A.O.U., June, 1906.)


Described by Mr. Claude Grant in the Bulletin B. O. Club, CXLIIV, June, 1908. He collected it at Wakkerstroom, Transvaal, and its nearest ally is Mirafra chiniana, Smith.

705. Certhialauda albofasciata erikssonii Hart.

Described in the Bulletin B. O. Club for May, 1907 (No. CXXXIV).

718. Phyllastrephus milanjensis Shelley.


723. Phyllastrephus cerviniventris.

The Transvaal Museum contains two examples of this species, collected at Boror by Messrs. Kirby and Roberts.

725. Phyllastrephus capensis suahelicus Rchw.

There are examples in the Transvaal Museum collected at Boror, Portuguese South Africa, by Kirby and Roberts.

741. Anthreptes reichenowi Gg.

Described by Dr. J. W. B. Gunning in the Annals of the Transvaal Museum for January, 1909. A pair was collected by Mr. P. A. Sheppard, near Beira, Portuguese South-East Africa.

742. Anthreptes longuemarei nyassae Neum.

A series of skins are in the Transvaal Museum, collected in the Boror district of Portuguese South-East Africa by Messrs. Kirby and Roberts.

743. Chalcomitra olivacea daviesi Haagu.


745. Chalcomitra olivacina Ptrs.

There are specimens in the Transvaal Museum collected at Beira by P. A. Sheppard and in Boror by Kirby and Roberts.
754. *Cinnyris venustus niassae* Rchw.

Recorded from Gazaland, Southern Rhodesia, by C. F. M. Swynnerton. (“Ibis”, January, 1907, p. 43.)

757. *Cinnyris mariquensis microchynhus* Shell.

There are specimens in the Transvaal Museum collected at Boror, Portuguese East Africa, by Kirby and Roberts, and at Beira by P. A. Sheppard.

762. *Cinnyris neergaardi* C. Grant.

Described by Claude Grant in the Bulletin B. O. Club, No. CXLIII, May, 1908, and collected by himself at Inhambane, Portuguese East Africa.


Collected by Arthur L. Sclater, in the Melsetter District of Southern Rhodesia, and described by his father, Dr. Sclater, in the Bull. B. O. C., CXXIX, December, 1906.

774. *Parus pallidiventris rovumae* Shell.

There are examples in the Transvaal Museum collected in the Boror district by Kirby and Roberts.


Dr. Reichenow, in his “Vögel Afrikas”, Vol. III, separates the Damara form of the grey tit under this name.


Dr. Reichenow separates the Damara form of the Rufous-vented tit under this name. (Vögel Afrikas, band III.)

782. *Anthoscopus robertsi* Haagn.

This tit was collected by Kirby and Roberts in the Boror district of Portuguese South-East Africa, and described by Haagner in the August, 1909, number of the Annals of the Transvaal Museum.

787. *Sphenoeacus transvaalensis* C. Grant.

Collected by the describer in the Woodbush region of the Transvaal, and recorded in the Bulletin B. O. Club, CXLIII, for May, 1908.

788. *Melocichla mentalis orientalis* (Sharpe).

There is an example of this warbler in the Transvaal Museum, collected in Boror by Kirby and Roberts. It was also recorded from S. Rhodesia by Swynnerton in the “Ibis” for July, 1908, p. 441.

789a. *Cisticola rufilata* Hartl.

In working up the warblers of the Transvaal Museum we could not locate three skins, which on reference to Dr. Reichenow that authority thought they might be *müllerii*, Alex., but Dr. Hartert, who kindly compared them with the type of that species, says they are *not müllerii*, but *rufilata* of Hartlaub, agreeing in every respect with the series of that species in the Tring Museum.
790. Cisticola strangei (Fras.).

This well-marked species must have been overlooked by Dr. Stark and Mr. W. L. Sclater. The Transvaal Museum possesses examples from Portuguese South-East Africa, Natal, and Pondoland.

792. Cisticola chiniana magna Gould.

The southern bird must be separated under this name. (Vide Haagner, Annals Transvaal Museum, August, 1909.)

798. Cisticola lavendulae Grant Reid.

The Transvaal Museum contains specimens from Northern Transvaal collected by Marais and Kirby.

799. Cisticola sylvia Rchw.

There is an undoubted example of this warbler in the Transvaal Museum, collected in the Boror district by Kirby and Roberts.

802. Cisticola cinnamomeiceps Haagn.


806. Heliolais erythroptera (Jard.).

Recorded from Gorongoza in the Bulletin B. O. Club, CXLIII, for May, 1908, by Mr. Claude Grant.

807. Heliolais kirbyi Haagn.

Described in the Annals of the Transvaal Museum for August, 1909, by Haagner. A pair were collected in the Boror district by Kirby and Roberts.

809. Hemipteryx minuta Gung.

A pair were collected by F. V. Kirby in the Woodbusli district of the Transvaal, and described by Dr. Gunning in the Annals of the Transvaal Museum for January, 1909.

812. Calamomastes stierlingi Rchw.

The Museum contains examples from the central Transvaal.

814. Calamochilca zuluensis Neum.

Described by O. Neumann in the Bulletin B. O. Club, No. CXLIII, for May, 1908, from examples collected by Woodward Brothers at Eshowe, Zululand. A specimen taken in the Inshambane district by Claude Grant he also refers to this species.

818. Bradypterus pondoensis Haagn.

Described by Haagner in the Journal of the S. A. Ornithologists Union for September, 1909, from a specimen collected by H. H. Swinnny in Pondoland.

834. Apalis chirindensis Shell.

835. Apalis ruddi C. Grant.
    Collected by Claude Grant at Inhambane, Portuguese South-East Africa, and described by him in the Bulletin B. O. Club, No. CXLIII, May, 1908.

840. Camaroptera griseoviridis (v. Müll.).
    The Transvaal Museum contains examples collected at Beira by P. A. Sheppard.

845. Sylvietta flecki (Rechw.).
    The Transvaal Museum contains examples of this Crombec warbler collected at Pretoria (Roberts), Pienaars River (Kirby), Zoutpansberg (Marais).

846. Sylvietta whytei (Shell.).
    Recorded from Gazaland, Southern Rhodesia, in the "Ibis" for January, 1907, p. 56, by C. F. M. Swynnerton.

849. Eremomela flaviventris sharpei Rechw.
    In the "Ornithologische Monatsberichte" for 1905, p. 25, Dr. Reichenow separates the western form under this name.

856. Eremomela baumgarti Rechw.
    In the "Ornithologische Monatsberichte" for 1905 Dr. Reichenow describes this form. The Transvaal Museum contains four skins collected in the Pretoria district by Austin Roberts.

867. Pinarornis rhodesiae E. C. Chubb.
    Described by Chubb in the Bulletin B. O. Club, No. CXLIV, for June, 1908. (Matoppos, Rhodesia.)

902. Cossypha haagneri Gung.
    Described by Dr. Gunning in the Annals of the Transvaal Museum for January, 1909, from an example collected in Pondoland by H. H. Swinney.

912. Erythropygia poena damarensis Hart.
    Described by Dr. E. Hartert in the Bulletin B. O. Club for January, 1907.

919. Erythacus swynnertoni Shell.
    Described by Captain Shelley, in the Bulletin B. O. Club, CXXVI, for June, 1906, from examples collected in the Melsetter district of Southern Rhodesia by C. F. M. Swynnerton.