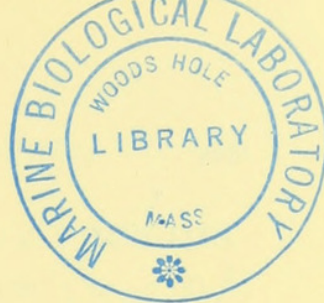




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PYRGOMORPHIDAE (ORTHOPTERA : ACRIDOIDEA)
COLLECTED IN AFRICA BY
E. S. ROSS AND R. E. LEECH, 1957-1958,
WITH DESCRIPTIONS OF NEW SPECIES

BY

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Through the kindness of Dr. E. S. Ross and Mr. D. C. Rentz, of the California Academy of Sciences, I have had the opportunity of examining a collection of Pyrgomorphidae assembled in Africa during 1957 and 1958 by Dr. Ross himself, in collaboration with Mr. R. E. Leech. Since this material contains a number of interesting specimens and records, an account is presented of the species comprising the collection. The specimens, including types of new species, are in the possession of the California Academy, except for a few duplicates which I have retained for further study.

Maura marshalli Bolívar, 1904.

BELGIAN CONGO: 5 miles W. of Tshinsenda, 1330 m., Stop 380, 8.II.1958,
1 ♀. NORTHERN RHODESIA: 44 miles S.W. of Hyimba, 570 m., Stop 433 [?]¹,

1. The specimen is labelled "St.434" which apparently refers to a locality 12 miles E. of Rufunsa, 1060 m., 2.III.1958.

1.III.1958, 1 ♀; 5 miles N. of Kapiri Mposhi, 1320 m., Stop 384, 9.II.1958, 1 ♂.

A common species of southern central Africa. It is found in two main color variants: one with the dorsum of the head and pronotum yellowish-orange, the tegmina black; and the other with a more mottled, paler, less distinctive coloration. The females above belong to the first type, the male (as is normally the case) is brachypterous and of the second color form. The male is presumably conspecific with the females, but the whole genus is badly in need of revision.

***Maura lurida* (Fabricius, 1781).**

KENYA: Tanganyika border, Namanga, 1300 m., Stop 245, 19.IX.1957, 1 ♀.

A species widely distributed in tropical Africa.

***Maura antennata* Bolívar, 1912.**

BELGIAN CONGO: Upemba Park, Munowe, 1400 m., Stop 337, 18.I.1958, 2 ♀ ♀.

A fairly common Central and East African insect, but possibly not a valid species, being in all probability a brachypterous form of another. This specimen has a testaceous, immaculate frons as in *M. flavifrons* Bolívar, 1894.

***Maura fitzgeraldi* Dirsh, 1954.**

NORTHERN RHODESIA: Abercorn, 1600 m., Stop 404, 16.II.1958, 1 ♀.

Described from a single male from Abercorn. Until the genus is revised, it is impossible to be certain of the status of this species. It may merely represent the micropterous condition of another. Many species of *Maura* appear to be variable in color pattern and in tegmen length.

***Dictyophorus (Dictyophorus) spumans* (Thunberg, 1787).**

SOUTHERN RHODESIA: 12 miles S. of Chipinga, 970 m., Stop 466, 19.III.1958, 2 ♂ ♂ [1 ab. *calceatus* (Bolívar, 1904)]. UNION OF SOUTH AFRICA: Transvaal, Klaserie, 600 m., Stop 492, 28.III.1958, 1 ♀ [ab. *calceatus*]; Natal, 3 miles N.E. of Ubombo, 300 m., Stop 507, 6.IV.1958, 1 ♂ [ab. *calceatus*].

A very variable species common and widely distributed in southern Africa.

Dictyophorus (Tapesiella) laticinctus (Walker, 1870).

BELGIAN CONGO: 50 km. S. of Tshela, Stop 6, 26.VII.1957, 1 ♂, 2 ♀ ♀; 56 km. N. of Matadi, Stop 7, 27.VII.1957, 2 ♀ ♀.

Known from several places in Central Africa.

Dictyophorus (Tapesiella) griseus (Reiche et Fairmaire, 1850).

BELGIAN CONGO: 27 miles S. of Kapona, 1400 m., 14.I.1958, 1 young nymph; Nasoni, 28 miles N. of Kasaji, 1070 m., Stop 361, 31.I.1958, 1 ♀ [f. *fuscroseus* (Sjöstedt, 1923)]. KENYA: Rift Valley, Nairobi-Magadi road 25 miles N. of Magadi, Stop 251, 22.XI.1957, 1 ♂ [f. *intermedius* (Sjöstedt, 1923)]. TANGANYIKA: 1 mile N. of Megeta, 800 m., Stop 225², 15.XI.1957, 2 nymphs; 4 miles N. of Kolo, 114 miles N. of Dodoma, 1700 m., Stop 238, 17.XI.1957, 1 ♂ [f. *intermedius*]. NORTHERN RHODESIA: 8 miles S.W. of Ndola, 1310 m., 9.II.1958, 1 young nymph. SOUTHERN RHODESIA: 10 miles S.W. of Shabani, 1050 m., Stop 472, 21.III.1958, 1 ♀ [f. *fuscroseus*].

A very variable species extremely widely distributed in tropical Africa.

Parapetasia (Loveridgeacris) impotens (Karsch, 1888).

KENYA: Kwale, 450 m., 207, 5.XI.1957, 1 ♂, 1 nymph.

A rather localized species occurring in northeastern Tanganyika and southeastern Kenya.

Taphronota ferruginea (Fabricius, 1781).

BELGIAN CONGO: Bunyakiri (Kavumu-Walikale Route), 1100 m., Stop 114, 7.IX.1957, 1 ♀ (typical red hind tibiae).

A common and widely distributed West African species.

Taphronota sp., aff. *T. corallipes* Sjöstedt, 1929.

BELGIAN CONGO: Irangi, Luhoha R., 900 m., Stop 117, 10.IX.1957, 2 ♂ ♂, 3 ♀ ♀.

This material possibly belongs to a new species, but until the genus is revised, it is impossible to be certain. It bears a strong resemblance to *T. corallipes* from Middle Congo, but the hind tibiae are entirely black and the head and pronotum marked as in *T. ferruginea*.

2. The locality on the data label does not coincide with this stop number.

Taphronota subverrucosa Saussure, 1899.

Taphronota occidentalis Karsch, 1893, Berl. ent. Z. 38:83 [*nec*, 1892, *ibid.* 37:70].³

Taphronota subverrucosa Saussure, 1899, Abhandl. Senckenb. Ges. 21:644.

Taphronota amaranthina, Bolívar, 1904, Bol. Soc. esp. Hist. nat. 4:395, 400 (new synonymy).

BELGIAN CONGO: Lwiro River Falls, 47 km. N. of Bukavu, 2000 m., Stop 107, 1 ♂, 1 ♀.

The "*subverrucosa-calliparea*" group of species is in need of revision. It seems possible that *T. subverrucosa* may prove to be the widely distributed West African subspecies of *T. calliparea*. The above synonymy has been determined by a comparison of types and will be discussed fully elsewhere. The present specimens are rather atypical in that the tubercles on the metazona of the pronotum are strongly exaggerated.

Taphronota sp., aff. *T. calliparea* (Schaum, 1853).

KENYA: Kaimosi Mission, 27 miles N.E. of Kisumu, 1650 m., Stop 267, 29.XI.1957, 1 ♂.

This is the typical form found in the Central African Lakes region. The tegmina are shorter than in typical *T. calliparea* and the wings redder. It is possible that this form represents an intermediate to *T. subverrucosa* of West Africa.

Taphronota calliparea (Schaum, 1853).

P[oecilocera] *cincta* BURMEISTER, 1838, Handb. Ent. 2:623, no. 7.

Poecilocerus callipareus SCHAUM, 1853, Ber. Akad. Wiss. Berlin, 1853:778, no. 16.

The earliest name for this species is *Poecilocera cincta* and fuller explanation of this will be given when the genus is revised. It is sufficient for the present to say that I am satisfied that *P. cincta* of Burmeister and *Poecilocerus callipareus* of Schaum are synonyms and that the former is neither a synonym nor an homonym of *Gryllus cinctus* Fabricius, 1793 (which has been referred to the genus *Phymateus*). Neither is it a synonym of *Gryllus thaelephorus* Stoll'h, 1813 (= *Taphronota ferruginea* Fabricius), as was also thought to be the case by Burmeister, so that the name "*cincta*" was perhaps valid for this species. Schaum was, however, quite logical and deliberate in renaming Burmeister's material and even although the name *Poecilocera*

3. *T. occidentalis* Karsch, 1892, is another rather similar West African species which occurs in the Cameroons and southeastern Nigeria. It is recognizable by, among other characters, the presence of a distinct, pale, quadrate spot on the postero-inferior area of the lateral pronotal lobe. Owing to an error in type labelling in the Berlin Museum, one of Karsch's 1893 specimens was selected by me (1955:79) as the single type. This selection is invalid since it does not refer to a specimen included by Karsch in his original 1892 description; the two are not conspecific. A correct type selection is as follows: ♂ (lectotype), Kamerun, Buea, 1.I-10.IV.1891 (Preuss, S.) [Berlin Museum]. There is also one ♀ syntype with the same data.

cincta had not been based upon a misidentification of Fabricius' species, the revised Rules adopted in London in 1958 include a Statute of Limitations aimed at preventing the resurrection of names which have remained buried and unused for fifty years and thus "*calliparea*" must be retained.

KENYA: Teita Hills, 3 miles E. of Maktau, Stop 201, 1.IX.1957, 2 ♂♂.
NORTHERN RHODESIA: Abercorn, 1600 m., Stop 404, 16.II.1958, 1 ♂, 1 ♀.
SOUTHERN RHODESIA: 12 mi. S. of Chipinga, 970 m., 19.III.1958, 1 ♂.

This is an extremely widely distributed species in southern and eastern Africa. It varies considerably in size, tegmen length, wing color, etc. Southern specimens tend to be larger with proportionately longer tegmina and wings. This is true of the above Rhodesian specimens.

Rutidoderes concolor Kevan, new species.

(Figure 1.)

"*Peristegus squarrosus* L., Varietät," Sjöstedt, 1929, Ark. Zool. 20A (15): 7.

TYPE. ♂, BELGIAN CONGO: Tshibati (L. viro), 32 miles N. of Bukavu, 1950 m., Stop 291, 17.XII.1957 (E. S. Ross & R. E. Leech). [California Academy of Sciences.]

A large species, the type being quite as large as any male of the generi-type, *R. squarrosus* (Linné, 1771), and much larger than those of the only other described species, *R. cinctus* (Sjöstedt, 1929). It conforms closely with these species in the shape of the head and pronotum. The latter has the thorn-like tubercles extremely long and prominent exactly as in *R. squarrosus*. It differs chiefly in the venation and in coloration. The external male genitalia do not appear to be distinctive.

TEGMINA. Very broad (broader than in the other species), broadly rounded apically with fine, close venation, quite different from what is found in the other species and resembling that of *Taphronota* (except *T. stali*); four instead of two rows of cells between most of the main veins; color dark olive green, suffused dark purplish in the costal field and toward the apex, without any trace of the tessellation found in *R. squarrosus* and *R. cinctus*.

HIND WINGS. Very broad, more discoidal but with similar venation to that of the other species (*i.e.*, with only two rows of cells between the main veins); color almost uniform deep crimson-red, without the black tessellation of the other species, although the cells of the anterior and apical parts of the wings are darker crimson.

GENERAL COLORATION. Head, bases of antennae, and ventral side brownish-olive; eyes chestnut; apical two-thirds of antennae blackish; pronotum dull olive-green; legs olive with yellowish-olive maculations; abdomen without the distinctive rings of color found in *R. squarrosus* and *R. cinctus*.

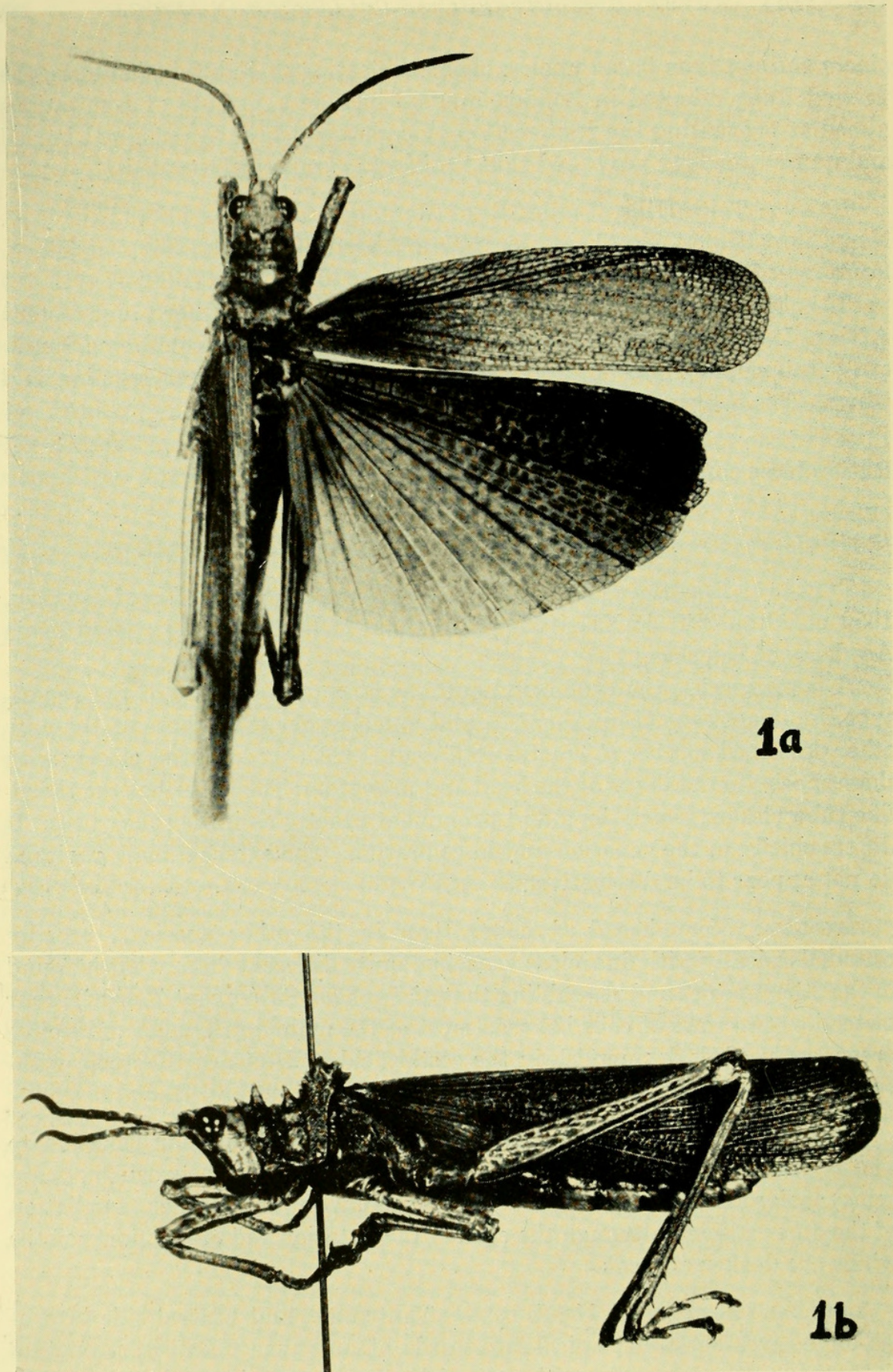


Figure 1. *Rutidodores concolor*, new species, ♂ type $\times 1\frac{3}{4}$ (approx.); (a) dorsal; (b) lateral. [Photos: S. K. Banerjee.]

MEASUREMENTS. Length 40.5, antenna 20, head (dorsal) 4.0, pronotum 7.9, tegmen 36.3 x 9.8, hind femur 19.8 mm.

PARATYPE. ♂, BELGIAN CONGO: N.W. [Lake] Tanganyika, 1910 (*Grauer*). Agrees well with the type but is slightly smaller; hind wings with rather more cells darker. Measurements: Length 37, antenna 19, head 4.0, pronotum 7.9, tegmen 34.5 x 9.7; hind femur 19.0 mm.

Phymateus (Phymateus) viridipes Stål, 1873.

KENYA: 38 miles S.E. of Kitale, 1950 m., Stop 163, 17.X.1957, 1 ♀; Rift Valley, Nairobi-Magadi Road, 25 miles N. of Magadi, Stop 251, 22.XI.1957, 1 ♀. UNION OF SOUTH AFRICA: Natal, Ekombe Forest, 39 miles N. of Kranskop, 1520 m., Stop 518, 10.IV.1958, 1 ♂.

A very common species in eastern and southern Africa; often occurring in large numbers and occasionally injurious to crops.

Phymateus (Phymateus) iris Bolívar, 1884.

ANGOLA: 14 miles S.E. of Hengue, 1720 m., Stop 619, 29.V.1958, 2 ♀ ♀.

This species seems to be confined to Angola where it appears to be not uncommon.

Phymateus (Phymateus) aegrotus (Gerstaecker, 1869).

KENYA: Teita District, 11 miles S. of Maktau, 1000 m., Stop 202, 2.XI.1957, 3 ♂ ♂, 2 ♀ ♀; Tanganyika border, Namanga, 1300 m., Stop 245, 19.XI.1957, 2 ♂ ♂; Athi River, 1500 m., Stop 248, 20.XI.1957, 5 ♂ ♂.

A common species in northern Tanganyika, Kenya, and the Somalilands; often occurring in large numbers and occasionally injurious to crops.

Phymateus (Maphyteus)⁴ baccatus Stål, 1876.

SOUTHERN RHODESIA: 14 miles W. of Fort Victoria, 1050 m., Stop 471, 21.III.1958, 1 ♂; 10 miles N.E. of Filabusi, 1100 m., Stop 473, 22.III.1958, 1 ♀; 2 miles N.W. of Balla Balla, 1100 m., Stop 474, 22.III.1958, 1 ♀, 1 nymph; Khama Ruins, 14 miles W. of Bulawayo, 1275 m., Stop 475, 22.III.1958, 1 ♂, 1 ♀. UNION OF SOUTH AFRICA: Transvaal, Dwarsrivier, 27 miles S. of Louis Trichardt, 1000 m., Stop 485, 26.III.1958, 1 ♂, 1 ♀, 10 miles E. of Pietersborg, 1200 m., Stop 486, 26.III.1958, 1 ♂. SOUTH WEST AFRICA: 10 miles S. of Rehoboth, 1350 m., Stop 577, 7.V.1958, 2 ♀ ♀; 10 miles S. of

4. I prefer to continue to recognize *Maphyteus* Bolívar as a subgenus of *Phymateus* Stål on the basis of the broad, almost subcycloid hind wings, tapering tegmina and coarse venation, rather than on the unsatisfactory characters originally used to separate the two.

Windhoek, 1850 m., Stop 579, 8.V.1958, 1 ♂, 1 ♀; 14 miles S.E. of Omaruru, 1160 m., Stop 561-2, 10.V.1958, 1 ♂; 2 miles N.W. of Outjo, 1250 m., Stop 587, 14.V.1958, 1 ♀.

A common species in the drier parts of southern Africa.

Phymateus (Maphyteus) leprosus (Fabricius, 1793).

UNION OF SOUTH AFRICA: Cape Province, Sandflats, 280 m., Stop 530, 18.IV.1958, 2 ♂♂.

A very common species in South Africa, often occurring in large numbers and frequently injurious to crops.

Zonocerus variegatus (Linné, 1758).

BELGIAN CONGO: 36 miles N. of Uvira, 1000 m., 22.VIII.1957, 1 nymph; 24 miles S. of Mambasa, 950 m., Stop 137, 1.X.1957, 3 ♂♂ (1 macropterous), 8 ♀♀; Epulu, 950 m., Stop 138, 3.X.1957, 2 ♀♀.

A very common species (sometimes injurious) in west and central Africa.

Zonocerus elegans (Thunberg, 1815).

TANGANYIKA: 36 miles S.E. of Sumbawanga, Stop 397, 1590 m., 13.II.1958, 6 ♂♂, 4 ♀♀. NYASALAND: Chiromo, 100 m., 2.II.1958, 1 ♀; 16 miles S. of Kasunger, 1600 m., 23.II.1958, ♂♀. NORTHERN RHODESIA: Kafue, 960 m., Stop 443, 8.III.1958, 1 ♀. SOUTHERN RHODESIA: Bikita Mines, 1200 m., Stop 468, 18.III.1958, 1 ♀. UNION OF SOUTH AFRICA: Transvaal, Dwarsrivier, 35 miles S. of Louis Trichardt, Stop 485, 25.IV.1958, 1 ♀.

A very common species in southern and eastern Africa where it replaces *Z. variegatus*. It is also frequently injurious to crops.

Occidentosphenia ruandensis (Rehn, 1914).

BELGIAN CONGO: Tshibati (Lwiro), 32 miles N. of Bukavu, 1950 m., Stop 291, 17.XII.1957, 6 ♂♂, 5 ♀♀; Lwiro River Falls, 47 km. N. of Bukavu, 2000 m., Stop 107, 26.VIII.1957, 4 ♂♂, 5 ♀♀.

This species is known from a number of localities in the eastern Congo, Ruanda-Urundi and S.W. Uganda.

Parasphenia naivashensis Kevan, 1948.

KENYA: 17 miles S.E. of Nakuru, 1900 m., II.XII.1959, 1 ♂, 1 ♀.

This species is known only from the Rift Valley of Kenya. The specimen in the Paris Museum recorded by Bolívar (1922) from Naivasha under the name *P. pulchripes* (Gerstaecker) has now been examined and proves to belong to this species, as suggested by Kevan (1948).

***Parasphenena teitensis* Kevan, 1948.**

KENYA: Teita Hills, 3 miles E. of Maktau, Stop 201, 1.XI.1957, 1 ♀.

This species occurs only in the Teita Hills.

***Parasphenula obscura* Kevan, new species.**

(Figures 2, 3.)

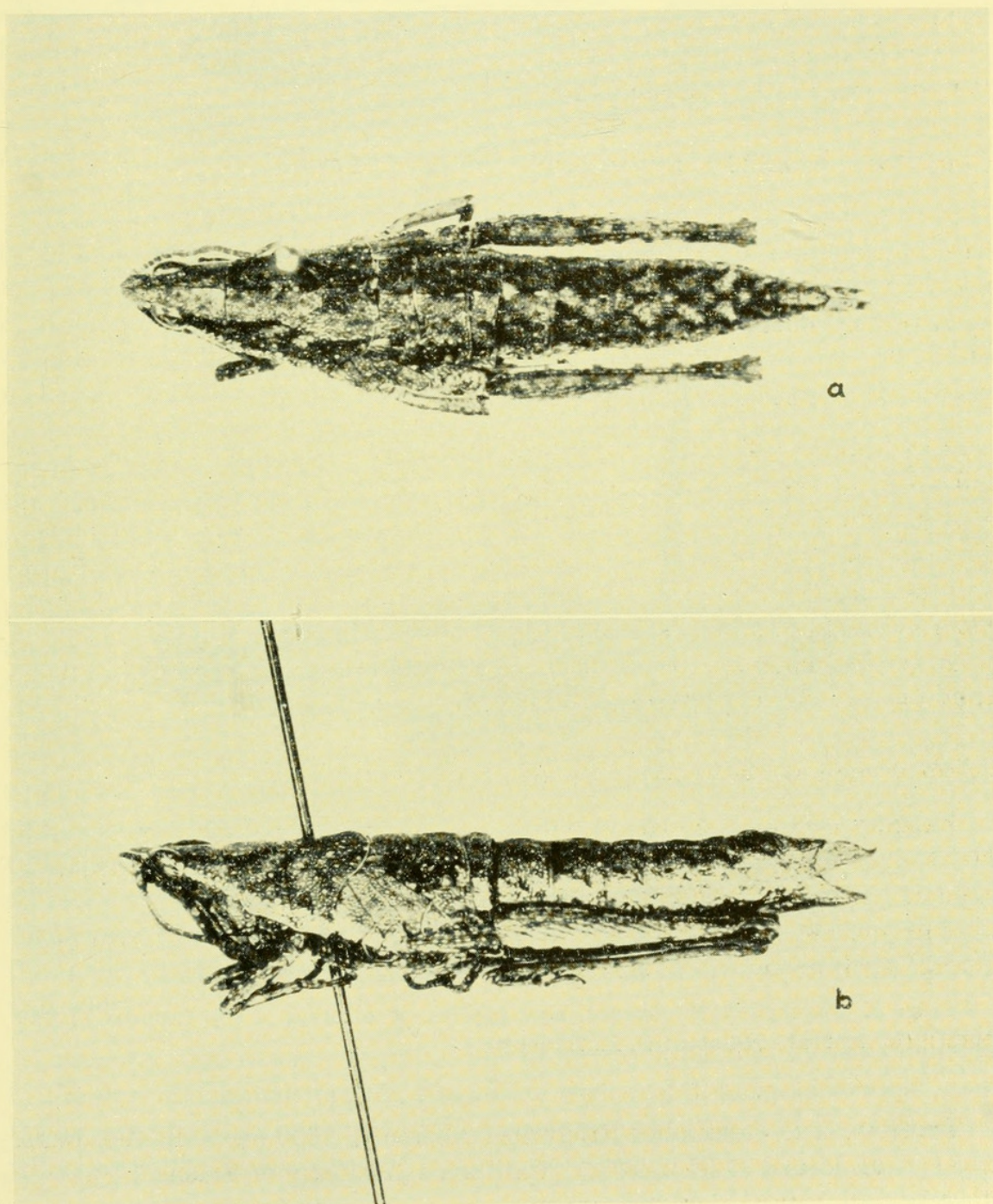


Figure 2. *Parasphenula obscura*, new species; ♀ type $\times 3$ (approx.); (a) dorsal; (b) lateral. [Photos: S. K. Banerjee.]

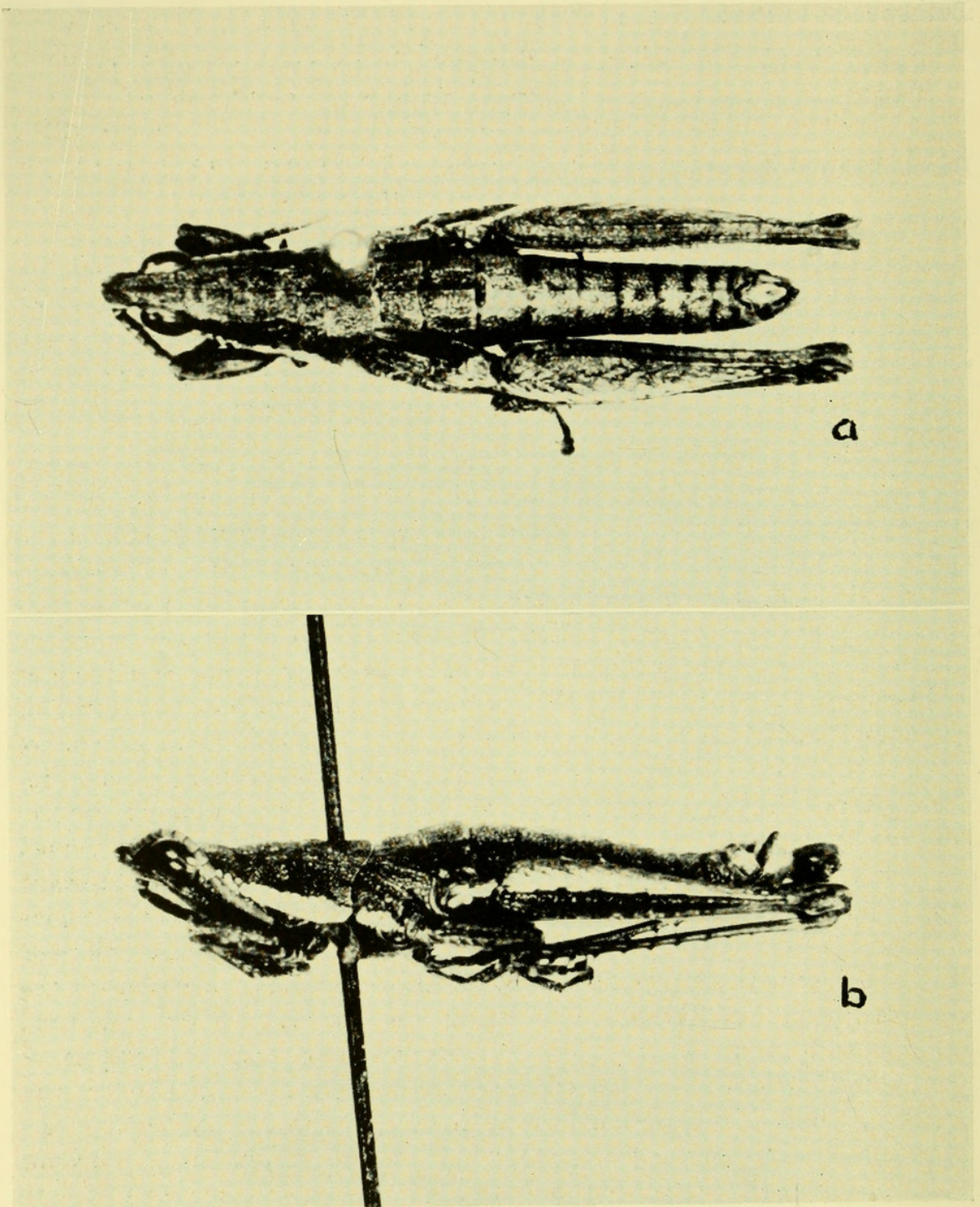


Figure 3. *Parasphenula obscura*, new species, ♂ allotype $\times 4\frac{1}{2}$ (approx.); (a) dorsal; (b) lateral. [Photos: S. K. Banerjee.]

TYPE. ♀, N.E. NORTHERN RHODESIA: Abercorn, 1600 m., Stop 404, 16.II. 1958. (E. S. Ross & R. E. Leech.) [California Academy of Sciences.]

HEAD. About two-thirds as long as pronotum. Antennae about as long as the pronotum, basal segments strongly flattened. Eyes oval, about one

and three-quarter times as long as broad, posterior margin somewhat truncated; interocular space about equal to the breadth of an eye. Fastigium of vertex about as long as wide with lateral margins subparallel and apex parabolic. Median carinula distinct, reaching the occiput. Vertex rugose with a few small tubercles near the eyes. Frontal profile strongly oblique, distinctly and evenly concave. Frontal ridge strong, compressed between the antennae, parallel-sided and evenly sulcate throughout to the clypeus. Lateral frontal carinae strong, slightly sinuous. Frons granular with a pair of small tubercles about equidistant from the lateral carinae and the clypeal suture, slightly nearer to the frontal ridge. Clypeus and cheeks with a few small scattered tubercles. Oblique row of tubercles from behind the eye to the anterior margin of pronotum distinct, forming a double row.

THORAX. Pronotum fairly typical for the genus. Pronotal disc almost twice as long as wide, granular-rugose with a few scattered pustules; anterior margin almost truncate; posterior margin strongly biarcuate; median carina distinct, particularly in the anterior and posterior thirds; lateral carinae indistinct, sinuous, diverging to the metazona, subparallel in the prozona and metazona; anterior transverse sulcus faint, placed at about one-third of the pronotal length; second sulcus sinuous, more distinct at about the middle of the disc; typical sulcus straight, fairly distinct, placed about two-thirds of the distance along the pronotum. Lateral pronotal lobes somewhat concave in the middle with scattered pustules; anterior margin straight, oblique; inferior margin slightly sinuous; posterior margin widely excavated; infero-posterior angle irregular; dorso-lateral impressions distinct but ill-defined and with a raised granulated ridge below them running diagonally upward toward the posterior end of the lateral carina of the disc; callous ridge above the inferior margin of the lateral lobe comprised of numerous small, more or less distinct granular tubercles. Mesonotum all but concealed beneath the pronotum; metanotum slightly shorter than the metazona of the pronotum, similarly sculptured but virtually without granular pustules. Prosternal tubercle transverse and slightly sulcate along its apex. Meso- and metasterna strongly granular; mesosternal lobes a little longer than wide, their interspace more than twice the width of a lobe; metasternal pits directly behind the inner angles of the mesosternal lobes; metasternal interspace very short and wide.

TEGMINA AND WINGS. Tegmina not quite reaching the posterior margin of the first abdominal tergum, strap-like, with costal margins straight, posterior margins slightly convex and apices tapering to a rounded point. Hind wings scale-like.

LEGS. Covered with granular pustules but otherwise unremarkable. Hind femora about five times as long as wide.

ABDOMEN. Segments all similarly sculptured to the metanotum; median carina strong throughout. First abdominal tergum very similar to metanotum but slightly longer than the metazona of the pronotum and bearing a few distinct granular pustules at the lateral margins. Tympana of moderate size, distinct and lying in large, shallow depressions. Tenth abdominal tergum deeply excised to base. Epiproct narrowly triangular with apex rather blunt and a transverse sulcus before the middle. Cerci conical, short and stout, falling considerably short of the apex of the epiproct. Ovipositor valves fairly elongate, the dorsal valves scarcely crenulated at the base (fig. 4).

COLORATION. Generally fuscous; granules and tubercles testaceous. Antennae blackish, suffused reddish; eyes chestnut; lateral pronotal lobes blackish in the middle. Pleura, sternum and apex of abdomen locally suffused reddish. Abdomen ventrally testaceous, mottled fuscous and with a pair of irregular ventro-lateral fuscous stripes; abdominal segments laterally with an oblique, black macula which is broken up and less distinct on the posterior segments. Tegmina fuscous; hind wings reddish. Hind femur with the lower part of the exterior face testaceous; dorsal aspect with patches of blackish suffusion; exterior-ventral face blackish. Hind tibiae and tarsi dirty pinkish; blackish apically.

MEASUREMENTS. Length 31, head 4.1, pronotum 5.6, tegmen 3.2, hind femur 11.2 mm.

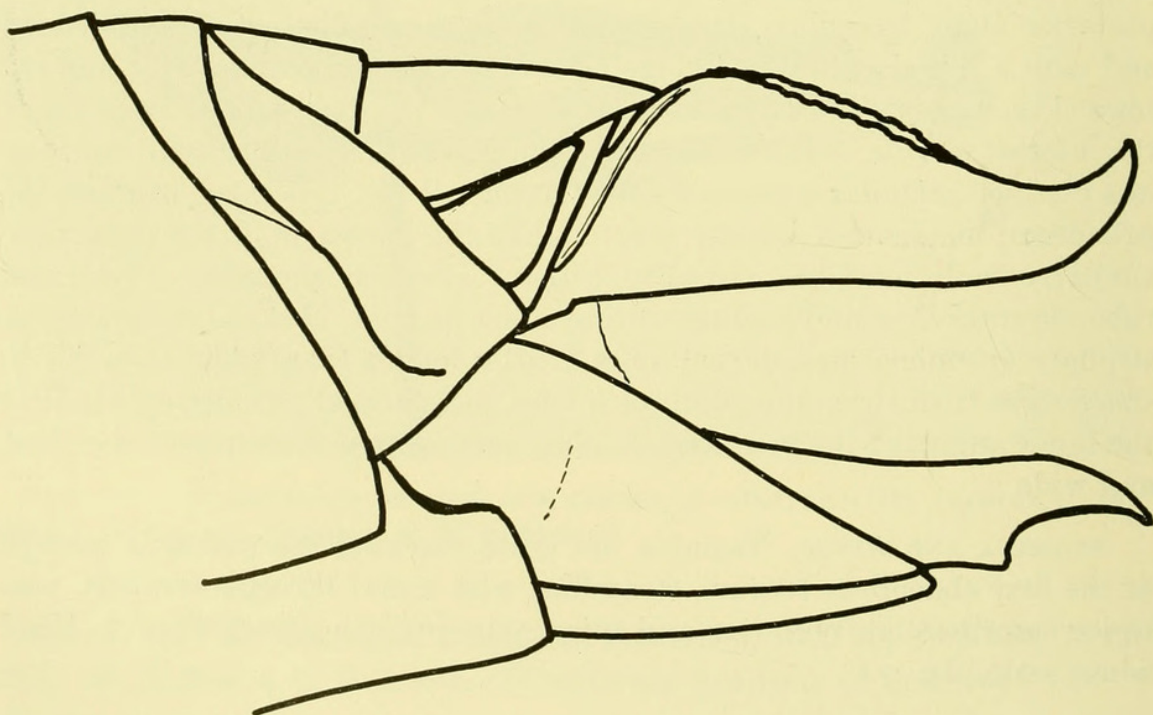


Figure 4. *Parasphenula obscura*, new species; ♀, ovipositor, lateral.

ALLOTYPE. ♂; same data as type [California Academy of Sciences].

Agrees with the type except for being smaller and more slender, and in the following details. The head is a little more than two-thirds as long as the pronotum; the antennae are almost as long as the head and pronotum together; the interocular space is narrower and the fastigium more rounded apically; granular pustules are fewer and less distinct, those of the callous inferior border of the lateral pronotal lobes running into one another; the meso- and metasternal interspaces are much narrower, the former being barely one and a half times as wide as a lobe; the tegmina (which are suffused blackish) extend just beyond the hind margin of the first abdominal tergum; the black maculae on the sides of the abdomen are large and distinct; the cerci are longer and narrower, reaching almost to the apex of the epiproct; and the tenth abdominal tergum is not deeply excised to the base, but has a distinct, narrow, rounded median notch (fig. 5a). The subgenital plate is subacute with a somewhat truncated apical profile (fig. 5b).

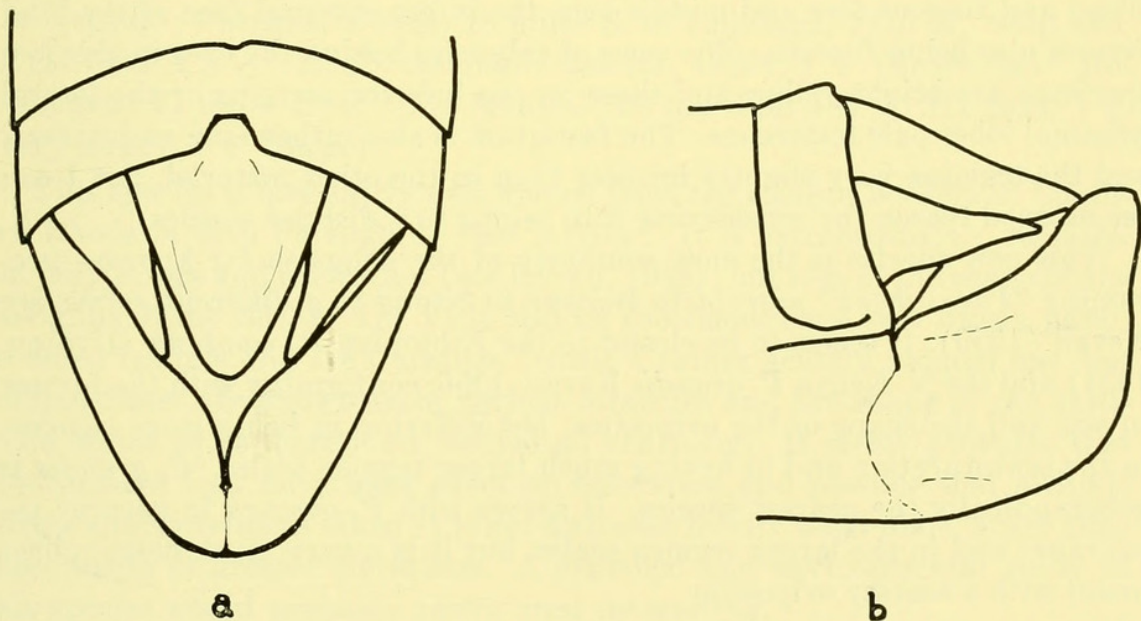


Figure 5. *Parasphenula obscura*, new species; ♂, external genitalia; (a) dorsal; (b) lateral.

MEASUREMENTS. Length 18.5, head 3.2, pronotum 3.8, tegmen 2.8, hind femur 9.3 mm.

PARATYPES⁵. N.E. NORTHERN RHODESIA: 2 ♀ ♀, same date as type; 1 ♀, Kalambo Falls, 22 miles N.W. of Abercorn, 1200 m., Stop 405, 18.II.1958 (E. S. Ross & R. E. Leech); 2 ♀ ♀, Abercorn, 21.XII.1953 [coll.?]; 1 ♂, 1 ♀, Abercorn, 24.XII.1953, [coll.?]. S.W. TANGANYIKA: 1 ♂, Lake Chila,

5. Only those collected by Ross and Leech are from the California Academy of Sciences; the others are in the British Museum or in my own collection.

Mbuga, 30.XI.1950 [coll.?]; 1 ♂, Ufipa, XI.1954 (Fitzgerald); 1 ♂, Ufipa, Mlonge Boma, 28.II.1956 (R. F. Chapman); 1 ♂, Ufipa, Nkundi, 5.III.1956 (R. F. Chapman); 2 ♂♂, Tatanda, 3 miles S. of Sumbawanga, 50 m., Stop 403, 16.II.1958 (E. S. Ross & R. E. Leech). There is also a nymph, presumably of this species, from the same area of S.E. Tanganyika; Mbizi Mt., 13. VIII.1948 (G. Burnett).

The majority of these specimens agree closely with the type and allotype, although most of them are rather smaller. The length and exact shape of the tegmen and fastigium of the vertex and the degree of rugosity and granulation of the integument are all subject to slight variation. Four of the males are rather differently coloured from the remainder. One of the Sumbawanga males is more uniform brown; the other greenish with a brown dorsal stripe, brown patches on the lateral pronotal lobes and distinctly pinkish-red hind tibiae. The Mlonge specimen is purple with tegmina and the row of tubercles from behind the eye across the inferior margin of the lateral pronotal lobe all light green. The Nkundi male is light green with black antennae, pink hind tibiae and fuscous fore and middle legs, the infero-external face of the hind femora also being fuscous. The rows of tubercles behind the eyes in this last specimen are bright yellow and those on the inferior margins of the lateral pronotal lobes pale testaceous. The fastigium is also rather long and narrow and the tegmina very slightly broader than in the other material, but I can see no good reason for considering it to belong to a distinct species.

This new species is the most southerly of the genus so far known—presuming "*Parasphena*" *nigropicta* Bolívar to belong to a different genus, see Kevan (1956). It seems to be closest to the Ethiopian *P. montana* (Uvarov, 1934) and the N. Kenya *P. grandis* Kevan, 1956, conforming with the former in size and the shape of the ovipositor, but differing in being more slender, in the sculpturation and in having much larger tegmen scales. *P. grandis* is geographically the nearest species. It agrees with *P. obscura* in general appearance and in the larger tegmen scales, but it is a very much more robust insect with a coarser ovipositor.

Cawendia glabrata Karsch, 1888.

This species was not collected by Dr. Ross or Mr. Leech, but I take this opportunity of establishing a further synonymy in the genus. A recent re-examination of the type of *C. grossa* Ramme leads me to believe that this is indeed a synonym of the above, as previously suggested (Kevan, 1956). Thus: *Cawendia grossa* Ramme, 1929, *Mitt. zool. Mus. Berlin*, 15:280, pl. IV, fig. 7. = *Cawendia glabrata* Karsch, 1888, *Ent. Nachr.* 14:345, new synonymy.

The known distribution of this species in the Congo may now be further extended to include R. Kanzenze-Lualaba (Brédo), 2 ♂♂ [in Brussels Museum].

Afrosphenia rhodesiensis Kevan, 1956.

BELGIAN CONGO. 10 miles W. of Mitwasba, 1570 m., Stop 334, 16.I.1958, 1 ♂; Parc d'Upemba, Lusinga, 1800 m., Stop 336, 17.I.1958, 1 ♂, 3 ♀ ♀; Parc d'Upemba, Muye, 1570 m., Stop 336, 17.I.1958, 3 ♀ ♀.

Previously known only from Kipundu in Northern Rhodesia. Now also known elsewhere in the Congo although not previously recorded: Kalulu (? E. Katanga), 6.V.1939, 2 ♀ ♀ (H. J. Bredo)—Brussels Museum.

Chirindites odendaali Ramme, 1929.

In the original description and in subsequent references the name of this species is spelled *oldendaali*, but the collector's name was Odendaal (so far as I am aware, no such name as Oldendaal exists) and I again, therefore, use the recent emendation "*odendaali*" (see Kevan, 1961b).

SOUTHERN RHODESIA: Umtali Heights, 1420 m., Stop 455, 13.III.1958, 1 ♀ (small); Chirinda Forest, 18 miles S. of Chipinga, 1110 m., Stop 465, 18.III.1958, 4 ♂ ♂ (all ab. *marshalli* Ramme, 1929), 1 ♀ (brownish). MOZAMBIQUE: 27 miles E. of Villa Manica, 700 m., Stop 456, 31.III.1958, 1 ♂ (very large), 1 ♀ (large).

This species is now fairly well known from the eastern borders of Southern Rhodesia with Portuguese East Africa.⁶ It is extraordinarily variable, not only in size and coloration (see Kevan, 1956), but also in the shape of the fastigium of the vertex. The Villa Manica specimens have very broad, parallel-sided fastigia and the Chipinga female a rather acutely pointed one, but intermediates are known from various localities and the shape of the fastigium seems to be merely an individual character. It seems probable that environment may have some effect on coloration and possible that altitude affects size; specimens taken at lower altitudes mostly seem to be larger than those taken at greater elevations. A genetical and environmental study of this species would probably prove most interesting.

Pyrgomorphella arachidis Dirsh, 1951.

TANGANYIKA: N.E. base of Mt. Meru, Stop 191, 29.X.1957, 1 ♀. NYASALAND: 7 miles S. of Cholo, 940 m., 25.II.1958, 1 very young nymph (? this species).

This species is fairly widely distributed in northern Tanganyika and southern Kenya. It has been recorded as injuring ground-nuts.

6. In the Paris Museum I have recently seen a specimen from Vallée du Revoué, Env. d'Andrada, 1905 (G. Vasse), which further extends the known range of the species in Mozambique.

***Pyrgomorphella albini* (Chopard, 1921).**

This species was not collected by Dr. Ross or Mr. Leech, but I take this opportunity of publishing further records since *P. albini* is little known.

KENYA: Masai Reserve, Narok, 28.I.1914 (Capt. A. O. Luckman), 1 ♂; Masai, Piyon, between Mt. Suswa and L. Magadi, 22.V.1946 (D. K. McE. Kevan), 1 ♀.

There are also two old records of *Parasphena* (now *Parasphenella*) *dubia* Bolívar, 1904 from Tanganyika, N. of Mt. Meru and Ngare na Nyuki (Sjöstedt, 1909). Kevan (1948) suggested that these were probably referable to a species of *Pyrgomorphella* and a recent examination of the material shows that the specimens belong to the above species.

***Pyrgomorphella rugosa* Key, 1937.**

The only reported specimen of this species is the unique damaged male type. It is, therefore, interesting to record the following from the present collection:

UNION OF SOUTH AFRICA: Cape Province, 3 miles S.E. of Calitzdorp, 275 m., Stop 545, 24.IV.1957, 1 ♂, 2 ♀ ♀.

Since the type lacks hind legs, the measurements of the present male example may be given:

Length 13.5, head 2.7, pronotum 2.9, tegmen 3.0, hind femur 6.8 mm. The tegmina are a little longer than in the type, reaching the anterior margin of the second abdominal tergum.

The female has not hitherto been described. It agrees well with the original description of the male, but is larger and more robust. The mesosternal interspace is fully twice the width of the mesosternal lobe. The epiproct is narrowly triangular, parabolic at the apex; the cerci are very short triangular in lateral view (almost as wide at the base as they are long); the ovipositor valves are moderately slender, their apices strongly curved, the dorsal valves being distinctly crenulated above.

The specimen selected to present the female of the species ("neotype") has the following measurements:

Length 20.5, head 3.2, pronotum 4.2, tegmen 5.3, hind femur 9.3 mm.

The genus *Pyrgomorphella*, as at present recognized, is undoubtedly heterogeneous, but it is not possible to revise it completely at the present time.⁷ However, *P. rugosa* possesses certain interesting characters which mark it off from other species and which may eventually make it desirable to erect a new genus to contain it. These characters are, particularly, the shape of the frons and the sculpturation of the pronotum, both of which are

7. See also *Pterisca*, p. 243.

somewhat reminiscent of the anomalous monotypic genus *Phymella* Uvarov, 1922. The heads of both *P. rugosa* and *Phymella capensis* Uvarov are of the characteristic *Pyrgomorphella* shape with the dorsal profile strongly convex and the frons strongly concave, but both have a strong, deep transverse impression crossing the frons below the median ocellus, giving the frontal profile a characteristic interrupted appearance.⁸ This is remarked on and figured by Key in his original description of *P. rugosa*. The head of *Ph. capensis* is strongly tuberculate, unlike that of *P. rugosa*, and Uvarov, in his original description, mentions a transverse row of tubercles below the ocellus; this lies above the transverse impression. The fastigium of the vertex in both species is also rather similar, being more or less parallel-sided and very blunt apically, giving the fastigium a rather square appearance. The sculpturation of the pronotum in *P. rugosa* has been described and figured by Key. He notes the way in which the median and lateral carinae are broken up and exaggerated between the transverse sulci, and also the presence of various additional callosities and tubercles. Although the sculpturation is not exaggerated to the fantastic degree exhibited by *Phymella*, it bears a certain basic resemblance to the condition found in that genus when the two are compared. Both species also have somewhat similar, reduced, ovate tegmina. These similarities between *Pyrgomorphella rugosa* and *Phymella capensis* confirm the suggestion of Kevan (1959:22) that *Phymella* is perhaps most closely related to *Pyrgomorphella*. Whether it now deserves tribal status of its own (the tribe Phymellini was erected by Kevan, *l.c.*) is, in spite of its extraordinary appearance, perhaps debatable.

***Plerisca peringueyi* Bolívar, 1904.**

(Figure 6.)

***Plerisca rubripennulis* (Key, 1937), new combination.**

***Plerisca senecionicola* (Key, 1937), new combination.**

Although no material was collected by Dr. Ross and Mr. Leech, I take this opportunity of referring to these three South African species, all of which occur in Cape Province.

Owing to the lack of material, the genus *Plerisca* Bolívar, 1904, was omitted from my recent paper on micropterous African Pyrgomorphidae (Kevan, 1956), but in the provisional key to the genera given, *Plerisca* would be included with *Pyrgomorphella* Bolívar, 1904. At the time of description (Bolívar, 1904:442), the genus was placed near *Parasphena* Bolívar, 1884, but it is much nearer to certain species at present included in *Pyrgomorphella*. Bolívar (1909:26) indirectly separated the two genera on the basis of

8. This transverse impression is absent or faint in other described species of *Pyrgomorphella*, but is developed to a slight degree in an undescribed Somali species.

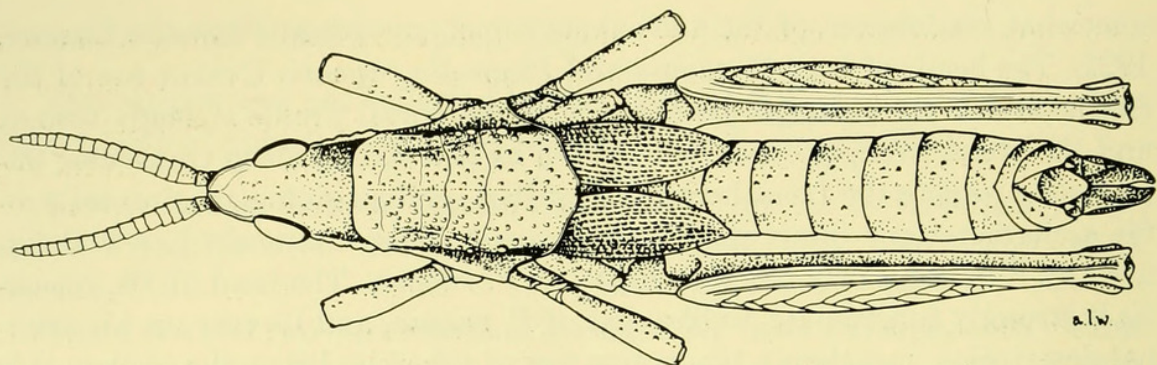


Figure 6. *Plerisca peringueyi* Bolívar, ♀ type $\times 4\frac{1}{3}$ (approx.). [Drawing by A. L. Wallers, Courtesy of Dr. V. M. Dirsh.]

untenable antennal and pronotal characters, but the similarity of *Plerisca* and *Pyrgomorphella* is very close. Until the latter is revised (the need for this is great), *Plerisca* may be distinguished by the following combination of characters:

Head less strongly convex dorsally and frons less concave; pronotal sculpturation weak; posterior margin of pronotal disc rather angularly produced and notched medially, not biarcuate, truncated (with or without a median notch), or evenly rounded; tegmina ovate or ovate-lanceolate.

Pyrgomorphella rugosa Key has similarly shaped tegmina and posterior pronotal margin, but differs in the shape of the head and in the rugose pronotum; and certain Palaearctic species, such as *Pyrgomorphella serbica* (Brunner von Wattenwyl, 1882), have ovate-lanceolate tegmina, but are probably more closely related to *Pyrgomorpha* Serville, 1839.

I am indebted to Dr. V. M. Dirsh of the Anti-Locust Research Centre, London, for comparing the types of *Pyrgomorphella rubripennulis* Key, 1937, and *Pyrgomorphella senecionicola* Key, 1937, with that of *Plerisca peringueyi* Bolívar, 1904, and for confirming that all three are congeneric. I am also grateful to him for providing me with a figure of the type of the last-mentioned species which has not previously been illustrated (fig. 6). Through the kindness of Dr. H. Gisin of the Natural History Museum, Geneva, I have subsequently been able to see this type (the only locality given on the label is "Cap. b.Esp.") which I have compared with paratypic and other topotypic material of *P. rubripennulis* from Grahamstown, eastern Cape Province. Although the two species are very similar, I agree with Dr. Dirsh that they are probably not synonymous. *Plerisca peringueyi* differs from *P. rubripennulis* in that the head is a little wider dorsally and the frons less oblique and somewhat less concave in profile, and that the posterior margin of the pronotal disc is rather less produced. The tegmina of the type of the former, also, are almost contiguous and the carinula of the vertex virtually lacking, but the latter, in *P. rubripennulis*, varies considerably in its degree of de-

velopment and the tegmina vary much in shape and size. Some specimens have tegmina almost as in the *P. peringueyi* type although not actually contiguous, some even longer, though narrower, and others smaller; males frequently have contiguous tegmina. The carinula of the vertex and the tegmina are thus probably unreliable as a means of distinguishing between the two species.

The following new nomenclatorial combinations are involved: *Pyrgomorphella rubripennulis* Key, 1937, *Ann. S. Afr. Mus.*, 32:151, 157, pl. XVII, figs. C, H. = *Plerisca rubripennulis* (Key, 1937), new combination; and *Pyrgomorphella senecionicola* Key, 1937, *Ann. S. Afr. Mus.*, 32:150, 154, pl. XVII, figs. D, G = *Plerisca senecionicola* (Key), new combination.

At least two other species of *Plerisca*, as yet undescribed, are known to me from single females. One is from the Transvaal and the other from eastern Ethiopia.

Pyrgomorpha dispar semlikiana (Rehn, 1914).

The above name is discussed by Kevan (1961a).

BELGIAN CONGO: Camp de l'Epulu, 950 m., Stop 138, 3.X.1957, 1 ♂. ANGOLA: Luanda, 18.VII.1957, 1 ♀

Apparently widespread in the West African zoogeographical region.

Pyrgomorpha granulata Stål, 1875.

NORTHERN RHODESIA: 33 miles E. of Mazabuka, 1180 m., Stop 442, 7.III.1958, 1 ♀. UNION OF SOUTH AFRICA: Transvaal, 15 miles W. of Pangola, 550 m., Stop 502, 3.IV.1958, 1 ♂.

Common in southern Africa.

Pyrgomorpha cylindrica Bolívar, 1904.

A provisional determination only. The specimens below agree fairly well with the types, but the extent of the synonymy is not yet known.

BELGIAN CONGO: 52 miles S.E. of Kilembe, Stop 57, 8.VIII.1957, 1 ♀. Park Upemba, Muve, 1570 m., 17.I.1958, 1 ♂. TANGANYIKA: 36 miles S.E. of Sumbawanga, 1590 m. [Stop 397], 13.II.1958, 1 ♂, 1 ♀.

Apparently fairly widespread in tropical Africa.

Tanita loosi Bolívar, 1904.

Species of *Tanita* are for the most part difficult to determine with certainty in the present confused state of the genus, the very limits of which

are uncertain, but type material of the species referred to here have been seen recently.

BELGIAN CONGO: 19 miles S.E. of Kiembe, 8.VIII.1957, 1 ♂; 39 miles N.E. of Lusambo, 12.VIII.1957, 1 ♀; 60 miles S. of Albertville, 1320 m., Stop 318, 13.I.1958, 1 ♀.

Tanita subcylindrica (Bolívar, 1882).

BELGIAN CONGO: 32 miles W. of Kinda, 1000 m., 2.II.1958, 1 ♀. TANGANYIKA: 1 mile N. of Megeta, 800 m., Stop 225, 15.XI.1958, 1 ♂, 2 ♀ ♀.

This species is very like the next, but is more slender with a slightly more oblique frons and longer hind femora. The type is lost but specimens from the type series have been examined. It was described from Angola.

Tanita picturata (Karsch, 1888).

BELGIAN CONGO: 43 miles N.W. of Kolwezi, 1100 m., Stop 358, 30.I.1957, 1 ♀.

This specimen appears to agree reasonably well with the type which was described from northern Angola.

Tanita lineaalba (Bolívar, 1889).

BELGIAN CONGO: 39 miles E. of Lusambo, Stop 73, 12.VIII.1957, 1 ♀; Upemba Park, Munowe, 850 m., Stop 339, 18.I.1958, 1 ♀.

A species known from Angola and the southern Congo. The Lusambo specimen is smaller and less clearly marked than the Munowe example which compares well with syntypic material.

Atractomorpha aberrans Karsch, 1888.

BELGIAN CONGO: Irangi, Luhoha R., 900 m., Stop 117, 9.IX.1957, 1 ♂, 1 ♀; 39 km. S. of Walikale, 700 m., Stop 293, 14.IX.1957, 1 ♂, 1 ♀; the same, 22.XII.1957, 1 ♂, 1 ♀; Camp de l'Epulu, Stop 138, 21.X.1957, 1 ♀; 45 miles S. of Albertville, 1350 m., 12.I.1958, 1 ♂, 1 ♀.

A common species throughout the West African zoogeographical region.

Atractomorpha acutipennis gerstaeckeri Bolívar, 1884.

A recent revision of the genus *Atractomorpha* indicates that *gerstaeckeri* is but a subspecies of the Malagasy *A. acutipennis* (Guérin-Méneville)—see Banerjee & Kevan (1960).

GABON: Port Gentil, Stop 8, 12.VII.1957, 1 ♂. BELGIAN CONGO: 37 miles E. of Kamituga, 675 m., Stop 91, 17–18.VIII.1957, 2 ♂ ♂; 39 miles N.E. of Lusambo, 12.VIII.1957, 1 ♂; Kama Mission, 14.VIII.1957, 1 ♂; Bunyakiri (Kavumu-Walikale Route), 1100 m., Stop 114, 7.XI.1957, 1 ♀; Irangi, Lulohoh R., 900 m., Stop 117, 9–10.IX.1957, 4 ♂ ♂, 2 ♀ ♀. KENYA: Kaimosi Mission, 27 miles N.E. of Kisumu, 1600 m., Stop 267, 29.XI.1957, 1 ♂. TANGANYIKA: 82 miles S.W. of Morogoro, 530 m., 15.XI.1957, 1 ♀. UNION OF SOUTH AFRICA: Cape Province, Port St. John's, sea level, Stop 520, 13.IV.1958, 1 ♂, 2 ♀ ♀.

Common and widely distributed in tropical and southern Africa.

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