

NEW SPECIES OF *PARASPHENA* BOLIVAR 1884 (*ORTHOPTERA*,
ACRIDIDÆ, *PYRGOMORPHINÆ*) FROM EAST AFRICA.

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This interesting genus of grasshoppers enjoys a wide distribution in Africa south of the Sahara, from Angola and the Transvaal to Eritrea and the Cameroons, but, with the exception of two species from the Yemen, is not known outside the Ethiopian region.

All the species appear to have a limited distribution, however, occurring at relatively high, and sometimes very high altitudes (except *P. picta* Bol., from Massaua, Eritrea, and the exactness of this locality which is at sea-level might possibly be queried in the light of the present knowledge of the genus). Some of the species are apparently limited to single mountain ranges, Kilimanjaro, the Chyulu Hills and the Teita Hills, for instance, all having their own particular forms, although not being more than one hundred miles apart.

Rehn (1942) describes or cites the literature of all the species previously known with the exception of *P. boranensis* Salfi, and the total to date stands at twenty-two species, to which must be added nine more which are described herein, making thirty-one in all, twenty-four of which are from Eastern Africa.

The species fall into two groups; those which possess slip-like rudimentary tegmina, and those which are apterous. The first two species described here belong to the former group, and the remaining seven to the latter.

All the types, allotypes, paratypes and other material described herein are at present in the possession of the Coryndon Memorial Museum, Nairobi, Kenya.

It will be noticed in the following descriptions of new species that the female has been selected as the type in preference to the male. The reason for this was that in the majority of cases more material of the former sex was available and also for the sake of consistency. The females also are often more readily distinguished from each other than are the males.

A note is not out of place on the terminology used for the sulci of the pronotal disc. In the following descriptions, the first pronotal sulcus is taken as being an extension of the anterior sulcus of the pronotal lobes across the disc. This sulcus is obsolete on the disc in many species, but indicated though obsolescent in others. What has sometimes been called the first sulcus of the pronotal disc by previous authors is here termed the interstitial sulcus since it has no counterpart on the pronotal lobes and therefore cannot be considered to be the true first sulcus of the disc.

KEY TO THE SPECIES OF *PARASPHENA* FROM EASTERN AFRICA.

(Species which have been examined by the author are marked thus †.)

- | | |
|--|------------------------------|
| 1. Apterous | 2 |
| With slip-like rudimentary tegmina | 17 |
| 2. Fastigium of vertex distinctly longer than basal width, acute
(Virunga Mts., etc., Ruanda) | <i>ruandensis</i> Rehn, 1914 |
| Fastigium not distinctly longer than basal width, nor acute | 3 |

3. Sculpture of pronotal disc and lobes comprised of small, yellow, granular tubercles. Median carina of pronotum distinct 4
Sculpture of pronotal disc not as above. Median carina of pronotum less distinct or obsolete 6
4. Red dorsal line of abdomen bordered yellow.
Sculpture of pronotal lobes similar to that of disc, the granular tubercles not distinctly larger except along the lower margin. Supra-anal plate of male as wide basally as long. Meso- and metanota with a few scattered punctures only (Chyulu Hills, S.E. Kenya) †*chyuluensis* n. sp.
Red dorsal line of abdomen not bordered yellow.
Sculpture of pronotal lobes comprised of distinctly larger granular tubercles than on the disc. Meso- and metanota distinctly punctured laterally 5
5. Size larger, ♀, 21-30 mm., ♂, 18-21 mm. Pronotal carinae distinct, red. Anterior margin of pronotum red. Four front legs largely red. Lateral yellow spots on abdominal terga well-defined (Teita Hills, S.E. Kenya) †*teitensis* n. sp.
Size smaller, ♀, 20-25 mm., ♂, 13-19 mm. Pronotal carinae not very distinct nor red. Anterior margin of pronotum not red. Four front legs not largely red. Yellow spots on abdominal terga obsolete (?) (Mt. Meru and Kilimanjaro, N. Tanganyika) *meruensis* Sjöstedt, 1909
6. Sculpture of pronotal disc comprised largely of coarse punctures which may be deep or shallow. Lateral pronotal carinae indistinct, median carina obsolete. Lateral plate of ventral ovipositor valve rather narrowly triangular 7
Sculpture of pronotal disc comprised of medium to fine punctures sometimes rather irregular 9
7. Pronotum shallowly punctured, smooth appearance (Aberdare Range, etc., C. Kenya) †*kinangopa* Uvarov, 1938
Pronotum deeply punctured, rugose appearance 8
8. Fastigium of vertex very broad and blunt. Cheek tubercles well developed. Interstitial sulcus of pronotal disc present, distinct. Meso- and metanota not distinctly punctured laterally (Imatong Mts., Sudan-Uganda border) *imatongensis* Rehn, 1942
Fastigium normal shape for genus. Cheek tubercles poorly developed. Interstitial sulcus of pronotal disc absent or very indistinct. Meso- and metanota distinctly punctured laterally. Colour dark green often with much blue or purple suffusion (Kilimanjaro, Kenya-Tanganyika border) †*pulchripes* (Gerstaecker), 1869.
9. Sculpture of pronotal disc comprised of very fine close regular and rather shallow punctures giving a smooth, dull or "matt" appearance almost devoid of wrinkles of any sort (Uasin Gishu Plateau, W. Kenya) †*kaburu* n. sp.
Sculpture of pronotal disc not as above. [If punctures fine, regular and rather shallow (*mauensis*), then rather scattered and not giving a "matt" appearance (a small species)] 10
10. Meso- and metanota distinctly punctured. It laterally only, then strongly 11
Meso- and metanota with a few scattered punctures only. 13
If more so laterally, then not strongly 13
11. Mesosternal lobes quadrate, their interspace rectangular. Body fusiform. Punctures of pronotal disc, meso- and metanota fine and more or less regular. Fastigium of vertex almost as long as wide basally. Lateral plate of ventral ovipositor valve rather broadly triangular. Interstitial sulcus of pronotal disc obsolete (Rift Valley, C. Kenya) †*naivashensis* n. sp.
Mesosternal lobes broader at apex, truncate, their interspace trapezoidal. Body more robust, slightly depressed. Punctures of pronotal disc, meso- and metanota coarser and more irregular. Lateral plate of ventral ovipositor valve rather narrowly triangular 12

12. Larger, ♀, 20-26 mm., ♂, 18-22 mm. Fastigium of vertex almost as long as wide basally. Interstitial sulcus of pronotal disc obsolescent or absent (Ngong Hills, S. Kenya) . . . †*ngongensis* n. sp.
 Smaller, ♀, 17-22 mm., ♂, 15-16 mm. Fastigium of vertex distinctly shorter than wide basally. Interstitial sulcus of pronotal disc present (Mt. Kenya, C. Kenya) . . . †*keniensis* Sjöstedt, 1912
13. Interstitial sulcus of pronotal disc present . . . 14
 Interstitial sulcus of pronotal disc absent . . . 16
14. Size small, ♀, 17-23 mm., ♂, under 17 mm. Puncturation of pronotal disc fairly regular . . . 15
 Size larger, ♀, 24-30 mm., ♂, 19-23 mm. Puncturation of pronotal disc rather irregular. Median carina of pronotum present, indistinct, usually red (Nairobi area, etc., S. Kenya) †*nairobiensis* Sjöstedt, 1933
15. Puncturation of pronotal disc rather fine and not sharply impressed. Median pronotal carina absent or obsolescent. Head smooth. Cheeks with rather poorly developed tubercles (Mau Highlands, S.W. Kenya) . . . †*mauensis* n. sp.
 Puncturation of pronotal disc rather dense and sharply impressed. Median pronotal carina present, indistinct. Head wrinkled. Cheeks with well developed tubercles. (Nanyuki Plains, C. Kenya) . . . †*campestris* Rehn, 1942
16. Dorsal stripe of abdomen yellow. Interspace between mesosternal lobes narrower, in ♂, less than width of a lobe. Supra-anal plate of ♂ broadly triangular, as wide at base as long; subgenital plate obtuse (Cherangani Mts., etc., W. Kenya) . . . *cheranganica* Uvarov, 1938
 Dorsal stripe of abdomen yellow. Interspace between mesosternal lobes wider in ♂, a little greater than the width of a lobe. Supra-anal plate of ♂ longer than broad basally; subgenital plate sub-acute (Mt. Elgon, Kenya-Uganda border) . . . †*elgonensis* Sjöstedt, 1933
 Dorsal line of abdomen red, only faintly bordered yellow. Interspace between mesosternal lobes wider, in ♂, a little greater than the width of a lobe. Supra-anal plate of ♂ almost as wide basally as long; subgenital plate sub-obtuse (Kamasia Hills, W. Kenya) . . . †*kamasiensis* n. sp.
17. Size large, ♀, over 35 mm. (up to 44 mm.), ♂ 23 mm., normally much more. Tegmina reaching to posterior margin of first abdominal segment . . . 22
 Size moderate or small, ♀, less than 35 mm., ♂, 23 mm., or less . . . 18
18. Tegmina 6 times as long as broad, almost as long as pronotum, reaching beyond first abdominal segment (S.E. Ethiopian Highlands) . . . *gallæ* (Rehn), 1901
 Tegmina shorter than above . . . 19
19. Tegmina reaching hind margin of metanotum . . . 20
 Tegmina not extending to hind margin of metanotum . . . 21
20. Size smaller, ♂, c. 15 mm., ♀, c. 23 mm. Pronotum markedly wrinkled all over, very coarsely anteriorly. Hind tibiae olivaceous (Chillalo Mts., C. Ethiopia) . . . *montana* Uvarov, 1934
 Size rather larger. Pronotum granulate, not markedly wrinkled all over. Hind tibiae red (Livingstone Mts., S.W. Tanganyika) * . . . *dubia* Bolivar, 1904
21. Fastigium not quite as long as broad basally, divergent posteriorly. Pronotum somewhat wrinkled as well as punctured. Supra-anal plate of male narrowly triangular, not as wide basally as long. Cerci a little shorter than the supra-anal plate (C. Ethiopian Highlands) . . . *abyssinica* Uvarov, 1934
 Fastigium as long as broad basally, scarcely divergent posteriorly. Pronotum punctured but only slightly wrinkled. Supra-anal plate of male broadly triangular, as wide basally as long. Cerci rather more than half as long as the supra-anal plate (S. Ethiopian Uplands) . . . †*iavellens* n. sp.

* Sjöstedt (1909) reports this species from the neighbourhood of Mt. Meru, Northern Tanganyika, but says that the specimens differ from *P. dubia* in the colour of the hind tibiae and in the posterior margin of the pronotum being rather straight or only slightly excised. Considering the local distribution of the species of *Parasphena* and the considerable distance between the type locality of *P. dubia* and the Meru area it is likely that a re-examination of Sjöstedt's material would show it to be a distinct species or even a species of *Pyrgomorphella* and not a *Parasphena*.

22. Size rather larger, ♀, 38-44 mm., ♂, c. 32 mm. Stouter; head, breadth to dorsal length, 6:7, pronotum, greatest breadth to greatest length, 10:10. Puncturation of meso- and metanota distinctly weaker than that of pronotal disc. Male with interspace between mesosternal lobes distinctly wider than the width of a lobe; tegmina reaching just beyond the posterior margin of the first abdominal tergum; supra-anal plate distinctly longer

than wide basally (Marsabit Mt., N. Kenya)

† *maxima* n. sp.

Size rather smaller, ♀, 37-40 mm., ♂, 23-32 mm. Less stout; head, breadth to dorsal length, 5:7, pronotum, greatest breadth to greatest length, 9:10. Puncturation of meso- and metanota almost as strong as that of pronotal disc. Male with interspace between mesosternal lobes less than the width of a lobe, or at most equal to it; tegmina not reaching beyond the posterior margin of the first abdominal tergum; supra-anal plate not normally distinctly longer than broad basally (Moyale Escarpment, Kenya-Ethiopia border)

† *boranensis* Salfi, 1939.

Map I shows the known distribution of the species of *Parasphena* in Eastern Africa. The following occur outside the East African Area:—

P. picta Bolívar, 1884 (Eritrea); *P. nigropicta* Bolívar, 1889 (Angola); *P. picticeps* Bolívar, 1904 (Transvaal); *P. carinata* Bolívar, 1909 (Eritrea); *P. yemenita* Uvarov, 1937 (Yemen); *P. tewfiki* Uvarov, 1938 (Yemen); and *P. uwarovi* Rehn, 1942 (British Cameroons).

AFFINITIES OF EAST AFRICAN SPECIES.

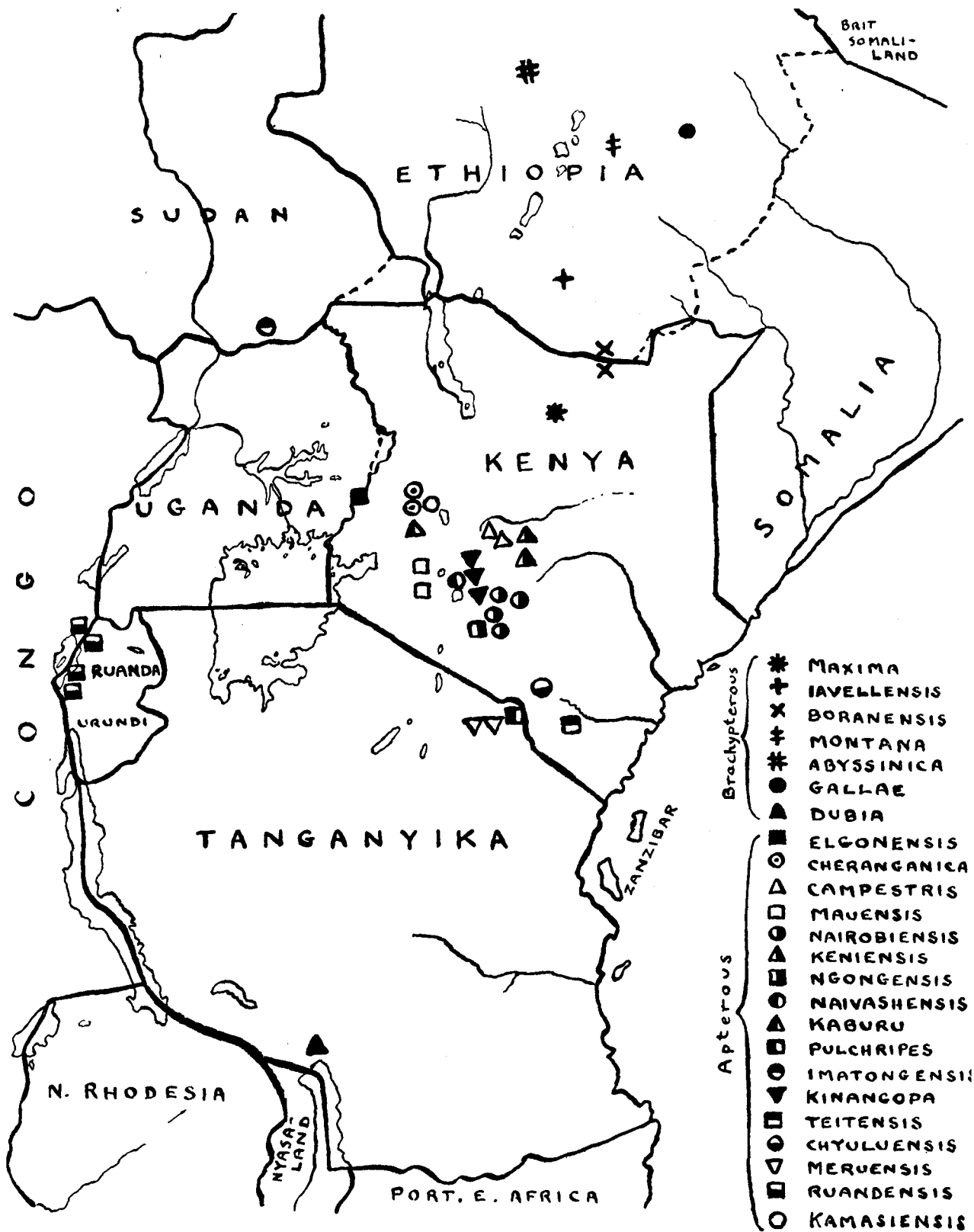
From what is known of the genus at the present time, it would appear that the evolutionary trend towards an entirely apterous condition has proceeded further in the central zone of the distribution of the genus than either to the north or south, which would indicate that the focal point from which the genus originated was in this zone, and since more species are known from the East African area than from elsewhere it seems not unlikely that East Africa gave rise to the genus.

All the species known from West, Central and British East Africa, with the exception of *P. dubia* in the extreme south, and *P. maxima* and *P. boranensis* in the extreme north, are apterous. *P. dubia* is presumably most closely related to species from Southern Africa, although Bolívar (1909) states that it is very near to *P. carinata* from Eritrea. *P. maxima* an isolated species from Northern Kenya shows a very close relationship with *P. boranensis* from the Kenya-Ethiopia border, and, like it, has affinities with *P. ivellensis* and *P. abyssinica* which occur further north. *P. gallæ* and *P. montana* are the only other brachypterous members of the genus in Eastern Africa and Rehn (*loc. cit.*) considers *P. gallæ* to be intermediate in position between *P. abyssinica* and *P. montana*. These northern species form a distinct group, not associated with the true East African species and their affinities are probably more with those from Eritrea and the Yemen.

Of the apterous species, *P. nairobiensis* would appear to occupy a more or less central position among the truly East African species, being related through *P. ngongensis* to the Central Highland group including *P. keniensis*, *P. campestris* and *P. kinangopa*, which in turn seems allied to *P. elgonensis*, *P. kamasiensis* and *P. cherranganica* from the west, and to the south-western group through *P. naivashensis* to *P. mauensis* and *P. kaburu*. *P. chyuluensis* also shows certain characters in common with *P. nairobiensis* but definitely belongs to the south-eastern group containing *P. teitensis*, *P. meruensis* and *P. pulchripes* which is less closely related.

P. ruandensis does not show any close affinities with East African species and, as would be expected, shows a closer relationship with the West African fauna, its nearest known relative being *P. uwarovi* from the Cameroons (Rehn, *loc. cit.*)*

* *P. granulata* Chopard 1945 (Rev. Fr. Ent. II; p. 176) from French Cameroons seems to be a synonym of *P. uwarovi*—Syn. Nov.—from the description.



MAP I. - DISTRIBUTION OF *PARASPHENA* IN EASTERN AFRICA.

P. imatongensis from its description (Rehn, *loc.cit.*) is not closely related to any other known species and, as far as is at present known, is geographically isolated.

PARASPHERA MAXIMA n. sp. (Fig. 1).

TYPE : ♀, Chopa Gof, Marsabit, Northern Province, Kenya, (02° 25' N. 38° 03' E) 3,010 ft., 29/11/1944, (D. K. Kevan).

Antennæ : Somewhat shorter than head and pronotum together, filiform, somewhat depressed basally.

Head : Face very oblique, concave. Frontal carina sulcate throughout, reaching almost to clypeus. Fastigium of vertex at least as long as broad basally, semi-circular anteriorly, emarginate laterally, sides divergent posteriorly. Median carinula distinct on occiput and vertex. Upper surface of head somewhat wrinkled. Cheeks covered with small tubercles, a line of large tubercles running diagonally downwards from the eye to the lateral margin of the pronotum.

Thorax : Pronotum at widest point equal to its length. Pronotal disc finely punctured. Lateral lobes of pronotum covered with small tubercles, a line of large tubercles being present along the lateral margin. First pronotal sulcus obsolete on disc; second, sinuous, placed before the middle; third at about two-thirds. Interstitial sulcus on the pronotal disc before the second sulcus moderately distinct. Median carina distinct, lateral carinae virtually absent, indicated only by a pair of irregular elongated impressions on each side, situated before and behind the second sulcus of the pronotal disc, and bounded laterally by a series of small raised tubercles. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum only half as long as metanotum, both together less than pronotum behind second sulcus. Puncturation shallower than on pronotum. Metanotum emarginate posteriorly, mesonotum scarcely so. Prosternal tubercle low. Mesosternal lobes slightly longer than broad, quadrate, their interspace one and three-quarter times the width of a lobe.

Tegmina and Wings : Tegmina five times as long as broad, equal in length to pronotum behind first lateral sulcus; reaching to posterior margin of first abdominal tergum. Wings absent.

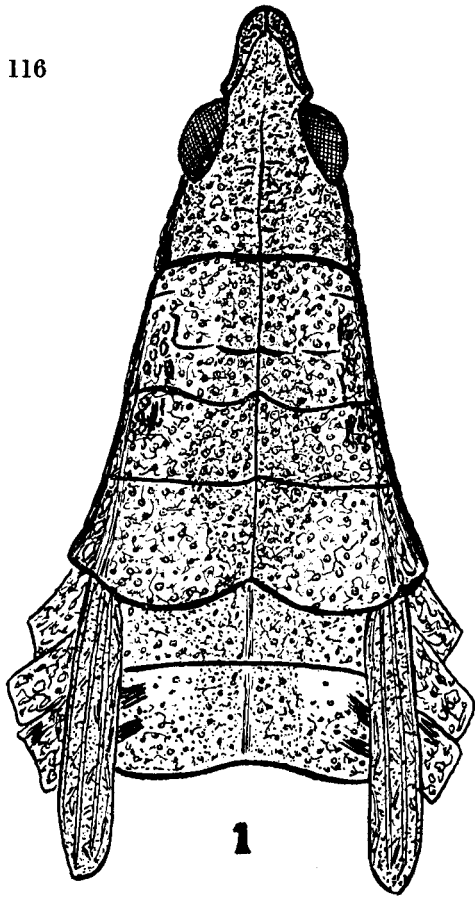
Abdomen : Terga only very faintly punctured. Posterior margin of last tergum slightly sinuous. Supra-anal plate broadly triangular, scarcely longer than its width at base. Cerci conical, less than half as long as supra-anal plate. Subgenital plate with the median projection of the distal margin acute, lanceolate, the proximo-lateral angles being right-angles. Exposed base of dorsal ovipositor valves (lateral aspect) about half the exposed length. Ventral valves with well developed apical hooks, exposed base scarcely half the exposed length; lateral plates rather broadly triangular.

ALLOTYPE : ♂ (Same locality as Type), 13/6/1946 (D. K. Kevan).

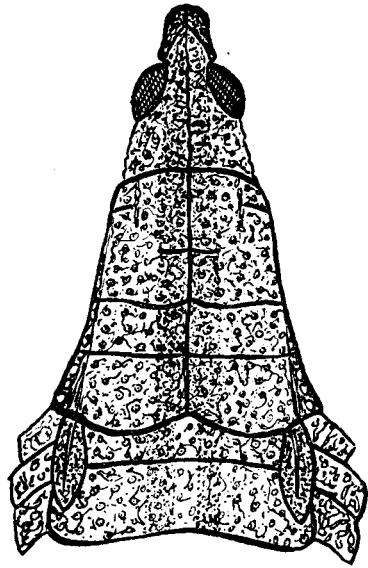
Agrees with the type in all essentials. Differs in that the fastigium is less strongly emarginate laterally and less divergent posteriorly, the mesosternal lobes are more elongate and their interspace is much narrower, being rather wider than the width of a lobe, the tegmina reach beyond the posterior margin of the first abdominal tergum, the posterior margin of the last tergum is deeply emarginate, the supra-anal plate is distinctly longer than its width and the cerci are over half as long as the supra-anal plate. Subgenital plate sub-acute. A more slender insect than the female.

COLOURATION : The general colour of the type and allotype is grass-green, suffused yellow. In the single paratype (same data as type) it is olive-brown. Antannæ, dull red. In the type, the fastigium, vertex, occiput and pronotum in region of median carina, and in the allotype, the whole of the dorsal aspect of head and pronotum are dull red, continuing to a lesser extent along the dorsal line of the abdomen. The dorsal line itself is of a rather brighter red. The larger tubercles forming a line from the eye along the cheek and continuing along the lateral margin of the pronotal lobe, yellow. Smaller tubercles in region of lateral pronotal carinae, also yellow. Tegmina and hind tibiae and tarsi, dull red. Each abdominal tergum with a lateral, oblique, black-bordered, yellow mark.

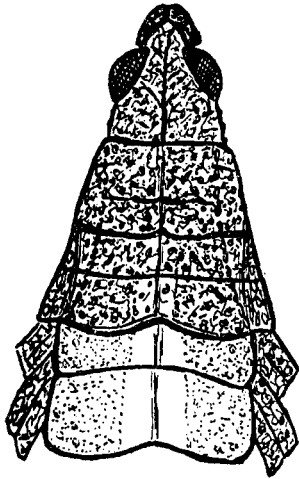
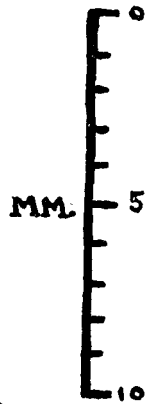
HABITAT : This species occurs on the isolated mountain of Marsabit in the Northern Province of Kenya. Marsabit forms a green island rising to about 5,000 ft. in the midst of the desert, and its summit is covered with a mountain vegetation



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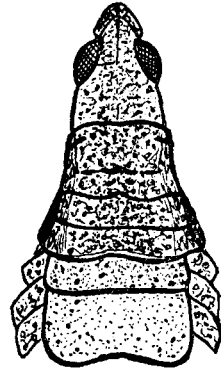
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Head and Thorax, Dorsal, Female Holotypes (except Fig. 3, Allotype)

Fig. 1. *Parasphena maxima* n. sp.

Fig. 3. *Parasphena nairobiensis* Sjöstedt.

Fig. 2. *Parasphena iavellensis* n. sp.

Fig. 4. *Parasphena naivashensis* n. sp.

Fig. 5. *Parasphena mauensis* n. sp.

consisting largely of olive forest, the grass-land ceasing at about 4,500 ft. Chopra Gof (the type locality) is some ten miles north of the Government Station and is an extinct volcanic crater 3,010 ft. high. *P. maxima* was taken on sparse scrubby bushes growing among short grass and lava boulders around the rim of the crater. It does not appear to be a common species, since originally only two females and one nymph were taken, several subsequent visits during 1944-1946 yielding no further specimens until the allotype was obtained after a prolonged search.

MEASUREMENTS (in millimetres):

	Length	Length of Pronotum	Length of hind femur	Length of Tegmen
♀ Type	44	9	17.5	7
♀ Paratype	38	8	15.5	6
♂ Allotype	32	6	16	6.5

AFFINITIES: This species can be distinguished from all others except *P. boranensis*, to which it is very closely related, by its very large size. From that species it differs from the original description (Salfi, 1939) in the somewhat larger size and the shape of the fastigium of the vertex. A series of specimens of *P. boranensis* collected by the author (Moyale, Northern Province, Kenya, 03° 31' N. 39° 03' E., c. 4,000 ft., among rough grass and herbage, 15/6/1946, 7 ♀♀, 11 ♂♂) showed these characters unreliable as a means of distinction. The species are very closely allied and it is not impossible that *P. maxima* is but a race of *P. boranensis* that has only recently evolved in an isolated locality. It may be distinguished, however, by its rather more robust appearance, the sculpture of the meso- and metanota and, in the male, by the slightly longer tegmina and wider interspace between the mesosternal lobes as well as by the rather narrower supra-anal plate (see Key), although two specimens of *P. boranensis* have the supra-anal plate almost comparable.

PARASPHENA BORANENSIS. Salfi, 1939.

Since Salfi described the colouration of *P. boranensis* from alcohol-preserved material only, the colour of the living insects can now be recorded. This varies from pale olivaceous to bright grass-green, suffused yellow, the yellow markings and reddish suffusion being identical with those described for *P. maxima*.

The measurements given for Salfi's type and allotype from Ethiopian Moyale are, particularly in the case of the male, below the average. The series collected by the author shows the length of the female to vary between 38 and 40 mm., and of the male, between 25 and 32 mm., except for one dwarf of 23 mm. This last is mentioned specially since the tegmina are remarkably short, barely reaching beyond the metanotum. There does not appear to be any gradation among other specimens down to this small size of tegmen and the example is probably aberrant.

PARASPHENA IAVELLENSIS n. sp. (Fig. 2).

TYPE: ♀, Yavello, S. Ethiopia (04° 55' N. 38° 06' E., about 7,600 ft.), May, 1941 (A. F. G. Gedye).

Antennae: Shorter than head and pronotum together, filiform, slightly depressed basally.

Head: Face very oblique, concave. Frontal carina deeply sulcate to clypeus. Fastigium of vertex as long as wide basally, semi-circular anteriorly, sides almost straight, only slightly emarginate, scarcely divergent posteriorly. Median carinula fairly distinct on occiput and vertex. Upper surface of head somewhat wrinkled. Cheeks covered with small tubercles, a row of larger tubercles running diagonally downwards from the eye to the lateral margin of the pronotum.

Thorax : Pronotum at widest point equal to its length. Pronotal disc finely punctured. Lateral pronotal lobes covered with coarse shallow punctures, a row of large tubercles present on lateral margin. First pronotal sulcus obsolete on disc; second, sinuous, placed about the middle; third at beyond two-thirds. Interstitial sulcus on the pronotal disc before the second sulcus present but very indistinct. Median carina, distinct, rather irregular; lateral carinae, obsolete except anteriorly. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum only half as long as metanotum, both together equal to pronotum behind second sulcus. Puncturation as on pronotum. Both meso- and metanota emarginate posteriorly, the metanotum more so than the mesonotum. Prosternal tubercle low. Mesosternal lobes quadrate, as long as broad, their interspace being almost twice the width of a lobe.

Tegmina and Wings : Tegmina three times as long as wide, equal to metazona of pronotum in length and reaching only to middle of metanotum. Wings absent.

Abdomen : First and second abdominal terga finely punctured, other terga only faintly so. Posterior margin of last tergum sinuous. Supra-anal plate broadly triangular, almost as broad at base as long. Cerci conical, half as long as supra-anal plate. Subgenital plate with median projection of distal margin acute, lanceolate, the proximo-lateral angles being slightly greater than right-angles. Exposed base of dorsal ovipositor valves (lateral aspect) about half as broad as exposed length. Ventral valves with well developed apical hooks, exposed base scarcely half the exposed length; lateral plates rather broadly triangular.

ALLOTYPE : ♂ (Same locality as Type), June, 1941 (A. F. G. Gedye).

Agrees with the type in all essentials. Differs in that the antennae are as long as head and pronotum together, the frontal carina barely reaches the clypeus, the pronotum at its widest is slightly less than its length, and the interstitial sulcus between first and second pronotal sulci is obsolete. The mesosternum is damaged, but the interspace between the lobes is narrower than in the type. The tegmina extend slightly beyond the middle of the metanotum, the last abdominal tergum is deeply emarginate medially. Subgenital plate sub-acute. A more slender insect than the female.

COLOURATION : General colouration grass-green, suffused yellowish. Antennae (type and one paratype) black or (allotype and one paratype) dull red. Fastigium, occiput, disc of pronotum in region of median carina, tegmina and hind tibiae and tarsi, dull red. Median line of mesonotum, metanotum and abdomen, also dull red (allotype) with a central yellow stripe (type and paratypes). The large tubercles from the eye along cheek and lateral margin of pronotum, yellow. Each abdominal tergum with a lateral oblique, broad, black-bordered, yellow mark (somewhat obsolete in the allotype).

MEASUREMENTS (in millimetres):

	Length	Length of Pronotum	Length of hind Femur	Length of Tegmen
♀ Type	32	5.5	13	2.5
♂ Allotype	23	4.5	11.5	2.5
♀ Paratype	33	5.5	13	2.5
♀ Paratype	32	5.5	13	2.5

The paratypes have the same data as the allotype.

AFFINITIES: *P. iavellensis* is allied to *P. abyssinica* but differs from the original description of that species (Uvarov, 1934) in the shape of the fastigium, the sculpture of the pronotum and the supra-anal plate and cerci of the male.

PARASPHENA NAIROBIENSES Sjöstedt, 1933. (Fig. 3).

NEALLOTYPE : ♀, Only the male of *P. nairobiensis* has been described; the following is a description of a topotypic female from Nairobi, Kenya, Nov., 1937 (M. Mallett).

- Antennæ* : Shorter than head and pronotum together, filiform slightly depressed basally.
- Head* : Face oblique, concave. Frontal carina sulcate, not reaching the clypeus. Fastigium of vertex slightly shorter than wide basally, parabolic anteriorly, sides slightly convex, divergent posteriorly. Median carinula distinct on occiput and vertex. Upper surface of head with small tubercular wrinkles. Cheeks with small indistinct tubercles, those in a line running diagonally from the eye to the lateral margin of the pronotum more pronounced.
- Thorax* : Pronotum at widest point greater than its length. Pronotal disc and lateral lobes somewhat coarsely, shallowly and irregularly punctured, some of the punctures coalescing to form small irregular tubercles; lateral lobes with a row of tubercles along the lower margin. First pronotal sulcus very indistinct on disc; second, sinuous, placed slightly behind the middle; third at about three-quarters. Interstitial sulcus on the pronotal disc before the second sulcus present, distinct. Median and lateral carinæ of pronotum present but not markedly distinct. Lateral carinæ sub-parallel anteriorly, divergent posteriorly. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum over half as long as metanotum, both together equal to the pronotum behind the first sulcus. Punctuation obsolete on meso- and metanota. Meso- and metanota both emarginate posteriorly, the metanotum more so than the mesonotum. Prosternal tubercle low. Mesosternal lobes quadrate, as long as wide, their interspace one and three-quarter times as wide as a lobe.
- Tegmina and Wings* : Absent.
- Abdomen* : Abdominal terga with a few minute scattered punctures only. Posterior margin of last tergum almost straight. Supra-anal plate broadly triangular, almost as broad basally as long. Cerci conical, slightly more than half as long as supra-anal plate. Subgenital plate with median projection of distal margin acute, lanceolate, the proximo-lateral angles being almost right-angles. Exposed bases of dorsal and ventral ovipositor valves (lateral aspect) half as wide as exposed length. Ventral valves with well-developed apical hooks; lateral plates broadly triangular.

MALE TOPOTYPE : A male from Nairobi, May, 1937 (Van Someren), differs from the above description as follows :—

Sides of fastigium not divergent posteriorly, cheek tubercles more distinct, pronotum at widest scarcely more than its length, meso- and metanota finely punctured laterally, mesosternal lobes with their interspace scarcely wider than a lobe, posterior margin of last abdominal tergum deeply emarginate medially, supra-anal plate narrower, longer than its width basally, cerci almost as long as the supra-anal plate. Sub-genital plate acute. A more slender insect than the female.

COLOURATION : General colouration dark olive or grass-green, the pleuræ suffused yellow, terga sometimes suffused dull-purple. Antennæ black except basally. The following parts red :—Bases of antennæ, edges of fastigium and carinula of vertex and occiput, lateral pronotal carinae, anterior and posterior margins of pronotal disc, the four front legs above, and the hind tibia and tarsi. The dorsal line of the pronotum and abdomen is only faintly red in all specimens examined. The following are yellow :—A median dorsal stripe on the mesonotum, metanotum and abdominal terga (present to a lesser extent on the pronotal disc), the row of larger tubercles from the eye along the cheek and lateral margin of the pronotum, and a series of oblique, black-bordered spots on each side of the abdominal terga.

MEASUREMENTS : (in millimetres) :

	Length	Length of Pronotum	Length of hind Femur
♀ Neallotype	30	5	12.5
♂ Topotype	21	4	11

The maximum size of all material examined (see p. 120, footnote) is, for the female, 32 mm., and for the male, 23 mm. The minima are 24 mm. and 19 mm., respectively

NOTES: This species was described from a single, presumably discoloured, alcohol-preserved specimen from Nairobi (Sjöstedt, 1933), and specimens from the Chyulu Hills were subsequently referred to it by Uvarov (1941). Van Someren in the same paper notes, however, that the Chyulu specimens do not agree with material from Nairobi, and suggests that they may belong to a distinct species or race. The writer agrees with this view after comparing a series* from Nairobi, Thika, Yatta and Kabete with Chyulu specimens examined by Uvarov, for although the type specimen is not available, the material from the Nairobi-Thika area agrees with the description given by Sjöstedt, while the Chyulu specimens show at least two characters, *viz.*, the number of distinct pronotal sulci and the yellow granulation of the pronotal disc, in which they differ both from Sjöstedt's description and the Nairobi material. Other characters also differentiate the Chyulu material from that from Nairobi, and the former is herein described as *P. chyuluensis*.

PARASPHERA NAIVASHENSIS n. sp. (Fig. 4).

TYPE: ♀, Naivasha, Kenya (00° 40' S. 36° 28' E., 6,230 ft.), July, 1937 (H. J. A. Turner).

- Antennæ*: Shorter than head and pronotum together, filiform, slightly depressed basally.
- Head*: Face oblique, somewhat concave. Frontal carina sulcate almost to clypeus. Fastigium of vertex shorter than broad basally, parabolic anteriorly, sides slightly convex, divergent posteriorly. Median carinula distinct on occiput and vertex. Upper surface of the head somewhat wrinkled. Cheeks with small tubercles, a row of larger tubercles extending from the eye to the lateral margin of the pronotum.
- Thorax*: Pronotum at widest point greater than its length. Pronotal disc and lateral lobes fairly regularly punctured; lateral lobes with a row of tubercles along the lateral margin. First pronotal sulcus obsolete on the disc; second, sinuous, placed slightly beyond the middle; third at about three-quarters. Interstitial sulcus on the pronotal disc before the second sulcus obsolete. Median and lateral carinæ of the pronotum present but not markedly distinct; lateral carinæ sub-parallel anteriorly divergent posteriorly. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum slightly more than half as long as metanotum, both together equal to the pronotum behind the first sulcus. Meso- and metanota distinctly punctured; both emarginate posteriorly, the metanotum more so than the mesonotum. Prosternal tubercle low. Mesosternal lobes quadrate, not longer than broad, their interspace twice the length of a lobe.
- Tegmina and Wings*: Absent.
- Abdomen*: Abdominal terga with a few minute scattered punctures only. Posterior margin of last abdominal tergum somewhat emarginate. Supra-anal plate triangular, slightly longer than wide basally. Cerci conical, slightly more than half as long as the supra-anal plate. Subgenital plate with median projection of distal margin acute, lanceolate, the proximo-lateral angles being almost right-angles. Exposed base of dorsal ovipositor valves (lateral aspect) half as wide as exposed length. Ventral valves scarcely so, with well-developed apical hooks; lateral plates rather broadly triangular.

ALLOTYPE: ♂ (Same data as Type).

Agrees with the type in all essentials. Differs in that the pronotum at its widest point equals its length, the mesosternal lobes have their interspace scarcely wider than a lobe, the posterior margin of the last abdominal tergum is deeply emarginate medially, and the cerci are considerably more than half as long as the supra-anal plate. Subgenital plate acute. A more slender insect than the female.

*Nairobi (5,500 ft.), August and November, 1937 (M. Mallett), 2 ♀♀; and May, 1937 (Van Someren), 2 ♂♂.

Athi Plains near Nairobi (5,000 ft.), 20th June, 1946 (D. K. Kevan), 1 ♀, 1 ♂.

Thika (01° 03' S. 37° 05' E., 4,890 ft.), May, 1940 (M. Mallett), 5 ♀♀, 5 ♂♂.

Yatta (J. S. Marson), 2 ♀♀.—These specimens came from Yatta Military Camp, approx. 01° 10' S. 37° 37' E., about 4,500 ft., probably in 1942; they did not come from the Yatta Plateau to the South.

Kabete (01° 15' S. 36° 43' E., 6,200 ft.), Dec., 1940, (Van Someren), 1 ♂.

COLOURATION: The general colouration is olive-green, dark-green or grass-green. The antennæ are black, their bases being usually (though not always) red, at least below. The edges of the fastigium, the median carina of the head and pronotum, the anterior and posterior margins of the pronotal disc, the lateral pronotal carinæ and the hind tibiæ and tarsi are red. The dorsal line of the abdomen is only faintly red, as in *P. nairobiensis*. The following are yellow:—A narrow median dorsal stripe on the meso- and metanota and abdominal terga and the row of tubercles running from the eye along the cheek and lateral margin of the pronotal lobe. The series of oblique, black-bordered, yellow spots on each side of the abdominal terga, found in most of the species, are obsolescent in all the specimens examined.

MEASUREMENTS (in millimetres):

	Length	Length of Pronotum	Length of hind Femur
♀ Type	24	4.5	11.5
♂ Allotype	18	3.5	10

The maximum size for the eight paratypes in the Coryndon Museum (3 ♂♂ and 5 ♀♀, same data as type and allotype) is, for the female, 27 mm., and for the male, 19 mm. The minima are 21 mm. and 16 mm. respectively.

AFFINITIES: A species allied to *P. nairobiensis*, but differing from it in being rather smaller, in the rather finer and more regular puncturation of the pronotum and in the more distinct puncturation of the meso- and metanota. The face is rather less concave in all the specimens examined and there is no interstitial sulcus before the second sulcus on the pronotal disc.

Rehn (*loc. cit.*) notes that Bolívar reports *P. pulchripes* from Naivasha, the type locality of the present species, but questions the identification or the locality. If the latter be correct, it may be that Bolívar's record is referable to *P. naivashensis* although the resemblance of this species to *P. pulchripes* cannot be regarded as being close when compared with material from Kilimanjaro in the Coryndon Museum.

PARASPHENA MAUENSIS n. sp. (Fig. 5).

TYPE: ♀, Itare River, Kericho, Kenya (South-western Mau, 00° 36' S. 35° 17' E), 6,300 ft., Oct., 1943, (H. Copley).

Antennæ: Shorter than head and pronotum together, filiform, slightly depressed basally.

Head: Face oblique, somewhat concave. Frontal carina sulcate, not reaching the clypeus. Fastigium of vertex almost as long as wide basally, parabolic anteriorly, sides almost straight, divergent posteriorly. Median carinula of occiput and vertex obsolescent. Upper surface of head very weakly wrinkled. Cheeks very weakly wrinkled and with a few small, low tubercles in a row from the eye to the lateral margin of the pronotum (reminiscent of *P. kinangopa* Uv.).

Thorax: Pronotum at widest point greater than its length. Pronotal disc rather finely and regularly punctured, the punctures being rather scattered. Lateral pronotal lobes covered with small tubercles, those on the lateral margin not forming a very definite row. First pronotal sulcus obsolete on disc; second, sinuous, placed beyond the middle; third slightly beyond three-quarters. Interstitial sulcus on the pronotal disc before the second sulcus present, fairly distinct. Median carina of pronotum virtually absent, lateral carinæ only faintly indicated, irregular. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum half as long as metanotum, both together somewhat less than the pronotum behind the first sulcus. Metanotum excised posteriorly, mesonotum truncate. Puncturation of meso- and metanota only weakly defined. Prosternal tubercle low. Mesosternal lobes square, not longer than broad, their interspace almost twice the width of a lobe.

Tegmina and Wings: Absent.

Abdomen: Abdominal terga with a few minute scattered punctures. Posterior margin of last tergum somewhat sinuous. Supra-anal plate triangular, rather longer than broad basally. Cerci conical, more than half as long as supra-anal plate. Subgenital plate with median projection of distal margin acute, lanceolate, the proximo-lateral angles being right-angles. Exposed base of dorsal ovipositor valves (lateral aspect) about half the exposed length. Exposed base of ventral valves less than half exposed length, with well-developed apical hooks; lateral plates rather broadly triangular.

The single paratypic female [four miles N.W. of Mau Summit, Kenya (North-western Mau, 00° 08' S. 35° 42' E.), c. 8,500 ft., 15/5/1946, high grassy downs, (D. K. Kevan)] differs from the type in that the median carina of occiput, vertex and pronotum is a little more distinct, though still obsolescent and the row of tubercles from the eye across the cheek is rather more pronounced and continues more definitely along the lateral margin of the pronotum.

COLOURATION: Apart from the type and paratype, only three nymphs (2♀♀ and 1♂, same data as type) are represented in the Coryndon Museum collection. The general colouration of the adults is grass-green, darker above in the type. The antennæ are black, red basally. The edges of the fastigium, the posterior margin of the pronotal disc, the dorsal line of the abdomen (very faintly so), the median carina of the pronotum (in the paratype only) and the hind tibiæ and tarsi are light-red. The row of tubercles from the eye along the cheek and lateral margin of the pronotum is yellowish in the nymphs and paratype, but not in the type, while the row of oblique, black-bordered, yellow spots on each side of the abdominal terga is obsolescent in all.

MEASUREMENTS (in millimetres):

	Length	Length of Pronotum	Length of hind Femur
♀ Type	19	3.5	8.5
♀ Paratype	17	3	8

AFFINITIES: A small species, probably more closely related to *P. naivashensis* than to any other, but differing from it in its small size, rather longer fastigium, the sculpture of the head, pronotal disc and meso- and metanota being less distinct, and an interstitial sulcus on the pronotal disc before the second sulcus being fairly distinct and not obsolete. The lateral lobes of the pronotum, as seen from above, diverge rather more sharply behind the second sulcus than in allied species.

PARASPHERA KABURU* n. sp. (Fig. 9).

TYPE: ♀, Eldoret, Uasin Gishu, Kenya (00° 31' N. 35° 17' E.), 6,800 ft., 14/5/1946 (D. K. Kevan).

Antennæ: Somewhat shorter than head and pronotum together, filiform, slightly depressed basally.

Head: Face very oblique, rather concave. Frontal carina sulcate throughout, reaching almost to clypeus. Fastigium of vertex a little shorter than broad basally, parabolic anteriorly, sides slightly convex, divergent posteriorly. Median carinula of occiput and vertex weakly defined, obsolescent. Upper surface of head very weakly wrinkled. Cheeks almost smooth except for a row of tubercles extending from the eye to the lateral margin of the pronotum.

Thorax: Pronotum at widest point greater than its length. Pronotal disc with very fine, close, regular and rather shallow punctures which give it a smooth, dull appearance. Pronotal lobes finely granular, a row of tubercles being present along the lateral margin. First pronotal sulcos obsolete on the disc; second sinuous, placed behind

the middle; third at about three-quarters. Interstitial sulcus on the pronotal disc before the second sulcus, present, fine. Median and lateral pronotal carinæ only faintly indicated; lateral carinæ fairly regular, gradually divergent posteriorly from the anterior margin of pronotum. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum more than half as long as metanotum, both together equal to pronotum behind the first sulcus. Meso- and metanota with a few fine punctures only, both emarginate posteriorly, the metanotum more so than the mesonotum. Prosternal tubercle low. Mesosternal lobes quadrate, not longer than broad, their interspace about one and three-quarter times the width of a lobe.

Tegmina and Wings: Absent.

Abdomen: Abdominal terga with a few minute scattered punctures only. Posterior margin of last abdominal tergum somewhat sinuous. Supra-anal plate triangular, as broad basally as long. Cerci conical, half as long as supra-anal plate. Subgenital plate with median projection of distal margin acute, lanceolate, the proximo-lateral angles being right-angles. Exposed base of dorsal and ventral ovipositor valves about half the exposed length. Ventral valves with well-developed apical hooks; lateral plates broadly triangular.

ALLOTYPE: ♂ (Same data as Type).

Agrees with the type in all essentials. Differs in that the fastigium is blunter, the pronotum at its widest point equals its length, the interstitial sulcus of the pronotal disc is obsolete, the mesosternal lobes are slightly longer than wide, their interspace being about equal in width to a lobe, and the last abdominal tergum is deeply emarginate medially, while the supra-anal plate is longer than wide basally and the cerci are almost as long as the supra-anal plate. Subgenital plate acute. A more slender insect than the female.

COLOURATION: The general colouration is grass-green, or olive-green (a single ♂ paratype), paler below, usually darker above, the upper surface of the head and pronotum and the abdominal terga frequently being suffused dull purplish-red to a greater or lesser extent. Antennæ black, red at the base. The following parts are red or purplish-red:—the edges of the fastigium, the posterior and (usually) the anterior margin of the pronotum, the pronotal carinæ (sometimes; the median one usually, at least in part) and the posterior tibiæ and tarsi. The dorsal line of the meso- and metanotum and abdomen is narrow, red, sometimes only faintly so, and narrowly bordered with pale yellow. The row of tubercles from the eye along the cheek and lateral margin of the pronotum is yellow but the oblique, black-bordered, yellow spots of the abdominal terga are obsolescent in all specimens examined. The final instar nymphs, of which a series of twenty-three was collected (four of which, 3 ♀♀ and 1 ♂, were bred through to the adult stage a week later*) vary greatly in colour, being anything from pale grass-green to straw-brown or almost black, paler below, and usually with a dark dorsal line. The whole dorsum was purplish-red in two examples. The antennæ in all have the basal half bright orange, and the row of tubercles along the cheek and lateral margin of the pronotum yellow.

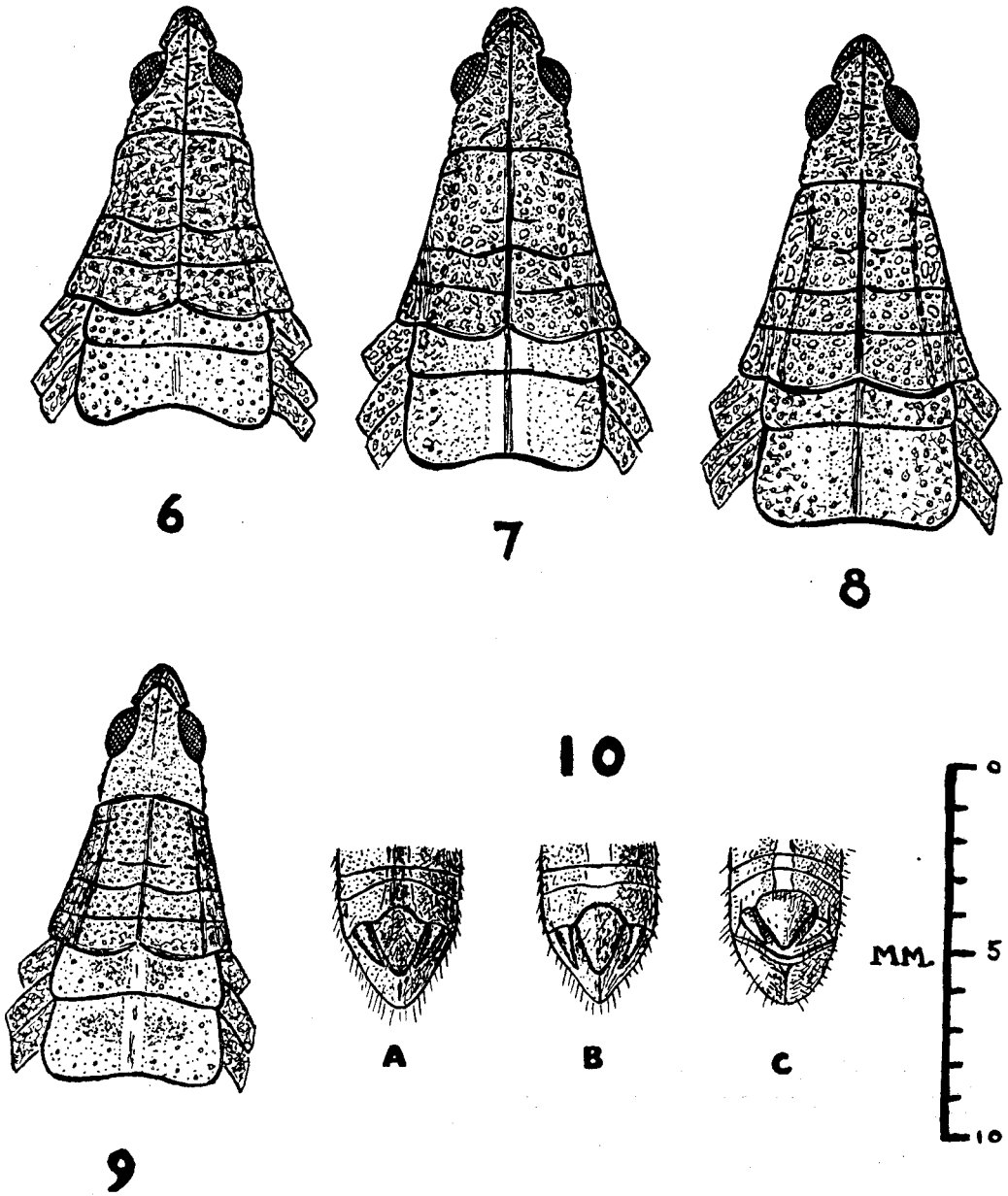
HABITAT: The material described herein was all collected in fairly short grass within the municipal area of Eldoret, the surrounding country being largely rolling downland. Nymphs were abundant but adults rather scarcer.

MEASUREMENTS (in millimetres):

	Length	Length of Pronotum	Length of hind Femur
♀ Type	22	4	10
♂ Allotype	18	3.5	10

*Swahili, *a snail*—The name used by natives for the South African "Dutch" who have settled extensively on the Uasin Gishu Plateau.

*These are not included among the paratypes.



Head and Thorax, Dorsal, Female Holotypes (Fig. 10 Tips of Abdomen, Dorsal, Male)

Fig. 6. *Parasphena ngongensis* n. sp. Fig. 8. *Parasphena teitensis* n. sp.
 Fig. 7. *Parasphena chyuluensis* n. sp. Fig. 9. *Parasphena kaburu* n. sp.
 Fig. 10 a. *Parasphena kamasiensis* n. sp.
 b. *Parasphena elgonensis* Sjötedt.
 c. *Parasphena cheranganica* Uvarov.

The maximum size for the thirteen paratypes collected (10 ♂♂ and 3 ♀♀; same data as type and allotype) is for the female, 25 mm., and for the male, 20 mm. The minima are 20 mm. and 17 mm. respectively.

AFFINITIES: This species is allied to *P. mauensis* and *P. naivashensis*. It can be distinguished from both by the very fine, close, regular and rather shallow puncturation of the pronotal disc which give it a smooth, dull or "matt" appearance not found in other species. From *P. naivashensis* it differs also in that the meso- and metanota are only very indistinctly punctured and the sculpture of the head is very weak, while an interstitial sulcus is usually present on the pronotal disc; from *P. mauensis* it differs also in its larger size, colouration and more distinct median pronotal carina, while the line of tubercles from the eye along the cheek and lateral margin of the pronotum is better developed and the divergence of the lateral pronotal lobes behind the second sulcus is more gradual.

PARASPHERA CHYULUENSIS n. sp. (Fig. 7).

TYPE: ♀, Chyulu Hills, Kenya (approx. 02° 40' S. 37° 55' E.), 5,400 ft., April, 1938, (Coryndon Museum Expedition).

Antenna: Shorter than head and pronotum together, filiform, slightly depressed basally.

Head: Face oblique, concave. Frontal carina sulcate, stopping considerably short of the clypeus. Fastigium of vertex slightly shorter than wide basally, parabolic anteriorly, sides slightly convex, divergent posteriorly. Median carinula distinct on occiput and vertex. Upper surface of head with small tubercles and a few small wrinkles. Cheeks with small tubercles, those in a line from the eye diagonally to the lateral margin of the pronotum larger.

Thorax: Pronotum at its widest point greater than its length. Pronotal disc and lobes covered with small granular, yellowish tubercles, a row of large tubercles on the lateral margins of the lobes. First pronotal sulcus obsolescent on the disc; second, sinuous, placed slightly behind the middle; third at about three-quarters. Interstitial sulcus on the pronotal disc before the second sulcus obsolescent. Median carina of pronotum distinct, lateral carinae distinct but rather less so than the median, sub-parallel anteriorly, divergent posteriorly. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum barely half as long as metanotum, both together almost equal to the pronotum behind the first sulcus. Puncturation on meso- and metanota more or less obsolete. Meso- and metanota both emarginate posteriorly, the metanotum more so than the mesonotum. Prosternal tubercle low. Mesosternal lobes quadrangular, very slightly longer than wide, their interspace one and three-quarter times the width of a lobe.

Tegmina and Wings: Absent.

Abdomen: Abdominal terga with a few minute, scattered punctures only. Posterior margin of last tergum slightly sinuous. Supra-anal plate broadly triangular, as broad basally as long. Cerci conical, slightly more than half as long as supra-anal plate. Subgenital plate with median projection of distal margin acute, lanceolate-triangular, the proximo-lateral angles being greater than right-angles. Exposed bases of dorsal and ventral ovipositor valves (lateral aspect) half as wide as exposed length. Ventral valves with well-developed apical hooks; lateral plates broadly triangular.

ALLOTYPE: ♂ (Same data as Type).

Agrees with the type in all essentials. Differs in that the pronotum at its widest point is equal to its length, the interstitial sulcus of the pronotal disc is obsolete, the mesonotum is over half as long as the metanotum, the meso- and metanota are finely punctured laterally, the inter-space between the mesosternal lobes is scarcely wider than a lobe, the posterior margin of the last abdominal tergum is deeply emarginate medially, and the cerci are almost as long as the supra-anal plate. Subgenital plate acute. A more slender insect than the female.

COLOURATION: The general colouration in the four specimens examined is blackish olive, the pleuræ suffused yellow. The antennæ are black except basally. The following parts are red:—Bases of antennæ, edges of fastigium, the anterior and posterior margins of the pronotal disc, the mid-dorsal line from the vertex almost to the anus and the hind tibiæ and tarsi. The lateral pronotal carinæ are also red anteriorly except in the type. The following parts are yellow:—The row of tubercles running from the eye along the cheeks and lateral margin of the pronotum, and a row of oblique, black-bordered spots on each side of the abdominal terga. Uvarov (1941) states that these spots are sometimes obsolete. The red dorsal line of the abdomen is widely bordered with yellow also in all the specimens examined.

MEASUREMENTS (in millimetres):

	Length	Length of Pronotum	Length of hind Femur
♀ Type	26	5	12
♂ Allotype	22	4	11
♂ Paratype	21	4	11
♂ Paratype	20	3.5	10.5

The paratypes have the same data as the type and allotype.

AFFINITIES: This species is related to *P. meruensis* but disagrees with the original description (Sjöstedt, 1909) in colouration, in the sculpture of the lateral pronotal lobes which is more or less uniform with that of the disc, and in the meso- and metanota not being distinctly punctured laterally. It is also related to *P. teitensis*, differing as mentioned under that species. From *P. nairobiensis* (under which name it was first recorded—see p. 120) it differs in that the median pronotal carina is more distinct and that the sculpture of the pronotal disc appears as small, raised, yellowish tubercles rather than punctures—the original puncturation having coalesced almost completely. The colouration, particularly of the dorsal line of the abdomen, also shows a difference in all specimens examined, the dorsal line being distinctly red, while in *P. nairobiensis* the red is indistinct or almost altogether lacking. The supra-anal plate of the male, unlike *P. nairobiensis*, is broadly triangular, not longer than broad basally. The presence or absence of a distinct interstitial sulcus on the pronotal disc is also of some value as a diagnostic character when compared with *P. nairobiensis*.

PARASPHERA TEITENSIS n. sp. (Fig. 8).

TYPE: ♀, Teita Hills, Kenya (approx. 03° 23' S. 38° 23' E.), 4,500-5,500 ft., 24/12/1945 (D. K. Kevan).

Antennæ: Shorter than head and pronotum together, filiform, slightly depressed basally.

Head: Face oblique, somewhat concave. Frontal carina sulcate, reaching almost to clypeus. Fastigium of vertex slightly shorter than broad basally, parabolic anteriorly, sides convex, divergent posteriorly. Median carinula distinct on occiput and vertex. Upper surface of head covered with small tubercles and a few small wrinkles. Cheeks covered with small tubercles, a line of larger tubercles extending from the eye to the lateral margin of the pronotum.

Thorax: Pronotum at widest point greater than its length. Pronotal disc and lobes covered with small, yellow granular tubercles, those on the lobes being rather larger; a row of large tubercles on lateral margin of lobes. First pronotal sulcus obsolete on disc; second, sinuous, placed slightly beyond the middle; third at about three-quarters. Interstitial sulcus before the second sulcus of the pronotal disc present but very indistinct. Median and lateral pronotal carinæ distinct, the lateral carinæ subparallel anteriorly, divergent posteriorly. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum barely half as long as metanotum, both together less than pronotum behind the first sulcus. Puncturation on meso- and metanota coarse laterally, obsolescent medially. Meso- and

metanota both emarginate posteriorly, the metanotum more so than the mesonotum. Prosternal tubercle low. Mesosternal lobes quadrate, not longer than wide basally, their interspace almost twice the width of a lobe.

Tegmina and Wings: Absent.

Abdomen : Abdominal terga with a few scattered minute punctures only. Posterior margin of last tergum emarginate. Supra-anal plate triangular, slightly longer than broad basally. Cerci conical, slightly more than half as long as supra-anal plate. Subgenital plate with the median projection of the distal margin acute, lanceolate, the proximo-lateral angles being almost right-angles. Exposed bases of dorsal and ventral ovipositor valves (lateral aspect) half as wide as exposed length. Ventral valves with well-developed apical hooks; lateral plates broadly triangular.

ALLOTYPE : ♂ (Same data as Type).

Agrees with the type in all essentials. Differs in the antennæ being almost equal to the head and pronotum together, the pronotum at its widest being equal to its length, the interstitial sulcus on the disc of the pronotum being obsolete, the interspace between the mesosternal lobes being scarcely wider than a lobe and the cerci being almost as long as the supra-anal plate. Subgenital plate sub-acute. A more slender insect than the female.

COLOURATION : The general colouration is olive-green, emerald-green or grass-green above, paler ventrally. The dorsal aspect is usually dark olive; the pleuræ are suffused yellow, and the discs of the head and pronotum are suffused red. The antennæ are black except basally. The following are deep red :—The bases of the antennae, the edges of the fastigium, the median carina of head and pronotum and the dorsal line of the abdomen, the lateral pronotal carinæ, and the legs (except for the hind femora) at least above. The following are yellow :—The line of tubercles from the eye along the cheek and lateral margin of the pronotum, and a series of oblique black-bordered spots on each side of the abdominal terga.

HABITAT : The species has been observed by the writer in several parts of the Teita Hills (which rise to over 7,000 ft.), where it seems to favour shrubby vegetation in small clearings and open spaces such as roadsides in the forest and in plantations, rather than the completely open grass and heath land in which it also occurs. It has not been observed below 4,000 ft. nor above 6,000 ft. The specimens collected with type and allotype (10 ♀♀, 5 ♂♂ and 3 nymphs) were all taken between 4,500 and 5,500 ft., and three females already in the Coryndon Museum came from the centre of the area covered by the writer (Wundanyi, 5,000 ft., March, 1939). All these are paratypes.

MEASUREMENTS (in millimetres) :

	Length	Length of Pronotum	Length of hind Femur
♀ Type	25	5	13
♂ Allotype	21	4	12

The maximum size of the paratypes mentioned is, for the female, 30 mm., and for the male, 21 mm. The minima are 21 mm. and 18 mm. respectively.

AFFINITIES : Without specimens for comparison, it is not certain that *P. teitensis* might not prove to be a sub-species of *P. meruensis*, but it differs sufficiently from the description of that species given by Sjöstedt (1909) to be described herein as distinct.

It is very closely related to *P. meruensis*, differing from Sjöstedt's description in its somewhat larger size, its more distinct pronotal carinæ and in its colouration—particularly of the pronotal carinæ which are very distinctly red. It is also allied to *P. chyuluensis*, agreeing with it in the form of the sculpture of the pronotal disc, but differing in the shape of the supra-anal plate, in the more distinct lateral carinæ of the pronotum, the slightly longer hind femora, the longer antennæ of the male, and the more distinct, coarser puncturation on the meso- and metanota which together are considerably shorter in comparison with the pronotum in the present species. The colouration in all specimens examined differs from *P. chyuluensis*, particularly in the dorsal line of the abdomen being very distinctly red and not bordered with yellow.

PARASPHERA NGONGENSIS n. sp. (Fig. 6).

TYPE: ♀, Ngong Hills, Kenya (01° 25' S. 36° 38' E.), 8,000 ft., May 1939, (Coll. ?).

Antennæ: Shorter than head and pronotum together, filiform, slightly depressed basally.

Head: Face oblique, concave. Frontal carina sulcate, almost reaching clypeus. Fastigium of vertex slightly shorter than wide basally, parabolic anteriorly, sides slightly emarginate, divergent posteriorly. Median carinula distinct on occiput and vertex. Upper surface of head with small tubercular wrinkles. Cheeks with small tubercles, three or four larger ones in a line from the eye to the lateral margin of the pronotum.

Thorax: Pronotum at widest point greater than its length. Pronotal disc somewhat irregularly punctured; lateral lobes covered with small tubercles, not larger along the lateral margin and not forming a distinct row. First pronotal sulcus obsolete on disc; second, sinuous, placed slightly beyond the middle; third at about three-quarters. Interstitial sulcus on the pronotal disc before the second sulcus, obsolete. Median and lateral carinæ of pronotum present but not markedly distinct; lateral carinæ sub-parallel anteriorly, divergent posteriorly. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum half as long as metanotum, both together equal to pronotum behind first sulcus. Puncturation of meso- and metanota distinct. Meso- and metanota both emarginate posteriorly, the metanotum more so than the mesonotum. Prosternal tubercle low. Mesosternal lobes distinctly wider apically than basally, truncate, as long as wide, the interspace at the base being almost twice the width of the base of a lobe, and at the apex, only about one and a half times the width of the apex of a lobe.

Tegmina and Wings: Absent.

Abdomen: Abdominal terga with a few minute scattered punctures only. Posterior margin of last tergum broadly emarginate. Supra-anal plate broadly triangular, scarcely longer than its width basally. Cerci conical, about half as long as the supra-anal plate. Median projection of the distal margin of the subgenital plate acute, lanceolate, the proximo-lateral angles being almost right-angles. Exposed base of dorsal ovipositor valves (lateral aspect) about half as wide as the exposed length. Exposed base of ventral valves less than half as wide as exposed length, with well-developed apical hooks; lateral plates rather narrowly triangular.

ALLOTYPE: ♂ (Same data as Type).

Agrees with the type in all essentials. Differs in that the pronotum at its widest point is equal to its length, the tubercles on the lateral margins of the pronotal lobes are more distinct and form a more definite row, the lateral carinæ of the pronotum are rather less distinct, the last abdominal tergum is deeply excised medially and the cerci are almost equal in length to the supra-anal plate. Subgenital plate acute. A more slender insect than the female.

COLOURATION: The general colouration is olive-green, grass-green or yellow-green, sometimes dark olive dorsally. Antennæ black except at base, the upper surface of the head and the four front legs may be suffused red (type only). The bases of the antennæ, the edges of the fastigium (usually), the posterior margin of

the pronotal disc (in all but one) and the hind tibiae and tarsi are red. The pronotal carinae and the anterior margin of the pronotal disc may sometimes be red also. A rather narrow dorsal stripe on the abdominal terga and sometimes the pronotum is yellow (occasionally obsolete), and there is a row of oblique, black-bordered, yellow spots on each side of the abdominal terga which may or may not be obsolete. The row of tubercles running from the eye along the cheek and lateral margin of the pronotal lobe may be yellow or not (usually depending on the extent to which the tubercles are developed).

MEASUREMENTS (in millimetres) :

	Length	Length of Pronotum	Length of hind Femur
♀ Type	25	5	12
♂ Allotype	19	3.5	10

The maximum size for the thirteen paratypes in the Coryndon Museum (5 ♂♂, 8 ♀♀, same data as type and allotype) is, for the female, 26 mm., and for the male, 20 mm. The minima are 22 mm. and 18 mm. respectively.

AFFINITIES: This species is somewhat similar to *P. nairobiensis* on the one hand, and to *P. keniensis*, to which it seems to be most closely related, on the other. It differs from the latter when compared with specimens from Mount Kenya*, which agree with the description given by Sjöstedt (1912), by its larger size and longer fastigium. The interstitial sulcus of the pronotal disc is obsolescent or absent, while in all the specimens of *P. keniensis* examined, it is more or less distinct. From *P. nairobiensis* it differs in colouration, in the narrower lateral plates of the ventral ovipositor valves the shape of the mesosternal lobes, the more tuberculate sculpturing on the lateral lobes of the pronotum with the row of tubercles on the lateral margin less distinct or even obsolete, and the distinct puncturation of the meso- and metanota.

PARASPHERA KAMASIENSIS n. sp. (Fig. 10A).

TYPE: ♂, Kabarnet, Baringo District, Kenya (Kamasia Hills, 00° 30' N. 35° 33' E., 7,070 ft.), January, 1944 (Museum Staff).

Antennae: Shorter than head and pronotum together, filiform, slightly depressed basally.

Head: Face oblique, concave. Frontal carina sulcate, almost reaching the clypeus. Fastigium of vertex slightly shorter than wide basally, semicircular anteriorly, sides almost parallel, not divergent posteriorly. Median carinula distinct on occiput and vertex. Upper surface of head somewhat wrinkled. Cheeks with a series of tubercles from the eye to the lateral margin of the pronotum.

Thorax: Pronotum at widest point equal to its length. Pronotal disc shallowly punctured; lateral lobes with small irregular tubercles, a row of larger tubercles along the lateral margin. First pronotal sulcus obsolete on the disc; second, slightly sinuous, placed beyond the middle; third at about three-quarters. Interstitial sulcus on the pronotal disc before the second sulcus, obsolete. Median and lateral pronotal carinae obsolescent; lateral carinae parallel anteriorly, divergent posteriorly. Posterior margin of pronotum with an obtuse excision whose sides are broadly convex. Mesonotum two-thirds as long as metanotum, both together slightly less than pronotum behind first sulcus. Puncturation of meso- and metanota shallow, scattered. Meso- and metanota both emarginate posteriorly, the mesonotum to about the same degree as the metanotum. Prosternal tubercle low. Mesosternal lobes a little longer than broad, their interspace slightly greater than the width of a lobe.

*Mount Kenya, 10,500 ft., Nov., 1943 (J. & P. Bally), 8 ♂♂, 14 ♀♀, 2 juv., and Jan., 1944 (J. Bally) 1 ♂, 3 ♀♀.

Marana, (N. slopes of Mt. Kenya, c. 8,000 ft.), May 1944 (J. Adamson), 3 ♂♂, 7 ♀♀.

Thiba Camp (S. slopes of Mt. Kenya), 6,800 ft., Jan., 1943 (H. Copley), 3 ♂♂, 9 ♀♀.

Tegmina
and *Wings*: Absent.

Abdomen: Abdominal terga with a few minute scattered punctures only. Posterior margin of last tergum deeply emarginate. Supra-anal plate broadly triangular, almost as wide basally as long. Cerci conical about two-thirds as long as supra-anal plate. Subgenital plate slightly obtuse.

COLOURATION: The general colouration of the type is dark olive-green above, paler below. Antennæ black. The following parts are red:—The bases of the antennæ, the edges of the fastigium, the anterior and posterior margins of the pronotal disc, the median pronotal carina, the tip of the supra-anal plate, the dorsal line of the abdomen and the hind tibiæ and tarsi. The dorsal line of the abdomen is narrowly and faintly bordered yellowish. The oblique lateral spots of the abdominal terga are obsolete.

MEASUREMENTS (in millimetres):

	Length	Length of Pronotum	Length of hind Femur
♂ Type	16	3	9

AFFINITIES: This species is closely allied both to *P. elgonensis* and to *P. cheranganica*. It differs from specimens of the former from Mount Elgon (kindly lent for study by the Entomology Section of the Uganda Department of Agriculture—Fig. 10B) in the rather wider supra-anal plate of the male, which is, however, narrower than that figured by Uvarov (1938) in his description of *P. cheranganica* (Fig. 10C). From the male of the latter species the type of *P. kamasiensis* also differs from Uvarov's description in that the interspace between the mesosternal lobes is rather wider than, and not narrower than the width of a lobe, in which it agrees with *P. elgonensis*. The bright red dorsal line of the abdomen also distinguishes this species from both. The type is unique.*

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* Since the above went to press a single female topotype (some data as type) has come to light.