.60, width pronotum .84, length scutellum .56, width scutellum .63, length hemelytron 1.40, length metatibia 3.68; length antennal segments 1—.80, 2—2.56, 3—2.00, 4—1.16; length labial segments 1—.70, 2—.56, 3—.70, 4—.62.

FEMALE GENITALIA: Figures 145, 146.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Natal*, Royal Natal Nat. Pk., Tendele Camp, 5400 ft., 4–5 Mar. 1968, T. Schuh, J. A. & S. Slater, M. Sweet, UV Light Trap (SANC).

PARATYPES: *Cape Province*—1 macropterous ♂, Knysna, Keurbooms River, Jan. 1931 (Barnard). *Natal*—1 macropterous ♂, same data as holotype; 1 bracypterous ♀, *idem*, but not at UV light; 1 macropterous ♂, Howick; 1 macropterous ♂, P. Shepstone, 5.97. *Transvaal*—1 macropterous ♂, Blouberg, Motlakeng, 5–6000 ft., 6–15.1.1955; 1 macropterous ♂, Pretoria, 22.12.1910 (Swierstra). LESOTHO—3 brachypterous ♀♀, Sani Pass, 8000 ft., 10 Mar. 1968 (SANC, TM, BM[NH], JAS, RTS).

This species is named for its occurrence on the Drakensberg.

Acrorrhinium drakensbergensis appears to be most closely related to *A. brincki*, *A. capensis*, and *A. oudtshoornensis*. The unicolorous metafemora will separate it from *brincki*, the light unicolorous corial margin from *oudtshoornensis* and *capensis*. The brachypterus females of *drakensbergensis* are very similar to those of *oudtshoornensis* but can be separated as in the key.

In the series of males examined the length of the labium varies from just surpassing the metacoxae to reaching about one-third the length of the abdomen.

The three brachypterous females from Lesotho, Sani Pass, were collected in association with *Chrysocoma tenuifolia* Berg. (Compositae).

Acrorrhinium formicarium (Poppius)

Ectmetocranum formicarium Poppius, 1914a, p. 37.

Acrorrhinium formicarium is one of the most specialized species in the genus and to date is known only from the brachypterous female. The structure of the head is the only feature that obviously relates this species to the other members of the genus. The clypeus is strongly flattened and greatly produced and the frontal spine is proboscis-like. The entire body and all of the appendages are castaneous, highly polished, and covered with long, erect, light-colored hairs. The posterior margin of the pronotum is upturned. The scutellum is slightly elevated. The hemelytra are upturned just past the apex of the scutellum and form two points nearly as high as

the dorsum of the bulbous abdomen. The tibiae lack the longitudinal rows of tiny spines found in all other species of *Acrorrhinium*. The figure of *A. formicarium* in Poppius (1921) is basically accurate. When the male of this species is known it will be much easier to assess its relationship to other species in the genus.

Poppius (1914a) stated that the two type females of *A. formicarium* were deposited in the Paris Museum. In fact, none are in Paris, but at least one is in the Helsinki Museum, and I am designating it as the lectotype. It bears the labels: "Museum Paris, Cape-Town, E. Simon, Coll. Noualhier 1898"; "*Ectmetocranum formicarium* n. gen. et sp. B. Poppius det."; "Mus. Zool. H:fors, Spec. typ. No. 7786, *Ectmetocranum formicarium* Popp."; and "LECTOTYPE *Ectmetocranum formicarium* Poppius, det. R. T. Schuh."

Acrorrhinium incrassata, new species

Figures 119, 138–140

MACROPTEROUS MALE: General coloration light brownish yellow with the following dull red markings: narrow stripe on dorsal midline of head (interrupted at level of posterior margin of eyes), narrow stripe on either side of midline of anterior lobe of pronotum, posterior third of scutellum on either side of midline, two lines on head at level of dorsal margin of eyes and just below dorsal margin of eyes running anteriorly from eyes to antennal fossae and posteriorly to pronotum, line near ventral margin of eyes between eye and pronotum, lower margin of juga, two parallel lines on entire lateral margin of pronotum, numerous small spots on all femora (particularly mesofemora and metafemora), and suffused areas at apex of clavus and corium at cuneal fracture; posterior lobe of pronotum, most of scutellum, elongate area on corium along claval suture at level of midpoint of claval suture, venter of mesothorax, and most of genital segment black; antennal segment 2 distally, antennal segments 3 and 4, and all tarsi dark brown; irregular marking on corium contiguous laterally with elongate black area described above and diffuse marking on clavus at same level white; much of corium and cuneus suffused with brown, veins lighter; membrane light yellow gray; pronotum and scutellum with distinct yellow midline dorsally.

Entire body smooth, dull; dorsum with a few scattered, decumbent, very short, silvery hairs antennal segments 2, 3, and 4 with dense, short, shining vestiture; tibiae and tarsi with short, dull hairs.

Eyes removed from anterior margin of pronotum by distance

equal to about one-third diameter of eye; spine-like projection of frons very short; antennal segment 1 only very slightly enlarged, segment 2 increasing in diameter distally to same diameter as segment 1, segments 3 and 4 about same diameter as segment 2 proximally, about two-thirds diameter of segment 1; labium attaining distal end of metacoxae; pronotal collar about equal in width to diameter of antennal segment 3; posterior margin of pronotum shallowly concave; femora with a few, very fine, erect spines; tibiae with scattered dark spines about equal in length to tibial diameter; metatarsal segments subequal in length.

MEASUREMENTS: Total length 7.52, maximum width 2.24, length head .90, width head .90, interocular space .40, length pronotum .80, width pronotum 1.60, length scutellum 1.10, width scutellum 1.30, length corium 3.60, length clavus 2.68, length cuneus 1.24, width cuneus .56, length claval commissure 1.60, distance apex commissure-apex membrane 3.40, length metatibia 4.32; length antennal segments 1—1.02, 2—2.72, 3—1.96, 4—1.02; length labial segments 1—.78, 2—.84, 3—.64, 4—.74.

MALE GENITALIA: Figures 119, 138–140.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province,* Grootfontein, Middelburg, 4.XI.65, E. Schoombee (SANC).

PARATYPES: 1 macropterous ♂, same data as holotype, except 3.XII.1965. *Transvaal*—1 macropterous ♂, Zomerkomst, Politzi, 23.X.64 (Johannsmeier) (SANC, RTS).

This species is named for the incrassate second antennal segment.

See discussion under *A. muntingi* for distinguishing characteristics.

Acrorrhinium monticola, new species
Figures 117, 134–137

MACROPTEROUS MALE: General coloration dull gray-brown; anterior lobe of pronotum, scutellum (except as noted below), cuneus, thoracic pleura and venter, abdominal venter, and labial segments 2, 3, and 4 dark brown; medium brown as follows: dorsal surface of frons, much of vertex between eyes posteriorly, posterior lobe of pronotum (except as below), diffuse area medially on corium, antennal segment 1, and all femora; white as follows: clypeus, lora, metathoracic scent gland opening, longitudinal stripe on extreme posterior pronotal lobe medially and midlaterally (midlateral stripes not present in paratype), longitudinal stripe on posterior lobe of scutellum, ovoid spot just anterior to brown area medially on corium, and apex of corium at cuneus; antennal segments 2 and

3 yellow-white, segment 2 white basally; tibiae cream with contrasting longitudinal dorsal stripe; tibiae distally, and tarsi black.

Entire body smooth, dull; dorsum with scattered (almost scale-like), short, decumbent, sericeous hairs; antennal segment 1 with short, dark, decumbent hairs; femora with scattered short hairs; tibiae with a few semidecumbent hairs distally.

Eyes removed from anterior margin of pronotum by distance equal to about one-third diameter of eye; spine-like process of frons short, blunt; antennal segment 1 moderately enlarged, with several erect, black spines on interior surface, segments 2 and 3 of equal diameter, about half diameter of segment 1 (segment 4 missing); labium reaching posterior margin of abdominal sternite 5 (from paratype); posterior pronotal margin straight; femora with a few erect, thin, black spines mostly on dorsal surface; tibiae with scattered dark spines with dark bases; metatarsal segments subequal in length.

MEASUREMENTS: Total length 6.80, maximum width ?, length head .88, width head .90, interocular space .36, length pronotum .74, width pronotum 1.36, length scutellum 1.10, width scutellum .96, length corium 3.28, length clavus 2.52, length cuneus 1.16, width cuneus .80, length claval commissure 1.48, distance apex commissure-apex membrane 2.76, length metatibia 4.36; length antennal segments 1—1.00, 2—2.52, 3—2.08, 4—?; length labial segments 1—.80, 2—.84, 3—.68, 4—.80.

MALE GENITALIA: Figures 117, 134–137.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province,* Bainskloof Pass Summit, 21 Jan. 1968, J. A. & S. Slater, T. Schuh, M. Sweet (SANC).

PARATYPE: 1 macropterous ♂, same data as holotype, but at UV light (RTS).

This species is named for its occurrence in the mountains of the Southwest Cape.

A. monticola is distinctive among the South African species of *Acrorrhinium* by virtue of its dull gray coloration and the dark brown stripe on the dorsal surface of the tibiae.

Acrorrhinium muntingi, new species

Figures 118, 141–144

MACROPTEROUS MALE: General coloration light yellowish brown, with dark brown markings as follows: vertex between eyes irregularly, distinct transverse lines anteriorly on vertex (behind

spine), most of pronotum on either side of light midline, scutellum broadly around anterior and lateral margins, hemelytra suffused mostly on clavus and cuneus, labial segments 2, 3, and 4, thorax ventrally, abdomen ventrally (particularly anterior two-thirds of genital segment), antennal segment 1, and numerous small round spots on all femora; tibial spines with dark bases; tarsi black; midline of posterior lobe of scutellum suffused with red; pregenital abdominal segments lighter than most of venter and suffused with green.

Body smooth, weakly shining; dorsum with short, scattered, decumbent, silvery hairs; antennal segment 1 with dark decumbent hairs; antennal segments 2, 3, and 4 with short, very dense, shining vestiture; femora with scattered short hairs.

Eyes removed from anterior margin of pronotum by distance equal to about one-third diameter of eye; spine of frons very short; antennal segment 1 slightly greater in diameter than segment 2 (only segments 1 and 2 present in holotype); labium just surpassing metacoxae; posterior margin of pronotum slightly concave; femora with a few moderately long very thin spines; tibiae with scattered dark spines about length of tibial diameter; metatarsal segments subequal in length.

MEASUREMENTS: Total length 7.68, maximum width 2.00, length head .78, width head .92, interocular space .36, length pronotum .76, width pronotum 1.52, length scutellum 1.10, width scutellum 1.24, length corium 3.68, length clavus 2.84, length cuneus 1.40, width cuneus .54, length claval commissure 1.72, distance apex commissure-apex membrane 3.64, length metatibia 4.44; length antennal segments 1—1.06, 2—2.88, 3—?, 4—?; length labial segments 1—.82, 2—.82, 3 plus 4—1.54.

MALE GENITALIA: Figures 118, 141–144.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, 3.XII.1965. E. Schoombee (SANC).

PARATYPES: 8 macropterous ♂♂, same data as holotype; 2 macropterous ♂♂, same data as holotype, but "October, M. Johannsmeier" (SANC, JAS, RTS).

This species is named for Mr. Jack Munting, formerly Curator of the South African National Collection of Insects, Pretoria.

A. muntingi and *A. incrassata* can be separated from the *brincki* group as indicated in the generic discussion. *A. muntingi* has a spotted first antennal segment, a second antennal segment of uniform diameter, and a mottled vertex, whereas *incrassata* has the

first antennal segment spotted but the second segment is enlarged distally; the vertex of *incrassata* is light, marked only with a median longitudinal red stripe.

Acrorrhinium oudtshoornensis, new species
Figures 23, 115, 128–130

MACROPTEROUS MALE: General coloration dark gray-brown, suffused with red; antennal segments 2 and 3 (4 missing in holotype) and tibiae light yellowish gray; anterior third of corium and quadrate macula at apex of corium along cuneal fracture white; small area on corium at apex claval commissure suffused with white; quadrate macula on endocorium just posterior to and contiguous with white anterior portion of corium velvety castaneous; tarsi almost black; membrane dull gray-brown.

Entire body smooth, dull; abdominal venter weakly shining; dorsum with scattered, short, decumbent hairs; antennal segment 1 and femora with scattered, dark, decumbent hairs; antennal segments 2 and 3 with dense, short, shining vestiture.

Eyes removed from anterior margin of pronotum by distance equal to one-half diameter of eye; vertex with weak, longitudinal, median sulcus between eyes; spiniform frons conical, not obscuring clypeus from above; antennal segment 1 moderately enlarged, almost twice diameter of segment 2, segment 2 of slightly greater diameter than segment 3; labium attaining distal end of metacoxae; posterior margin of pronotum very shallowly concave; tibiae and tarsi with scattered dark spines with dark bases; metatarsal segments subequal in length.

MEASUREMENTS: Total length 5.20, maximum width 1.38, length head .66, width head .70, interocular space .36, length pronotum .60, width pronotum 1.16, length scutellum .78, width scutellum .92, length corium 2.40, length clavus 1.86, length cuneus .72, width cuneus .44, length claval commissure 1.06, distance apex commissure-apex membrane 2.20, length metatibia 3.32; length antennal segments 1—.58, 2—2.00, 3—1.54, 4—?; length labial segments 1—.64, 2—.64, 3—.40, 4—.60.

MALE GENITALIA: Figures 115, 128–130.

BRACHYPTEROUS FEMALE: Antennal segment 1, abdomen, procoxae and mesocoxae, and all femora dark gray brown suffused with red; most of head, pronotum, scutellum, and claval area of hemelytra yellowish gray; corial region of hemelytra, antennal segments 2 and 3, tibiae, and metacoxae yellow or yellow white; antennal segment

4 red; tarsi black; corium medially with heavy velvety black macula and an anteriorly contiguous oval white macula.

Body surface texture and vestiture as in male; eyes with a few very short hairs.

Structure very similar to that of brachypterous female of *A. drakensbergensis*; metatarsal segment 2 about half length of segment 3, segment 1 subequal in length to segment 3.

MEASUREMENTS: Total length 4.48, maximum width ?, length head .88, width head .80, width vertex .42, length pronotum .64, width pronotum .88, length scutellum .64, width scutellum .70, length hemelytra 1.84; length antennal segments 1—.80, 2—2.52, 3—1.80, 4—.92; length labial segments 1—.70, 2—.76, 3—.66, 4—.78.

FEMALE GENITALIA: See generic discussion.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Swartberg Pass, elevation 5000 ft., 25 mi. N. of Oudtshoorn, Platberg, 19 Nov. 1967, M. H. Sweet (SANC).

PARATYPES: *Cape Province*—1 macropterous ♂, same data as holotype; 1 macropterous ♂, 3 brachypterous ♀♀, just N. Outiniqua Pass Summit S. of Oudtshoorn, 7 Feb. 1968 (SANC, JAS, RTS).

ADDITIONAL SPECIMENS: 3 nymphs (in alcohol), just N. Outiniqua Pass Summit S. of Oudtshoorn, 7 Feb. 1968 (RTS).

This species is named for Oudtshoorn, the district in which all known specimens have been collected.

A. oudtshoornensis is most closely related to *A. capensis*, but is much smaller, much darker in coloration, and lacks the light halo-like area on the membrane.

The Outiniqua Pass specimens of *oudtshoornensis* were collected under *Helichrysum orbiculare* (Thunb.) Druce (Compositae) in association with workers of the ant *Anoplolepis* sp. The females of this species are very ant-like in their movements.

Azizus Distant

Azizus Distant, 1910a, p. 11.

Azizus is probably most closely related to *Aeolocoris*. It can be recognized by the large eyes of the males, the well defined pronotal collar, the mottled coloration, and the erect peg-like hairs on the dorsum and first antennal segment. The genus as presently constituted may bring together species that actually belong in different genera.

The type species of the genus, *A. basilicus* Distant, is from India, whereas all other known species are from Africa.

List of described species of *Azizus*

basilicus Distant (*Azizus*), 1910a, p. 11. India: Bengal.
basilewskyi Carvalho (*Azizus*), 1951b, p. 110. Congo.
* *dispar* Odhiambo (*Azizus*), see *Hallodapus dispar* (Odhiambo) **New Combination.**
oculatus Poppius (*Megacoeloides*), 1914a, p. 33. Togo; Swaziland.

Azizus near **oculatus** (Poppius)

Megacoeloides oculatus Poppius, 1914a, p. 33.

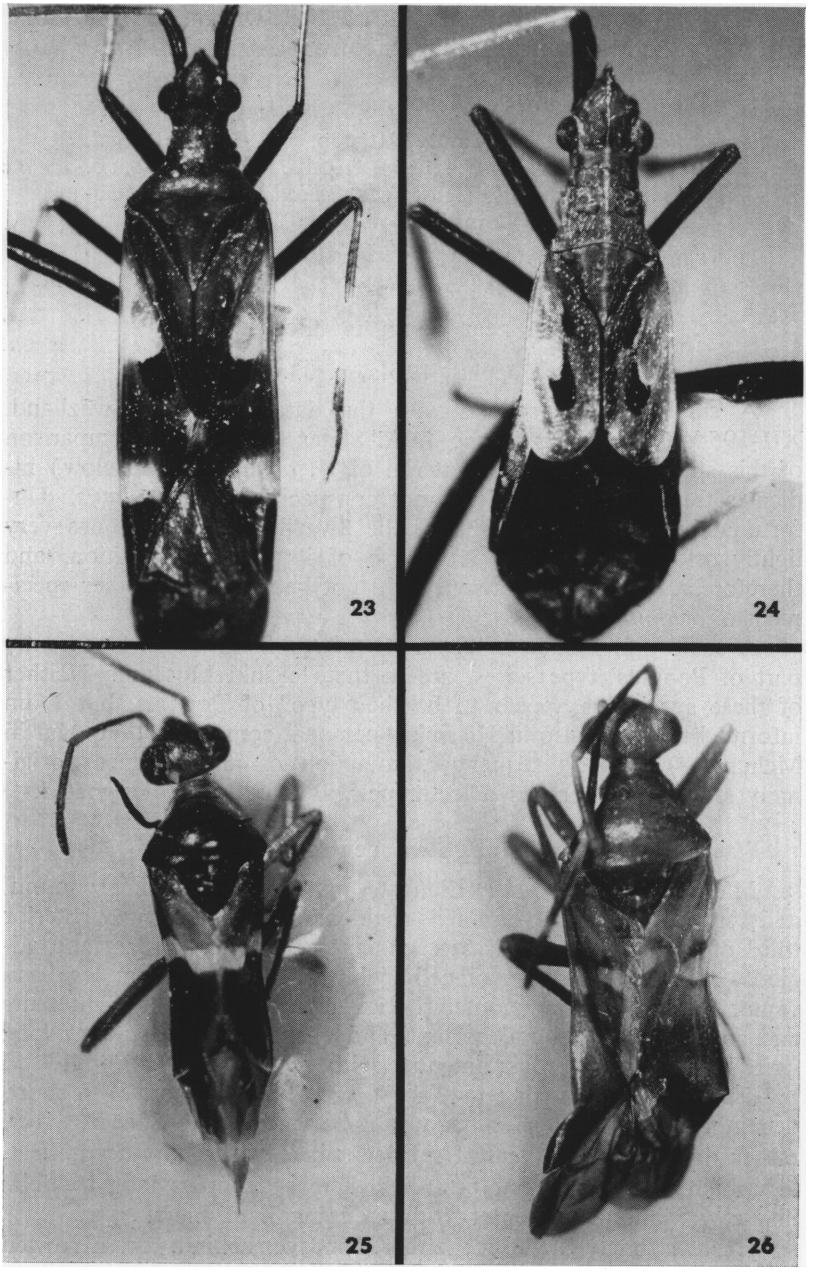
A single male specimen with the data "Eranchi, Swaziland, XII-1954, Capener" is in the J. A. Slater Collection. Comparison of this specimen with type material of *A. oculatus* (see below) indicates that it is congeneric, if not conspecific, with *oculatus*. Unfortunately the male genitalia of the Swaziland specimen are very lightly sclerotized, probably because of its teneral condition, and therefore a critical comparison could not be made with other specimens of *oculatus*.

A male and female of *Azizus oculatus* from Togo, apparently part of Poppius' type series, are in the Helsinki Museum. Neither of these specimens appear to be the "type" of Poppius, but I am informed that it is also in Helsinki (personal communication, Martin Meinander). On subsequent examination of all specimens originally studied by Poppius a lectotype will have to be designated.

Carinogulus, new genus

MACROPTEROUS MALE: Elongate, ant mimetic; head, pronotum, and scutellum granular or finely rugulose, weakly shining; posterior third of corium, apex of clavus, cuneus, cell of membrane, and adjacent membrane at base of cell highly polished, shining; legs and venter polished, shining; dorsum with short, decumbent, light hairs and sometimes scutellum, corium, and clavus also with a few long erect hairs; eyes glabrous; antennae with very short, light, appressed pubescence; labium with a few, short, erect hairs; femora with short, decumbent, light hairs, sometimes metafemora with longer, erect, rather dense hairs on ventral surface; tibiae with short decumbent, light hairs, and semierect, fine, light spines about as long as tibial diameter; abdominal venter with reclining light hairs.

Head strongly deflexed, either concave behind, or narrowed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behind eyes to form a short neck about as long as diameter of antennal segment 2 and as wide as interocular space; frons nearly vertical; eyes granular, large, reaching ventrally almost to gula; vertex raised above level of pronotal collar by at least diameter of antennal segment 2; vertex weakly convex or sometimes slightly depressed between eyes; frons transversely rugose; anterior margins of eyes sinuate; antennae inserted slightly above ventral margins of eyes; antennal fossae contiguous with anterior margins of eyes; antennal segment 1 slightly enlarged, segment 2 tapering proximally, distal diameter about equal to diameter of segment 1, segments 3 and 4 subequal to or slightly greater in diameter than distal end of segment 2; clypeus rounded transversely, prominent, separated from frons by distinct cleft; bucculae moderately expanded, crescent-shaped; gula moderately long, inclined, with distinct carina running from posterior margin of buccal cavity to posterior margin of head; pronotum tumid and strongly inclined posteriorly, strongly narrowed anteriorly, lateral margins nearly straight, posterior margin broadly rounded laterally, calli indistinct, defined only by slightly roughened surface texture; pronotal collar wide, flat; mesoscutum exposed, inclined anteriorly, steep-sided laterally; scutellum tumid, reaching dorsally to about height of pronotum; lateral corial margins reflexed ventrally on anterior half, distinctly sinuate, narrowest at level of midpoint of claval commissure; cuneal incisure obsolete; membrane with 2 cells; abdomen long, very narrow; femora nearly round, slightly enlarged in diameter apically, weakly bowed; tibiae with longitudinal rows of tiny, closely spaced spines; tarsal claws evenly curved, moderately long; parempodia hair-like, parallel; pulvilli minute.

MALE GENITALIA: Figures 147–159. Vesica twisted, S-shaped; apex of vesica weakly or strongly attenuated; phallotheca either with "thumb-like" structure near basal opening (Figures 156, 159) or without "thumb" and with apex of complex structure (Figures 148, 152); left clasper trough-like; right clasper lanceolate.

Females unknown.

TYPE SPECIES: *Carinogulus varii*, new species.

This genus is named for the distinctive carinate gula.

←

FIGS. 23–26. Hallodapini. Fig. 23. *Acrorrhinium oudtshoornensis*, male, holotype. Fig. 24. *Acrorrhinium drakensbergensis*, female (Sani Pass, 8000 ft., Lesotho). Fig. 25. *Carinogulus hobohmi*, male, holotype. Fig. 26. *Carinogulus kochi*, male, holotype.

Carinogulus can be recognized by the relatively long, carinate gula in conjuction with the type of hemelytral fasciae that is also found in *Glaphyrocoris* (Figures 25, 26). Two distinct species groups exist within the genus: *C. kochi* and *C. varii* have the head convex behind and similar in structure to *Systellonotus*; *C. hobohmi* and *C. transvaalensis* have the head concave behind and similar in structure to *Glaphyrocoris*. Neither *Systellonotus* nor *Glaphyrocoris* have a carinate gula, however.

All species of *Carinogulus* are known only from macropterous males. No biological or ecological information is available, but the genus is probably ground living and adapted to very arid areas, as it is known only from the dry interior of the northern Transvaal and from South West Africa.

Carinogulus is probably most closely related to *Glaphyrocoris* from North Africa, but at the present time this affinity is unclear, because of the confused state of the taxonomy of *Glaphyrocoris* and closely related genera. The following discussion emphasizes some of the important aspects relative to the status of *Carinogulus* and its close relatives.

Carvalho (1952a) synonymized *Linoceraea* Horvath with *Glaphyrocoris* Reuter, but gave no explanation for the action. Hoberlandt (1953b), who was probably not aware of Carvalho's synonymy, noted that *Linoceraea* is most closely related to *Laemocoris*, *Trachaelonotus*, and *Cyrtopeltocoris*. Linnavuori (1964) moved *Laemocoris kiritschenkoi* (Poppius) to *Trachaelonotus* and discussed the relationship of *Trachaelonotus*, in the sense *T. kiritschenkoi*, to *Laemocoris* and *Glaphyrocoris*. In this discussion Linnavuori apparently based his conception of *Glaphyrocoris* on *G. lunigera* (Horvath), which is not the type species of *Glaphyrocoris*, but was originally described in *Linoceraea* and transferred to *Glaphyrocoris* by Carvalho (1952a). Comparison of *Glaphyrocoris unifasciatus* Reuter, the type species of the genus, and a redescription of *G. lunigera* (Hoberlandt, 1953b) reveals the following important differences between the two species: 1) *G. unifasciatus* lacks a ridge or raised carina on the posterior margin of the vertex which is present in *lunigera*; 2) the head and eyes are distinctly concave behind in *unifasciatus* so that the anterior margin of the pronotum is obscured, whereas in *lunigera* the head is not concave behind and the anterior margin of the pronotum is not obscured; and 3) the transverse fascia in *unifasciatus* is narrow and very sharply delimited, whereas in *lunigera* it is broad and somewhat diffuse. Linnavuori's (1964) figures of *T. kiritschenoi* agree

closely with the characters outlined above for *G. lunigera*, but not with those of *G. unifasciatus*.

Linnavuori (1965) synonymized *Trachaelonotus*, in the sense of *T. unifasciatus* Reuter, the type species of the genus, with *Glaphyrocoris*, in the sense of *lunigera* Horvath. This action created a secondary homonym because *Glaphyrocoris* and *Trachaelonotus* both contained a species named *unifasciatus*. Linnavuori therefore proposed the new name *iranicus* for *Trachaelonotus unifasciatus* Reuter. The above discussion would seem to indicate, however, that *Linoceraea* is not synonymous with *Glaphyrocoris*, but instead possibly a synonym of *Trachaelonotus*. This situation would make the new name *iranicus* a junior objective synonym and the name *unifasciatus* would have to be applied under Article 59c of the International Code of Zoological Nomenclature.

The relationships of the above-mentioned genera are additionally complicated when the genus *Hypomimus* Lindberg is considered. Examination of the holotype of *Hypomimus albosellatus* Lindberg indicates that it is very closely related to *Glaphyrocoris unifasciatus*. Linnavuori (1961; 1964; 1965) and Odhiambo (1959c) have described additional species of *Hypomimus*, and these species must be carefully studied to confirm whether they form a distinct genus or are actually members of *Glaphyrocoris*.

KEY TO SPECIES OF *Carinogulus*

1. Head concave behind; dorsum with only decumbent hairs; hemelytral fascia nearly straight and parallel sided 2
   Head convex behind, forming very short neck; dorsum with decumbent hairs and some erect long hairs on scutellum and hemelytra; hemelytral fascia more or less irregular, not parallel sided 3
2. Hemelytral maculae uninterrupted, forming continuously parallel sided fascia across corium and clavus ..... *transvaalensis*
   Hemelytral macula on corium placed anterior to that on clavus by distance equal to about width of macula .... *hobohmi* (Fig. 25)
3. Vertex slightly depressed, with distinct sulcus anteriorly; general coloration castaneous ..... *varii*
   Vertex weakly convex, without sulcus; general coloration bright orange brown ..... *kochi* (Fig. 26)

Carinogulus hobohmi, new species

Figures 25, 151–153

MACROPTEROUS MALE: Basic coloration dark brown to mahogany, head and anterior third of pronotum somewhat lighter

than posterior two-thirds of pronotum; anterior three-fifths of clavus, except basally, rusty brown; parallel sided transverse macula on corium at level of apex of scutellum and transverse macula of similar width on clavus just posterior to corial macula white (Fig. 25); distal third of antennal segment 2 and fascia of uniform width on membrane at level of apex of cuneus suffused with white; mesotrochanters and metatrochanters, distal end of mesocoxae, distal two-thirds of metacoxae, and ostiolar peritreme white.

Dorsum weakly shining; rust brown area on clavus dull; remainder of hemelytra including membrane highly polished; dorsum and venter with scattered, short, decumbent hairs; metafemora with rather dense erect hairs on ventral surface.

Head concave behind; posterior margin of vertex finely carinate, just covering anterior margin of pronotum; vertex broad, nearly flat; antennal segment 1 scarcely enlarged, segment 2 increasing slightly in diameter distally to about diameter of segment 1, segments 3 and 4 subequal in diameter, slightly greater than distal diameter of segment 2; pronotal collar slightly wider than diameter of antennal segment 1; posterior margin of pronotum nearly straight across mesoscutum, convex laterally; cuneal fracture angled anteromedially; abdomen reaching almost to apex of cuneus.

MEASUREMENTS: Total length 4.08, maximum width 1.04, length head .48, width head .76, interocular space .32, length pronotum .68, width pronotum 1.04, length scutellum .56, width scutellum .68, length corium 1.96, length clavus 1.12, length cuneus .68, width cuneus .32, length claval commissure .76, distance apex commissure-apex membrane 1.60, length metatibia 1.60; length antennal segments 1—.22, 2—.90, 3—.56, 4—.43; length labial segments 1—.34, 2—.36, 3—.36, 4—.36.

MALE GENITALIA: Figures 151–153.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH WEST AFRICA: Abachaus, Otjiwarongo District, III.1950, G. Hobohm (TM).

This species is named for the collector, G. Hobohm.

Carinogulus hobohmi is most closely related to *C. transvaalensis* by the posteriorly convex head, parallel sided hemelytral maculae, and the structure of the male genitalia, in which the phallotheca lacks the thumb-like process found in the other two species in the genus. *C. hobohmi* can be separated from *transvaalensis* by the form of the hemelytral maculae, which are offset in the former (Figure 25) but form an uninterrupted fascia in the latter.

An additional specimen of *Carinogulus* from 10 miles south

of Okaukeujo, South West Africa, collected on May 14, 1958, at 1100 meters elevation, deposited in the California Academy of Sciences, resembles *hobohmi* rather closely in the form of the head and body, but differs in that the hemelytral maculae are irregular. This specimen may represent a new species.

Carinogulus kochi, new species
Figures 26, 158, 159

MACROPTEROUS MALE: Basic coloration bright brownish orange; antennal segments 2, 3, and 4 (except as below), extreme apex of corium, cuneus, cell of membrane, and genital capsule castaneous; membrane smoky brown; distal end of antennal segment 1, bases of antennal segments 3 and 4, ostiolar peritreme, and incomplete transverse maculae on clavus and corium white (Fig. 26); hemelytral maculae outlined in castaneous; metacoxae and metatrochanters light; all tarsi lighter than tibiae.

Surface texture, vestiture, and structure as in *C. varii* except vertex weakly convex and without distinct longitudinal sulcus.

MEASUREMENTS: Total length 4.48, greatest width ?, length head .46, width head .86, interocular space .32, median length pronotum .72, width pronotum 1.18, length scutellum .60, width scutellum .80, length corium 2.00, length clavus 1.66, length cuneus .62, width cuneus .38, length claval commissure .96, distance apex commissure-apex membrane 1.70, length metatibia 2.10; length antennal segments 1—.34, 2—1.14, 3—.76, 4—.54; length labial segments 1—.36, 2—.48, 3—?, 4—?.

MALE GENITALIA: Figures 158, 159.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Alexandersbay, 9.XII.48, Koch/Son (TM).

See discussion under *C. varii*.

Carinogulus transvaalensis, new species
Figures 147–150

MACROPTEROUS MALE: Very similar in coloration and structure to *C. hobohmi*; basic color deep castaneous, legs somewhat lighter than body; antennal segments 1 and 2 light brown, segment 2 cream on distal half; protarsi and mesotarsi light (metatarsi missing in holotype), contrasting with dark tibiae; anterior half of clavus dull as in *hobohmi* but unicolorous with remainder of hemelytra; corium and clavus with complete white transverse fascia situated at level

of anterior third of claval commissure, slightly wider laterally than mesially, not reaching lateral corial margin (only anterior half of left hemelytron present in holotype); metafemora club-like, slightly more swollen on distal half than in *hobohmi*; protibiae and mesotibiae with only a very few, short, semierect spines on ventral surfaces; metatibiae mutic.

MEASUREMENTS: Total length ?, maximum width ?, length head .48, width head .84, interocular space .36, length pronotum .80, width pronotum 1.08, length scutellum .48, width scutellum .60, length corium 1.80, length clavus 1.40, length cuneus ?, width cuneus ?, length claval commissure .84, distance apex commissure-apex membrane ?, length metatibia 1.72; length antennal segments 1—.24, 2—.92, 3—.60, 4—?; length labial segments 1—.36, 2—.32, 3—.36, 4—.42.

MALE GENITALIA: Figures 147–150.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Transvaal*, Blouberg, Leipsig Miss. Stat., 3–5.I.1955, Trans. Mus. Exp. (TM).

This species is named for its occurrence in the Transvaal.

Carinogulus transvaalensis can be recognized by its castaneous coloration and the complete white transverse fascia of nearly uniform width just anterior to the middle of the claval commissure (see also discussion under *C. hobohmi*).

Carinogulus varii, new species

Figures 154–157

MACROPTEROUS MALE: Generally castaneous, including antennae and legs, except as noted below (antennal segments 3 and 4 missing in holotype); incomplete transverse maculae on clavus and corium and ostiolar peritreme white; all tarsi and metacoxae light brown; membrane dark smoky brown with a white "halo" basally.

Median third of clavus and corium (anterior posterior orientation) dull, tomentose, remainder polished, shining; scutellum, clavus, and corium with a few long, fine, erect hairs.

Head weakly convex behind eyes, forming short neck about as long as diameter of antennal segment 2 and as wide as vertex between eyes; vertex slightly depressed between eyes and with distinct median longitudinal sulcus anteriorly; antennal segment 1 slightly enlarged, segment 2 tapering proximally, distal diameter about equal to diameter of segment 1, segments 3 and 4 subequal to distal diam-

eter of segment 2; labium slightly surpassing mesocoxae; posterior margin of pronotum straight across mesoscutum, convexly rounded laterally; metatarsal segments 1 and 2 subequal in length, segment 3 about 1½ times length of segment 2.

MEASUREMENTS: Total length 4.80, maximum width 1.04, length head .60, width head .92, interocular space .30, length pronotum .84, width pronotum 1.12, length scutellum .44, width scutellum .56, length corium 2.08, length clavus 1.60, length cuneus .60, width cuneus .40, length claval commissure .92, distance apex commissure-apex membrane 1.92, length metatibia 2.32; length antennal segments 1—.28, 2—1.40, 3—?, 4—?; length labial segments 1—.42, 2—.40, 3—.40, 4—.40.

MALE GENITALIA: Figures 154–157.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH WEST AFRICA: Farm DJAB, Rehoboth Dist., 7.V.1959, L. Vari (TM).

This species is named for the collector, Dr. L. Vari, Curator of Insects at the Transvaal Museum, Pretoria.

Carinogulus varii is most closely related to *C. kochi*. Both species have the head convex behind, have a few erect, long hairs on the scutellum and hemelytra, a somewhat irregular fascia, a short apical spine on the vesica, and a thumb-like projection on the phallotheca. *C. varii* is uniformly castaneous as opposed to *kochi* which is bright brownish orange. The eyes of *varii* are slightly larger and more protuberant than those of *kochi*, but without both species for comparison, this character is difficult to use (see also key to species of *Carinogulus*).

Formicopsella Poppius

Formicopsella Poppius, 1914a, pp. 42–43.

Formicopsella is closely related to *Sohenus* Distant from India and to *Myombea* and *Skukuza* from Africa, especially by the structure of the head. The genus can be recognized by the eyes being removed from the anterior margin of the pronotum by a distance nearly equal to the diameter of an eye, the antennae inserted at about the middle of the anterior margin of the eyes, and the absence of a spine on the scutellum. The pattern of coloration is very similar to all of the above mentioned genera and to *Pangania*, with a complete, transverse, hourglass-shaped, white fascia medially on the corium and a transverse white macula at the apex of the corium along the cuneal fracture.

Formicopsella regneri Poppius
Figures 38, 160–162

Formicopsella regneri Poppius, 1914a, p. 43.

As the only described species in the genus (see however *Skukuza zeugma*), *Formicopsella regneri* can be recognized by the characters noted in the generic discussion. Poppius (1914a) stated that the dorsum of *regneri* possessed only decumbent white hairs, whereas in fact the dorsum and genae have scattered, erect, white hairs about as long as the protibial diameter, in addition to the decumbent hairs. This omission by Poppius was apparently the result of the rubbed condition of the holotype. Poppius also noted that the labium reached almost to the "spitze" of the metacoxae. In specimens from South Africa the labium reaches the posterior margin of the mesosternum in macropterous males and is slighlty shorter in brachypterous females. Poppius may have experienced difficulty in determining the exact length of the labium relative to the body because the head is flexed forward in the card-mounted holotype.

Although *regneri* was described from a macropterous female, all female specimens known from South Africa are brachypterous. The general structure of the brachypterous forms is similar to that of the macropterous males and females except that the pronotum is less steeply inclined posteriorly and the hemelytra are undifferentiated and cover only about the basal third of the abdomen.

MEASUREMENTS: macropterous ♂—Total length 4.44, maximum width 1.24, width head .88, interocular space .40; brachypterous ♀—Total length 4.68, maximum width 1.00, width head .96, interocular space .54.

MALE GENITALIA: Figures 160–162.

The host of this arboreal species is *Acacia karroo* Hayne (see also discussion under *Pangania fasciatipennis*).

SPECIMENS EXAMINED: *Cape Province*—11 macropterous ♂♂, Kimberley, 17–18 Jan. 1968, UV light. *Natal*—2 brachypterous ♀♀, Estcourt; 1 macropterous ♂, Eshowe, 15 Nov. 1967; 1 macropterous ♂, Weenen, i.ii.1928 (Thomasset). *Transvaal*—1 brachypterous ♀, 1 nymph, Malips Drif, 8.12.65 (Hoffman); 1 macropterous ♂, Middelfontein near Nylstroom, XII-17-1953 (Capener); 5 nymphs (in alcohol), 1.7 mi. N. Mooketsi, 13 Dec. 1967; 2 macropterous ♂♂, Moorddrift, 12.1914 (Swierstra); 10 macropterous ♂♂, 14 brachypterous ♀♀ (in alcohol—4 macropterous ♂♂, 2 brachypterous ♀♀, 11 nymphs), Pienaarsriver Dam, 15 mi. NE Pretoria, 2 November 1967 (Adults and nymphs on *Acacia*

karroo Hayne) (SANC, TM, BM[NH], HM, JAS, RTS). TANZANIA—Daressalam, Pangani, 10-30-09 (Regner) (holotype) (HM).

Hallodapus Fieber

Hallodapus Fieber, 1858, p. 307—Odhiambo, 1959c, pp. 667–668.

Hallodapus can be characterized as follows—

Small, ant mimetic; males usually macropterous, females sometimes brachypterous; coloration variable, usually with complete or incomplete white transverse fascia on anterior half of hemelytra and white quadrate macula at lateral apex of corium; legs variable in color, never completely dark; vestiture of short decumbent or long erect hairs or a combination of the two types; vertex weakly longitudinally sulcate or not; eyes granular, with or without short, erect hairs, contiguous with anterior margin of pronotum, protuberant, slightly larger in males than females; antennae long, segment 1 slightly enlarged, segment 2 linear, slightly greater in diameter than segments 3 and 4, slightly less than segment 1; pronotal collar flat, wide; pronotum steeply inclined posteriorly in macropterous forms, only slightly inclined in brachypterous forms; hemelytra parallel sided, at most weakly sinuate laterally; membrane with two cells, smaller cell sometimes obsolete; tibiae occassionally with very long thin spines; parempodia hair-like, parallel; pulvilli minute.

MALE GENITALIA: Figures 163–177. Vesica usually very long, with several bends; phallotheca L-shaped, usually simple and tubular, sometimes with dorsal projection; left clasper trough-like; right clasper lanceolate.

FEMALE GENITALIA: Posterior wall a simple sclerotized plate.

Hallodapus is closely related to *Trichophthalmocapsus*, *Boopidella*, and *Laemocoris*. *Hallodapus transvaalensis*, described as new below, is particularly closely related to *Trichophthalmocapsus* and *Laemocoris* by virtue of its having a wing edge stridulatory mechanism (see discussion of structure under *Trichophthalmocapsus*), a character which is common to all known species of those genera. Other species of *Hallodapus* which have the wing edge stridule are: *H. descriminatus* (Distant), *H. maculatus* (Distant), *H. montandoni* (Reuter), *H. dispar* (Odhiambo), *H. poseidon* (Kirkaldy) and *H. rufescens* (Burmeister). The remaining species of *Hallodapus* do not have the wing edge stridulatory mechanism. The following species, however, have not been examined for the structure: *H. brunneus* (Poppius), *H. centrimaculatus* (Poppius), *H. indicus* Poppius, *H. persimilis* Poppius, *H. pumilis* Horvath, *H. ravenar* Poppius, and *H. sibiricus* Poppius. Kirkaldy

The males of *Hallodapus* are very similar to those of *Laemocoris*, except that in the latter genus the scutellum is usually swollen and forms a spine-like projection, and in the former the scutellum is nearly flat. The females of *Hallodapus* are usually brachypterous, the hemelytra being undifferentiated and covering about half of the abdomen; the pronotum is much less steeply inclined posteriorly than in the macropterous forms. The brachypterous females of *Laemocoris* usually have the pronotum strongly swollen.

Hallodapus is widespread in the Old World, occurring primarily in tropical regions. A single species has been recorded from the New World (Carvalho, 1958a); it is, however, not a species of *Hallodapus*, but belongs to the Bryocorinae, as I have confirmed by examination of the holotype of *Eritocoris albiceps* Lethierry in the Brussels Museum. *Eritocoris* is a junior synonym of *Hallodapus* and therefore *albiceps* will have to be placed in another existing genus or in a new genus. This action, however will have to await study of *albiceps* by a specialist of the Bryocorinae.

All species of *Hallodapus* for which field data are available are ground living. The males of all African species are known only from macropterous forms, but Southwood and Leston (1958) note that *H. rufescens* in Great Britain is generally brachypterous in both sexes.

List of species of *Hallodapus* from Africa

albofasciatus Motschulsky (*Leptomerocoris*), 1863, p. 86. Widely distributed in Africa and Orient.

* *chariensis* Odhiambo (*Trichophthalmocapsus*), see *albofasciatus* (Motschulsky) **New Synonymy.**

discoidalis Poppius (*Plagiorhamma*), 1914a, p. 56. Tanzania.

dispar Odhiambo (*Azizus*), 1959c, pp. 668–670. **New Combination.** Uganda.

pilosa Reuter (*Plagiorhamma*), 1882, p. 31. Guinea.

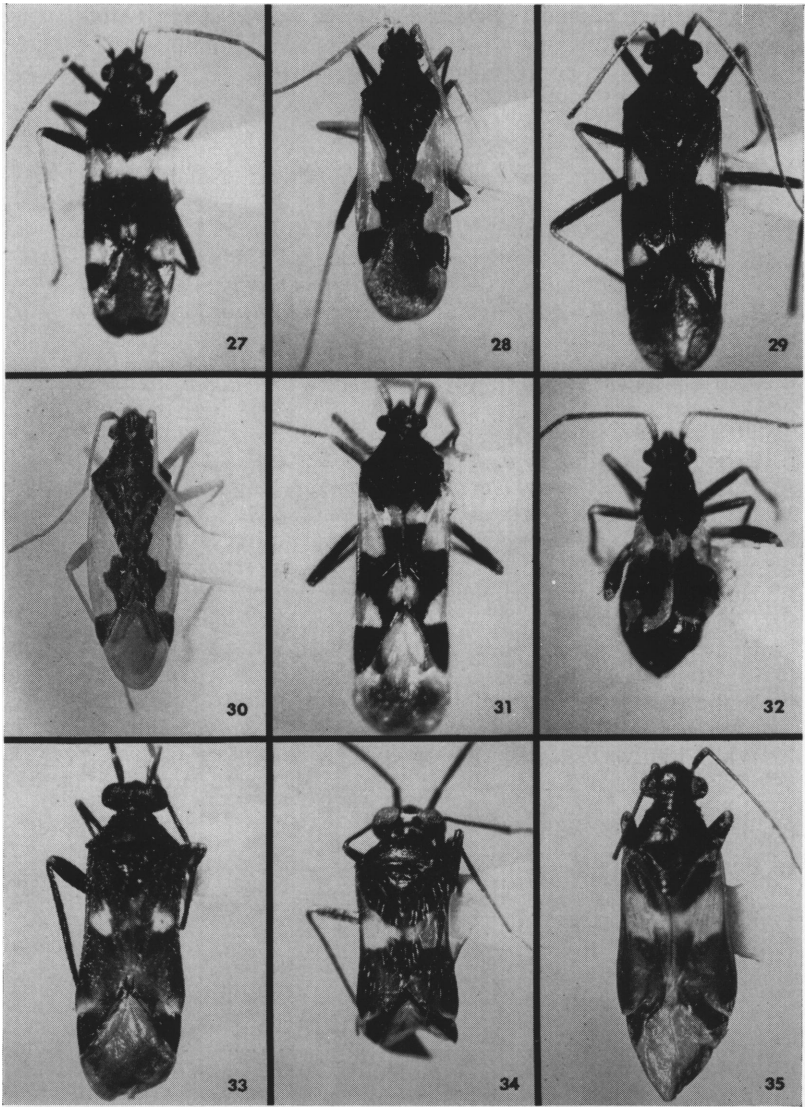
poseidon Kirkaldy (*Laemocoris*), 1902b, p. 315. Guinea.

pseudosimilis new species. South Africa: Transvaal.

quadrimaculatus new species. South Africa: Transvaal.

→

FIGS. 27–35. Hallodapini. Fig. 27. *Hallodapus albofasciatus*, male (Pretoria, Transvaal). Fig. 28. *Hallodapus pseudosimilis*, male, holotype. Fig. 29. *Hallodapus quadrimaculatus*, male, holotype. Fig. 30. *Hallodapus similis*, female (Pretoria, Transvaal). Fig. 31. *Hallo-*



dapus transvaalensis, male, holotype. Fig. 32. *Hallodapus transvaalensis*, female (5 mi N. Louis Trichardt, Transvaal). Fig. 33. *Trichopthalmocapsus australis*, male, holotype. Fig. 34. *Trichophthalmocapsus hessei*, male, holotype. Fig. 35. *Trichophthalmocapsus hessei*, female (Warmbad, South West Africa).

* *reuteri* Poppius (*Tyraquellus*), see *albofasciatus* (Motschulsky) **New Synonymy.**

similis Poppius (*Plagiorhamma*), 1914a, p. 55. East Africa; South Africa: Transvaal.

* *tenuis* Odhiambo (*Hallodapus*), see *albofasciatus* (Motschulsky) **New Synonymy.**

transvaalensis, new species. South Africa: Natal, Transvaal.

verticicus Odhiambo (*Hallodapus*), 1967, pp. 1671–1673. Central African Republic.

vittatus Odhiambo (*Trichophthalmocapsus*), 1959c, pp. 661, 663–664, 685. **New Combination.** Uganda; Abyssinia.

KEYS TO SOUTH AFRICAN SPECIES OF *Hallodapus*

Macropterous specimens

1. Exocorium entirely cream or white 2
   Exocorium not entirely cream or white 3
2. Metafemora entirely cream or white ..... *similis* (Fig. 30)
   Metafemora cream or white on proximal third, castaneous on distal two-thirds ..... *pseudosimilis* (Fig. 28)
3. Hemelytra without complete white transverse fascia ..... *quadrimaculatus* (Fig. 29)
   Hemelytra with complete white transverse fascia, femora not entirely castaneous 4
4. White transverse fascia of nearly uniform width ..... *albofasciatus* (Fig. 27)
   White transverse fascia wide on corium, narrow on clavus ..... *transvaalensis* (Fig. 31)

Brachypterous specimens

1. Posterior margins of hemelytra almost entirely white ..... *transvaalensis* (Fig. 32)
   Posterior margins of hemelytra almost entirely castaneous ..... *albofasciatus*

Hallodapus albofasciatus (Motschulsky)

Figures 27, 163–165

Leptomerocoris albofasicatus Motschulsky, 1863, p. 86.
Tyraquellus reuteri Poppius, 1914a, pp. 51–52. **New Synonymy.**
Hallodapus tenuis Odhiambo, 1959c, pp. 664–668, 685. **New Synonymy.**
Trichophthalmocapsus chariensis Odhiambo, 1967, pp. 1678–1681. **New Synonymy.**

Hallodapus albofasciatus in South Africa can be recognized by the long, light colored, nearly erect pubescence on the dorsum, the

conspicuous erect hairs on the eyes, the yellow antennae (except the proximal half of segment 1 which is brown), the yellow tibiae, the light colored mesocoxae and metacoxae and proximal third of the mesofemora and metafemora, the complete, broad, "jagged-edged," white, transverse hemelytral fascia, and the more or less quadrangular macula on the corium at the cuneal fracture.

MALE GENITALIA: Figures 163–165.

H. albofasciatus differs from *H. similis* and *H. pseudosimilis* in that the exocorium is not entirely light and the eyes are hairy, from *transvaalensis* in that the transverse fascia of the hemelytra is nearly uniformly broad whereas in *transvaalensis* it is broad on the corium and narrow on the clavus, and from *quadrimaculatus* which does not have a complete transverse fascia and has only short decumbent pubescence dorsally.

Hallodapus albofasciatus has been recorded previously from Ceylon, Java, and Madagascar (Carvalho, 1958a). Comparison of specimens from Southeast Asia and northern and southern Africa indicates that indeed only a single very widespread species is involved. Study of specimens in the British Museum (Natural History) identified by Linnavuori as *Hallodapus reuteri* (Poppius), and of the original description of *reuteri*, indicates that it is synonymous with *albofasciatus* and by priority must bear the latter name. Examination of the holotype of *Trichophthalmocapsus chariensis* Odhiambo in the Paris Museum indicates that it is also synonymous with *albofasciatus* and must bear the latter name by priority. *Hallodapus scotti* (China) from Rodriguez Island, is very similar to *albofasciatus* and its distribution would support the contention that the 2 may be synonymous. This species is at present known only from a brachypterous female, and therefore a decision on formal synonymy will have to await comparison of the genitalia when males become available. Also, examination of the holotype of *Hallodapus tenuis* Odhiambo in the British Museum (Natural History) reveals that this species is a synonym of *albofasciatus* and must bear the latter name by priority.

The type specimen of *Hallodapus albofasciatus* was recorded as destroyed by Bergroth (1917), and therefore it seems desirable to designate a neotype. Distant (1904c) recorded this species from Ceylon as *Tyraquellus albofasciatus*. The specimens examined by Distant agree substantially with the original description of Motschulsky (1863) and are from Ceylon. I have selected a male as the neotype. It bears the following labels: "Ceylon (Green)";

"Distant Coll. 1911–383"; and "NEOTYPE *Leptomerocoris albofasciatus* Motschulsky, det. R. T. Schuh". It is deposited in the British Museum (Natural History).

Hallodapus albofasciatus is ground living. Two specimens from 15 mi. NE of Machododorp, Transvaal, were taken under *Acanthospermum australe* (Loefl.) Kuntze (Compositae).

SPECIMENS EXAMINED: *Natal*—1 macropterous ♂, P. Town; 1 macropterous ♂, St. Lucia Estuary, 14 Nov. 1967. *Orange Free State*—1 macropterous ♂, Emmaus. *Transvaal*—1 macropterous ♀, 10 mi. E. Machododorp, 30 Nov. 1967, at light; 1 macropterous ♂, 1 macropterous ♀, 1 brachypterous ♀, 15 mi. NE Machadodorp, 4500 ft. elevation, 26–27 Mar. 1968; 1 macropterous ♀, Lyttleton, 12 Jan. 1968, UV light; 1 macropterous ♂, Pretoria, 2 Nov. 1967, at light; 1 macropterous ♂, Pretoria, 14.1.06; 1 macropterous ♂, Pretoria, 18.1.06; 1 macropterous ♂, Pretoria, 23.I.07 (Janze); 1 macropterous ♂, South Africa, B.M. 1926–40 (SANC, TM, BM[NH], JAS, RTS).

Hallodapus pseudosimilis, new species
Figures 28, 166–168

Hallodapus similis Carvalho, Dutra, and Becker, 1960 (*nec* Poppius), pp. 454–455.

MACROPTEROUS MALE: Elongate, nearly parallel sided; head, pronotum, and scutellum nearly black; proximal third of antennal segment 1, distal half of metafemora, most of clavus, inner apical portion of corium, cuneus, and thoracic pleura castaneous; exocorium, anterior half of endocorium, and anterior half of lateral claval margin white; membrane generally smoky brown, white at apex of cuneus; all coxae, femora (except as above), and tibiae, ostiolar peritreme, and labium cream; tarsi cream proximally, brown distally; abdomen brownish basally, grading to castaneous apically.

Body surface dull; dorsum, particularly head, pronotum, and scutellum, with scattered, decumbent, short, sericeous hairs and moderately long, semierect, shining hairs; inner surface of antennal segment 1 with a few, erect, fine spines about the length of segmental diameter; antennal segments 2, 3, and 4 with very short, apppressed, shining pubescence; abdominal venter with reclining light hairs; femora with decumbent hairs and very slender long hairs ventrally.

Frons strongly convex; vertex broad, nearly flat, not sulcate, posterior margin slightly concave and with very fine, raised carina;

eyes protuberant, contiguous with anterior margin of pronotum, not reaching gula; clypeus visible from above; antennae inserted just above ventral margin of eyes; fossae slightly removed from eyes; antennal segment 1 only slightly enlarged, segment 2 of slightly greater diameter distally than proximally, segments 3 and 4 about two-thirds diameter of segment 2; pronotum elevated posteriorly, lateral margins very shallowly concave, posterior margin weakly sinuate, calli indistinct; mesoscutum exposed, elevated above hemelytra, inclined anteriorly, separated from scutellum by a distinct transverse impression; scutellum convex; hemelytra nearly parallel sided; membrane with only one visible cell, inner vein nearly parallel to mesial margin of cuneus; cuneus inset from corial margin by distance equal to about diameter of antennal segment 1; cuneal fracture slightly angled anteromedially; abdomen just surpassing base of cuneus; tibiae with a few semierect, light spines about as long as tibial diameter; metatarsal segment 1 about half length of segment 2, segment 2 subequal in length to segment 3.

MEASUREMENTS: Total length 3.20, maximum width 1.04, length head .26, width head .48, interocular space .23, length pronotum .34, width pronotum .90, length scutellum .50, width scutellum .64, length corium 1.48, length clavus 1.08, length cuneus .42, width cuneus .26, length claval commissure .58, distance apex commissure-apex membrane 1.46, length metatibia 1.44; length antennal segments 1—.30, 2—.84, 3—.78, 4—.48; length labial segments 1—.32, 2—.32, 3—.26, 4—.38.

MALE GENITALIA: Figures 166–168.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Transvaal*, 30 Nov. 1967, 10 mi. E. Machadodorp, J. A. & S. Slater, T. Schuh, at light (SANC).

PARATYPES: *Transvaal*—1 macropterous ♂, Lyttelton, 18 Dec. 1967, at light; 1 macropterous ♂, *idem*, 22 Dec. 1967, UV light; 2 macropterous ♂♂, *idem*, 27 Dec. 1967, UV light; 1 macropterous ♂, Waterkloof Ridge, Pretoria, 9.4.54, at light in evening (Rudebeck); 1 macropterous ♂, Pretoria, 10.XI.1957 (Vari); 1 macropterous ♂, *idem*, 23.12.1959, light trap (Neubecker); 1 macropterous ♂, *idem*, 6 Nov. 1967, at light; 3 macropterous ♂♂, *idem*, 7 Nov. 1967, at light (SANC, TM, LU, JAS, RTS).

This species is named for its similarity to *Hallodapus similis*. See discussion under *H. similis*.

No biological information is available for this species. All known

specimens are from the highveld of the Transvaal and were taken at lights.

Hallodapus quadrimaculatus, new species
Figures 29, 169–171

MACROPTEROUS MALE: Elongate, parallel sided; basic coloration black or brownish black; antennal segment 1 proximally, labial segments 1 and 2, prothoracic and mesothoracic pleura, procoxae and mesocoxae, all femora, and all of tarsal segment 3 castaneous; quadrate maculae on anterior half of corium and at apex of corium, white; distal two-thirds of antennal segment 1, antennal segments 2, 3, and 4, metacoxae, all tibiae, and all tarsal segments 1 and 2 yellowish or light brown; labial segments 3 and 4 brown; membrane generally smoky brown; cells of membrane somewhat darker than surrounding membrane.

Abdominal venter polished, shining, remainder of body finely granulose, dull; dorsum with short decumbent light hairs; antennal segment 1 with light, very fine, erect spine on interior surface, segments 2, 3, and 4 with very short, fine, decumbent pubescence; abdominal venter with short, reclining, shining hairs; femora with very fine, short, appressed hairs and some long erect hairs on ventral surface; tibiae with very fine decumbent pubescence, a few short semierect spines no longer than tibial diameter, and longitudinal rows of tiny, closely spaced spines.

Head declivent; eyes moderately large, protuberant, leaving genae exposed ventrally; vertex flattened, not sulcate, posterior margin with fine raised carina; antennal segment 1 moderately enlarged, segment 2 about two-thirds diameter of segment 1, segments 3 and 4 subequal in diameter, of slightly smaller diameter than segment 2; bucculae weakly developed; gula short; labial segment 1 reaching onto prosternum, labium reaching apex of metacoxae; pronotal collar almost as wide as diameter of antennal segment 1; calli obsolete; pronotum with lateral margins shallowly concave, posterior margin sinuate, shallowly concave across mesoscutum; mesoscutum exposed, raised, inclined anteriorly, separated from scutellum by distinct transverse impression; scutellum convex; cuneal incisure obsolete, cuneal fracture angled slightly anteromedially; membrane with 2 cells, vein demarcating smaller cell obscure; abdomen reaching middle of cuneus; metatarsal segment 1 half length of segment 2, segment 2, subequal in length to segment 3.

MEASUREMENTS: Total length 3.72, maximum width 1.12, length head .28, width head .65, interocular space .24, length pronotum .38, width pronotum 1.02, length scutellum .62, width scutellum .80, length corium 1.80, length clavus 1.38, length cuneus .62, width cuneus .26, length claval commissure .72, distance apex commissure-apex membrane 1.60, length metatibia 1.90; length antennal segments 1—.32, 2—1.04, 3—.98, 4—.72; length labial segments 1—.40, 2—.40, 3—.40, 4—.40.

MALE GENITALIA: Figures 169–171.

MACROPTEROUS FEMALE: Very similar to male.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Transvaal*, Pretoria, 4 Dec. 1967, J. A. & S. Slater, T. Schuh, at light (SANC).

PARATYPES: *Transvaal*—1 macropterous ♂, Pretoria, 10.XI. 1957 (Vari); 2 macropterous ♂♂, Pretoria, 6 Nov. 1967, at light; 11 macropterous ♂♂, 3 macropterous ♀♀, Pretoria, 7 Nov. 1967, at light; 1 macropterous ♂, Pretoria, 23 Nov. 1967, at light; 2 macropterous ♂♂, 1 macropterous ♀, Pretoria, 26 Dec. 1967, at light (Sweet); 1 macropterous ♂, Lyttleton, 27 Dec. 1967, UV light (SANC, TM, HM, JAS, RTS).

This species is named for its possession of four quadrate maculae on the hemelytra.

Hallodapus quadrimaculatus is the only South African species of the genus that has only short decumbent dorsal pubescence and four quadrate hemelytral maculae. It is probably most closely related to *Hallodapus poseidon* but is larger and has the procoxae and mesocoxae completely castaneous whereas they are almost totally light brown or cream in *poseidon*.

H. quadrimaculatus is known only from Pretoria and all specimens are from lights.

A macropterous female from Warmbaths, Transvaal, deposited in the J. A. Slater Collection, resembles *quadrimaculatus* in general coloration, but has long erect as well as short appressed dorsal pubescence. Two brachypterous females from Oliviershoek Pass Summit, Natal, deposited in the J. A. Slater Collection, resemble the above specimen closely in pattern of coloration and vestiture and may be conspecific with it. A macropterous female from Satara Camp, Kruger National Park, Transvaal, deposited in the J. A. Slater Collection, has a color pattern similar to *quadrimaculatus* but the white maculae on the anterior half of the corium extend slightly onto the clavus; the dorsal vestiture is composed only of long erect hairs.

Hallodapus similis (Poppius)
Figures 30, 172–174

Plagiorhamma similis Poppius, 1914a, p. 55.
Hallodapus similis Odhiambo, 1959c, p. 667.

Hallodapus similis is one of four species of *Hallodapus* in Africa which has the exocorium entirely white; *H. suturalis* (Fieber) (incorrectly attributed to Herrich-Schaeffer by Carvalho, 1958a), from the Palearctic, is the only other species in the genus with this pattern of coloration. *H. similis* can be separated from *H. pseudosimilis*, the only other South African species of *Hallodapus* with a completely white exocorium, by virtue of its having completely white metathoracic pleura and metafemora whereas *pseudosimilis* has the metafemora castaneous distally and white proximally and has the metathoracic pleura castaneous.

Although *similis* and *pseudosimilis* appear to be very closely related on general facies, the structure of the male genitalia in the two species is quite different. The phallotheca in *similis* (Fig. 173) has a dorsal projection similar to the type found in *Pangania fasciatipennis*; this structure is not found in any other known species of *Hallodapus* for which the male genitalia have been examined. The phallotheca of *pseudosimilis* (Fig. 168) is similar to that found in *H. transvaalensis* and *H. albofasciatus*. The vesica of *similis* (Fig. 172) is twisted and S-shaped, whereas in *pseudosimilis* the vesica is bent in a more complex fashion (Fig. 166), much like it is in *transvaalensis* and *quadrimaculatus*. This complex genitalic picture points up the need for much further study of the phyletic relationships within the Hallodapini.

No biological or ecological data are available for this species. It is known only from Pretoria and is sympatric with *pseudosimilis*.

SPECIMENS EXAMINED: *Transvaal*—1 macropterous ♀, Pretoria, 10.XI.1957 (Vari); 4 macropterous ♀♀, Pretoria, 7 Nov. 1967, at light; 1 macropterous ♂, 1 macropterous ♀, Pretoria, 4 Dec. 1967, at light (SANC, TM, RTS).

Hallodapus transvaalensis, new species
Figures 31–32, 175–177

MACROPTEROUS MALE: Very elongate, parallel sided; basic coloration castaneous; anterior half of corium, except extreme base, transverse fascia on clavus, quadrate macula at apex of corium, round macula between apex of claval commissure and base of mem-

brane, distal four-fifths of antennal segment 1, ostiolar peritreme, distal four-fifths of procoxae and mesocoxae, entire metacoxae, and proximal third of metafemora white; proximal fifth of antennal segment 1, distal two-thirds of metafemora, and abdomen castaneous; thoracic pleura and venter dark brown to black; labial segment 1 and proximal fifth of procoxae and mesocoxae reddish; antennal segments 2, 3, and 4, labial segments 2, 3, and 4, profemora and mesofemora, all tibiae, and all tarsal segments light brown; apical two-fifths of membrane and apices of cells smoky brown, remainder of membrane almost white.

Head pronotum, scutellum, and thoracic pleura finely granular, dull; hemelytra smooth, dull to weakly shining; abdominal venter polished, shining; entire dorsum with numerous, very long, erect or semierect, sericeous hairs; antennal segment 1 with a few long, semierect, slender spines on interior surface, all segments with rather dense vestiture of reclining light hairs of length about equal to diameter of segment on which they occur; abdomen with numerous, long, semierect, light hairs; all femora and tibiae with short, decumbent, light hairs and long, fine, light, spine-like hairs (many about twice the length of tibial diameter of leg on which they occur); eyes with short hairs.

Head declivent; eyes protuberant; vertex broad, posterior margin with fine raised carina; vertex and frons convex; clypeus visible from above, compressed laterally; antennae inserted just below middle of anterior margin of eyes; antennal segment 1 only slightly enlarged, segment 2 about two-thirds diameter of segment 1, segments 3 and 4 of slightly smaller diameter than segment 2; bucculae weakly developed; gula short; labial segment 1 reaching onto prosternum, labium reaching onto anterior third of abdomen; pronotum steeply inclined, posterior and lateral margins nearly straight; calli obsolete; mesoscutum exposed, elevated, separated laterally from scutellum by distinct impression, impression obsolete medially; scutellum weakly convex; hemelytra parallel sided, lateral margins with obscure finely serrate stridulitrum; cuneal incisure obsolete, cuneal fracture perpendicular to lateral corial margin; membrane with two distinct cells, inner vein nearly parallel to mesial margin of cuneus; abdomen not quite reaching apex or corium; legs moderately long; inner surface of metafemora glabrous, with coarse granular texture (stridulatory plectrum); all tibiae with longitudinal rows of tiny, closely spaced spines; metatarsal segment 1 about half length segment 2, segment 2 subequal in length to segment 3.

MEASUREMENTS: Total length 3.64, maximum width 1.04, length head .24, width head .54, interocular space .26, length pronotum .38, width pronotum .94, length scutellum .50, width scutellum .64, length corium 1.68, length clavus 1.30, length cuneus .54, width cuneus .26, length claval commissure .66, distance apex commissure-apex membrane 1.72, length metatibia 1.60; length antennal segments 1—.32, 2—1.10, 3—.80, 4—?; length labial segments 1—.34, 2—.36, 3—.30, 4—.40.

MALE GENITALIA: Figures 175–177.

BRACHYPTEROUS FEMALE: Basic coloration, body surface texture, and vestiture as in macropterous male (Fig. 32).

Head very similar in structure to male, eyes somewhat smaller; antennae inserted slightly above ventral margin of eyes, fossae removed from inner margin of eyes by distance equal to about diameter of antennal segment 2; pronotum only slightly inclined posteriorly, lateral margins sinuate, posterior margin deeply excavated medially; mesoscutum and scutellum nearly flat; hemelytra undifferentiated, reaching just posterior to middle of abdomen, lateral margins nearly straight, posterior margins evenly rounded; abdomen greatly enlarged in gravid females, pointed apically.

MEASUREMENTS: Total length 3.20, maximum width 1.12, width head .58, interocular space .28.

FEMALE GENITALIA: Posterior wall a simple sclerotized plate.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Transvaal*, Zoutpansberg, 4500 ft., 5 mi. N. Louis Trichardt, 8 May 1968, T. Schuh, J. A. & S. Slater, M. Sweet (SANC).

PARATYPES: *Natal*—2 brachypterous ♀♀, 5 mi. N. Umkomaas, 17 Apr. 1968. *Transvaal*—1 macropterous ♂, 1 brachypterous ♀, Barberton, 3000 ft., 22–23 Mar. 1968; 1 macropterous ♂, Lyttelton, 27 Feb. 1968, UV light; 1 macropterous ♂, 20 mi. NE Machadodorp, Schoemannskloof, 4300 ft., 22 Mar. 1968; 1 macropterous ♂, Pretoria, 10.3.07 (Janse); 1 macropterous ♂, Pretoria, 17.I.1951 (Vari); 3 macropterous ♂♂, 1 macropterous ♀, 11 brachypterous ♀♀, same data as holotype; 2 macropterous ♂♂, South Africa, BM, 1926–40 (SANC, TM, BM[NH], JAS, RTS).

Hallodapus transvaalensis can be separated from all other described species of *Hallodapus* by its peculiar hemelytral fascia (Fig. 31). This is the only South African species of *Hallodapus* which possesses a stridulatory mechanism and the very long tibial spines.

H. transvaalensis is ground-living. The series of specimens from Louis Trichardt was taken from a dry grassy area along a roadside.

NOTES ON EXTRALIMITAL SPECIES

Hallodapus dispar (Odhiambo), new combination

Azizus dispar Odhiambo, 1959c, pp. 668–670.

This species was described in the genus *Azizus* from Uganda. The presence of well demarcated contrasting hemelytral maculae, the absence of the erect peg-like hairs which are characteristic of other *Azizus* species, the absence of extreme sexual dimorphism of the eyes, and the presence of a wing edge stridulatory mechanism, militate against placement of *dispar* in *Azizus*, but argue rather for placement in *Hallodapus*. Careful study of the *Hallodapus* complex of genera may reveal that *dispar* will need to be placed in a new genus.

Hallodapus poseidon (Kirkaldy)

Laemocoris poseidon Kirkaldy, 1902b, p. 315.

Poppius (1914a) synonymized *Allodapus aethiopicus* Reuter with *Laemocoris* (= *Hallodapus*) *poseidon* Kirkaldy. The holotype of *H. poseidon* from Addah (Ghana) is in the Helsinki Museum (Type No. 11866). Also what is probably the type of *H. aethiopicus*, from Pemba Island, is in the Helsinki Museum (Type No. 12071). The latter specimen is missing the head and pronotum but from what is available the specimen does not appear to be conspecific with *poseidon*. Confirmation of this, however, will have to await a revision of *Hallodapus*.

Hallodapus vittatus (Odhiambo), new combination

Trichophthalmocapsus vittatus Odhiambo, 1959c, pp. 661–664, 685.

This species was described in *Trichophthalmocapsus* but cannot be satisfactorily placed there because it does not have a wing edge stridulatory mechanism, lacks the very long spines on the tibiae, and has a nearly straight lateral corial margin. I am tentatively placing *vittatus* in *Hallodapus* even though it may deserve placement in a separate genus, but this cannot be determined without a revision of the *Hallodapus* complex of genera.

Laemocoris Reuter

Laemocoris Reuter, 1879, p. 183.

Laemocoris can be recognized by the possession of a *Hallodapus*-like facies, long erect hairs on the dorsum, a wing edge stridulatory

mechanism, strong sexual dimorphism, and a tumid scutellum which is usually spine-like in the males.

This genus is most diverse in the Mediterranean and Middle East, but it ranges through Africa and probably occurs in Southeast Asia (Carvalho, 1958a). *Laemocoris* presently includes about 11 described species. The fauna from the Middle East has been reviewed by Linnavuori (1964).

Only a single brachypterous female of an unidentified *Laemocoris* species is known from South Africa. It bears the following data and is placed in the J. A. Slater Collection: "S. Africa: Cape Prov., Cape Point Nat. Res., 22 Jan. 1968, J.A.&S. Slater, T. Schuh, M.H. Sweet."

Myombea China and Carvalho

Myombea China and Carvalho, 1951, pp. 1120–1123.

Myombea can be characterized by its similarity to *Formicopsella*. The head is strongly rounded and "necked" behind with the eyes removed from the anterior margin of the pronotum by a distance nearly equal to the diameter of an eye, the second antennal segment is flattened, the lateral margins of the hemelytra are distinctly sinuate, and the scutellum forms a fine, somewhat posteriorly directed spine. The pronotum is much more strongly narrowed and neck-like in *Myombea* than in *Formicopsella*, approaching the condition found in *Malgacheocoris* Carvalho from Madagascar. *Aspidacanthus* from Senegal and Turkestan also has a scutellar spine as in *Myombea*.

A single species is known from East and southern Africa.

Myombea bathycephala China and Carvalho

Myombea bathycephala China and Carvalho, 1951, pp. 1120–1123.

Myombea bathycephala was originally described from the Myombe River, Tanzania. A macropterous male bearing the following data, deposited in the British Museum (Natural History), is available from South Africa: "Port Shepstone, 5.97." China and Carvalho (1951) illustrated the male genitalia of this species.

Pangania Poppius

Pangania Poppius, 1914a, pp. 47–48.

Although ant mimetic in general appearance and behavior, *Pangania* does not show the great degree of morphological modification

of the head as found in *Skukuza*, *Formicopsella*, and *Myombea*. The tumid pronotum, sinuate lateral corial margin, and hemelytral coloration give *Pangania* its ant-like appearance. These features, combined with the very short, appressed pubescence found over nearly the entire body surface, the short, vertical head, the very short gula, the eyes almost touching the anterior pronotal margin, and the form of the phallotheca (Fig. 180), characterize the genus.

LIST OF SPECIES OF *Pangania*

bendera Odhiambo (*Pangania*), 1967, pp. 1676–1678. Mozambique.

chnous Odhiambo (*Systellonotopsis*), 1963, pp. 112–113. **New Combination.** Tanganyika.

fasciatipennis Poppius (*Pangania*), 1914a, p. 48. East Africa; South Africa.

venusta Odhiambo (*Pangania*), 1959c, pp. 657–659, 684–685. Tanzania.

Pangania fasciatipennis Poppius

Figures 39, 178–181

Pangania fasciatipennis Poppius, 1914a, p. 48.—Carvalho, Dutra, and Becker, 1960, p. 455.

Pangania fasciatipennis is the only species in the genus known from South Africa and therefore can be recognized by the characters given in the generic diagnosis. I collected this arboreal mirid in large numbers at Pienaarsriver Dam, near Pretoria, on *Acacia karroo* Hayne (Leguminosae); *Formicopsella regneri* was found on the same plants, but in somewhat smaller numbers than *fasciatipennis*. The mirids were living in association with two species of ants, *Anoplolepis custodiens* (F. Smith) and *Camponotus* sp., and resembled them very closely. No brachypterous specimens are known for *fasciatipennis*, whereas *regneri* females from South Africa are known only in the short winged form. The brachypterous specimens are superior ant mimics over those that are macropterous. E. Bedford (unpublished) notes that *Pangania fasciatipennis* "associates with the pugnacious ant *Anoplolepis custodiens* nymphs of all sizes and adults live peacefully with ants in holes in the crotches of orange trees."

MEASUREMENTS: Macropterous ♂—Total length 5.04, maximum width 1.56.

MALE GENITALIA: Figures 178–181.

I have designated as the lectotype of *fasciatipennis* a male speci-

men in the Helsinki Museum (Type No. 11858). It bears the labels "D.O. Afrika, Daressalam, Pangani u. hinterland, R. Regner L. G., jr. no. 10.30/09", "*Pangania fasciatipennis* n. gen. et sp. B. Poppius det.", and "LECTOTYPE *Pangania fasciatipennis* Poppius, det. R.T. Schuh."

Comparison of *P. fasciatipennis* with the holotypes of *P. venusta* Odhiambo and *P. bendera* Odhiambo indicates that these forms are very closely related and extremely difficult to distinguish from one another. I am regarding the status of *bendera* and *venusta* as questionable, but the validity of these species cannot be determined with certainity until further material is available (see also discussion under *P. chnous*).

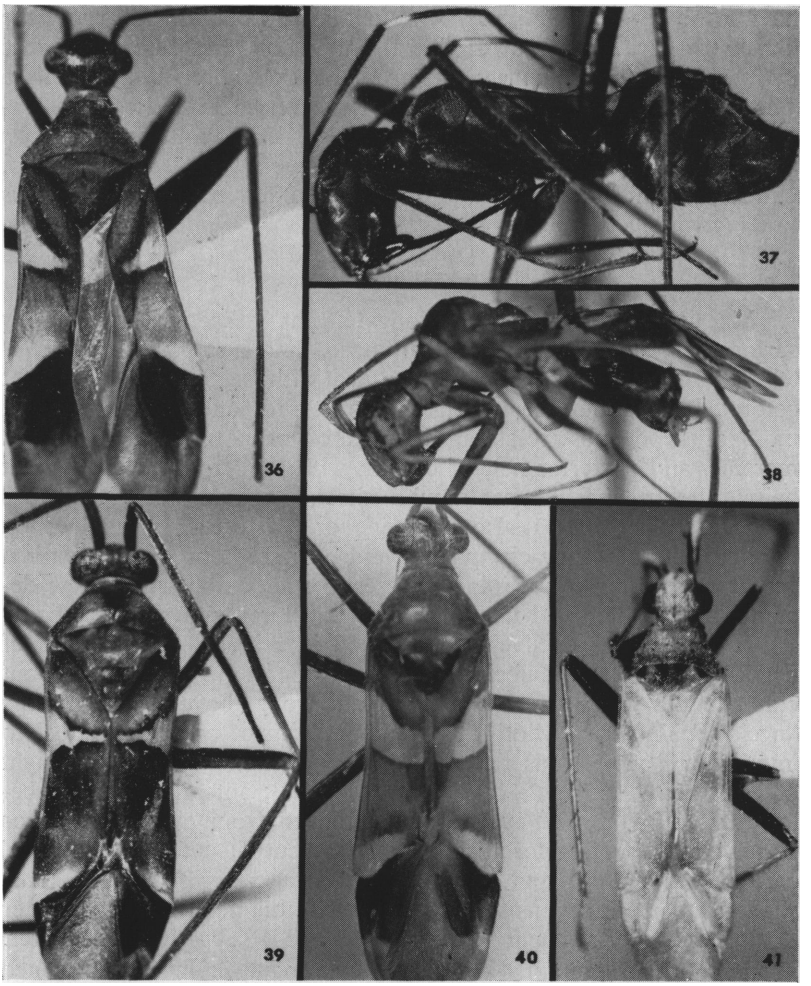
SPECIMENS EXAMINED: All specimens macropterous. *Cape Province*—1 ♂, Kimberley (Bro. Power); 1 ♂, Kimberley, 17–18 Jan. 1968, UV light; 1♂, Nooitgedacht, 23-10-1959, light trap (Krosing). *Natal*—1 ♀, Durban, 1902 (Muir); 2 ♀♀, Estcourt, 11-96; 1 ♀, Ngwabeni, Zululand, III.20-51 (Capener); 1 ♂, 3 ♀♀, Port Shepstone, 5.97; 1 ♀, Weenen, 14-3-97; 1 ♀, Weenen, XII. 1927 (Thomasset). *Transvaal*—1 ♀, Johannesburg, V-17-50 (Capener); 1 ♀, Johannesburg, Rivonia, XII.26.1951 (Capener); 1 ♀, Kruger Nat. Park, Skukuza, 29.IV.51 (Brinck and Rudebeck); 1 ♂, Skukuza, 23.III.1952 (Janse and Vari); 1 ♀, Letaba, 19-5-1947 (Bedford); 1 ♂, Lyttelton, 26 Feb. 1968, UV light; 8 nymphs (in alcohol), 15 mi. NE Machadodorp, 4500 ft. elevation, 26–27 Mar. 1968; 1 ♂, 1 ♀, Middlefontein near Nylstroom, XII-17-1953 (Capener); 2 ♂♂, 3 ♀♀, Pienaarspoort, 19.2.64 (Capener); 8 ♂♂, 28 ♀♀ (in alcohol—2 ♂♂, 13 ♀♀, 19 nymphs), Pienaarsriver Dam, 15 mi. NE Pretoria, 2 Nov. 1967 (Adults and nymphs on *Acacia karroo* Hayne); 1 ♀, Pretoria, 22-12-1951 (Capener); 16 ♂♂, 3 ♀♀, Rustenburg, XII-4-1950, XII-26-1951, III-22-1953, I-4-11-1957 (Capener); 1 ♀, Tzaneen, 11–16 Dec. 1963 (Capener); 1 ♀, Warmbaths, 4 Feb. 1964 (Capener). TANZANIA: 1 ♂, data as above (lectotype) (SANC, TM, BM[NH], HM, USNM, JAS, RTS).

NOTES ON EXTRALIMITAL SPECIES

Pangania chnous (Odhiambo), new combination

Systellonotopsis chnous Odhiambo, 1963, pp. 112–113.

Originally described in *Systellonotopsis*, this species is certainly very closely related to *Pangania fasciatipennis*. The most obvious difference between *chnous* and *fasciatipennis* is the coloration, *chnous*



FIGS. 36–41. Hallodapini. Fig. 36. *Skukuza slateri*, male, holotype. Fig. 37. *Skukuza slateri*, female (3 mi. E. Satara Camp, Kruger National Park, Transvaal). Fig. 38. *Formicopsella regneri*, male (Pienaarsriver Dam, Pretoria, Transvaal). Fig. 39. *Pangania fasciatipennis*, male (Pienaarsriver Dam, Pretoria, Transvaal). Fig. 40. *Systellonotus brincki*, male, holotype. Fig. 41. *Trichophorella australis*, male, holotype.

having the head, pronotum, and scutellum bright orange red and the hemelytra dark gray brown with a white transverse fascia, whereas in *fasciatipennis* the entire dorsum is basically light brown with a white hemelytral fascia. The form of the vesica in *chnous* and *fasciatipennis* is very similar, but apparently the phallotheca in *chnous* lacks the dorsal projection found in *fasciatipennis* (Odhiambo, 1963). On the basis of these characters I am transferring *chnous* to *Pangania.*

Skukuza, new genus

MACROPTEROUS MALE: Elongate, ant mimetic; entire body surface very finely granulose or pruinose, dull; head, pronotum, scutellum, and anterior half of hemelytra with scattered, erect, light colored hairs about the length of diameter of antennal segment 1; most of head, posterolateral margins of pronotum, lateral corial margins, and posterior half of corium with scattered, reclining, light hairs; all antennal segments with short, semiappressed, sericeous pubescence, segment 1 also with one or two erect, fine spines on interior surface; thoracic pleura and venter glabrous; abdominal venter with elongate reclining pubescence; all coxae with a few decumbent light hairs; all femora, tibiae, and tarsi with reclining hairs.

Head strongly declivent; eyes small in relation to total size of head, removed from anterior margin of pronotum by distance about equal to the width of an eye measured from above; head forming "neck" behind eyes, width at anterior margin of pronotum equal to interocular space; frons flattened; ratio of length of head to height of head about 3:5; gula long, nearly vertical; antennae inserted below ventral margin of eyes, fossae removed from eyes by distance about equal to diameter of antennal segment 1, with low, rounded carina between eye and antennal fossa; antennal segment 1 only slightly enlarged, segment 2 tapered, distal diameter slightly greater than diameter of segment 1, segments 3 and 4 subequal in diameter, about equal to proximal diameter of segment 2; labrum flattened laterally, crescentic; pronotum roughly triangular in dorsal aspect with flattened collar of width about equal to diameter of protibia; pronotum evenly and steeply inclined posteriorly, posterior lobe transversely convex; mesoscutum and scutellum separated by an indistinct transverse impression; scutellum flattened, weakly convex; lateral margins of hemelytra sinuate, narrowest at level of midpoint of claval commissure; cuneal incisure very shallow, cuneal fracture strongly angled anteromedially; membrane with two cells; abdomen constricted basally; all tibiae with light erect spines about

length of tibial diameter, mostly on ventral surfaces, and rows of tiny, closely spaced spines; tarsal claws moderately long, evenly curved, broad basally; parempodia hair-like, parallel; pulvilli small.

MALE GENITALIA: Figures 182–184.

BRACHYPTEROUS FEMALE: See *S. slateri* below.

FEMALE GENITALIA: Posterior wall a simple sclerotized plate.

TYPE SPECIES: *Skukuza slateri*, new species.

This genus is named for Skukuza, a locality in the Kruger National Park, near which several specimens of the genus were collected.

Skukuza can be separated from other African genera by the neck-like structure of the head posteriorly, the eyes being well removed from the anterior margin of the pronotum, the scutellum lacking a spine, and the antennae being inserted below and removed from the ventral margin of the eyes. This genus appears to be most closely related to *Formicopsella* in general facies and also in the form of the male genitalia, which are typical of the Hallodapini.

Skukuza slateri, new species

Figures 36–37, 182–184

MACROPTEROUS MALE: Basic coloration dull gray brown; frons and all tibiae chocolate brown; antennae generally brown, median third of segment 2 somewhat lighter than remainder of segment; proximal third of antennal segment 3, transverse V-shaped macula at about midpoint of corium, and posterior margin of corium broadly white (Fig. 36).

Labium just surpassing mesocoxae; posterior margin of pronotum uniformly excavated across mesoscutum; metatarsal segments 2 and 3 subequal in length, metasarsal segment 1 slightly shorter than segment 2.

MEASUREMENTS: Total length 5.20, maximum width 1.48, length head .68, width head 1.00, interocular space .48, length pronotum .68, width pronotum 1.40, length scutellum .88, width scutellum 1.04, length corium 2.44, length clavus 1.80, length cuneus .88, width cuneus .40, length claval commissure 1.00, distance apex commissure-apex membrane 2.20, length metatibia 3.92; length antennal segments 1—.28, 2—1.92, 3—1.32, 4—?; length labial segments 1—.64, 2—.64, 3—.40, 4—.48.

MALE GENITALIA: Figures 182–184.

BRACHYPTEROUS FEMALE: Coloration, body surface texture, and vestiture as in male, except basic color slate gray.

Head very similar in structure to macropterous male, slightly larger in relation to total body size, eyes smaller relative to total

size of head, antennae somewhat further removed from eyes (by distance about equal to twice diameter of antennal segment 1); head slightly more conical in shape than in male and genal and gular regions larger; pronotal collar as in male, but pronotum arched longitudinally behind collar with posterior lobe nearly horizontal; pronotum transversely convex, posterior margin weakly concavely excavated across mesoscutum; scutellum nearly flat; hemelytra greatly reduced, undifferentiated, attaining posterior margin of abdominal tergite 2; posterior margins of hemelytra evenly rounded, upturned; legs very long, structure as in male; abdomen constricted basally, greatly enlarged medially, tapering to an acute apex.

MEASUREMENTS: Total length 5.12, maximum width 1.48, width head 1.16, interocular space .68.

FEMALE GENITALIA: Posterior wall a simple sclerotized plate; sclerotized rings ovoid, lateral margins slightly upturned.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Transvaal*, Kruger National Park, Letaba River at Letaba Camp, 1 May 1968, T. Schuh, J. A. & S. Slater, M. Sweet (SANC).

PARATYPES: *Transvaal*—4 macropterous ♂♂, same data as holotype; 2 macropterous ♂♂, 6 brachypterous ♀♀, 3 mi. E. Satara Camp, Nwanedzi River, 29 April 1968; 1 macropterous ♂, 2 brachypterous ♀♀, 9 mi. SSW Skukuza, 26 April 1968 (SANC, JAS, RTS).

This species is named for Dr. James A. Slater, of the University of Connecticut, who introduced me to the fauna of South Africa, and who has continued to stimulate my interest in the Miridae of the region.

As the only known species of the genus occurring in South Africa, *slateri* can be recognized by the complex of characters given in the generic discussion (see also discussion under *S. zeugma* below).

All known localities for *Skukuza slateri* are in the low veld of the northeastern Transvaal. I took specimens at three different localities, all of which were very dry, open areas with scattered grasses and forbs, the total vegetative cover probably never exceeding 50 percent of the substrate surface area. The sites were heavily grazed so that the vegetation was almost mat-like.

Skukuza slateri is remarkably ant-like in habitus and behavior. It is so elusive that collecting only a very few specimens can be a great accomplishment; species of the ant-mimetic rhyparochromine lygaeid genus *Poeantius* are some of the few ground living bugs that are as agile as *Skukuza*. No ant association was obvious at any of

the collection sites. *Skukuza* was taken in the same habitat with *Poeantius* sp.

NOTES ON EXTRALIMITAL SPECIES

Skukuza zeugma (Odhiambo), new combination

Formicopsella zeugma Odhiambo, 1959c, pp. 652–655, 684–685.

Described in *Formicopsella*, this species is much more closely related to *Skukuza slateri* than it is to *F. regneri*. The figures of the head of *zeugma* given by Odhiambo (1959c) are deceptive, in that they show the antennae as being inserted dorsad of the ventral margin of the eyes. The antennae are in fact inserted somewhat below the ventral margin of the eyes, very much as in *S. slateri*. The holotype of *zeugma*, from which Odhiambo's (1959c) drawings were made, is card mounted and has the head flexed upward and anteriorly, giving a false impression of the antennal insertion. The basic structure of the head is very similar in *zeugma* and *slateri*, with the frons being flattened, whereas in *Formicopsella* the frons is very strongly rounded. The vestiture of *zeugma* consists of a few erect hairs and a rather dense covering of decumbent, weakly shining hairs, and is very much like that of *slateri*, although in the latter species the decumbent hairs are sparsely placed. The anterior fascia of the hemelytra is broad, complete, and nearly parallel sided in *zeugma*, whereas it forms a triangular macula on each hemelytron in *slateri*. Both species have a similar dull gray coloration.

Systellonotopsis Poppius

Systellonotopsis Poppius, 1914a, pp. 43–44.

Systellonotopsis is probably most closely related to *Pangania*. It differs in having long erect hairs on the dorsum, whereas in *Pangania* there are only short decumbent hairs. Only two species are presently placed in the genus, although Odhiambo (1959b; 1963) has described species in the genus that I feel are more closely related to other genera.

LIST OF SPECIES OF *Systellonotopsis*

bifasciatus Poppius (*Systellonotopsis*), 1914a, p. 44. Botswana; South West Africa.

* *chnous* Odhiambo (*Systellonotopsis*), see *Pangania chnous* (Odhiambo) **New Combination.**

pandus Odhiambo (*Systellonotopsis*), 1963, pp. 111–112. Tanganyika.

* *pumilis* Odhiambo (*Systellonotopsis*), see *Trichophthalmocapsus pumilis* (Odhiambo) **New Combination.**

Systellonotopsis bifasciatus Poppius

Systellonotopsis bifasciatus Poppius, 1914a, p. 44.

Systellonotopsis bifasciatus most closely resembles *Pangania fasciatipennis* in southern Africa, but can be separated from it by the presence of erect hairs on the dorsum. All known specimens are females and therefore the structure of the male genitalia is not known.

Described from a single female from "Bechuanaland," additional specimens of *bifasciatus* were not recorded in the literature subsequent to the original description until Carvalho et al. (1960), recorded a specimen from Royal Natal National Park, Natal; comparison of this specimen with the holotype of *bifasciatus* indicates, however, that it is not in fact *S. bifasciatus*, but *Systellonotus brincki*, which is described as new below. The holotype of *S. bifasciatus* was noted by Poppius as being deposited in the Berlin-Humboldt Museum; in fact it is in the Helsinki Museum (Type No. 11859).

Comparison of a female specimen from Abachaus, Damaraland, South West Africa, deposited in the Transvaal Museum, with the holotype of *S. bifasciatus*, indicates that the two are conspecific. Both of these specimens have short, decumbent hairs on the dorsum, which were not mentioned in the original description, as well as the erect hairs pointed out by Poppius. The total length of the Damaraland specimen is 4.40 mm.; the maximum width is 1.24 mm.

Systellonotus Fieber

Systellonotus Fieber, 1858, p. 326.

Systellonotus contains approximately 14 species. Up to the present time the genus has been known only from the Palearctic, primarily from the Mediterranean and North Africa. A single species is described below from South Africa.

Systellonotus brincki, new species
Figures 40, 185–188

Systellonotopsis bifasciatus Carvalho, Dutra, and Becker, 1960 (*nec* Poppius), p. 456.

MACROPTEROUS MALE: Basic coloration dull, rather light reddish brown; distal two-thirds of antennal segment 3, complete broad

transverse fasica at level of middle of claval commissure, apex of corium broadly, and ostiolar peritreme white; cuneus castaneous; membrane light smoky brown with white bloom.

Elongate; entire body smooth, dull, weakly pruinose; cell of membrane and base of cuneus shining; dorsum with decumbent and semierect, moderately long, light hairs; antennal segment 1 with inconspicuous, decumbent light hairs, and a few erect, light, slender spines, segments 2, 3, and 4 with dense, short, decumbent, light vestiture; eyes with some very short hairs; labium with a few moderately long, erect hairs basally and some very short hairs; femora with decumbent light hairs and a few semierect light hairs; tibiae with reclining light hairs and scattered, semierect, light spines about as long as tibial diameter; abdomen with reclining light hairs and scattered, long, erect, light hairs.

Head strongly deflexed, frons nearly vertical; eyes large, protuberant, strongly granular, removed from anterior margin of pronotum by distance about equal to diameter of antennal segment 2; vertex nearly flat, not elevated above level of pronotal collar; head constricted slightly behind eyes; anterior margins of eyes very weakly sinuate; antennae inserted somewhat below middle of anterior margin of eyes, fossae contiguous with eyes; antennal segment 1 slightly enlarged, weakly bowed; antennal segment 2 nearly cylindrical, slightly narrowed proximally, about equal in diameter to segment 1, segments 3 and 4 of slightly smaller diameter than segment 2; eyes occupying slightly over half of height of head; clypeus prominent; bucculae narrow; gula moderately long, inclined about 45°; labium just surpassing metacoxae; pronotum elevated posteriorly, weakly tumid; lateral margins nearly straight; pronotum rather strongly narrowed anteriorly, collar flat, about as wide as diameter of antennal segment 1, calli poorly defined; posterior margin of pronotum concavely excavated across mesoscutum, convexly rounded laterally; mesoscutum steeply inclined anteriorly; scutellum convex; lateral margins of hemelytra distinctly sinuate, widest just anterior to apex of corium; base of cuneus recessed mesiad of lateral corial margin by distance about equal to diameter of antennal segment 2; membrane with 2 cells; posterior margins of cells evenly rounded; abdomen very slender, reaching to apex of cuneus; legs long; femora weakly bowed; all tibiae with longitudinal rows of tiny, closely-spaced spines; metatarsal segment 1 about one-fourth length of segment 2, segments 2 and 3 subequal in length; claws long, gently curved, slightly broadened basally; parempodia hair-like, parallel; pulvilli minute.

MEASUREMENTS: Total length 5.12, maximum width 1.52, length head .40, width head .88, interocular space .30, length pronotum .64, width pronotum 1.24, length scutellum 1.00, length corium 2.60, length clavus 2.00, length cuneus .72, width cuneus .36, length claval commissure 1.28, distance apex commissure-apex membrane 2.64, length metatibia 3.80; length antennal segments 1—.64, 2—1.80, 3—1.46, 4—?; length labial segments 1—.60, 2—.60, 3—.54, 4—.52.

MALE GENITALIA: Figures 185–188.

Females unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Orange Free State*, Bultfontein, 8.1.07 (TM).

PARATYPES: 1 macropterous ♂, same data as holotype. *Natal*—1 macropterous ♂, Natal National Park, The Hostel, 3.IV.51 (Brinck and Rudebeck); 1 macropterous ♂, U. So. Afri., N. Y. 107793, X-27-49-18552, *Erica bergiana* (TM, LU, USNM, RTS).

This species is named for Dr. Per Brinck of the Lund University Zoological Institute.

Systellonotus brincki most closely resembles *Pangania fasciatipennis* and *Systellonotopsis bifasciatus* in South Africa, but differs in that the abdomen is long and slender, the gula is moderately long, and the eyes occupy only about two-thirds the height of the head; *brincki* additionally differs from *fasciatipennis* in that the dorsum has erect hairs and the phallotheca lacks the dorsal projection. *S. brincki* also resembles *Carinogulus* to some extent in dorsal aspect but lacks the carinate gula.

Additional specimens from South Africa probably representing new species of *Systellonotus* include a macropterous male from Grootfontein, Middleburg, Cape Province, deposited in the South African National Collection of Insects, a macropterous male from Namakunde, South West Africa, deposited in the South African Museum, and a macropterous male from Mafa, South West Africa, also deposited in the South African Museum. These specimens appear to represent two species but are badly mutilated and therefore I have not considered it advisable to describe them at the present time.

Trichophorella Reuter

Trichophorella Reuter, 1905b, p. 20.

Trichophorella is characterized by its pinkish coloration, elongate body form, nearly parallel sided hemelytra, globose head, strongly granular almost hemispherical eyes, and a few erect, black

setiform hairs on the dorsum. This genus is probably most closely related to *Marmorodapus* Schmitz, and somewhat less closely related to other members of the *Aeolocoris* group.

LIST OF SPECIES OF *Trichophorella*

australis, new species. South Africa: Transvaal.
rubella Odhiambo (*Trichophorella*), 1959c, pp. 678–680. Uganda.
sordidipennis Reuter (*Trichophorella*), 1905b, p. 21. "Assinie, Afrique oc."

Trichophorella australis, new species

Figures 41, 189–192

MACROPTEROUS MALE: Elongate, parallel sided; general coloration of dorsum cream with pinkish tinge; head and pronotal calli slightly orangish; pronotal collar, posterior lobe of pronotum and mesoscutum suffused with brown; antennal segment 1 cream dorsally, mahogany ventrally and laterally on proximal half; antennal segments 2 and 3 cream, segment 4 deep red; labium yellowish, segment one red on distal half; head below eyes and antennal bases red; thoracic pleura red to mahogany; abdomen cream medioventrally, mahogany lateroventrally and on posterior third; all coxae, trochanters, tibiae, and tarsi cream; all tibiae with a red stripe dorsally; all femora mahogany; bases of some hairs on hemelytra and inner margin of cuneus with reddish suffusion; membrane almost white.

Body surface smooth, dull; head and pronotum with decumbent sericeous hairs; hemelytra with decumbent golden hairs; antennae with very short, appressed pubescence, segment 1 with numerous, erect, white, peg-like hairs about as long as diameter of segment 2, segment 2 with a peg-like hair proximally; pronotum and hemelytra with a few, short, black, erect, spine-like hairs; legs generally with short, decumbent hairs; metafemora with a few, fine, black spines dorsally and some long erect hairs ventrally.

Head globose as viewed from above; eyes large, nearly hemispherical as viewed from above, occupying nearly entire sides of head posterior to antennal bases, contiguous with anterior margin of pronotum, granular; vertex weakly longitudinally sulcate; frons weakly transversely rugose, strongly convex; antennae inserted at middle of anterior margin of eyes, segment 1 enlarged, segment 2 about three-fourths diameter of segment 1, segment 3 slightly smaller in diameter than segment 2, segment 4 slightly smaller in diameter than segment 3; clypeus compressed laterally; labium just surpass-

ing metacoxae; pronotum with lateral margins nearly straight, posterior margin deeply excavated across mesoscutum, collar about width of diameter of antennal segment 3, calli indistinct; mesoscutum and scutellum nearly flat, separated by a weak transverse impression; hemelytra nearly parallel sided; cuneus slightly recessed mesiad of lateral corial margin; abdomen almost reaching apex of cuneus; tibiae with scattered light spines of length about equal to tibial diameter; metatarsal segments 2 and 3 subequal in length, segment 1 about half length of segment 2; claws long, evenly curved; parempodia hair-like, parallel; pulvilli minute.

MEASUREMENTS: Total length 4.80, maximum width 1.33, length head .46, width head .78, interocular space .28, length pronotum .44, width pronotum 1.12, length scutellum .84, width scutellum .88, length corium 2.44, length clavus 1.80, length cuneus .76, width cuneus .28, length claval commissure 1.04, distance apex commissure-apex membrane 2.04, length metatibia 2.76; length antennal segments 1—.68, 2—1.88, 3—1.22, 4—.88; length labial segments 1—.58, 2—.50, 3—.52, 4—.48.

MALE GENITALIA: Figures 189–192.

MACROPTEROUS FEMALE: Very similar to male except eyes much smaller and vertex relatively wider.

FEMALE GENITALIA: Posterior wall a simple sclerotized plate.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Transvaal*, Lyttelton, 29 Feb. 1968, J. A. & S. Slater, UV light (SANC).

PARATYPES: *Transvaal*—1 macropterous ♂, same data as holotype; 2 macropterous ♂♂, *idem*, except 20 Feb. 1968; 1 macropterous ♂, Rustenburg, 7–17 Nov. 1967 (Capener); 1 macropterous ♂, Pretoria, 12.III.1952 (Vari); 1 macropterous ♀, Pretoria, 27. III.1956 (Vari); 1 macropterous ♀, Johannesburg, V-17-1950 (Capener); 1 macropterous ♂, 1 macropterous ♀, Reitfontein, 30. 11.04 (SANC, TM, JAS, RTS).

This species is named for its occurrence in southern Africa.

The most distinctive difference between *T. australis* and the other two species of the genus is that in *australis* the cuneus is light and nearly unicolorous with the remainder of the hemelytra, whereas in *sordidipennis* Reuter and *rubella* Odhiambo the cuneus is dark red or brown and strongly contrasting with the remainder of the hemelytra. Also in *australis* antennal segment 1 is about one-third the length of segment 2 and half the length of segment 3, proportions quite different from those given by Poppius (1914a) for *sordidipennis* and by Odhiambo (1959c) for *rubbella*. I have examined the holotype of *sordidipennis* from "Assinie, Afrique oc." deposited

in the Helsinki Museum (Type No. 12072), but have not been able to confirm the accuracy of Poppius' data on the antennal proportions because the head is missing from this female specimen.

No field information is available for this species (or for the genus as a whole); nearly all available specimens were taken at lights.

Trichophthalmocapsus Poppius

Trichophthalmocapsus Poppius, 1914a, pp. 46–47.—Odhiambo, 1959c, p. 664.

The characters most useful for diagnosing *Trichophthalmocapsus* are: 1) eyes in males extremely large, occupying almost the entire sides of the head, the eyes of the females much smaller, the vertex relatively much wider, and the genae exposed; 2) posterior tibiae usually enlarged, spindle-shaped, with very long slender spines, and usually lacking short appressed vestiture; 3) hemelytra with noticeably sinuate lateral margins, widest at a point just anterior to the cuneal incisure; 4) lateral corial margins and inner surface of metafemora modified to form a stridulatory mechanism; and 5) vesica S-shaped. The genus is most closely related to *Boopidella* Reuter by the extremely large eyes and to *Laemocoris* and *Hallodapus* (in part) by the stridulatory mechanism, and to all 3 of these genera by the general facies. Odhiambo (1959c) used the size of the eyes to separate *T. hirsutus* Odhiambo, which was described from a female, from *T. vittatus* Odhiambo and *T. pilosus* Poppius, both of which were described from males; this character is not valid, however, when both sexes are present, because the eyes are much smaller in the females than in the males, as was correctly pointed out by China (1932).

All species of *Trichophthalmocapsus*, *Laemocoris*, and some species of *Hallodapus* have a wing edge stridulatory mechanism. The lateral corial margin is finely serrate and forms the stridulitrum; the inner surface of the metafemora is "pebbled" or strongly granular and forms the stridulatory plectrum. Although the corial serrations are very often extremely minute and difficult or impossible to see, the femoral modifications are readily visible in all species that are known to possess the stridulatory mechanism.

LIST OF SPECIES OF *Trichophthalmocapsus*

australis, new species. South Africa: Transvaal, Natal.
* *chariensis* Odhiambo (*Trichophthalmocapsus*), see *Hallodapus albofasciatus* (Motschulsky) **New Synonymy.**
hessei, new species. South West Africa.

hirsutus Odhiambo (*Trichophthalmocapsus*), 1959c, pp. 660–661, 664, 685. Tanzania.

jamesi China (*Trichophthalmocapsus*), 1932, pp. 594–597. Kenya.

pilosus Poppius (*Trichophthalmocapsus*), 1914a, p. 47. Tanzania.

pumilis Odhiambo (*Systellonotopsis*), 1959c, pp. 655–657, 684–685. **New Combination.** Ethiopia; Uganda.

* *vittatus* Odhiambo (*Trichophthalmocapsus*), see *Hallodapus vittatus* (Odhiambo) **New Combination.**

Trichophthalmocapsus australis, new species

Figures 33, 194–196

Trichophthalmocapsus jamesi Carvalho, Dutra, and Becker, 1960 (*nec* China), pp. 456–457.

MACROPTEROUS MALE: Basic coloration brownish black; rounded macula just anterior to midpoint of corium, posterior margin of corium, mesocoxae and metacoxae, and all trochanters white; juga and lora reddish; antennal segment 1 and all tarsi light brown; antennal segment 2 (segments 3 and 4 missing in holotype) and remainder of legs castaneous; membrane smoky brown.

Dorsum, except cuneus, smooth and dull or weakly pruinose; cuneus and legs weakly shining; dorsum with short, decumbent, sericeous hairs and long, semierect, weakly shining hairs; antennae with very short appressed pubescence and some erect hairs about as long as 1¼ times diameter of antennal segment 2; eyes with a few short hairs; venter with scattered light hairs; femora with long, erect, light hairs.

Head vertical, short; eyes very large, granular, protuberant, occupying nearly entire sides of head, reaching to bucculae; head slightly convex behind eyes; vertex narrow, depressed between eyes, posterior margin ecarinate, concave; antennae inserted just below middle of sinuate anterior margins of eyes; antennal segment 1 slightly enlarged, segment 2 of slightly smaller diameter than segment 1; gula obsolete; bucculae small; labium just surpassing metacoxae; pronotum with collar about as wide as diameter of antennal segment 1, calli distinct, rather widely separated, lateral margins nearly straight, posterior margin forming a low concave angle across scutellum; mesoscutum inclined anteriorly; scutellum convex; lateral corial margins weakly sinuate, very finely serrate (stridulitrum); cuneal incisure shallow, fracture strongly angled anteromedially; membrane with one visible cell; abdomen just attaining apex of corium; profemora and metafemora and tibiae of more or less con-

ventional form; metafemora weakly bowed, inner and posterior surfaces glabrous, with numerous, tiny, short ridges arranged linearly (stridulatory plectrum); metatibiae thickened, spindle-shaped; all tibiae with semierect light spines of length ranging from less than tibial diameter to nearly three times tibial diameter, and with rows of tiny, closely spaced black spines; metatarsal segments 1 and 2 subequal in length, segment 3 slightly longer than segment 2.

MEASUREMENTS: Total length 3.52, maximum width 1.20, length head .26, width head .72, interocular space .16, length pronotum .34, width pronotum 1.00, length scutellum .66, width scutellum .70, length corium 1.76, length clavus 1.32, length cuneus .70, width cuneus .30, length claval commissure .74, distance apex commissure-apex membrane 1.50, length metatibia 1.86; length antennal segments 1—.36, 2—1.06, 3—?, 4—?; length labial segments 1—.34, 2—.36, 3—.34, 4—.44.

MALE GENITALIA: Figures 194–196.

MACROPTEROUS FEMALE: Similar to male, except eyes much smaller, vertex relatively wider, and gena exposed below eyes.

MEASUREMENTS: Total length 3.40, maximum width 1.12, width head .66, interocular space .34.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Transvaal*, Kruger Nat. Park, Punda Milia Camp, 7 May 1968, Slater, Schuh, Sweet, at light (SANC).

PARATYPES: *Transvaal*—1 macropterous ♀, Kruger National Park, Letaba Camp, 6.V.51, at light in evening (Brinck and Rudebeck); 1 macropterous ♂, Rustenburg, XII-4-1950 (Capener) (LU, JAS).

ADDITIONAL SPECIMENS: *Natal*—1 macropterous ♀, Weenen, ii.1924 (Thomasset) (BM[NH]).

This species is named for its occurrence in southern Africa.

See discussion under *T. hessei*.

Trichophthalmocapsus hessei, new species

Figures 34–35, 193

Trichophthalmocapsus pilosus Carvalho, Dutra, and Becker, 1960 (*nec* Poppius), pp. 456–457.

MACROPTEROUS MALE: Basic coloration dark brown; transverse hourglass-shaped fascia on corium at level of apex of scutellum, posterior margin of corium narrowly, all coxae and trochanters, and ostiolar peritreme white; membrane smoky brown; distal two-thirds of antennal segments 3 tan (segment 4 missing in holotype).

Head and anterior lobe of pronotum and venter polished, shining; remainder of dorsum dull, weakly pruinose; dorsum with long, semierect, light hairs; antennal segment 1 with a long, thin, semierect spine on interior surface; antennal segments 2 and 3 with very short, appressed, light pubescence (segment 4 missing in holotype); eyes with a few very short hairs; abdominal venter with elongate, reclining hairs; femora with short decumbent hairs; protibiae and mesotibiae with short, spine-like hairs of length less than tibial diameter; metatibiae with semierect spines of length twice tibial diameter.

This species is similar in structure to *T. australis* except as follows: lateral corial margins without visible serrations (at 150×); inner surface of metafemora pebbled; metatibiae not spindle-shaped, cylindrical; metatarsal segment 1 slightly shorter than segment 2, segment 2 slightly shorter than segment 3.

MEASUREMENTS: Total length approx. 3.50, maximum width 1.20, length head .26, width head .72, interocular space .16, length pronotum .34, width pronotum 1.00, length scutellum .66, width scutellum .70, length corium 1.76, length clavus 1.32, length cuneus .66, width cuneus .30, length claval commissure .74, distance apex commissure-apex membrane 1.50, length metatibia 1.86; length antennal segments 1—.36, 2—1.06, 3—?, 4—?; length labial segments 1—.34, 2—.36, 3—.34, 4—.44.

MALE GENITALIA: Figure 193.

MACROPTEROUS FEMALE: Differing from male as in *T. australis*.

MEASUREMENTS: Total length 3.52, maximum width 1.28, width head .70, interocular space .36.

HOLOTYPE: Macropterous ♂, SOUTH WEST AFRICA: Kaokoveld, Ohopoho, 4.VI.51, No. 325, at light in evening, Expedition 1950–1951, Brinck-Rudebeck (LU).

PARATYPES: SOUTH WEST AFRICA—2 macropterous ♀♀, Warmbad, Kaokoveld, Mus. Expd., Feb. 1925 (SAM).

This species is named for Dr. A. J. Hesse, Curator of Insects, South African Museum, Cape Town, who has added greatly to our knowledge of the insect fauna of South and South West Africa.

Trichophthalmocapsus hessei is probably most closely related to *T. pilosus* but differs in having antennal segment 1 dark, whereas it is white in *pilosus*, and in lacking the short decumbent hairs on the dorsum. *T. hessei* can be separated from *T. australis* in that the stridulitrum is not visible on the lateral corial margin and the dorsum lacks short decumbent hairs; the stridulitrum is very obvious in *australis* and the dorsum has both long and short hairs.

NOTES ON EXTRALIMITAL SPECIES

Trichophthalmocapsus pilosus Poppius

Trichophthalmocapsus pilosus Poppius, 1914a, p. 47.

Poppius (1914a) in his original description of *T. pilosus*, indicated that the holotype was deposited in the Berlin-Humboldt Museum. It is actually in the Helsinki Museum (Type No. 11870).

Trichophthalmocapsus pumilis (Odhiambo), new combination

Systellonotopsis pumilis Odhiambo, 1959c, pp. 655–657, 685.

Examination of a male paratype of *Systellonotopsis pumilis* in the British Museum (Natural History) indicates that this is in fact a species of *Trichophthalmocapsus*. The eyes of *pumilis* are very large, the metafemora have very long, glassy spines, and the stridulatory device is present.

NOTES ON EXTRALIMITAL GENERA

Aeolocoris Reuter

Aeolocoris Reuter, 1903, p. 17.

Aeolocoris presently contains three species from North and East Africa. It is most closely related to *Azizus* and *Acrorrhinium*.

Aeolocoris alboconspersus Reuter

Aeolocoris alboconspersus Reuter, 1903, p. 17

Reuter (1903) described this species from specimens from Obock, Djbouti, and Arabia Meridionalis (Aden). I am designating as the lectotype, a female specimen in the Paris Museum. It bears the following labels: "Museum Paris, DJIBOUTI, H. Coutiere 1897"; "*Aeolocoris alboconspersus* Reut. n. g. et sp. sp. typ."; and "LECTOTYPE *Aeolocoris alboconspersus* Reuter, det. R. T. Schuh." Wagner (1970b) stated that a specimen in the Helsinki Museum from Obock, bearing the label "*Aeolocoris alboconspersus* Reut. typ." was the holotype, but this certainly is incorrect because Reuter (1903) stated that he examined more than one specimen but did not designate a holotype.

Boopidella Reuter

Boopidella Reuter, 1907b, p. 25.

Boopidella appears to be most closely related to *Trichophthalmocapsus* by its large eyes, but differs from that genus in lacking

the long erect hairs on the dorsum, having the tibiae mutic, and lacking the stridulatory device. A single species of *Boopidella* is known from East Africa.

Boopidella fasciata Reuter

Boopidella fasciata Reuter, 1907b, p. 25.

Boopidella fasicata was described from four male specimens from Pemba Island (Tanzania). I am designating a specimen in the Helsinki Museum (Type No. 10270) bearing the labels "Pemba" and "*Boopidella fasciata* Reut. Typ." as the lectotype and adding the label "LECTOTYPE *Boopidella fasciata* Reuter, det. R. T. Schuh."

Diocoris Kirkaldy

Diocoris Kirkaldy, 1902c, p. 246.
Systellonotidea Poppius, 1914a, p. 29. **New Synonymy.**

Diocoris exhibits sexual dimorphism in the form of the pronotum. The males have the collar depressed and demarcated from the remainder of the pronotum; the females have the collar evenly arched with the remainder of the pronotum and separated from it by only a finely impressed line. This difference was recognized by Poppius (1914a) as of generic significance, and he therefore placed *Diocoris agalestus* Kirkaldy and *Systellonotidea triangulifer* Poppius in separate genera. Poppius however had only a female of *agalestus* and a male of *triangulifer*. Now that the different pronotal structures can be verifed as a sexually dimorphic character, it is apparent that *Systellonotidea* is congeneric with *Diocoris* based on the structure of the head, the type of hemelytral fascia, and the structure of the male genitalia.

Odhiambo (1959c) recognized the genus *Gampsodema* Odhiambo as distinct from *Diocoris* on the basis of its strongly flattened metafemora. This structural feature also occurs in some species of *Diocoris*, although not to the pronounced degree found in *Gampsodema spissata* Odhiambo, and it may be found that the two genera will have to be considered as synonymous.

Diocoris presently includes five species from East and West Africa.

Diocoris agalestus Kirkaldy

Diocoris agalestus Kirkaldy, 1902c, p. 246.

A single specimen of *Diocoris agalestus* Kirkaldy, labeled "Guinee, Addah (Reitter)" is in the Helsinki Museum, and may be the

holotype of this species (personal communication, Martin Meinander, Helsinki Museum).

LEUCOPHOROPTERINI, new tribe

Karoocapsus, new genus

MACROPTEROUS MALE: Elongate, relatively large, nearly parallel sided; brown or brownish black, usually with strongly contrasting, large, yellowish hemelytral maculae; body surface smooth, dull or weakly shining; dorsum with reclining light and/or dark setiform hairs and also appressed, scale-like, sericeous hairs, particularly on the head, pronotum, scutellum adjacent to the claval suture, and on the mesepisterna and metepisterna and sometimes on the abdomen; antennae with short, dark, reclining vestiture.

Head declivent, concave behind; eyes moderately large, protuberant, not reaching gula ventrally; vertex nearly as wide as anterior margin of pronotum, flat or slightly depressed, posterior margin usually carinate; frons weakly convex, transversely rugose; antennae inserted just above ventral margin of eyes, fossae contiguous with eyes; antennal segment 1 moderately enlarged, segment 2 usually cylindrical, of slightly smaller diameter than segment 1, segments 3 and 4 about two-thirds diameter of segment 2; labium reaching at least to metacoxae; pronotum with anterior margin finely carinate, upturned, lateral and posterior margins nearly straight or slightly concave; mesoscutum separated from weakly convex scutellum by distinct transverse impression; lateral corial margins nearly straight; cuneal incisure shallow or obsolete, cuneal fracture angled slightly anteromedially; membrane with two cells; legs long; tibiae with scattered, semierect, black spines about as long as tibial diameter and rows of tiny, closely spaced black spines; tarsal claws long, slender, gently curved; parempodia hair-like, parallel; pulvilli minute.

MALE GENITALIA: Figures 197–219. Vesica U-shaped, weakly twisted, gonopore apical; phallotheca L-shaped; left clasper trough-like; right clasper lanceolate.

BRACHYPTEROUS FEMALE: See discussion under *K. pulchrus*.

FEMALE GENITALIA: Unknown.

TYPE SPECIES: *Karoocapsus middleburgensis*, new species.

This genus is named for its predominant occurrence in the Little and Great Karoo and other arid areas of South Africa. I have followed Acocks (1953) in the spelling of Karoo, although it is commonly spelled Karroo.

Karoocapsus can be separated from other South African Phylinae

by the following combination of characters: 1) parempodia hair-like, parallel; 2) claws long, slender; 3) head declivent, concave behind; 4) dorsum with reclining setiform hairs and appressed scale-like sericeous hairs; 5) hemelytra usually dark brown with strongly contrasting yellowish maculae; and 6) anterior margin of pronotum carinate, upturned. The genus is most closely related to *Leucophoroptera* Poppius from Australia. Only *Lasiolabopella* in South Africa has scale-like hairs (these are very easily removed in *Karoocapsus*), although several genera have wooly sericeous hairs on the dorsum. Most members of the Hallodapini have light hemelytral maculae, but none have scale-like hairs and all have a flattened pronotal collar very much different from the carinate anterior pronotal margin of *Karoocapsus*.

Karoocapsus can be divided into several species groups based on the coloration pattern. These divisions are very helpful in the preliminary identification of species, and are used in the following key. The male genitalia, however, are most useful in separating apparently closely related species (e.g. *flavomaculatus*, *middelburgensis*, and *trifasciatus*), and often show much different relationships between species than those suggested by coloration.

The type of coloration pattern found in *Karoocapsus* is not uncommon in ant-mimic Miridae, and in genera such as *Hallodapus* contributes to the ant-mimic habitus when combined with appropriate behavior, even though dead specimens are not particularly ant-like. Both sexes of *Karoocapsus* are probably ant mimetic, although the females are probably superior mimics because of their morphological specialization relative to the males.

Most of the known specimens of *Karoocapsus* are from light traps. Five of the eight described species are from a single locality, Grootfontein, Middelburg, Cape Province. All of these species were collected during October, although some were taken during other months as well. No ecological data are available for any species of *Karoocapsus*, but their is a high probability that they are ground living as are most phyline ant-mimics.

KEY TO SPECIES OF *Karoocapsus*

Macropterous specimens

1. Hemelytra uniformly light brown translucent .... *brunneus* (Fig. 43)
   Hemelytra with yellowish quadrate or elongate maculae, more or less strongly contrasting with dark brown background coloration .. 2
2. Hemelytra with broad white or yellowish transverse fasica on basal half of corium; posterior half of corium dark brown, without light markings; basal third of cuneus white or yellow 3

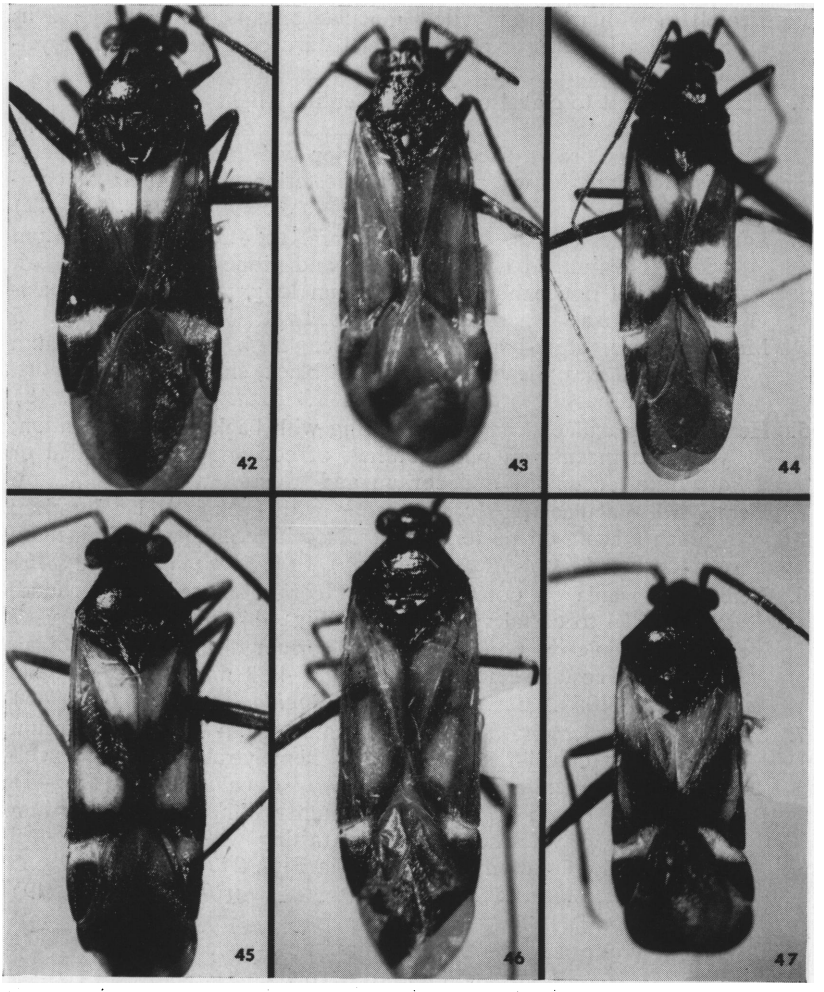
Hemelytra with white or yellow maculae on anterior half of clavus and posterior half of corium; basal third of cuneus white or yellow 4

3. Clavus adjacent to claval commissure entirely light colored ..... *occidentalis* (Fig. 47)
   Clavus light colored adjacent to anterior two-thirds of claval commissure, dark brown adjacent to posterior third of claval commissure ..... *bifasciatus* (Fig. 42)
4. Large, elongate species, length 4.56 mm. to 4.86 mm., maximum width 1.28 mm. to 1.56 mm.; head and pronotum brown to dark brown, not noticeably shining; labium long, reaching or surpassing mesocoxae 5
   Medium sized, stout-bodied species, length 4.32 mm., maximum width 1.40 mm.; head and pronotum black, shining; labium short, slightly surpassing procoxae ..... *pulchrus* (Fig. 48)
5. Hemelytral maculae strongly contrasting with background coloration; yellowish macula on posterior half of corium either rounded or quadrate, occupying endocorium and exocorium 6
   Hemelytral maculae weakly contrasting with background coloration; whitish macula on posterior half of corium elongate, confined to endocorium ..... *obscurus* (Fig. 46)
6. Yellowish macula on posterior half of corium more or less round, not parallel to costal vein laterally (Figs. 44 and 49) 7
   Yellowish macula on posterior half of corium distinctly trapezoidal, paralleling costal vein laterally; length 4.88 mm.; male genitalia Figs. 203–205 ..... *middelburgensis* (Fig. 45)
7. Slender species, length 4.56 mm., maximum width 1.28 mm.; corium adjacent to claval fascia brown as hemelytral background coloration; male genitalia Figs. 206–207 ..... *flavomaculatus* (Fig. 44)
   Robust species, length 4.72 mm., maximum width 1.56 mm.; corium adjacent to claval fascia light, contrasting with dark hemelytral background coloration; male genitalia Figs. 217–219 ..... *trifasciatus* (Fig. 49)

Karoocapsus bifasciatus, new species
Figures 42, 197–199

MACROPTEROUS MALE: Basic coloration dark brown or mahogany to nearly black; broad fascia on anterior half of corium and clavus and basal third of cuneus white or yellow white (Fig. 42); antennal segment 4 yellow white; membrane smoky brown.

Corium and clavus dull, remainder of dorsum weakly shining; setiform hairs on dorsum black on dark background areas, light on light background areas; posterior margin of white corial fascia, clavus, and corium adjacent to apical half of claval suture, mesepi-



FIGS. 42–47. Leucophoropterini. Fig. 42. *Karoocapsus bifasciatus*, male (Grootfontein, Middelburg, Cape Province). Fig. 43. *Karoocapsus brunneus*, male, holotype. Fig. 44. *Karoocapsus flavomaculatus*, male, holotype. Fig. 45. *Karoocapsus middelburgensis*, male, holotype. Fig. 46. *Karoocapsus obscurus*, male, holotype. Fig. 47. *Karoocapsus occidentalis*, male, holotype.

sterna and metepisterna, and posterior margin of abdominal sternite 4 with sericeous, scale-like hairs.

Vertex flat; antennal segment 1 with a few erect black spines about as long as tibial diameter, segment 2 about equal in diameter to segment 1, tapering to about two-thirds greatest diameter on proximal fourth, segments 3 and 4 about half diameter of segment 2; labium not quite reaching posterior margin of mesocoxae; posterior margin of pronotum weakly concave; calli obsolete; hemelytra broadest at apex of corium; abdomen reaching to apex of cuneus; metatarsal segments 2 and 3 subequal in length, segment 1 about two-fifths length of segment 2.

MEASUREMENTS: Total length 4.96, maximum width 1.40, length head .40, width head .96, interocular space .40, length pronotum .60, width pronotum 1.36, length scutellum .68, width scutellum .96, length corium 2.24, length clavus 1.60, length cuneus .92, width cuneus .35, length claval commissure .88, distance apex commissure-apex membrane 2.56, length metatibia 3.04; length antennal segments 1—.36, 2—1.60, 3—?, 4—?; length labial segments 1—.46, 2—.48, 3—.38, 4—.46.

MALE GENITALIA: Figures 197–199.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, October, M. Johannsmeier (SANC).

PARATYPES: *Cape Province*—6 macropterous ♂♂, same data as holotype; 1 macropterous ♂, Bushmanland, Henries, Lightfoot, October 1917. SOUTH WEST AFRICA—1 macropterous ♂, Bullspoort, 20.4.49 (Strey) (SANC, SAM, JAS, RTS).

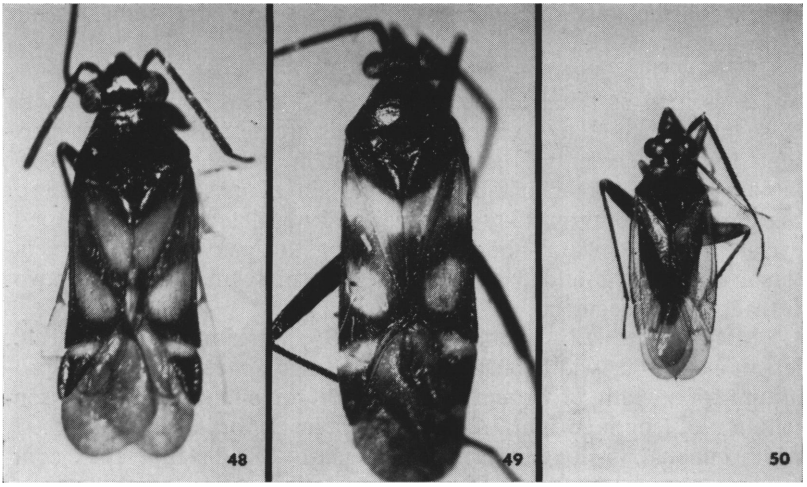
This species is named for the two conspicuous light fasciae on the hemelytra.

Karoocapsus bifasciatus is most closely allied to *K. occidentalis*, in that it does not possess light colored maculae on the posterior half of the corium. The two species can be easily separated from one another in that *bifasciatus* has the clavus adjacent to the posterior third of the claval commissure dark and *occidentalis* has the clavus light along the entire length of the commissure. The male genitalia (Figs. 197–199, 211–213) are also distinctive for the two species.

Karoocapsus brunneus, new species

Figures 43, 200–202

MACROPTEROUS MALE: Basic coloration light brown; pronotum, scutellum, mesepisterna and metepisterna, apex of labium, all tarsi, and genital segment dark brown; abdomen greenish.



FIGS. 48–50. *Leucophoropterini.* Fig. 48. *Karoocapsus pulchrus*, male (Rooinek Pass, Cape Province). Fig. 49. *Karoocapsus trifasciatus*, male, holotype. Fig. 50. *Tytthus parviceps*, male (Lyttelton, Pretoria, Transvaal).

Dorsum weakly shining, setiform hairs dark brown; head, pronotum, scutellum, and pleural region of prothorax rather densely covered with scale-like, sericeous hairs; antennal segment 1 with a few erect black spines on interior surface.

Vertex flat; antennal segment 2 about three-fourths diameter of segment 1, of nearly uniform diameter, segments 3 and 4 slightly greater than one-half diameter of segment 2; labium reaching metacoxae at trochanteral joint; anterior, lateral, and posterior pronotal margins weakly concave; calli indistinct; metatarsal segments 2 and 3 subequal in length, segment 1 about two-fifths length of segment 2.

MEASUREMENTS: Total length 4.64, maximum width 1.44, length head .28, width head .88, interocular space .32, length pronotum .40, width pronotum 1.66, length scutellum .72, width scutellum .88, length corium 2.40, length clavus 1.60, length cuneus .92, width cuneus .36, length claval commissure .92, distance apex commissure-apex membrane 2.48, length metatibia 2.36; length antennal segments 1—.38, 2—1.28, 3—1.06, 4—.34; length labial segments 1—.38, 2—.38, 3—.26, 4—.40.

MALE GENITALIA: Figures 200–202.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, October, M. Johannsmeier (SANC).

PARATYPES: 4 macropterous ♂ ♂, same data as holotype (SANC, RTS).

This species is named for its uniform brown coloration.

Karoocapsus brunneus is unique among the known species of the genus in that it has uniformly dull brown hemelytra without yellow maculae.

Karoocapsus flavomaculatus, new species

Figures 44, 206–207

MACROPTEROUS MALE: Basic coloration blackish brown; hemelytra brown with large yellowish maculae on clavus, posterior half of corium, and basal third of cuneus (Figure 44); tibiae and tarsi light brown; membrane smoky gray brown.

Setiform hairs on dorsum dark on dark background areas, light on light background areas; mesepisterna and metepisterna with scale-like sericeous hairs.

Posterior margin of vertex not carinate and rather poorly defined from cervical region; vertex weakly convex; antennal segment 2 about equal in diameter to segment 1, segments 3 and 4 about half diameter of segment 2; labium just surpassing posterior margin of mesosternum; pronotum with anterior margin weakly sinuate, posterior margin nearly straight; calli obscure; hemelytra widest at apex of corium; abdomen reaching middle of cuneus; metatarsal segment 2 slightly longer than segment 3, segment 1 about one-third length of segment 2.

MEASUREMENTS: Total length 4.56, maximum width 1.28, length head .40, width head .80, interocular space .32, length pronotum .52, width pronotum 1.08, length scutellum .60, width scutellum .80, length corium 2.24, length clavus 1.40, length cuneus .84, width cuneus .36, length claval commissure .88, distance apex commissure-apex membrane 2.40, length metatibia 2.72; length antennal segments 1—.38, 2—1.50, 3—1.00, 4—.22; length labial segments 1—.40, 2—.40, 3—.36, 4—.54.

MALE GENITALIA: Figures 206–207.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, near Doornbosch, S.A.M., 9:1961 (SAM).

This species is named for its possession of yellow hemelytral maculae.

Karoocapsus flavomaculatus is most easily confused with *K. trifasciatus*, but can be separated from it by the absence of a sub-

apical spine on the vesica (see also discussion under *K. middelburgensis*).

Karoocapsus middelburgensis, new species
Figures 45, 203–205

MACROPTEROUS MALE: Basic coloration dark brown or brownish black; head below antennal bases and anterior to eyes, antennal segment 1, all femora, and all tibiae light brown; anterior half of cuneus and adjacent corium, posterior half of corium, and basal third of cuneus with yellowish maculae (Fig. 45); membrane dark smoky gray brown.

Setiform hairs on dorsum dark on dark background areas and light on light background areas; scutellum and mesoscutum along transverse impression, extreme base of corium, corium adjacent to posterior half of claval suture, cuneus basally, and mesepisterna and metepisterna with scale-like sericeous hairs.

Vertex slightly depressed; antennal segment 1 with one or two slender, erect, black spines on interior surface, segment 2 of slightly greater diameter distally than proximally, greatest diameter slightly less than that of segment 1, segments 3 and 4 about two-thirds diameter of segment 2; labium reaching to trochanteral joint of metacoxae; pronotum with posterior margin weakly concave; calli indistinct; hemelytra widest at midpoint of cuneus; abdomen just surpassing midpoint of cuneus; metatarsal segments 2 and 3 subequal in length, segment 1 about one-third length of segment 2.

MEASUREMENTS: Total length 4.88, maximum width 1.56, length head .30, width head .96, interocular space .36, length pronotum .44, width pronotum 1.18, length scutellum .76, width scutellum .96, length corium 2.44, length clavus 1.80, length cuneus .88, width cuneus .40, length claval commissure 1.00, distance apex commissure-apex membrane 2.60, length metatibia 2.96; length antennal segments 1—.32, 2—1.58, 3—1.00, 4—.54; length labial segments 1—.44, 2—.36, 3—.40, 4—.46.

MALE GENITALIA: Figures 203–205

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, October, M. Johannsmeier (SANC).

PARATYPES: *Cape Province*—7 macropterous ♂♂, Grootfontein, Middelburg, 3.XII.1965 (Schoombee); 1 macropterous ♂, *idem*, 18.3-65 (Johannsmeier); 3 macropterous ♂♂, *idem*, Mei 1965 (Johannsmeier); 1 macropterous ♂, *idem*, 15.X.65 (Schoombee) (SANC, JAS, RTS).

ADDITIONAL SPECIMENS: *Cape Province*—2 macropterous ♂♂, Oudtshoorn, Zebra, Mus. Exp., Oct. 1951 (SAM).

This species is named for Middelburg, Cape Province, the type locality of this and four other species of *Karoocapsus*.

Karoocapsus middelburgensis appears to be most closely related to *trifasciatus*, *flavomaculatus*, *pulchrus*, and *obscurus*. It can be separated from *pulchrus* by its much larger size, from *obscurus* by strongly contrasting light maculae, and from *flavomaculatus* and *trifasciatus* by the maculae on the posterior half of the corium reaching to the costal vein. Also the shape of the phallotheca easily separates *middelburgensis* from *trifasciatus*, and the lack of the subapical spine on the vesica from *flavomaculatus*.

Karoocapsus obscurus, new species
Figures 46, 208–210

MACROPTEROUS MALE: Hemelytra generally medium brown, remainder of body, antennae, coxae, trochanters, proximal third of all femora, and labium nearly black; clavus and posterior half of endocorium with obscure white maculae (Fig. 46); basal third of cuneus white; membrane smoky brown.

Setiform hairs on dorsum brown; scutellum and pleural areas of pronotum, and mesepisterna and metepisterna (more densely) covered with scale-like sericeous hairs.

Vertex nearly flat, posterior margin carinate laterally; antennal segment 2 of slightly smaller diameter than segment 1, segment 3 about one-half diameter of segment 2 (segment 4 missing in holotype); labium reaching trochanteral joint of mesocoxae; all pronotal margins nearly straight; calli indistinct; abdomen reaching middle of cuneus; metatarsal segment 1 about one-third length of segment 2, about one-half length of segment 3.

MEASUREMENTS: Total length 4.72, maximum width 1.72, length head .28, width head .84, interocular space .34, length pronotum .40, width pronotum 1.20, length scutellum .80, width scutellum .96, length corium 2.56, length clavus 1.76, length cuneus 1.00, width cuneus .40, length claval commissure .96, distance apex commissure-apex membrane 2.76, length metatibia 2.76; length antennal segments 1—.34, 2—1.60, 3—.98, 4—?; length labial segments 1—.44, 2—.42, 3—.30, 4—.46.

MALE GENITALIA: Figures 208–210.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, October, M. Johannsmeier (SANC).

PARATYPE: 1 macropterous ♂, same data as holotype (RTS).

This species is named for the indistinct nature of the hemelytral markings.

Karoocapsus obscurus is most easily searated from other members of the genus by the rather weakly contrasting and diffuse light markings of the hemelytra; all other species except *brunneus* have strongly contrasting, rather well defined markings. The vesica is similar to that of *flavomaculatus*.

Karoocapsus occidentalis, new species

Figures 47, 211–213

MACROPTEROUS MALE: Basic coloration brownish black; antennal segment 1, profemora distally, all tibiae, and elongate streak adjacent to costal vein on posterior half of corium brown; complete broad transverse fascia on anterior half of corium, entire clavus, and basal two-fifths of cuneus white (Fig. 47); membrane dark smoky brown.

Setiform hairs on dorsum about as long as tibial diameter, light on light background areas, dark on dark background areas; pleural region of pronotum and mesepisterna and metepisterna with scale-like, sericeous hairs.

Vertex slightly depressed, posterior margin with low, broad, rounded carina medially; antennal segment 1 with slender erect spine on interior surface, segment 2 spindle-shaped, greatest diameter equal to that of segment 1, segments 3 and 4 slightly smaller in diameter than segment 2; labium reaching between mesocoxae and metacoxae; anterior margin of pronotum slightly depressed medially, with anterior margin almost obscured by "overhanging" region anterior to weakly defined calli; posterior margin of pronotum shallowly concave; hemelytra broadest at apex of corium; abdomen just surpassing apex of cuneus; metatarsal segments 2 and 3 subequal in length, segment 1 about two-fifths length of segment 2.

MEASUREMENTS: Total length approx. 4.50, maximum width 1.48, length head .30, width head .80, interocular space .36, length pronotum .52, width pronotum 1.28, length scutellum .72, width scutellum .88, length corium 2.20, length clavus 1.64, length cuneus .80, width cuneus .40, length claval commissure .84, distance apex commissure-apex membrane 2.10, length metatibia 2.60; length antennal segments 1—.28, 2—1.30, 3—.76, 4—?; length labial segments 1—.40, 2—.40, 3—.23, 4—.44.

MALE GENITALIA: Figures 211–213.

HOLOTYPE: Macropterous ♂, SOUTH WEST AFRICA: Hoffnung, 1,850 m., 26.i.1934, K. Jordan (BM[NH]).

PARATYPES: SOUTH WEST AFRICA—4 macropterous ♂♂, Kaross, Mus. Expd., Feb. 1925; 1 macropterous ♂, Windhoek, 19.1.1934 (Jordan) (SAM, BM[NH], RTS).

This species is named for its occurrence in western South Africa. See discussion under *bifasciatus*.

Karoocapsus pulchrus, new species

Figures 48, 214–216

MACROPTEROUS MALE: Stout bodied; basic coloration brownish black or black; antennal segment 1 yellow brown; clavus, posterior half of corium and basal third of cuneus with large yellow gold maculae (Fig. 48); membrane light smoky brown.

Dorsum polished, with black setiform hairs; corium, clavus adjacent to claval suture, and mesepisterna and metepisterna with scale-like sericeous hairs.

Vertex weakly convex, posterior margin with fine carina; antennal segment 1 with slender, erect, black spine on interior surface, segment 2 about equal to diameter of segment 1 over most of length, tapering to about two-thirds maximum diameter on proximal fifth, segments 3 and 4 about one-half diameter of segment 2; labium just attaining base of mesocoxae; posterior margin of pronotum straight; calli indistinct; lateral corial margins weakly sinuate, widest at apex; lateral cuneal margin convex; abdomen just attaining apex of cuneus; metatarsal segments 2 and 3 subequal in length, segment 1 about two-fifths length of segment 2.

MEASUREMENTS: Total length 4.32, maximum width 1.40, length head .44, width head 1.00, interocular space .48, length pronotum .68, width pronotum 1.32, length scutellum .60, width scutellum .80, length corium 1.96, length clavus 1.48, length cuneus .72, width cuneus .32, length claval commissure .80, distance apex commissure-apex membrane 1.80, length metatibia 2.64; length antennal segments 1—.30, 2—1.12, 3—.74, 4—.46; length labial segments 1—.36, 2—.36, 3—.26, 4—.30.

MALE GENITALIA: Figures 214–216.

BRACHYPTEROUS FEMALE: See discussion below.

FEMALE GENITALIA: Not examined.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Rooineck Pass, Mus. Expd., Oct. 1952 (SAM).

PARATYPES: 3 macropterous ♂♂, 1 brachyterous ♀, same data as holotype (SAM, RTS).

This species is named for its bright coloration.

The small size and stocky appearance in conjunction with the

shining black head and pronotum will separate *pulchrus* from other species of *Karoocapsus*. The yellow gold maculae occupy a relatively greater portion of the hemelytra than in *flavomaculatus*, *middelburgensis*, and *trifasciatus*, all of which have similar coloration.

A teneral specimen of *pulchrus* is available and suggests the structure assumed by all females of *Karoocapsus*. It differs from the male as follows: eyes smaller than in male, vertex relatively wider, frons more strongly convex; antennae inserted just below ventral margin of eyes, fossae removed from eyes by distance equal to diameter of segment one; pronotum nearly quadrangular, strongly swollen; hemelytra greatly reduced, undifferentiated, posterior margins broadly rounded, apex attaining abdominal sternite 4.

Additional single females from Citrusdal, Cape Province, deposited in the South African Museum, and 5 mi. N. Fouriesburg, Orange Free State, deposited in the J. A. Slater Collection, resemble the female of *pulchrus* in basic structure, but cannot be identified positively as members of *Karoocapsus* at the present time because they are not associated with male specimens.

Karoocapsus trifasciatus, new species

Figures 49, 217–219

MACROPTEROUS MALE: Basic coloration brownish black; clavus and corium basally, posterior half of corium, and basal two-fifths of cuneus with large yellowish maculae (Fig. 49); membrane smoky brown.

Dorsum with dark, reclining setiform hairs and decumbent weakly shining hairs, the latter dark on dark background areas and light on light background areas; corium adjacent to claval commissure, pleural region of prothorax, mesepisterna and metepisterna, and abdominal sternite 4 with scale-like sericeous hairs.

Vertex flat, posterior margin with a weak carina; antennal segment 2 about equal in diameter to segment 1, segment 3 about two-thirds diameter of segment 2 (segment 4 missing in holotype); labium reaching between mesocoxae and metacoxae; posterior margin of pronotum shallowly concave; calli indistinct; hemelytra widest at apex of corium; abdomen not quite reaching apex of cuneus; metatarsal segments 2 and 3 subequal in length, segment 1 about one-third length of segment 2.

MEASUREMENTS: Total length 4.72, maximum width 1.56, length head .32, width head .92, interocular space .36, length pronotum .48, width pronotum 1.24, length scutellum .80, width scutellum 1.00, length corium 2.44, length clavus 1.88, length cuneus

.96, width cuneus .40, length claval commissure .96, distance apex commissure-apex membrane 2.44, length metatibia 3.00; length antennal segments 1—.30, 2—1.58, 3—1.00, 4—.62; length labial segments 1—.44, 2—.56, 3—.32, 4—.36.

MALE GENITALIA: Figures 217–219.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, 15.X.65, E. Schoobee (SANC).

PARATYPES: *Cape Province*—2 macropterous ♂♂, same data as holotype; 3 macropterous ♂♂, Grootfontein, Middelburg, October (Johannsmeier); 1 macropterous ♂, Deelfontein, 22 Oct. 1902; 2 macropterous ♂♂, *idem*, 25 Oct. 1902; 1 macropterous ♂, Uniondale District, Oct. 1952 (SANC, BM[NH], JAS, RTS).

This species is named for the three light maculae on the hemelytra.

See discussions under *middelburgensis* and *flavomaculatus*.

Tytthus Fieber

Tytthus Fieber, 1864, p. 82.

Although previously placed in the Phylini (Carvalho and Southwood, 1955), I am placing *Tytthus* in the Leucophoropterini on the basis of the following characters: 1) the parempodia are hair-like and parallel; 2) the vesica is U-shaped, not twisted, the gonopore is undeveloped; 3) the male genitalia are small relative to the total size of abdomen; 4) the right clasper is similar to *Karoocapsus*; and 5) the posterior wall is a simple sclerotized plate. The head is convex behind in *Tytthus*, whereas it is concave in most members of the tribe. *Tytthus* is not ant mimetic but does have a light-dark color pattern, which does not exist in most Phylini, and therefore suggests additional evidence for placement in the Leucophoropterini.

Tytthus includes 13 species. It is the only genus in the Leucophoropterini that occurs in the Western Hemisphere and the Palearctic.

Tytthus parviceps (Reuter)
Figure 50

Cyrtorhinus parviceps Reuter, 1890, p. 258.
Cyrtorhinus melanops Carvalho, Dutra, and Becker, 1960 (*nec* Reuter), pp. 459–460.

Tytthus parviceps can be recognized by the characters given in the generic discussion as well as by its basic facies (Fig. 50).

This species is widely distributed in the Ethiopian Region and

also occurs in the southern Palearctic, Florida, and the neotropics (Carvalho and Southwood, 1955).

Carvalho et al. (1960) incorrectly recorded specimens of this species from 10 miles north of Matatiele as *Cyrtorhinus melanops* Reuter.

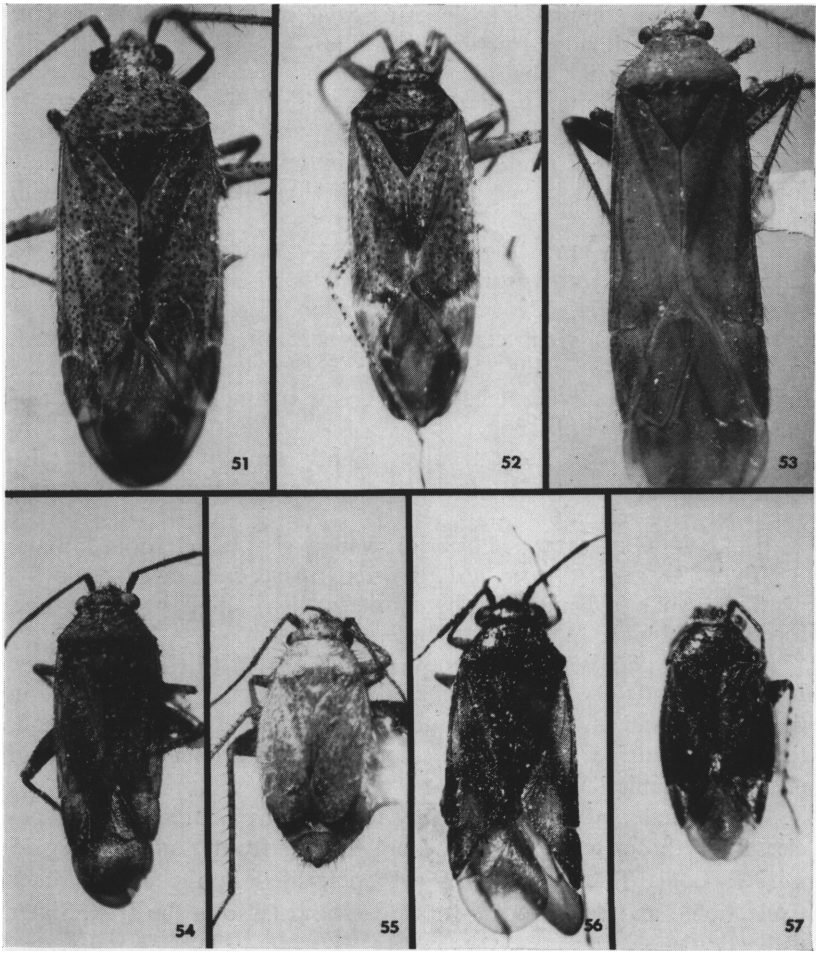
SPECIMENS EXAMINED: All specimens macropterous. *Cape Province*—1 ♂, 1 ♀, 10 mi. N. Matatiele, V.III.51 (Brinck and Rudebeck); 1 ♂, Rondvlei near Knysna, 8 Feb. 1968. *Natal*—1 ♂, Port Shepstone, 5.97. *Transvaal*—1 ♀, Lyttelton, 12 Jan. 1968, UV light; 4 ♂♂, 1 ♀, *idem*, 29 Feb. 1968; 1 ♀, Tzaneen, 11–16 Dec. 1963 (Capener); 2 ♂♂, 3 ♀♀, Zomerkomst, Politzi, 20-3-65 (Johannsmeier). SOUTH WEST AFRICA—3 ♂♂, 4 ♀♀, Cayimeis, Mar. 1925 (SANC, SAM, LU, BM[NH], JAS, RTS).

TRIBE PHYLINI

Austropsallus, new genus

MACROPTEROUS MALE: Large, stout bodied, elongate or very elongate; coloration often mottled, usually with dark spots at the bases of setiform hairs on dorsum and femora; body surface smooth, dull; dorsum with curved, reclining, or semierect, setiform hairs (sometimes very long), and decumbent, wooly, sericeous pubescence; eyes conspicuously hairy; antennal segment 1 with decumbent pubescence and one or more erect, fine, black spines on interior or dorsal surface; antennal segments 2, 3, and 4 with rather dense, semierect or reclining, light or dark vestiture of length up to 2½ times the diameter of segment of occurrence; thoracic pleura with wooly hairs as on dorsum; abdominal venter with reclining light hairs; tibiae usually with long dark spines with dark bases.

Head deflexed, clypeus prominent; eyes granular, moderately large, protuberant, reaching almost to gula; vertex sometimes with very low, rounded carina on posterior margin; antennae inserted slightly below middle of anterior margin of eyes, fossae contiguous with eyes; antennal segment 1 rather long, moderately enlarged, segment 2 about two-thirds diameter of segment 1, length 1¼ to nearly two times width of head across eyes, segments 3 and 4 subequal in diameter, about two-thirds diameter of segment 2, combined length roughly equal to length of segment 2; gula short, nearly horizontal; labium long, nearly attaining or surpassing mesocoxae; pronotum with anterior margin sinuate, finely carinate, upturned, lateral and posterior margins nearly straight; calli indistinct; pronotum inclined posteriorly; mesoscutum about one-third length of scutellum; mesoscutum and scutellum flattened, separated by dis-



FIGS. 51–57. Phylini. Fig. 51. *Austropsallus drakensbergensis*, male, holotype. Fig. 52. *Austropsallus helichrysi*, male, holotype. Fig. 53. *Austropsallus saniensis*, male, holotype. Fig. 54. *Austropsallus senecionus*, male, holotype. Fig. 55. *Austropsallus senecionus*, female (Sani Pass, 9400 ft., Lesotho). Fig. 56. *Capecapsus tradouwensis*, male, holotype. Fig. 57. *Capecapsus tradouwensis*, female (Doorn River, Cape Province).

tinct, transverse impression; lateral corial margins nearly straight; cuneal incisure shallow, fracture slightly angled anteromedially; membrane with two cells; abdomen reaching to about middle of cuneus; legs moderately long; only metatibiae with rows of tiny, closely spaced spines; metatarsal segment 1 about one-half length of segment 2, segments 2 and 3 subequal in length; claws moderately long, curved, broad basally; parempodia hair-like, parallel; pulvilli small.

MALE GENITALIA: Figures 220–234. Similar in structure to *Coatonocapsus*, *Capecapsus*, and *Odhiamboella*; left clasper in all species similar (Fig. 222), most highly modified in *A. middelburgensis* (Fig. 225); right clapser lanceolate; phallotheca L-shaped, usually elongate apically (Fig. 221); vesica with two attenuated apical spiculi, usually bent in characteristic manner, somtimes forming complete coil (Fig. 226).

MACROPTEROUS FEMALE: Eyes slightly smaller and vertex relatively wider than in males; females of *A. senecionus* brachypterous (see species description).

FEMALE GENITALIA: Posterior wall a simple sclerotized plate.

TYPE SPECIES: *Austropsallus drakensbergensis*, new species.

This genus is named for its southern distribution in Africa and for its resemblance to the genus *Psallus*.

Austropsallus is probably most closely related to *Coatonocapsus*. It can be recognized by the generally long, erect, setiform hairs on the dorsum and antennae, the mottled and often spotted coloration, the uniform surface texture and coloration of the head, and the form of the male genitalia.

Single male specimens probably representing additional new species from those described below are known from Zoutpansberg, 5 mi. N. Louis Trichardt, Transvaal (deposited in the J. A. Slater Collection), and Sani Pass, 9400 ft., Lesotho (also in the J. A. Slater Collection).

KEY TO SPECIES OF *Austropsallus*

Macropterous specimens

1. Antennal segment 2 with erect, dark hairs about 2½ times as long as diameter of segment; antennal segment 1, proximal half of segment 2, and entire dorsum with dark spots at bases of hairs ..... *drakensbergensis* (Fig. 51)

   Antennal segment 2 with or without long, erect, dark hairs, never with dark spots; dorsum with or without dark spots 2

2. Very long, slender species, total length 5.44 mm., greatest width 1.72

mm.; antennal segment 2 with long, erect, dark hairs; dorsum sparsely covered with long, semierect, dark hairs with very small, dark bases; general coloration dingy green or light olive ..... *saniensis* (Fig. 53)

Species either small (5.00 mm. or less) or if over 5.00 mm., width relative to length much greater than in *saniensis;* vestiture and coloration variable 3

3. Small species, length 3.52 mm.; dorsum nearly unicolorous blackish brown; entire body and appendages with long, heavy, black, setiform hairs ..... *senecionus* (Fig. 54)

Species larger than above, length over 4.50 mm.; body and appendages with moderately long, light colored hairs 4

4. Dorsum with round, brown spots at bases of setiform hairs; tibiae with very long slender black spines with dark bases; length under 5.00 mm. ..... *helichrysi* (Fig. 52)

Dorsum either without spots or with spots only on clavus and posterior half of corium; length over 5.00 mm 5

5. Membrane brown, including cells ..... *middelburgensis*

Membrane white with light brown cells ..... *albonotum*

Austropsallus albonotum, new species

Figures 226–227

MACROPTEROUS MALE: Basic coloration greenish white; head mottled; anterior third of pronotum, mesoscutum, mesothoracic and metathoracic pleura, bases of procoxae, mesocoxae and metacoxae entirely, single row of spots on anterior surface of profemora and mesofemora, two rows of spots on anterior surface of metafemora, and irregularly placed spots on posterior surfaces of all femora brown; posterior half of corium and entire clavus with thickly placed, round, reddish spots; membrane generally white, cells reddish brown; antennae light brown, segment 1 with narrow brown band proximally; femora, tibiae, and tarsi nearly white; tibial spines obscurely dark at bases.

Setiform hairs on dorsum light on light background areas, dark on dark background areas; hairs on antennae and femora light.

Labium just surpassing metacoxae.

MEASUREMENTS: Total length 5.28, maximum width 1.88, length head .36, width head .92, interocular space .48, length pronotum .60, width pronotum 1.60, length scutellum .84, width scutellum 1.12, length corium 2.72, length clavus 2.00, length cuneus 1.00, width cuneus .44, length claval commissure 1.12, distance apex commissure-apex membrane 2.72, length metatibia 2.76; length antennal segments 1—.32, 2—1.44, 3—?, 4—?; length labial segments 1—.52, 2—.58, 3—.38, 4—.56.

MALE GENITALIA: Figures 226–227.

Female unknown.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, October, M. Johannsmeier (SANC).

PARATYPES: 10 macropterous ♂♂, same data as holotype; 1 macropterous ♂, *idem*, 15.X.65 (Schoombee). *Transvaal*—2 macropterous ♂♂, Zomerkomst, Politzi, 20.3.65 (Johannsmeier) (SANC, JAS, RTS).

This species is named for its very light dorsal coloration.

Austropsallus albonotum is probably most closely related to *A. middelburgensis*. It can be recognized by the generally light dorsal coloration with the posterior half of the corium and the entire cuneus reddish (spotted) and with the membrane white and the cells light brown.

Austropsallus drakensbergensis, new species

Figures 51, 220–222

MACROPTEROUS MALE: Basic coloration light reddish brown (see discussion); dorsum, antennal segment 1, proximal half of antennal segment 2, all femora, and all tibiae with numerous round brown spots; mesosternum and tarsal segment 3 black; thoracic pleura and most of abdomen yellow orange; membrane smoky brown, veins yellow orange.

Dorsum dull, antennae with a few, erect, very long brown hairs; femora and tibiae with black spines.

Labium just surpassing metacoxae.

MEASUREMENTS: Total length 4.64, maximum width 1.80, length head .28, width head .92, interocular space .40, length pronotum .82, width pronotum 1.60, length scutellum .80, width scutellum 1.04, length corium 2.52, length clavus 2.00, length cuneus .88, width cuneus .44, length claval commissure 1.00, distance apex commissure-apex membrane 2.20, length metatibia 2.48; length antennal segments 1—.36, 2—1.44, 3—.84, 4—.40; length labial segments 1—.60, 2—.60, 3—.30, 4—.50.

MALE GENITALIA: Figures 220–222.

MACROPTEROUS FEMALE: See generic discussion.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Natal*, Oliviershoek Pass Summit, 5400 ft. el., 25 mi. S. Harrismith, 4 Mar. 1968, T. Schuh, J. A. & S. Slater, M. Sweet (Adults and nymphs on *Syncolostemon macranthus* [Guerke] Ashby) (SANC).

PARATYPES: 28 macrop. ♂♂, 16 macrop. ♀♀, same data as holotype (SANC, JAS, RTS).

ADDITIONAL SPECIMENS: All specimens macropterous. *Natal*—5 ♂♂, 1 ♀, 65 nymphs (in alcohol), same data as holotype; 1 ♂, 1 ♀, Natal Nat. Park, iii.1932 (Mackie); 1 ♂, 1 ♀, Port Shepstone, 5.97; 3 ♂♂, 3 ♀♀, V. Reenen. *Transvaal*—2 ♀♀, 5 nymphs (in alcohol), 13 mi. S. Barberton, 5300 ft. el., 24 Mar. 1968 (Adults and nymphs on *Hemizygia albiflora* [N.E. Br.] Ashby); 49 ♂♂, 25 ♀♀ (2 ♂♂, 52 nymphs—in alcohol), Mariepskop near Klaserie, 6300 ft., 30 Nov. 1967 (Adults and nymphs on *Hemizygia albiflora* [N.E. Br.] Ashby) (SANC, TM, BM[NH], HM, USNM, JAS, RTS).

This species is named for its general occurrence on the Drakensberg Escarpment.

Austropsallus drakensbergensis is probably most closely related to *A. helichrysi*. It can be recognized by the uniform covering of brown spots on the dorsum and the long hairs on the antennae with dark spots at the bases on segment 1 and the proximal half of segment 2. Most specimens are rusty orange in coloration, but the series from Mariepskop is dark purplish brown, and has therefore not been included in the paratype series even though the structural features, including the male genitalia, agree closely with the specimens treated as paratypes.

Known host plants are *Syncolostemon macranthus* (Guerke) (Labiatae) and *Hemizygia albiflora* (N.E. Br.) Ashby (Labiatae). The general coloration of the bugs usually agrees rather closely with the coloration of the flowers of the host plant.

Austropsallus helichrysi, new species

Figures 52, 232–234

MACROPTEROUS MALE: Basic coloration light grayish green or yellow green; dorsum, femora, and tibiae covered with round brown spots; posterior margin of vertex and mesoscutum orange; scutellum and thoracic pleura brown; ostiolar peritreme white; all tarsal segments 3 black; abdomen very dark brown.

Dorsum dull; setiform hairs slender, dark; hairs on antennae and femora light; femora and tibiae with black spines.

Labium reaching almost to middle of abdomen.

MEASUREMENTS: Total length 4.52, maximum width 1.40, length head .30, width head .76, interocular space .36, length pronotum .44, width pronotum 1.20, length scutellum .64, width scutellum .80, length corium 2.12, length clavus 1.56, length cuneus .68, width cuneus .28, length claval commissure .88, distance apex commissure-apex membrane 1.88, length metatibia 2.00; length

antennal segments 1—.30, 2—1.06, 3—.66, 4—.32; length labial segments 1—.52, 2—.60, 3—.34, 4—.54.

MALE GENITALIA: Figures 232–234.

MACROPTEROUS FEMALE: See generic discussion.

HOLOTYPE: Macropterous ♂, LESOTHO: Sani Pass, 8000 ft., 10 Mar. 1968, J. Munting, S. Slater, T. Schuh, M. Sweet (Adults on *Helichrysum cooperi* [Harv.]) (SANC).

PARATYPES: 27 macropterous ♂♂, 29 macropterous ♀♀, same data as holotype (SANC, BM[NH], HM, USNM, SAM, JAS, RTS).

This species is named for the host genus, *Helichrysum*.

Austropsallus helichrysum is similar to *drakensbergensis*, but is smaller, basically greenish, and lacks dark spots on antennal segments 1 and 2.

The type locality is a subalpine region on the Drakensberg Escarpment in which the host plant, *Helichrysum cooperi* Harv. (Compositae), was growing is association with *Chrysocoma tenuifolium* Berg., *Geranium pulchrum* N.E. Br., and *Papaver aculeatum* Thunb.

Austropsallus middelburgensis, new species

Figures 223–225

MACROPTEROUS MALE: Head and anterior third of pronotum cream; posterior two-thirds of pronotum grayish; mesoscutum orange; scutellum, corium, clavus, and lateral margin of cuneus light orangish brown to brown; cuneus anteriorly on mesial margin white, red between white area and brown lateral margin; membrane brown, veins nearly white; antennae, legs, and labium very light brown or cream; coxae generally brown; mesothoracic and metathoracic pleura and most of abdominal venter very dark brown; venter of abdomen sublaterally and apical half of genital capsule yellow orange; profemora and mesofemora with a few, metafemora with many, brown spots; tibial spines light brown, with or without obscure dark bases.

Dorsum dull; setiform hairs on dorsum and appendages light.

Labium just surpassing mesocoxae.

MEASUREMENTS: Total length 5.60, maximum width 2.00, length head .52, width head 1.12, interocular space .42, length pronotum .56, width pronotum 1.68, length scutellum .96, width scutellum 1.68, length corium 3.04, length clavus 2.20, length cuneus 1.08, width cuneus .48, length claval commissure 1.20, distance apex commissure-apex membrane 2.80, length metatibia 2.88; length antennal segments 1—.44, 2—1.52, 3—?, 4—?; length labial segments 1—.56, 2—.62, 3—.34, 4—.54.

MALE GENITALIA: Figures 223–225.

MACROPTEROUS FEMALE: See generic discussion.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Grootfontein, Middelburg, October, M. Johannsmeier (SANC).

PARATYPES: 10 macropterous ♂♂, 1 macropterous ♀, same data as holotype (SANC, JAS, RTS).

ADDITIONAL SPECIMENS: *Cape Province*—2 macropterous ♂♂, 2 macropterous ♀♀, Camps Bay, Cape Peninsula, Sept. 1920 (Turner) (BM[NH]).

Austropsallus middelburgensis has light antennal hairs as do *albonotum* and *helichrysi*, whereas in the remaining three species the antennal hairs are black. *A. middelburgensis* can be separated from *albonotum* by the generally brown membrane, and from *helichrysi* by its much larger size and lack of dark spots at the bases of the hairs on the dorsum.

The four specimens from Camps Bay, Cape Peninsula, have nearly identical male genitalia with the Middelburg series, but are much redder in dorsal coloration, and therefore are not included as paratypes.

Austropsallus saniensis, new species

Figures 53, 229–231

MACROPTEROUS MALE: Very elongate; basic coloration light olive to yellowish; posterior margin of vertex, mesoscutum; posteromesial margin of cuneus, and veins of membrane weakly orange; mesosternum, labial segment 4, all tarsal segments 3, bases of black hairs on dorsum and femora, and bases of spines on tibiae black.

Dorsum smooth, dull; setiform and wooly hairs on dorsum rather widely spaced; femora with some setiform black hairs.

Labium just surpassing apex of mesocoxae.

MEASUREMENTS: Total length 5.44, maximum width 1.72, length head .28, width head .84, interocular space .44, length pronotum .48, width pronotum 1.35, length scutellum .96, length corium 2.72, length clavus 1.84, length cuneus 1.08, width cuneus .32, length claval commissure 1.08, distance apex commissure-apex membrane 3.08, length metatibia 2.40; length antennal segments 1—.36, 2—1.24, 3—.84, 4—?; length labial segments 1—.46, 2—.44, 3—.26, 4—.34.

MALE GENITALIA: Figures 229–231.

Female unknown.

HOLOTYPE: Macropterous ♂, LESOTHO: Sani Pass, 10 Mar. 1968, 9400 ft., T. Schuh, M. Sweet, S. Slater, J. Munting (SANC).

This species is named for the type locality, the summit of the Sani Pass, Lesotho.

Austropsallus saniensis is the only known species in the genus with extremely long hemelytra and with scattered setiform hairs with tiny black spots at their bases on an otherwise rather uniformly colored dorsum (see also discussion under *A. senecionus*).

The type locality is an alpine region at the summit of the Sani Pass. At the time of my visit the area was badly overgrazed. The vegetation consisted mostly of grasses and very low-growing composites including species of *Helichrysum*, *Senecio*, and *Eumorphia*.

Austropsallus senecionus, new species

Figures 54, 55, 228

MACROPTEROUS MALE: Basic coloration dull brown or blackish brown, very weakly suffused with green; femora heavily spotted with black; tibiae with black spots at bases of most spines; all tarsal segments 3 black; membrane dark smoky brown.

Setiform hairs on dorsum rather closely placed, without dark bases; antennae with many, very long, erect, black hairs; femora with rather dense reclining dark hairs and numerous reclining or semierect black setiform hairs, particularly on dorsal surface.

Labium just surpassing mesocoxae.

MEASUREMENTS: Total length 3.52, maximum width 1.20, length head .22, width head .70, interocular space .58, length pronotum .40, width pronotum 1.12, length scutellum .52, width scutellum .72, length corium 1.72, length clavus 1.20, length cuneus .64, width cuneus .28, length claval commissure .60, distance apex commissure-apex membrane 1.76, length metatibiae 1.72; length antennal segments 1—.24, 2—.82, 3—.50, 4—.34; length labial segments 1—.36, 2—.38, 3—.20, 4—.30.

MALE GENITALIA: Figure 228.

BRACHYPTEROUS FEMALE: Hemelytra reduced, apex of abdomen exposed; general coloration light green or yellow green; antennal segment 2 dark; antennal segments 3 and 4, labial segment 4, all tarsal segments 3, and extreme base and apex of ovipositor black; tibiae and femora without distinct black spots, bases of spines only very obscurely dark.

Body surface and vestiture as in male; long black setiform hairs of dorsum, black tibial spines, and black hairs on antennae giving very spiny appearance.

Eyes relatively small, weakly protuberant; vertex convex, pos-

terior margin nearly straight, ecarinate; frons strongly convex; antennae inserted at level of ventral margin of eyes, fossae slightly removed from anterior margins of eyes; labium just surpassing metacoxae; pronotum almost flat, anterior and lateral margins nearly straight, posterior margin weakly sinuate; mesoscutum and scutellum flat; cuneus and membrane greatly reduced, membrane not projecting posteriorly past apex of cuneus; lateral margins of hemelytra including cuneus evenly convexly rounded, nearly conforming to lateral abdominal margins; apical 2 abdominal segments almost completely exposed; legs relatively short.

MEASUREMENTS: Total length 2.76, maximum width 1.28, width head .72, interocular space .42.

FEMALE GENITALIA: See generic discussion.

HOLOTYPE: Macropterous ♂, LESOTHO: Sani Pass, 10 Mar. 1968, 9400 ft., T. Schuh, M. Sweet, S. Slater, J. Munting (Adults and nymphs on *Senecio achilleaefolius* DC.) (SANC).

PARATYPES: 6 macropterous ♂♂, 1 macropterous ♀, 24 brachypterous ♀♀, same data as holotype (SANC, JAS, RTS).

This species is named for the host genus, *Senecio*.

The smallest and most slender bodied species in the genus, *A. senecionus* most closely resembles *saniensis* in coloration and form of the dorsal vestiture, especially in that *senecionus* lacks spots at the bases of the setiform hairs and *saniensis* has only very small spots. The two species can be easily separated because *senecionus* is small and does not have the long hemelytra relative to the total body length as found in *saniensis*. *A. senecionus* is at present the only species in the genus for which brachypterous females are known, but females of this species are also known in the macropterous form. The females of *senecionus* are reminiscent of *Ellenia obscuricornis* in general shape and coloration, but the pretarsal structures are much different, and the females of *senecionus* are usually brachypterous whereas no brachypterous specimens of *Ellenia* are known (see also discussion under *Coatonocapsus*).

The host plant of this species is *Senecio achilleaefolius* DC. (Compositae) (see discussion under *A. saniensis*).

Brachycranella Reuter

Brachycranella Reuter, 1905c, p. 19.—Wagner, 1965, p. 83.

Only a single species, from South West Africa, is currently placed in *Brachycranella*. Wagner (1965) discussed the relationship of *Brachycranella* to *Atomoscelis* and other allied genera in the Pale-

arctic. Reuter (1905c) related *Brachycranella* to *Tuponia* Reuter. Poppius (1914a) keyed the genus out with *Leptoxanthus* at the end of his key to the Phylinae, considering both genera to lack "arolia".

Brachycranella viridipunctata (Stål)

Capsus (*Eurymerocoris*) *viridipunctata* Stål, 1858, p. 317.
Brachycranella viridipunctata: Carvalho, Dutra, and Becker, 1960, pp. 451–452.

The identity and relationships of *Brachycranella viridipunctata* must await examination of the holotype which is probably in the Stockholm Museum. The type locality of the species, "Territorium fluvii Svakop", is at about 22–23° S. latitude in South West Africa. Carvalho et al. (1960) recorded this species from Ladismith, Cape Province.

Capecapsus, new genus

MACROPTEROUS MALE: Elongate, parallel sided; head between and below antennae, including clypeus, juga, and lora, black, highly polished, shining; entire body smooth; dorsum with moderately dense, reclining, dark, setiform hairs and decumbent, flattened, wooly, sericeous hairs; antennal segment 1 with decumbent dark hairs and an erect, dark spine on interior surface; antennal segments 2, 3, and 4 with dense vestiture of decumbent short hairs and longer reclining hairs about the length of diameter of antennal segment 2; thoracic pleura and most of abdominal venter with decumbent, wooly, sericeous hairs similar to those on dorsum; femora with decumbent hairs; tibiae and tarsi with inconspicuous decumbent hairs; tibiae with semierect black spines about the length of tibial diameter.

Head declivous; clypeus just visible from above; eyes moderately large, protuberant, contiguous with anterior margin of pronotum, reaching almost to gula ventrally, anterior margins weakly sinuate; antennae inserted just above ventral margin of eyes, fossae contiguous with eyes; antennal segment 1 moderately enlarged, segment 2 increasing very slightly in diameter distally to diameter nearly equal to that of segment 1; antennal segments 3 and 4 subequal in diameter, about three-fourths diameter of segment 2; bucculae small; gula obsolete; pronotum broad, flattened; scutellum weakly convex; hemelytra nearly parallel sided; cuneal incisure distinct; membrane with 2 cells; only metatibiae with longitudinal rows of tiny, closely spaced spines; tarsal claws moderately long, gently curved; parempodia weakly fleshy, convergent apically, reaching just past midpoint of claw; pulvilli minute.

MALE GENITALIA: Figures 235–237. Vesica similar in structure to *Coatonocapsus* and *Odhiamboella*, with complete coil and single attenuated apical spine; gonopore subapical, well developed; claspers and phallotheca typical of the Phylini.

BRACHYPTEROUS FEMALE: See *C. tradouwensis*.

FEMALE GENITALIA: Not examined.

TYPE SPECIES: *Capecapsus tradouwensis*, new species.

This genus is named for its occurrence in the Cape Province of South Africa.

Capecapsus appears to be most closely related to *Coatonocapsus*, based on its general facies, polished frons below the antennae, sexual wing dimorphism, and the form of the male genitalia; the fleshy convergent parempodia and unicolorous dorsum will separate *Capecapsus* from *Coatonocapsus*. The polished frons relates *Capecapsus* to *Ellenia* which also has fleshy convergent parempodia; the relationship between the two genera does not appear to be particularly close on the basis of the male genitalia, however. *Capecapsus* is also similar to *Odhiamboella* in general facies and structure of the vesica, but the type of vestiture is very different.

Capecapsus tradouwensis, new species
Figures 56, 57, 235–237

MACROPTEROUS MALE: Basic coloration dark brown; membrane smoky brown; all femora distally, and tibiae, yellowish, with numerous brown spots.

Posterior margin of vertex nearly straight with distinct carina; labium just surpassing procoxae; pronotum depressed on either side of midline behind weak calli, anterior margin weakly sinuate, lateral margins shallowly concave, posterior margin nearly straight; cuneal fracture slightly angled anteromedially; abdomen reaching to about middle of cuneus; metatarsal segment 1 slightly less than one-half length of segment 2, segments 2 and 3 subequal in length.

MEASUREMENTS: Total length 3.72, maximum width 1.36, length head .24, width head .80, interocular space 3.72, length pronotum .44, width pronotum 1.16, length scutellum .52, width scutellum .72, length corium 1.80, length clavus 1.40, length cuneus .80, width cuneus .36, length claval commissure .80, distance apex commissure-apex membrane 1.72, length metatibia 1.56; length antennal segments 1—.24, 2—.76, 3—.34, 4—.26; length labial segments 1—.26, 2, 3, and 4—.40.

MALE GENITALIA: Figures 235–237.

BRACHYPTEROUS FEMALE: Ovoid, stout bodied; general coloration, surface texture and pubescence as in macropterous male.

Eyes slightly smaller than in male, vertex relatively wider; posterior margin of vertex sinuate; pronotal calli slightly raised, widely separated medially; scutellum nearly flat; hemelytra broadly rounded laterally, short, just surpassing apex of abdomen.

MEASUREMENTS: Total length 3.40, maximum width 1.28, width head .74, interocular space .40.

HOLOTYPE: Macropterous ♂, SOUTH AFRICA: *Cape Province*, Tradouw Pass, Swellendam Dist., Mus. Expd., Nov. 1925 (SAM).

PARATYPES: *Cape Province*—3 macropterous ♂♂, same data as holotype; 1 macropterous ♂, 48 mi. E. Barrydale, XI-31-1966 (Rozen); 2 macropterous ♂♂, 4 brachypterous ♀♀, Doorn River, XI.1931 (Ogilvie) (SAM, AMNH, RTS).

This species is named for the Tradouw Pass.

As the only species in the genus, *C. tradouwensis* can be separated from other South African Phylinae by the characters given in the generic discussion and by the structure of the male genitalia.

Coatonocapsus, new genus

MACROPTEROUS MALE: Relatively small; elongate, nearly parallel sided; coloration sombre, mottled or spotted; body surface smooth, dull; head below level of dorsal margin of antennal fossae (including clypeus, lora, and juga) highly polished (usually black); dorsum with reclining or erect dark setiform hairs and decumbent, wooly, sericeous hairs; eyes with very short hairs; antennae with dense, reclining light vestiture about as long as diameter of antennal segment 1 and usually with some longer, fine, semierect hairs; antennal segment 1 with slender, erect, black spine on interior surface; thoracic pleura and abdomen lateroventrally with wooly hairs as on dorsum; abdomen medially and posteriorly with reclining light hairs; femora with reclining hairs and some fine spines; tibiae and tarsi with fine reclining hairs and some reclining or semierect black spines about as long as 1½ times tibial diameter.

Head declivous; eyes moderately large, protuberant, weakly granular, nearly confluent with anterior margin of pronotum; vertex weakly convex, posterior margin nearly straight, ecarinate; frons convex, transversely rugose; anterior margins of eyes weakly emarginate; antennae inserted at just below level of ventral margin of eyes, fossae contiguous with eyes; antennal segment 1 moderately enlarged, segment 2 tapering slightly proximally or nearly cylin-