

ORTHOPTERA FROM THE HILLS OF SOUTH-EAST KENYA

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From the eastern edge of the Kenya Highlands, south-eastwards to the coast, extends a series of ranges of hills roughly parallel to the Meru-Kilimanjaro-Pare-Usambara chain of Northern Tanganyika. These are the Emali Hills which rise to almost 6,000 feet, situated approximately between latitude $02^{\circ}-05'$ and $02^{\circ}-10'$ South and between longitude $37^{\circ}-12'$ and $37^{\circ}-25'$ east; The Chyulu Hills rising to nearly 7,000 feet and lying roughly between $02^{\circ}-22'$ and $02^{\circ}-48'$ south and between $37^{\circ}-40'$ and $38^{\circ}-00'$ east; the Teita Hills which attain over 7,000 feet in height and extend approximately from $03^{\circ}-15'$ to $03^{\circ}-30'$ South and from $38^{\circ}-15'$ to $38^{\circ}-30'$ East; and finally the low coastal Shimba Hills which fall just short of 1,500 feet at their highest point and which are situated between about $04^{\circ}-10'$ to $04^{\circ}-15'$ south and between $39^{\circ}-20'$ and $39^{\circ}-25'$ east.

The insect fauna of the Chyulu Hills has already been studied in a series of papers in this *Journal*, the Orthopterous family Acrididæ or Short-Horned Grasshoppers having been dealt with by Uvarov and Van Someren (1941). It is interesting, therefore, to compare with the Chyulu species material obtained from the other ranges in south-east Kenya, and in addition it was considered that it would be of further interest to include in the present paper a list of the species obtained by members of the East Africa Natural History Society in their Biological Survey of the Stony Athi area. This region is situated in a south-eastern extension of the Kenya Highlands (approximately $01^{\circ}-30'$ south and $37^{\circ}-00'$ east), being about 4,500 feet above sea-level and comparable in altitude with the Emali, Chyulu and Teita localities.

In the collection studied, the groups other than the Acrididæ are too poorly represented to be of much value for determining the affinities of the fauna of the various localities with that of other regions, but it is worth noting the occurrence of *Paraspheria marmorata* Shelf., a Meru Cockroach and *Grylloderes kilimandjaricus* Sjöstedt, a Kilimanjaro Cricket, on the Emali Hills, and of the Kilimanjaro Stick-Insect, *Gratidia kibonotensis* Sjöstedt, on the Chyulus.

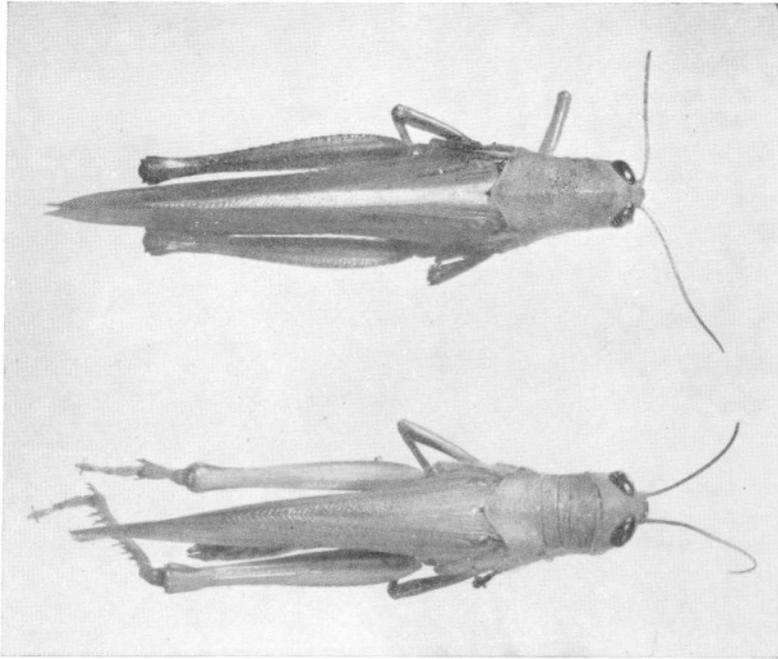
Among the Acrididæ a better indication of faunistic affinities can be seen since the material belonging to this family is considerably more extensive, although, even in this case, the species represented are, in the main, of wide distribution in East Africa. The following comparisons, however, may be of interest.

The Acridid fauna of the low coastal Shimba Hills, as might be expected, bears a closer relationship to the Usambaras (and the fauna of the East African coastal belt generally) than to the elevated masses more inland, as indicated by the occurrence of *Catantops neumanni* Rme., *Eupropacris obscura* Mill., *Oxaeida poultoni* Rme., *Kraussaria dius* Ksch., and *Parapetasia impotens* Ksch., while the apterous genera *Ixalidium* and *Rehnula* are represented by species very closely related to (if not identical with) those occurring in the Usambaras. Only about thirty per cent. of the thirty-two Shimba species are definitely known from the Teita Hills (and *vice versa*) while over sixty per cent. occur in the Usambaras. Less than fifty per cent. are known in the Kilimanjaro-Meru region, but of the species under discussion, more than forty per cent. are widely distributed in East Africa and occur also in the eastern Kenya Highlands.

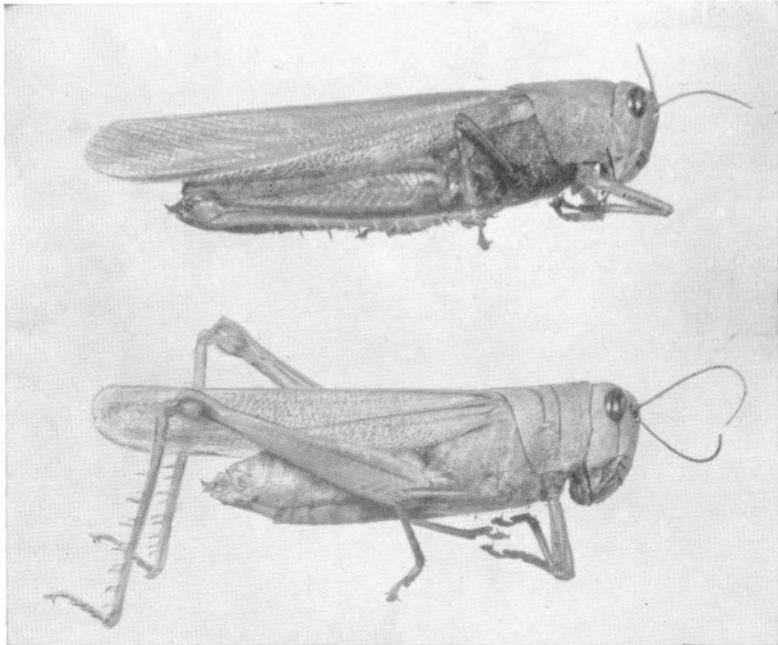
Of the twenty-nine species (discounting species of migratory locusts) but including *Catantops sancius* Burm. which is probably found only at lower altitudes) represented from the Teita Hills over seventy per cent. are known from the Kilimanjaro-Meru region, in addition to which, closely allied species of the apterous genera *Parashhenaz*, *Usambilla* and *Ixalidium* also occur. Almost seventy per cent. of the species, however, also occur widely distributed in the East African uplands, but the apterous genera mentioned and

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PLATE XXXIV



Above: *Kraussaria decteni* (Gerst.) ♀
Below: *K. dius* (Karsch) ♀



Above: *Kraussaria deckeni* (Gerst.) ♀
Below: *K. dius* (Karsch) ♀

Zonocerus elegans Thunb. show a definite affinity with Northern Tanganyika. Quite a large proportion (about sixty per cent.) of Teita species are represented also in the Usambaras.

On the other hand, only eight species are known to be common to both the Teitas and the Chyulus which would lead one to suppose that the fauna of these two ranges was not closely allied. Their species of *Parasphena*, however, are related and further collection would probably increase the number of species common to both, since, from further west, the Emali material contains a larger number (thirty-six per cent.) of the Teita species with closely allied members of the genera *Usambilla* and *Ixalidium* in addition.

Species which occur in the Teita Hills and which are not yet known from other localities are *Parasphena teitensis* Kev., *Ixalidium hæmatoscelis** Geost., *Usambilla montana* n. sp. and *Gymnobothroides montanus* n. sp.

Gerstaecker (1873) records a fair number of Orthoptera from Endara (Ndara, 03°- 30' S., 38°- 40' E.) which is in the Teita Hills area but the hills near there are not high and the specimens were probably taken at lower altitudes than are considered in this paper. Only two species are actually recorded from the Teita Hills proper—*I. hæmatoscelis* (described) and "*Truxalis nasuta* Lin." (*Acridella* sp.).

Nearly seventy-five per cent. of the thirty-two species recorded from the Chyulus above 3,500 feet are known also from the Kilimanjaro-Meru region but over seventy per cent. are known from the eastern Kenya Highlands. *Parasphena chyuluensis* Kev., however, is more closely related to *P. meruensis* Sjosdt from the former area than to species from the latter (Kevan, 1946), while *Catantops kilimandjaricus* Rme. forms another link. *Thispicetrus laticercus* Uv., however, is closely related to *Th. brevipennis* I. Bol. from the eastern Kenya Highlands.

The association between the Chyulus and the Emalis appears on the face of it, not to be very strong, less than sixty per cent. of the Chyulu species or sub-species being represented in the Emali collection. All the species common to both ranges are widely distributed† and there are no apterous genera in common for comparison. *Thispicetrus laticercus* Uv. and *Parasphena chyuluensis* Kev. are not known from any other locality.

Fifty-six species (excluding locusts) are recorded from the Emali Hills of which about fifty-five per cent.—as well as related species of the apterous genera, *Ixalidium* and *Usambilla*—occur also in the Kilimanjaro-Meru region. *Usambilla olivacea* Sjosdt. was originally described from the Usambaras and thus forms a link with the south-east as probably do *Meruana nyuki* Sjosdt. and *Brachycrotaphus sjosdtedti* Uv.

The great majority of the species, however, are widely distributed in East Africa and over sixty-five per cent. are known from the eastern Kenya Highlands. *Aulacobothrus emalicus* Uv., *Ixalidium bicloripes* Uv., *Mecostibus sellatus* Uv., and (presumably) *Dnopherula* sp. are not yet known from any other locality. The occurrence of *Ischnasis curvicerca* Uv. is interesting since this species was previously considered endemic to the Turkhana Desert.

The Stony Athi area does not form part of the series of ranges extending inland from the coast but belongs instead to the region of elevated plains and would, therefore, be expected to have a closer faunistic relationship with the Eastern Kenya Highlands proper than to the hills to the south-east.

*All species of this genus are not completely apterous but Kenya species are.

*See page 23.

† *Catantops kilimandjaricus*, Rme., (known to the writer only from the Chyulus, Kilimanjaro and Ngorongoro) has been reported from the Emalis also, but its occurrence there is doubtful—see footnote p. 27.

In actual fact, over seventy-five per cent. of the thirty-nine* represented, are widespread East African species, occurring in the Highlands, but only just over forty per cent. are recorded from the Emalis. On the other hand, a somewhat high proportion—about the same, though not including all the same species, as for the eastern Kenya Highlands—is found also in the Kilimanjaro-Meru region, but all are widely distributed in East Africa.

The brachypterous species, *Rhaphotittha reducta* Uv. was described from the area but is now known to the writer from Nairobi (H. Copley, 2 ♂♂, May 1941) and the Ngong Hills (8,000 ft., 1 ♂, August 1939).

To recapitulate: the Acrididæ of the Stony Athi area, as would be expected, appear to be closely related to the fauna of the eastern Kenya Highlands, but an equally strong affinity with Meru-Kilimanjaro is also indicated. The relationship with the Emali Hills is apparently much less pronounced.

At the other extremity of the region considered, the Shimba Hills are more closely related to the Usambaras than to any other range.

The Emali, Chyulu and Teita Hills all have about seventy per cent. of their Acridid fauna made up of widely distributed species which occur also to the north-west. Of the three, the Teita Hills (which have much in common with the Usambaras) and the Chyulus show about an equally close relationship with Kilimanjaro-Meru, while the Emalis show considerably less. Among themselves there appears to be a closer affinity between the Chyulus and the Emalis than between the Chyulus and the Teitas. It would also seem that the Chyulus are more akin to Kilimanjaro than to the Emali Hills, but since a considerable proportion of the species from each locality are of wide distribution, the evidence is not so strong as would at first appear, and it would be unwise to base any conclusions on this alone.

The apterous genera *Ixalidium*, *Usambilla* and *Parasphena*, however, furnish better evidence of the inter-relationship of these ranges with Kilimanjaro-Meru. The former two genera are not known from the Kenya Highlands, but each has species known from the Emali Range, Kilimanjaro, the Teita Hills and the Usambaras (*Ixalidium* also occurring in the Shimbas). *Parasphena* is a widespread African genus but the species from Kilimanjaro-Meru, the Teitas and the Chyulus appear to be more closely related to each other than they are to other species (Kevan, *l.c.*).

The other apterous genera, *Mecostibus* and *Rehnula*, are represented only by *M. sellatus* Uv. (Emali)—which is not very closely related to other known species although the genus occurs in the Usambaras (*M. leprosus* Ksch. and *M. physalus* Ksch.)—and *R. usambarica* Rme. (Usambara-Shimba). Neither genus is yet known from the Kenya Highlands although *R. turgidicrus* Ksch. was described from Kitui (N. Ukamba).

Further material of these apterous genera—particularly of *Parasphena* from the Emali Hills or *Usambilla* and *Ixalidium* from the Chyulus would almost certainly throw further light on the problem.

* Including the solitary phase of *Locusta migratoria migratorioides*, R. and F., and regarding *Rhaphotittha nyuki* Sjostedt and *R. meruensis* Sjostedt.

In the following list of species obtained in these various localities, certain abbreviations are used in giving the data attached to specimens. Full data are only given where specimens are exceptional in this respect. The following are the abbreviations used:

SHIMBA: "Shimba Hills, 1,000 ft., 7-39."*

TEITA: (B)—"Bura, Teita, 5,000 ft., 2-39." (The Bura Mission area is in the South of the Teitas, approximately 03° 18' S., 38° 18' E.)

(W)—"Wandanyi, 5,000 ft." with the date which, unless otherwise given, is March, 1939.

(Wandanyi is the Agricultural Station in the central Teitas, approximately 03° 2' S.) 38° 22' E.; the mountain of the same name is further north, about 03° 19' S., 38° 23' E.,

(T)—"4,500 - 5,500 ft., Grass and Bushes, Teita Hills, Kenya, 25th to 27th December 1945, D. K. Kevan, Coll."

(These specimens were all taken in the vicinity of Wandanyi Agricultural Station and occurred among the low herbage in open places such as along tracks and in clearings.)

EMALI: "Emali Range, Sultan Hamud, 4,900 - 5,900 ft., 3-1940." The collection from the Emali Hills was made by members of the East Africa Natural History Society and includes a large number of Acrididae. A few specimens were collected in July and not in March. These are distinguished in the text by a small "vii."

STONY ATHI: "Stony Athi, E.A.U. Nat. Hist. Soc. Biol. Survey," with the dates of collection which were between March and December 1940. The month in which the specimens were collected are given in small roman numerals. Where more than one specimen of a series was taken in the same month, the number of specimens is indicated in brackets, except where none was collected in any other month.

CHYULU: "Coryndon Museum Expdt. Chyulu Hills," with the altitudes and dates of collection, which were between April and July 1938. In the case of species of other families than the Acrididae the same abbreviations are used as for Stony Athi (above) with the altitude given in addition. The Acrididae have already been listed (Uvarov and Van Someren, *l.c.*) and the data are not repeated.

(A few species of Acrididae from the Chyulus, but not recorded above 3,500 feet, have been omitted.)

All the specimens mentioned, with the exception of certain type material retained by the British Museum, are in the possession of the Coryndon Memorial Museum, Nairobi, Kenya.* Much of the Acridid material, particularly from Emali, was determined by Dr. B. P. Uvarov of the Imperial Institute of Entomology, London, to whom grateful acknowledgement is made.

* Several species which are known to occur on the Shimba Hills are not represented in the Coryndon Museum. These are included in the following list of species but the reference is given in parenthesis, thus: (SHIMBA). The specimens are in the private collection of Dr. V. G. L. van Someren, at Ngong, Kenya, through whose kindness the writer was able to study them.

BLATTODEA**BLATTOIDEA****BLATTIDAE****BLATTINAE****Deropeltis melanophila** (Walker 1869)

EMALI: ♂ 1 ; 1 ♀.

(The taxonomy of this genus is in an unsatisfactory state. The four following species are only very tentatively determined)

Deropeltis integerrima Brunner 1865?

CHYULU: 1 ♀-v; 6 nymphs-v(2), vi(2), vii(2), 5,600 ft.

Deropeltis autraniana de Saussure 1895?

EMALI: 1 ♂; 1 ♀.

Deropeltis pallipes Chopard 1938?

EMALI: 1 ♂.

Deropeltis sp.

(This species has the head and legs castaneous as in *D. erythropeza* de Adelung 1905, and is densely pubescent.)

EMALI: 1♀.

Pseudoderopeltis petrophila Shelford 1907?

(SHIMBA: ♂♂, ♀♀.)

Pseudoderopeltis sp.?

(A stout, handsome species with black body, piceous tegmina and a large, almost round, intense black maculation occupying the greater part of the otherwise pale yellow pronotal disc.)

SHIMBA: 1♂.

Periplaneta americana (Linné 1758)

SAGALA HILL: 1♂ —November 1938.

(This locality is a mountain very close to the Teita Hills but separated from them —approximately 03°- 30' S., 38°- 35' E.—and although this cosmopolitan species occurs in buildings in the Teitas, no authentic Teita material exists).

CORYDIIDAE**POLYPHAGINAE****Discologamia capensis** de Saussure 1893

EMALI: 1♂. (SHIMBA: ♀♀.)

EUTHYRRHAPHINAE**Euthyrrhapha pacifica** (Cocquebert 1804)

EMALI: 1♂.

PHYLLODROMIIDAE**ECTOBIINAE****Ectobius, spp. (2)**

(a) STONY ATHI: 1♀—June.

(b) EMALI: 1♂.

PHYLLODROMIINAE**Blatella germanica (Linné 1767)**

KASIGAU: 2♂♂—November 1938.

This locality is an isolated mountain to the south of the Teita Hills—approximately 03°- 50' S., 38°- 39' E.—and although this cosmopolitan species occurs in buildings (at least) in the Teitas there is no authentic Teita material.)

SHIMBA: 1♂.

Phyllodromia sp.

EMALI: 2♂♂.

Supella supellectilium (Serville 1839)

EMALI: 2♂♂.

PERISPHAERIINAE**Parasphaeria (?) marmorata Shelford 1907**

EMALI: 3♀♀; 4 nymphs.

Derocalymma lampyrina Gerstaecker 1869

STONY ATHI: 8♂♂—iii(4), iv, v(2), viii; 10♀♀—iii(4), iv(3), v(3); 9 nymphs—iii(6), iv(3).

Cyrtotria capucina (Gerstaecker 1869)

STONY Athi: 1♂—vii; 1♀—ix.

Cyrtotria givvicollis (Stal 1871)?

SHIMBA: 2♂♂; 1♀.

Cyrtotria sp.

STONY ATHI: 2♂♂—vii, viii; 7 nymphs—iv, v, vi, viii(2).

EMALI: 2 nymphs.

Gynopeltis picta Gerstaecker 1869

CHYULU: 5♂♂—v(4), vii, 5,500 ft.

Gynopeltis sp.

(Length 31 mm.; unicolorous fuscous except for knees and anterior margin of pronotum which are testaceous)

SHIMBA: 1♂.

EPILAMPRINAE**Calolampra sp. ?**

SHIMBA: 1♀.

PANCHLORINAE**Nauphoeta sp.**

EMALI: 1♀.

Gyna aetola Shelford 1909 ?

(Agrees with the original description of this species from W. Africa, but may be a form of *G. maculipennis* Schaum 1853).

SHIMBA: 1♀. (damaged).

Gyna costalis (Walker 1868) ?

SHIMBA: 1♂.

OXYHALOINAE

Oxyhaloa deusta (Thunberg and Engstrom 1784)

EMALI: 1♂; 1♀.

(Two further females differ in their very short tegmina and may be referable to *O. variabilis* Shelford 1907.)

MANTOIDEA

MANTIDAE

EREMIAPHILINAE

Tarachodes kibwezianus Giglio-Tos 1911 ?

EMALI: 1♂.

Galepsus modestus (Gerstaecker 1869) ?

EMALI: 1♂.

Galepsus minutus Giglio-Tos 1910 ?

STONY ATHI: 1♂—xii.

EMALI: 7♂♀.

Galepsus gracilis Giglio-Tos 1910 ?

EMALI: 10♂♂.

Pyrgomantis singularis Gerstaecker 1869

EMALI: 1♂.

AMELINAE

Metentella meruensis (Sjostedt 1908)

EMALI: 4♂♂.

DYSTACTINAE

Gonyptela flavicornis (Sjostedt 1908)

CHYULU: 3♂♂—vi, vii(2), 5,600 ft.

THESPINAE

Hoplocorypha Montanca Giglio-Tos 1916

EMALI: 1♂.

ANGELINÆ

Agrionopsis modesta Werner 1907 ?

EMALI: 1♂. (badly damaged).

ACROMANTINAE

Galinthias meruensis Sjostedt 1909

SHIMBA: 1♂; 1♀.

MANTINAE

Sphodromantis viridis (Forskäl 1775)TEITA: (B) 1♂. *Sphodromantis gastrica* (Stål 1858)

TEITA: (B) 1♀.

Polyspilota aeruginosa (Goeze 1778)(Form *P. pustulata* (Stoll 1813)).

TEITA: (B) 2♂♂; 4♀♀.

SHIMBA: 1♂.

Parasphendale agrionina (Gerstaecker 1869)

SHIMBA: 1♀.

Parasphendale costalis (Kirby 1904)

EMALI: 3♀♀.

TEITA: (Mbololo*, 5,000 ft., October 1938) 1♀.

Parasphendale minor Schulthess-Schindler 1898

STONY ATHI: 1♂—iv.

Miomantis aurantiaca (Giglio-Tos 1911)

CHYULU: 5♂♂—iv, 5,200 ft., v(2), 5,500 ft., vii(2), 5,600 ft. (? This species)

TEITA: (B) 1♀.

Aiomantis sp.

(Species of this genus are difficult to determine with certainty.)

STONY ATHI: 1♀—ix.

EMALI: 3♂♂.

VATINAE

Danuria bolauana de Saussure 1871

SHIMBA: 1♂.

Popa undata (Fabricius 1793)(Often referred to as *P. spurca* Stål 1856, which is probably a synonym—*vide* Rehn 1927.)

EMALI: 1♀.

PHASMATODEA

PHASMATIDEA

BACILLINAE

Xylica oedematosa Karsch 1898?

(Rather small for this species and (?) with shorter antennae.)

EMALI: 1♂; 1♀.

Xylica sp. near *kilimandjarica* Sjostedt 1908

(Differs from the original description in its longer antennae.)

TEITA: (W) 1♂.

Xylica sp.

(A slender species with the pair of tubercles on the vertex very strong.)

TEITA: (B) 2♂♂. (W) 1♂.

Bacycharax sp.

(The anal segment and operculum in this species form a very long beak-like process.)

TEITA: (B) 1♂. (W) 1♀; 1 nymph (♀).

* About 03° 18' S., 38° 28' E.

BACTERIIDAE**BACUNCULINAE (Clitumnini)*****Gratidia kibonotensis* Sjostedt 1908**

CHYULU: 1♂—vi, 5,600 feet.

***Gratidia planicercata* Rehn 1914 (or very near it)**

CHYULU: 11♂♂—iv, 5,200 ft., vi(6), vii(4), 5,600 ft.; 8♀♀—iv(2), v, 5,200 ft. vi(3), vii(2), 5,600 ft.; 5 nymphs—iv(2), 5,200 ft. vi(2), vii, 5,600 ft.

***Gratidia postrostratus* Karsch 1898**

EMALI: 1♂.

***Gratidia* sp. near *tenuis* Sjostedt 1908**

(The supra-anal plate is rather more attenuate and slightly more deeply excised than in *G. tenuis*. The cerci are very similar).

CHYULU: 2♂♂—vi, vii, 5,600 ft.

***Gratidia* and *Phthoa* spp. (4)**

(The taxonomy of these and other Phasmatidae is in a chaotic state.)

(a) (Male genitalia similar to the last species but cerci rather more spatulate. A larger species, the male with much longer legs.)

SHIMBA: 2♂♂; 1♀; 1 nymph (♀).

(b) (Male genitalia similar to *G. furcifer* Sjostedt 1908 but with the cerci very strongly biramous, T-shaped.)

STONY ATHI: 1♀—v.

EMALI: 9♂♂; 5♀♀.

(c) (Vertex with a pair of tubercles.)

EMALI: 2♀♀.

(d) TEITA: (B) 1♀; 1 nymph.

ACRIDODEA**TETTIGONIOIDEA****TETTIGONIIDAE****PHANEROPTERINAE*****Noia* sp.**

STONY ATHI: 1♂—iv; 1♀—iv.

***Peronura* sp. near *clavigera* Karsch 1888**

TEITA: (W) 2♂♂; 2♀♀.

***Peronura* spp. (3)**

(a) STONY ATHI: 6♀♀—iv(2), v(4).

(b) EMALI: 1♀.

(c) TEITA: (W) 1♂.

***Plegmatoptera hoehneli* Brunner von Wattenwyl 1891**

TEITA: (T) 1♀.

***Plegmatoptera meruensis* Sjostedt 1908**

STONY ATHI: 1♂—vi.

EMALI: 1♀ (? this species)

Pantolepta heteromorpha Karsch 1888?

TEITA: (T) 1♂.

SHIMBA: 1♂. (both badly broken).

Pantolepta sp.

(A shorter winged species than the last.)

STONY ATHI: 12♂♂—iv, v(11).

Tylopsis meruensis Sjostedt 1908

EMALI: 6♂♂; 5♀♀ (3,vii).

Tylopsis dispar Sjostedt 1908

EMALI: 1♂ (vii); 6♀♀ (1, vii).

Dioncomena superba Karsch 1888

TEITA: (T) 1♂; 1♀.

SHIMBA: 2♂; 3♀.

Phaneroptera nana Fieber 1853

TEITA: (B) 2♂♂; 2♀♀. (T) 1♂.

SHIMBA: 1♂; 1♀.

Phaneroptera sp. near *albida* Walker 1869(This may be *Ph. reticulata** Brunner von Wattenwyl 1878)

EMALI: 1♂.

Phaneroptera punctulata Burr 1900?

EMALI: 1♂ (vii); 1♀ (vii).

Phaneroptera nana Burr 1900?

EMALI: 1 (vii); 1 (vii).

Phaneroptera sp.(Rather like *Ph. nana* but with very short tegmina in comparison).

SHIMBA: 1♂.

Genus and species?

(Very like *Phaneroptera* in appearance but with very reduced coxal spines very distinct pronotal sulci and a long biramous subgenital plate in the male.)

EMALI: 1♀.

CHYULU: 1♂—vii 5 600 ft.

Parapyrrhicia sp. ?(Differs from the original description of the genotype *P. zanzibarica* Brunner von Wattenwyl 1891 in weakly spined anterior and middle femora and excised subgenital plate.)

SHIMBA: 1♀.

Eurycorypha prasinata Stål 1873 ?

SHIMBA: 1♂.

Eurycorypha sp.

(Individual females of this genus are impossible to determine. There are several undescribed species in E. Africa.)

SHIMBA: 1♀.

CONOCEPHALINAE

Conocephalus maculatus (Le Guillou 1841)

EMALI: 1♂.
SHIMBA: 2♂♂.

Conocephalus iris (Serville 1839)

SHIMBA: 1♂.

Conocephalus meruensis (Sjostedt 1908)?

TEITA: (T) 1♀.

COPIPHORINAE

Homorocoryphus longipennis (Redtenbacher 1891)?

STONY ATHI: 1♂—v.
EMALI: 1♂.

Homorocoryphus sp.

(The taxonomy of African species of this genus is in an unsatisfactory state. These may be *H. vicinus* (Walker 1869) which is the name usually given to the common swarm-E. African species.)

EMALI: 1♀.
TEITA: (B) 1♂; 1♀.

PSEUDOPHYLLINAE

Acauloplax sp.

SHIMBA: 1♂.

HETRODINAE

Eugaster loricatus Gerstaecker 1869

EMALI: 1♀.

Spalacomimus talpa (Gerstaecker 1869)

EMALI: 2♂♂; 2♀♀.

Enyaliopsis ephippiatus (Gerstaecker 1869)

STONY ATHI: 8♂♂—vii(3) viii(3) ix(2); 5♀♀—vii(3) ix(2).
EMALI: 1♀.

GRYLLACRIDAE

Gryllacris meruensis Sjostedt 1908?

EMALI: 1♀.

Gryllacris sp.

(A very small species with wings and tegmina scarcely so long as the body.)
SHIMBA: 1♂.

GRYLLOIDEA

GRYLLIDAE

GRYLLINAE

Brachyterypus membranaceus (Drury 1773)

SHIMBA: 2♀♀.

Gryllus bimaculatus (De Geer 1773)

STONY ATHI: 2♂♂—ix; 2♀♀—ix.

Gryllus morio Fabricius 1781

STONY ATHI: 2♀♀—iii.

Scapsipedus marginatus (Afzel and Brenn 1804)

STONY ATHI: 1♀—iii.

Gryllulus gracilipes (de Saussure 1877)

SHIMBA: 1♂; 1♀.

Gryllulus spp.(3)

(a) (Small brachypterous with white palpi)

SHIMBA: 1♀.

(b) (Small black with tegmina almost as long as abdomen.)

TEITA: (T) 1♂; 1♀(5 nymphs from Chyulu—vi(2) vii(3) 5,600 ft. may also be this species).

(c) (Rather small black hemipterous.)

STONY ATHI: 1♂—iii; 4♀♀—i.

Grylloderes Kilimandjaricus Sjostedt 1909.

EMALI: 1♀.

Gryllodes sp.

(Dark dull brachypterous.)

STONY ATHI: 1♀.

EMALI: 2♀♀.

Cophogryllus sp. near **boromensis** (Brandik 1896)

STONY ATHI: ♀

OECANTHINAE

Oecanthus brevicauda de Saussure 1878

STONY ATHI: 2♂♂—ix, 2♀♀—ix, xii.

EMALI: 1♂ (? this species)

Oecanthus pellucens (Scopoli 1763)

CHYULU: 3♂♂—iv, 5,400 ft., vi(2), 5,600 ft.; 8♀♀—v, vi(2), vii(2), 5,600 ft.; vii(3), 6,000 ft.

Oecanthus sp.(In the absence of females it is impossible to determine these specimens. They may belong to *Oe. burmeisteri* de Saussure 1878, which is often regarded as synonymous with form *aqueus* Fabricius 1793 of the last species.)

EMALI: 2♂♂ (1, vii).

CHYULU: 4♂♂—v, 5,200 ft.

ENEOPTERINAE

Aphonus sp. ?

SHIMBA: 1♀.

PODOSCIRTINAE

Dolichogryllus sp.

EMALI: 1♂.

Dolichogryllus griseus Chopard 1932?*

TEITA: (B) 1♂.

MOGOPLISTINAE

Ectatoderus kilimandjaricus Sjostedt 1909

CHYULU: 4♂♂—iv, 5,200 ft., iv(3), 5,600 ft.; 3♀♀—iv(2), 5,200 ft., v, 5,600 ft.

GRYLLOTALPIDAE

Grylotalpa africana Palissot de Beauvois 1805

STONY ATHI: 1 nymph—x.

ACRIDOIDEA

EUMASTACIDAE

Plagiotriptus hippiscus (Gerstaecker 1869)

STONY ATHI: 2♀♀—v, ix.

EMALI: 2 nymphs.

TEITA HILLS: 4,600 ft., January 1947 (J. G. Williams): 1♀.

Euschmidtia sp.

(SHIMBA: ♀).

Thericles sp.

EMALI: 1♀.

TETRIGIDAE

TETRIGINAE

Paratettix scaber (Thunberg 1815)?

STONY ATHI: 8♂♂—vii, viii(4), ix(2), xii; 1♀—v.

All the males but one (viii) are much below average size for the species, but only one species seems to be represented. An additional female (viii) with the posterior prolongation of the pronotum ending rather abruptly and leaving almost the whole of the apical half of the wings exposed is perhaps merely an aberration since no other significant difference can be detected. The genus requires revision, however).

ACRIDIDAE

ACRIDINAE

Acrida sulphuripennis (Gerstaecker 1873)

STONY ATHI: 10♂♂—v(3), vi(2), viii(2), xii(3); 1♀—viii.

EMALI: 19♂♂.

SHIMBA: 2♂♂.

* This species was described from "Bura" but at what altitude is not known. Presumably the same Bura as the locality of the present specimen.

Acridella spp. (3)

There is a great deal of confusion in the taxonomy of this genus and it is advisable to leave specific determinations until the genus is revised. Certain of the forms have been referred to *A. nasuta* (Linné 1758) in the past (*e.g.* sp. *b*). This, however is a Mediterranean species and distinct from the tropical forms—*vide* Uvarov and Van Someren (1941). The following three forms are distinct.

(a) (Markings of tegmina well defined; hind wings of female bright red; pronotum much constricted—common Coast species.*)

SHIMBA: 1♀.

(b) (Markings of tegmina weakly defined; Hind wings of female dull purplish-red; pronotum strongly constricted—widespread.)

STONY ATHI: 3♂♂—xii; 1♀—v.

CHYULU:

TEITA: (B) 1♀.

(c) (Markings of tegmina strongly defined; hind wings of female bright purplish-red; pronotum not strongly constricted. A fairly large species resembling a small *A. procera* (Klug 1829), differing from *A. rendall*; (Kirby 1902) in the dark spots on the hind wings and the weak constriction of the pronotum.)

STONY ATHI: 2♂♂—v; 1♀—v.

EMALI: 3♀♀; 5 nymphs.

Cannula linearis (de Saussure 1861)?

(Specific determinations in this genus are unsatisfactory and, without males, impossible.)

EMALI: 4♀♀.

CHYULU:

Mesopsis laticornis (Krauss 1877)

(SHIMBA: ♂♂.)

Brachycrotaphus sjsotedti Uvarov 1932

EMALI: 5♂♂ (2, vii); 1♀.

Parga xanthoptera (Stål 1855)

EMALI: 1♀.

Platypternodes sp.

(SHIMBA: ♂.)

Amphicremna sp.

EMALI: 1♂ (vii).

Duronia tricolor Karny 1907

STONY ATHI: 4♂♂—v, vi, vii, xii; 6♀♀—iv, vi, vii, xii(3).

SHIMBA: 1♀.

Lobopoma ambages Karsch 1896

EMALI: 12♂♂; 3♀♀.

CHYULU:

* Gerstaecker (1873) incorrectly describes this species as the female of *Trudalis miniata* Klug. He also records "*T. nasuta* Linneus," from the Bura Mts. (=Teita Hills, *T. miniata* Klug 1829 = *Acridella grandis* (Klug 1829) *partim*,

Orthochtha desyncnemis (Gerstaecker 1869)

STONY ATHI: 1♀—iv.

EMALI: 32♂♂; 35♀♀; 7 nymphs.

TEITA :* (B) 1♀; (W) 1♀.

Paracomacris stenopterus (Schaum 1853)

CHYULU:

Anablepia rufescens (Kirby 1902) ?

CHYULU:

Paracinema tricolor tricolor (Thunberg 1815)

STONY ATHI: 3♂♂—viii, xii(2).

TEITA: (W) 3♂♂; 1♀ (4 additional ♀♀, x, 38).

Prostethophyma cephalica I. Bolivar 1914

EMALI: 4♂♂.

Gymnbothrus temporalis temporalis (Stål 1876)

EMALI: 7♀♀.

Gymnbothrus temporalis flexuosus (Schulthess-Schindler 1898)†

STONY ATHI: 2♂♂—vi, vii; 1♀ —x.

EMALI: 2♀♀.

Gymnbothrus inflexus Uvarov 1934

EMALI: 2♀♀.

Gymnbothrus graeilis (Ramme 1931)‡

STONY ATHI: 1♂ —xii; 2♀♀ —v, xii.

GYMNOBOTHROIDES MONTANUS n. sp. (*fig. 1*)

TEITA: (T) 2♂♂; 3♀♀.

HOLOTYPE: ♂, 4,500 - 5,500 ft., Grass and Bushes, Teita Hills 25th December 1945, D. K. Kevan, Coll.

Antennae: Very slightly expanded basally, somewhat longer than the head and pronotum together.

Head: Face very oblique, almost straight in profile; frontal ridge reaching the clypeal suture, parallel-sided, deeply sulcate throughout; lateral facial carinae strong, very slightly arcuate; fastigium of vertex inclined downwards to meet frontal ridge at a rounded acute angle, concave above with raised margins; occiput somewhat rounded in profile; median carinula obsolete.

Pronotum: But little constricted; anterior margin of pronotal disc rounded, posterior margin slightly excised medially; median and lateral carinae strong, latter slightly convergent for about one third of the pronotal length, thereafter sharply divergent; first and second sulci of the pronotal disc irregularly impressed, the former very indistinct, the two placed close together at about one third of the pronotal length; typical sulcus distinct, situated beyond the middle of the disc, somewhat arcuate.

* Known also from Mt. Kasigau, 03°-50' S., 38°-39' E..

† *G. brevipennis* Miller 1929 seems to be a synonym of this species.

‡ This appears to be a synonym of *G. rammei* (Sjostedt 1931) but whether this is itself a synonym of *G. maruensis* (Sjostedt 1929) as Sjostedt states, is not certain.

Tegmina: Abbreviate, long-oval, reaching slightly beyond the posterior margin of the first abdominal tergum.

Cerci: Straight, obtusely pointed, slightly longer than the supra-anal plate which is bluntly rounded apically.

ALLOTYPE: ♀, same data as holotype.

Agrees with the above description though a larger insect with shorter cerci.

COLORATION: The males (holotype and one paratype) have the general coloration reddish-brown. The antennæ, frons, occiput and a patch behind the eye, the median carina of the pronotum, the upper half of the lateral pronotal lobes, the tegmina and the sides of the abdomen are darker. Posterior femora orange; apex of femur and the extreme base of the tibia black. Posterior tibia infuscated but with a whitish ring near the base. An indistinct dark maculation is also present on the upper keel of the hind femur just basal of the middle. The allotype shows the same coloration except that only the lower side of the femur is orange. The two female paratypes are almost unicolorous red-brown.

MEASUREMENTS (in millimeters):

	Length	Antenna	Pronotum	Tegmen	Hind Femur	Hind Tibia
♂ Type	12.0	6.0	2.5	2.7	8.5	7.5
♀ Allotype	19.5	7.0	3.8	3.4	12.2	9.8

This species differs from the species from Mt. Kenya—*G. keniensis* Johnston 1937—and the very closely allied E. African *G. levipes* (Karsch 1896)—in its slightly less constricted pronotum, its larger size and more slender appearance and its more shallowly sulcate and more parallel sided frontal ridge. From the South African *G. hemipterus* Miller 1932 to which it is most closely allied, it differs chiefly in the excised posterior margin of the pronotal disc and in the form of the frontal ridge which is less deeply sulcate. *G. pullus* Karny 1915, from Tanganyika is stouter, has a less strongly produced fastigium to the vertex and apically rounded tegmina. The posterior femora (in the female at least) are stouter in *G. pullus* and the pronotal carinae are more divergent.

***Pnorisa squalus* Stål 1860**

EMALI: 3♂♂; 1♀.

SHIMBA: 1♂.

***Afrohippus* sp. nov.**

(This species is very near *A. brevipennis* Miller 1929 which is only known from a single female. The present specimen agrees quite closely with Miller's type, but differs in its smaller size and less slender appearance and in the lateral pronotal carinae continuing on to the metazona—almost reaching the hind margin. Since only a single female is known, it is best left undescribed for the present.)

STONY ATHI: 1♀ —iv.

***Aulacobothrus emalicus* Uvarov 1941**

EMALI: 33♂♂; 13♀♀; 2 nymphs (and further material retained by the British Museum).

***Aulacobothrus* sp.**

SHIMBA: ♂♂, ♀♀.)

***Rhaphotittha meruensis* Sjöstedt 1909**

STONY ATHI: 14♂♂—iv, v(3), vi, viii(3), ix(5), xii; 12♀♀—v(4), vi, viii(2), ix(4), xii.

Rhaphotittha nyuki Sjostedt 1909

(This species occurs together with the last in many places. It differs only in the shape of the pronotal carinae and is almost certainly synonymous with it, the present species having page priority.)

STONY ATHI: 1♂—v; 7♀♀—iv, v, vi(2), viii(2), ix.

Rhaphotittha subtilis Karsch 1896

EMALI: 1♀; 1 nymph.

Rhaphotittha reducta Uvarov 1941

STONY ATHI: 2♂♂—iii (paratype, v (type, retained by the British Museum).

Dnopherula sp. (probably new)

(It would be unwise to describe this without direct comparison with other species).

EMALI: 1♂; 4♀♀(vii).

Stenophippus xanthus (Karny 1907)

EMALI: 1♀.

OEDIPODINAE

Aiolopus meruensis Sjostedt 1909

EMALI: 1♀.

Aiolopus sp.

(The group to which this species belongs includes the European *A. thalassinus* (Fabricius 1793) from which the African forms are distinct (Uvarov, 1938.)

STONY ATHI: 4♂♂—viii(2), ix(2).

Aiolopus longicornis Sjostedt 1909

STONY ATHI: 2♂♂—iv, ix; 2♀♀—viii.

TEITA HILLS:* 1♂; 2♀♀—September 1921 (H. E. Box).

Morphacris fasciata (Thunberg 1815)

(All typical form with red hind wings.)

STONY ATHI: 13♂♂—viii(7), ix(3), x(2), xii; 5♀♀—vi, viii(2), ix, x.

TEITA: (W) 2♀♀—October 1938, (T) 2♂♂; 5♀♀.

SHIMBA: 1♀.

Acrotylus patruelis (Herrich-Schaeffer 1838)

STONY ATHI: 22♂♂—iv, v(3), vi(2), viii(7), ix(5), x, xii(3); 20♀♀—iii, v, vi, vii, viii(7), ix(6), x, xii(2).

TEITA: (T) 1♂; 1♀.

Acrotylus elgonensis Sjostedt 1933

STONY ATHI: 2♀♀—ix, x.

Trilophidia conturbata (Walker 1870) ?

(This genus requires revision before certain determinations can be made)

STONY ATHI: 2♂♂—xii; 2♀♀—xii.

* In collection of Scott Agricultural Laboratories, Kabete, Kenya.

Heteropternis saussurii Kirbe 1902

EMALI: 7♂♂ (2, vii) 8♀♀ (1, vii).

Heteropternis coulouana (de Saussure 1884)

CHYULU:

TEITA: (T) 2♂♂; 1♀.

Heteropternis thoracica Walker 1870

SHIMBA: 1♀.

Pycnodictya galinieri (Reiche and Fairmaire 1847)

STONY ATHI: 6♂♂—v, viii(2), ix, x, xii; 2♀♀—v, xii.

EMALI: 10♂♂; 8♀♀; 1 nymph.

TEITA: (B) 1♀.

Humbe tenuicornis (Schaum 1853)

STONY ATHI: 8♂♂—v(2), vi, vii, viii(4); 6♀♀—iv(3), v, vii, viii.

EMALI: 2♂♂; 2♀♀.

TEITA: (W) 1♀.

SHIMBA: 1♂.

Gastrimargus volkensi Sjöstedt 1909

EMALI: 4♂♂; 26♀♀.

TEITA: (B) 1♂.

SHIMBA: 1♀.

Gastrimargus africanus (de Saussure 1888)

STONY ATHI: 1♀—vii.

EMALI: 1♂; 4♀♀.

CHYULU:

Gastrimargus brevipes Sjöstedt 1928

EMALI: 1♂; 2♀♀.

CHYULU:

Locusta migratoria migratorioides (Reiche and Fairmaire 1847)

(It is most improbable that this species is a permanent resident in either of the localities given below although the solitary phase of the Tropical Migratory Locust has been found in isolated places in East Africa since the last outbreak which came to an end in 1940).

STONY ATHI: 1♂—vi; 1 nymph.

(Solitary phase—presence possibly due to breeding of isolated individuals broken off from a swarm.)

EMALI: 8♂♂; 2♀♀ (Gregarious phase).

Oedaleus citrinus de Saussure 1888

STONY ATHI: 10♂♂—vii, viii(8), ix; 7♀♀—iv(2), vi, vii, viii(3).

(There is an additional female in the Coryndon Museum—viii, 1939, 4,500 ft.)

Oedaleus nigeriensis Uvarov 1925

EMALI: 1♀.

PYRGOMORPHINAE

Chrotagonus sp.

(A brachypterous species. This difficult genus needs revision before certain determinations can be made.)

TEITA: (T) 1 ♂.

Tapesia grisea grisea (Reiche and Fairmaire 1847)

CHYULU:

Tapesia grisea intermedia Sjöstedt 1923

EMALI: 1 ♂.

Parapetasia impotens Karsch 1888

(SHIMBA: ♀♀).

Zonocerus elegans (Thunberg 1815)

TEITA:* (B) 3 ♀♀ (brachypterous form), (T) 1 nymph.

Taphronota calliparea (Schaum 1853)

EMALI: 1 ♂.

CHYULU:

TEITA: (B) 4 ♂♂; 2 ♀♀, (W) 1 ♂.

SHIMBA: 4 ♂♂.

Phymateus viridipes (Stål 1873)

EMALI: 1 ♂.

CHYULU:

TEITA: (Mbololo, 5,000 ft., ix— 1938), 1 ♀. (This locality is approximately 03° 18' S., 38° 28' E.)

Phymateus purpurascens Karsch 1896

TEITA: (B) 1 ♂, (W) 1 ♀, (T) 1 nymph (? this species).

Phymateus aegrotus (Gerstaecker 1869)

STONY ATHI: 1 ♂—xii; 1 ♀—iv.

Atractomorpha gerstaeckeri I. Bolivar 1884

(SHIMBA: ♀♀.)

Parasphena nairobiensis Sjöstedt 1933

STONY ATHI: 3 ♂♂, 5 ♀♀. (Retained by British Museum).

Parasphena chyuluensis Kevan 1946

CHYULU: (Previously recorded as *P. nairobiensis* Sjöstedt 1933.)

Parasphena teitensis Kevan 1946

TEITA: (W) 3 ♀♀, (T) 6 ♂♂; 11 ♀♀; 3 nymphs (All type material).

* Known also from Mt. Kasigau, 03° 50' S., 38° 39' E.

PAMPHAGINAE

Lamarckiana sp.

(The taxonomy of this genus is chaotic. This species is often referred to as *L. loboscelis* (Schaum 1853).

EMALI: 1 ♀.

SHIMBA: 1 ♀.

CATANTOPINAE

Ixalidium obscuripes Miller 1929

(Not yet compared with authentic material, but agrees with Miller's description and figures.)

(SHIMBA: ♂♂; ♀♀).

Ixalidium haematoscelis Gerstaecker 1869. (*fig. 2A*)

Described from the Bura Mountains (—Teita Hills). From the original description it is obvious that the specimens below belong to this species although the description is not sufficiently full to distinguish it from certain species now known. It is closely related to *I. bicoloripes* Uvarov 1941, but differs from paratypic material of that species in being slightly smaller, in the hind tibiae being less extensively and less intensely dark basally, in the very slightly narrower fastigium of the vertex, in the rather less gibbose abdominal terga, in the finer puncturation, in the trapezoidal excision of the last abdominal tergum and in the shape of the supra-anal plate of the male, of which the basal portion is slightly narrower and the apical portion slightly shorter with straight (not slightly concave) sides and a more distinct median sulcus. The impression on the base of the supra-anal plate, also, is narrower and better defined, being a sulcus rather than an impression between two widely spaced ridges (*vide* also Uvarov, 1941). From the Kilimanjaro species* it differs in being very slightly larger, in the rather wider fastigium of the vertex in the gibbose abdominal terga and the wider supra-anal plate. It differs from both *I. usambaricum* Ramme 1929 and *I. obscuripes* Miller 1929 from N.E. Tanganyika by the shorter supra-anal plate and the inflated, apically attenuated subgenital plate in these two species. *I. transiens* Ramme 1929 and *I. asymmetricum* (Ramme 1929) also from Tanganyika, differ in the aberrant genitalia of the male.)

TEITA: (T) 4 ♂♂; 5 ♀♀.

Ixalidium bicoloripes Uvarov 1941

EMALI: 4 ♂♂; 4 ♀♀; 2 nymphs (All type material, 2 ♂♂ (including the holotype) and 2 ♀♀ retained by the British Museum.)

USAMBILLA MONTANA n. sp. (*fig. 3B*)

TEITA: (T) 3 ♀♀.

HOLOTYPE: ♀, Teita Hills, Kenya, (03° 23' S. 38° 23' E.), 4,500 - 5,500 feet, in Forest Clearings, 24th December 1945, (D. K. Kevan).

* Sjöstedt (1909) records this as *I. haematoscelis* but it is certainly distinct from that species, differing as described, particularly in the narrower though less acutely pointed supra-anal plate of the male. The specimen of "*I. haematoscelis*" in the British Museum collection presumably the same as those studied by Uvarov (1941) when he described *I. bicoloripes* and compared that species with them—belong to Sjöstedt's original Kilimanjaro series for which the name *Ixalidium Sjöstedti*, n. sp. (*fig. 2B*) is proposed. The following specimen should be regarded as the type:—♂, Kilimanjaro, 1905—06, Kibonoto, Kulturz., 12 okt., *Sjöstedti*, B.M. 1927—4. The following are Paratyped: 2 ♀♀, data as Type, but Kibonoto—niedr (not kulturz) 2 and 7 Jan; 1♂, data as Type, but Kibonoto, Stapf, 1000—1200 m. (not kulturz) Aug.

Antennae: Longer than head and pronotum together, filiform.

Head: Short, strongly punctured. Face straight when seen in profile, slightly inclined backwards, strongly punctured. Frontal ridge broad, strongly punctured, somewhat excavate; from fastigium of vertex to median ocellus, as wide as interocular space; from ocellus to clypeus narrower. Lateral carinae of face almost vertical from eye to clypeus. Fastigium of vertex very short and wide, scarcely protruding beyond the eyes, slightly excavate anteriorly almost twice as wide as interocular space, margins distinct, convergent backward on to vertex, the enclosed space longer than wide. Eyes somewhat protruding, the distance between their outer faces almost equal to the greatest width of the pronotum.

Pronotum: Cylindrical with anterior margin placed just behind the eyes; anterior and posterior margins almost straight; greatest width, length and depth all about equal. Median pronotal carina present but indistinct. Lateral pronotal carinae obsolete. Only the typical sulcus present on the pronotal disc but all three sulci fairly distinct on the lateral lobes. Metazona of pronotum less than one-quarter of pronotal length. A small hump is situated medially in the region of the typical sulcus of the pronotal disc. Puncturation of pronotal disc fine, strongly impressed and evenly distributed, dense; of pronotal lobes, fine and scattered. Meso—and metanota with almost straight margins except for the posterior margin of the metanotum which is slightly excised medially. Mesonotum equal in length to the metazona of the pronotum; metanotum almost twice this length. Puncturation of meso—and metanota and of pleurae as on pronotal disc. Prosternal tubercle large, obtuse, the anterior face flat. Mesosternal lobes rather wider than long, their inner margins slightly divergent posteriorly and their posterior margins inclined postero-laterally. The interspace between the mesosternal lobes is slightly greater than the width of a lobe.

Tegmina and wings: Absent.

Abdomen: Terga, except last three, similar to meso—and metanota in form and puncturation. Last three terga broadly concave posteriorly and less punctured. Supra-anal plate broadly triangular, as wide basally as long, with a median basal, longitudinal impression. Cerci conical, about half as long as supra-anal plate. Subgenital plate considerably longer than wide with the posterior margin very broadly triangular. Ovipositor valves short, with poorly-developed apical hooks; upper pair rather slender, superior and inferior margins sub-parallel.

Only the female is completely known.*

COLORATION: The general colour is reddish-brown. The antennae are variegated blackish and yellowish, being more predominantly black apically. The head and pronotum have a lateral black band reaching from behind the eye to the posterior margin of the pronotum and widening posteriorly. Below this runs a wide, yellowish stripe. The meso—and metanota and the abdomen are black laterally except for a large, lateral, reddish-brown patch extending from the meso—and metanota to the first abdominal tergum. The hind tibiae are dull greenish, suffused blackish apically, their spines dull yellowish with black tips. The tarsi are suffused blackish.

MEASUREMENTS (in millimeters):

	Length	Length of Pronotum	Length of Hind Femur
♀ Type	16	3.5	8.5

* A single, damaged male (without hind legs) was taken with the Type but, with a few other less important specimens, was regrettably lost at a later date. A rough notebook entry, however, shows that this differed from the female in its smaller size, more slender appearance, narrower fastigium, less quadrate pronotum devoid of a definite hump and narrower mesosternal interspace. The only measurements noted were "length c. 10 mm., pronotum c. 2 mm."

The two female paratypes (same data as type) have similar measurements.

HABITAT: The specimens were taken in open places in forest and plantations among low herbage generally.

This species is intermediate between *U. olivacea* Sjostedt 1909 (fig. 3A) and *U. modicircus* (Karsch 1896) (fig. 3C). It differs from specimens of the latter from Kili-manjaro, in that the fastigium of the vertex is wider, less produced and less excavate, the median pronotal carina is less distinct, the hump on the posterior part of the pronotal disc is less pronounced, the puncturation is more even and the supra-anal plate of the female is somewhat shorter.

From the genotype *U. olivacea*, the new species differs in its smaller size, its finer and more regular puncturation, its slightly more excised fastigium (seen from above), its narrower interocular space and the coloration, there being more black laterally on the pronotum and abdomen and no trace of olive coloration except on the hind tibiae. The superior ovipositor valves are more like those of *U. modicircus* than of *U. olivacea*.

U. (?) cylindricollis Ramme 1929 from Southern Rhodesia of which only the male is known, has a more tumid, smoother pronotum and narrower fastigium than other species.

Usambilla olivacea Sjostedt 1909

EMALI: 1♀.

Rehnula usambarica (Ramme 1929)

(Without type or authentic material for comparison one cannot be absolutely certain that the specimens below are the same as those described from the Usambaras, but they agree closely with Ramme's figures and description.)

(SHIMBA: ♂♂; ♀♀.)

Mecostibus sellatus Uvarov 1941

EMALI: 1♀ (Type: retained by British Museum).

Phialosphaera severini Ramme 1929

(SHIMBA: ♂, ♀.)

Catantops vanus Karsch 1896

(Sometimes referred to the genus *Parapropacris* vide Ramme 1929.)

TEITA: (B) 2♂♂; 3♀♀.

(SHIMBA: ♂♂.)

Catantops saucius (Burmeister 1838)

TEITA: (Mbololo—November 1938). 1♂.

(Strictly speaking this species should not be included in the fauna of the Teita Hills for although the locality gives rises to over 4,500 ft.—about 03° 18' S., 38° 28' E. — the specimen was most probably caught in the grass and thorn-bush country at a much lower altitude. It is a dry grassland species.)

Catantops decoratus decoratus Gerstaecker 1869

EMALI: 6♂♂ (4, vii); 6♀♀ (2, vii); 1 nymph.

CHYULU:

Catantops neumanni Ramme 1929

SHIMBA: 1♀.

Catantops sp. (tukuyuensis group*)

EMALI: 1♂, 1♀ (Retained by British Museum).

CHYULU:

Catantops curvicercus Miller 1929

STONY ATHI: 2♀♀—vi, xii.

EMALI: 2♂♂; 3♀♀.

TEITA: (T) 1♂; 2♀♀.

Catantops melanostictus Schaum 1853

STONY ATHI 2♂♂—viii, xii; 3♀♀—xii.

CHYULU:† 1♀—iv, 3,800 ft.

SHIMBA: 1♀.

Catantops loveni Sjostedt 1931

EMALI: 1♂, 2♀♀.

Catantops kilimandjaricus Ramme 1929

CHYULU: ‡

Catantops momboensis Sjostedt 1931?

STONY ATHI: 1♀—viii.

(The coloration, particularly of the hind legs, agrees with the above species from its description. Without the male certain determination is impossible.)

CHYULU:

CATANTOPS (MICROCATANTOPS) EMALICUS n. sp. (fig. 4)

EMALI: 2 ♂♂; 1 ♀. x

HOLOTYPE: ♂, Emali Range, Sultan Hamud, 4,900 - 5,900 ft., March 1940.

Antennæ: Very slightly shorter than head and pronotum together.

Head: Fastigium of the vertex broadly rounded in front, about as wide as long and about two and a half times as wide as the interocular space; frontal ridge strong, reaching the clypeal suture, parallel-sided, tapering only very slightly towards the fastigium, sulcate and strongly punctured throughout, lateral margins sharply defined dorsal carinula obsolescent.

Pronotum: Strongly and rugosely punctured; median carina weak but distinct, cut by three transverse sulci, the typical sulcus situated behind the middle of the pronotal disc, extending on to the lateral lobes, the anterior sulcus not extending on to the lateral lobes; anterior margin of pronotal disc almost straight, but rounded laterally, posterior margin forming a rounded obtuse angle; prosternal tubercle obtuse, directed slightly backward; meso-sternal interspace rather wider than long, slightly widened posteriorly.

Tegmina: Not quite reaching half way to the posterior margin of the second abdominal tergum, widely separated on the dorsum, long-oval, the apex broadly triangular, the costal margin almost straight, widest point at about two-thirds of the length.

* The author understands that hairy species such as this *C. villosus* Karsch and *thirtus* Miller will go to form a new genus in a paper by Uvarov (not yet published).

† Omitted from the list published by Uvarov and Van Someren (1941).

‡ Van Someren in the same paper also reports this species from EMALI, but all specimens included thereunder in the Coryndon Museum collection from that locality are, in fact, *C. loveni* Sjostedt, the male cerci of which are quite distinctly different (as is also the colour of the hind tibiae).

x Now also known from Kibwezi (Kenya) and Arabuko (Kenya Coastal area).

Cerci: Straight, conical, sub-equal to the supra-anal plate in length, the latter being narrowed in the apical third to a triangular point.

ALLOTYPE: ♀, same data as holotype.

Agrees with the holotype except in its larger size, broader tegmina and shorter cerci.

COLORATION: The general coloration of the holotype and a male paratype is brown with a broad black shiny stripe running across the upper part of the lateral pronotal lobe but much less distinct behind the typical sulcus where it is dark brown and not black. The lower margin of the lateral pronotal lobes and the mesopleura are pale yellowish. The antennæ are mottled greyish. The hind femora are orange within and below; the lower external area is dark brown; the lower carina of the median external area has several black maculations along it; and the dorsal carina has a sub-median and a sub-apical dark brown fascia obliquely and rather faintly across the median external area, the sub-apical fascia being present also on the inner side of the femur. The hind tibiae are orange, somewhat infuscated externally for one-fifth of the tibia-length a short distance beyond the base, and also at the apex. The hind tarsi are infuscated. The allotype is generally paler in colour with a large, dark, medially-constricted area on the pronotal disc.

MEASUREMENTS (in millimeters):

	Length	Antenna	Pronotum	Tegmen	Hind Femur	Hind Tibia
♂ Type . . .	14	5.0	3.5	3.2 x 1.8	8.7	7.3
♀ Allotype . . .	20	...	4.6	3.8 x 2.6	10.6	9.0
♂ Paratype . . .	13	4.5	3.2	3.9 x 1.7	8.5	7.1

This species differs from *M. brachypterus* Ramme 1929, in the rather shorter fastigium of the vertex, in the mesosternal interspace being rather wider and in the wider, shorter and less lanceolate tegmina. In colour it differs also in there being no pale maculation on the lateral pronotal lobes between the penultimate and posterior sulci, and in the orange instead of red colour to the inside and lower part of the posterior femur and tibia, the colour not extending on to the tarsus.

With a series, comparison with Ramme's type might prove the two synonymous since they are very similar.

Europacris obscura Miller 1929

SHIMBA: 5 ♂♂; 12 ♀♀.

Thisoicetrus laticercus Uvarov 1941

CHYULU:

Thisoicetrus brevipennis I. Bolivar 1914

EMALI: 12 ♂♂; 4 ♀♀.

Bibulus coerulescens (Stål 1876)

STONY ATHI: 3 ♂♂—v, xii(2); 6 ♀♀—v(3), vi, x, xii.

EMALI: 3 ♀♀.

CHYULU:

Eyprepocnemis ibandana Giglio-Tos 1907

STONY ATHI: 3 ♂♂—iv, viii(2); 6 ♀♀—vi(3), vii, viii(2).

EMALI: 5 ♂♂; 5 ♀♀.

CHYULU;

Taramassus cuncator (Karsch 1900)

STONY ATHI: 1 ♀—ix.

TEITA: (T) 1 ♀.

(SHIMBA: ♂♂, ♀♀.)

(The Teita specimen differs from typical examples by its small size and doubtless belongs either to *T. c. sjostedti* (Ramme 1929) or *T. c. flabellatus* (Ramme 1931), which were described from Meru and Kilimanjaro respectively. Without males, however, sub-specific determination is impossible.)

Oxaeida poultoni Ramme 1929.

(SHIMBA: ♀.)

Caloptenopsis ferrifer (Walker 1870)

EMALI: 1 ♂; 2 ♀♀.

CHYULU:

Caloptenopsis speciosus Sjostedt 1909

STONY ATHI: 2 ♂♂—viii, xii; 2 ♀♀—viii.

EMALI: 5 ♂♂; 24 ♀♀; 4 nymphs.

SHIMBA: 1 ♂.

Caloptenopsis meruensis (Sjostedt 1909)

STONY ATHI: 11 ♂♂—viii(4), ix(4), x, xii(2); 13 ♀♀—v, vii(2), viii(4), ix(4), xii(2).

Platyphymus granulatus Uvarov 1922

STONY ATHI: 1 ♂—vi.

CHYULU:

Tyloptropidius speciosus (Walker 1870)

(SHIMBA: ♂♂, ♀♀.)

Tyloptropidius gracitipes Brancsik 1896?

(This genus, and the following require revision before reliable determinations can be made.)

STONY ATHI: 1 ♂—v; 1 ♀—viii.

CHYULU:

Tropidopsis pendulus (Karsch 1894)?

STONY ATHI: 1 ♂—viii; 1 ♀—viii; 1 nymph—vi.

EMALI: 13 ♂♂; 35 ♀♀; 2 nymphs.

SHIMBA: 1 ♂; 1 ♀.

Cataloipus oberthuri I. Bolivar 1891

TEITA: (B) 1 ♀.

Cataloipus tanaensis Sjostedt 1929?

(After examining long series of this species—or at least specimens which agree with Sjostedt's distinction from the oberthuri—the writer feels fairly certain that it is but a sub-species of the last, there being apparently intermediate forms, particularly among males. Without type material for comparison, however, it is not proposed to synonymise the two species for the present.)

STONY ATHI: 6 ♂♂—v(2), viii(3), ix; 8 ♀♀—v(2), vi(4), vii, viii.

EMALI: 8 ♂♂; 27 ♀♀.

***Ischnansis curvicerca* Uvarov 1938**

(There is some evidence that this species is synonymous with *I. gracilis* Schulthess-Schindler 1898. It is apparently more widely distributed than was thought when originally described, but since the present specimen (determined by Uvarov himself) and material from Turkana and the Northern Province of Kenya examined by the writer are, like Schulthess' type, all females, the question must remain open regarding synonymy.)

EMALI: 1♀.

***Abisares viridipennis azurea* Sjöstedt 1909**

STONY ATHI: 2♂♂—vii, viii; 1♀—viii.

EMALI: 1♂.

CHYULU:

TEITA: (B) 16♂♂; 14♀♀; 2 nymphs.

SHIMBA: 1♂.

***Anacridium moestum* (Serville 1839)**

(Typical form, not *A. melanorhodon* Wlk, which may or may not be distinct.)

EMALI: 8♂♂; 14♀♀ (1, vii); 4 nymphs.

CHYULU:

***Bryophyma debilis picta* Uvarov 1922**

CHYULU:

***Bryophyma debilis debilis* (Karsch 1896)**

(The specimen below is somewhat discoloured but resembles this sub-species more closely than the last.)

EMALI: 1♀.

***Schistocerca gregaria* (Forskäl 1775)**

(The Desert Locust is not a permanent resident in any part of the area under discussion, only the gregarious phase being known from the various localities. Swarms have been recorded from all five places at various times during 1943-46* and breeding took place in the Stony Athi area in May 1944, and a fair hopper infestation resulted. The low country around the Teita Hills has also been subject to heavy infestations of hoppers—records going back to the beginning of the present century—but there is only one record of breeding at higher altitudes—a very small hatching at Wesu, about 5,400 feet, December 1945.)

TEITA: (T) 1♂.

(The only specimen from any of the localities which has been preserved. A yellow straggler from swarms moving in the low surrounding country at the time.)

***Ornithacris cyanea magnifica* (I. Bolivar 1886)**

(All the material below belongs to the same form of *O. cyanea* (Stoll 1813), the Chyulu material being determined as the above sub-species by Uvarov who mentions 1942 that the specimens like all Kenya material available to the writer are intermediate between it and *O. c. orientalis* Sjöstedt 1909 since the wings are purplish-red in colour. Rehn 1943 disagrees with Uvarov's classification, this form being his *O. pictula cruenta* Rehn 1943.)

EMALI: 1♂(vii); 5♀♀ (4, vii).

CHYULU:

TEITA: (B) 1♀, (W) 1♀.

* Similarly during 1934-36 swarms of the Red Locust, *Nomadacris septemfasciata* serv. occurred in most of the localities but breeding did not occur there.

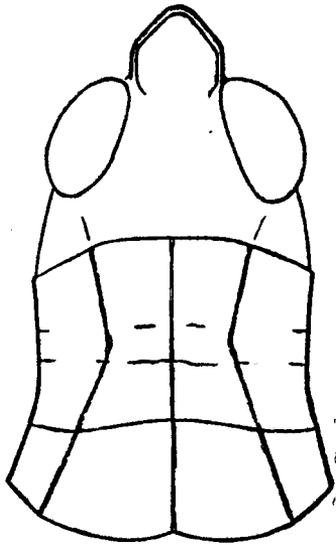


FIG. 1
Gymmobothroides montanus, n. sp.
♀ Head and Pronotum

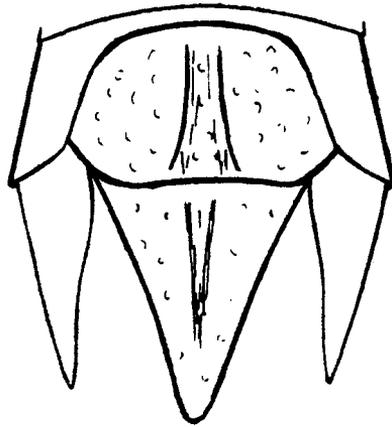


FIG. 2B
Ixalidium sjostedti, n. sp.
Apex of abdomen of ♂

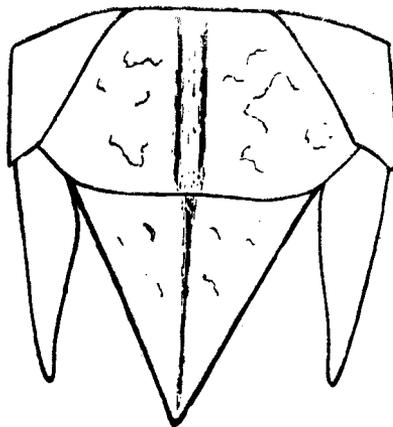


FIG. 2A
Ixalidium haematoscelis Gerst.
Apex of Abdomen of ♂

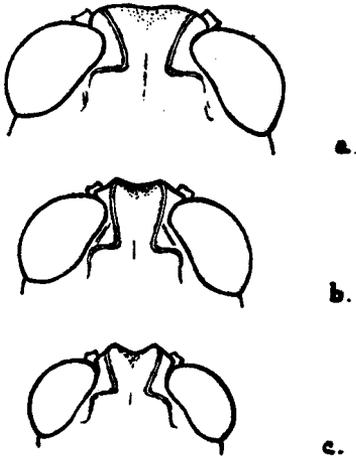


FIG. 3
Usambilla ♀♀; Head
 (a) *U. olivacea* Sjöstedt.
 (b) *U. montana* n. sp.
 (c) *U. modicicrus* (Karsch)

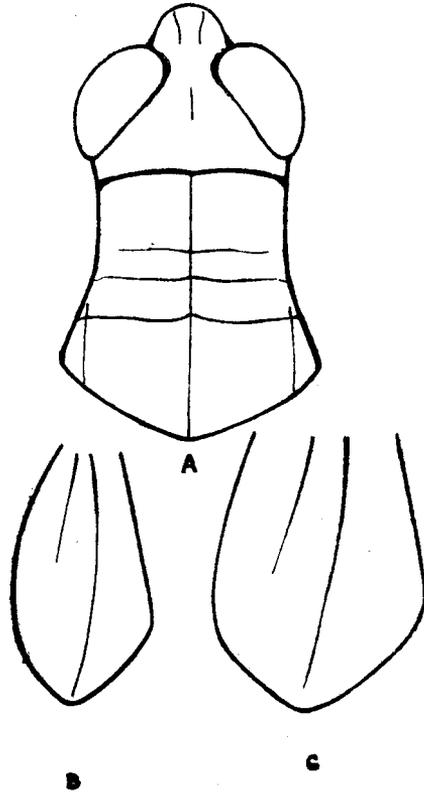


FIG. 4
Catantops (Microcatantops) emalicus, n. sp.
 (a) ♂ Head and Pronotum
 (b) ♂ Right Tegmen
 (c) ♀ Right Tegmen

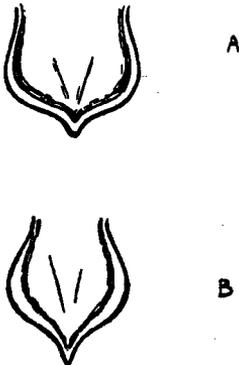


FIG. 5. Subgenital Plate of male seen from above
 (a) *Kraussaria dius* (Karsch.)
 (b) *K. deckeni* (Kerst.)

Cyrtacanthacris tatarica tatarica (Linné 1758)

STONY ATHI: 15♂♂—iii, v, vi(2), vi, viii(6), ix(2), xii(2); 4♀♀—iii(2), v, ix.
EMALI: 2♂♂; 2♀♀. CHYULU: TEITA: (W) 1♀.

Acanthacris ruficornis fulva (Sjostedt 1909)

STONY ATHI: 2♂♂—iii, ix, EMALI: 1♂. CHYULU:
TEITA: (B) 2♂♂; 1♀; 1 nymph, (T) 1♂.

Chondracris sanguineus (Sjostedt 1912)

EMALI: 4♂♂; 1♀. CHYULU:

Kraussaria dius (Karsch 1896) (*figs. 5 and 6*)

(SHIMBA: ♀.)

Kraussaria deckeni (Gerstaecker 1869)* (*figs 5 and 6*)

(The specimens differ from the original description and Gerstaecker's (1873) figure of *Acridium Deckeni* only in the lack of testaceous markings on the pronotum (and the green—not brown—head and abdomen which is probably merely due to better preservation). The tarsi also are rather brighter red than indicated in the figure while the hind wings are greener and not so yellow. They undoubtedly belong to this species, however, and not to *K. dius* (Karsch 1896) which also lacks the testaceous markings on the pronotum and occurs in similar localities, differing from that species in coloration (*cf.* Gerstaecker, 1873 and Miller, 1929), particularly in the red tarsi, pale whitish anal area of the tegmina, blue-green spines of the hind tibiae and the green venation, instead of the green tarsi, reddish or greenish-brown anal area of the tegmina, yellow (tipped with red and black) tibial spines and the red venation. The two species differ also morphologically (*figs 5 and 6*) in the relative size of the head, the profile and width (particularly anteriorly) of the pronotum, the length of the tegmina and the distinctness of the pronotal sulci. In the male, the acuminate apex of the sub-genital plate (seen best from above) is longer, more pronounced and less abrupt in *K. deckeni*. The base of the sub-genital plate is more constricted in *K. deckeni*, the lateral margins being divergent instead of sub-parallel as in *K. dius*.

MEASUREMENTS (in millimeters) of typical examples† of the two species are as follows:

		Width of Head	Length and Width of anterior pronotum	Length of Tegmen	Length of Hind Femur
<i>K. dius</i>	♀	8.7	12.2 x 11.0	47	30
<i>K. dius</i>	♂	5.8	9.8 x 7.5	36	23
<i>K. deckeni</i>	♀	7.2	12.2 x 10.5	51	29
<i>K. deckeni</i>	♂	5.5	9.3 x 7.2	37	22

TEITA: (B) 2♀♀.

Oxya hyla Serville 1831

TEITA: (B) 1♀, (T) 1♂; 1♀ (var. *minor* Sjostedt 1909).
(SHIMBA: ♀.)

Tristria sp.

(SHIMBA: ♂.)

* *Acanthacris deckeni* (Gerst.) Uvarov, 1924, *Ann. Mag. Nat. Hist. Ser. 9*, 13:19.—An examination of the male shows this species to belong to *Kraussaria* Uvarov and not to *Acanthacris* Uvarov.

† The *K. deckeni* ♀ is one of the above Teita specimens. The others are all from Rabai, near Mombasa—*K. dius* ♀, i-ii, 1929 (A. F. J. Gedye); *K. deckeni* ♂, iv, 1930; *K. dius* ♂, ix, 1933; the two last (with other specimens from the same locality) being in the possession of Dr. V. G. L. Van Someren of Ngong, Kenya, whose collection the writer was kindly allowed to examine.

Leptacris elegans (Chopard 1921)?

(African species of this genus require revision, but the specimens below agree with the description and figures of *L. elegans* and differ from Uganda material—*L. monteiroi* (I. Bolivar 1890)?—in the more acute fastigium of the vertex and the more oblique and concave face as seen in profile as well as in the colour. All Kenya material known to the writer differs from typical Uganda material in this way although one Uganda male agrees with the Kenya form.)

(SHIMBA: ♂, ♀♀.) EMALI: 2 nymphs (? the same species).

Meruana nyuki Sjöstedt 1909

EMALI: 1♀.

Oraistes luridus Karsch 1896

(SHIMBA: ♂♂, ♀♀.)

Afroxyrrhepes procera (Burmeister 1839)

EMALI: 8♂♂; 12♀♀. CHYULU:

Afroxyrrhepes brevifurca Uvarov 1943

(The female of *A. brevifurca* has not been described, but a series of females associated with undoubted *brevifurca* males taken by the writer near Kibwezi, Kenya (10th to 12th April 1947), show the following differences from *A. procera*: size larger with the lateral pronotal carinae slightly less convergent anteriorly; pronotum more strongly marked; median carina with a dark fuscous stripe over 2 mm. wide (*A. procera* in all material available to the writer has only the carina itself dark); lateral carinae each with a well-defined dark fuscous stripe over 1.5 mm. wide; lateral pronotal lobes pale with a pair of narrow, dark stripes about the middle, running from the anterior margin across the lobes and on to the pleura (in *A. procera* these stripes are very indistinct or absent, the upper half of the pronotal lobe being generally infuscated and not pale). The basal part of the tegmen, particularly in the post-median and anal areas, has a more streaky and mottled appearance. None of the females mentioned under *A. procera* (above) agrees with this conception of the female of *A. brevifurca*.)

EMALI: 1♂.

Sjöstedt, Y., 1909. Orthoptera. 7. Acridiidea. *Wiss. Ergeb. der schwed. Zool. Erped. nach dem Kilimandjaro, dem Meru und den umgebenden Masaisteppe Deutsch-Ostafrikas*, 1905-1906, Stockholm (1910). 3(17):149-199.

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FURTHER RECORDS OF ORTHOPTERA FROM THE TURKANA DESERT
By D. Keith McE. Kevan, B.Sc., A.I.C.T.A., F.R.E.S.

Until the years 1937-1938, the Orthopterous fauna of Turkana was virtually unknown except for a very few scattered references, only two of which have come to the writers's notice. These were to the Blattoid, *Derocalymma lampyrina* Gerst. (Perisphaeriinae), recorded by Rehn (1933), and to the Acridid, *Allaga striolata* Rme. (Catanopinae), described from the River Turkwell by Ramme (1929). Neither of these was included in any of the lists of Turkana Orthoptera since published (Beier, 1937; Buxton, 1937a; Chopard, 1938; Uvarov, 1938.)

Buxton (1937) also included references to certain Orthoptera which are not recorded in the lists mentioned above. The writer has not seen Turkana material of any of them, however, but they are as follows: The Blattoid, *Polyphaga* sp. (Polyphaginae), the Tettigoniid, *Homorocoryphus nitidulus* (Scop.) (Copiphorinae), and the Acridid, *Conipoda gracilis* Miller (i.e. *Ptenoscirtus gracilis*) (Oedipodinae).

The following Orthoptera, most of which are at present in the Coryndon Museum, Nairobi, have not previously been recorded from Turkana:

BLATTIDAE

BLATTINAE

Periplaneta sp.

Lokitaung, March 1934, (D. MacInnes), 2 ♂♂.

PHYLLODROMIIDAE

PERISPHAERIINAE

Cyrtotria capucina (Gerstaecker 1869)?

Lokitaung, May 1945, (M. Wright), 1 ♂.

MANTIDAE

EREMIAPHILINAE

Galepsus capitatus (Saussure 1869)

Fergusson's Gulf, May-June 1934, (D. R. Buxton), 1 ♂, det. Uvarov.

GRYLLIDAE

GRYLLINAE

Scapsipedus marginatus (Afzel and Brann 1804)

Fergusson's Gulf, May-June 1934, (D. R. Buxton), 1 ♂, 1 ♀, det. Uvarov; Lopetobong, 27th June 1945, (D. K. Kevan), 3 ♀♀.

Scapsipedus sp. (brachypterous)

Lorugumu, 6th June 1945 (D. K. Kevan), 1 ♂.

Gryllulus Conspersus (Saussure 1869)

Fergusson's Gulf, May-June 1934 (D. R. Buxton), 1 ♀.

TRIDACTYLIDAE

***Tridactylus madecassus* Saussure 1896**

Fergusson's Gulf, Mud Flats, 13th July 1945 (D. K. Kevan), 12 ex.
(Chopard (*loc. cit.*) reports this species from Namuruputh.*)

TETTIGONIDAE

***Conocephalus (Palotta) iris* (Serville 1839)**

Lokitaung, March 1934 (D. MacInnes), 1 ♀.

GRYLLACRIDAE

***Gryllacris* sp. (The tegmina are missing)**

Lokitaung, May 1945 (M. Wright), 1 ♂.

TETRIGIDAE (ACRYDIIDAE)

***Paratettix scaber* (Thunberg 1815)**

Kalin, September 1941 (T. H. E. Jackson), 2 ♀♀.

ACRIDIDAE

ACRIDINAE

***Macrocymochtha* sp. (possibly new)**

Lokitaung, June 1941 (T. H. E. Jackson), 1 ♀.

(This genus is at present only known from W. Africa.)

***Gymnobothrus fallax* (Karny 1907)**

Fergusson's Gulf, May-June, 1934 (D. R. Buxton), 1 ♀; 1 det. Uvarov.
Kevan), 1 ♀.

***Aiolopus* sp. (*thalassinus* group)†**

Kalin, Sept., 1941, (T. H. E. Jackson), 1 ♂.

OEDIPODINÆ

***Trilophidia* sp.†**

Kalin, Sept., 1941, (T. H. E. Jackson), 1 ♂.

CATANTOPINÆ

***Tylotropidius* sp. (*gracilipes* group)†**

Fergusson's Gulf, May-June, 1934
(D. R. Buxton), 2 ♀♀; 13th July, 1945,
(K. K. Kevan), 1 ♂.

* "Éthiopie: Namoropus, plage du Lac Rudolphe." Namuruputh is actually now within the Kenya administrative boundary although it was not regarded so at the time the material was collected.

† These genera need revision before more exact identification is possible.

Abisares depressus Uvarov 1938

Lodwar Hill, 17th June 1945 (D. K. Kevan), 1 ♀.

(This species was originally described from Turkana by Uvarov *loc. cit.*, but, as only a single female was known, it is recorded here again.)

Schistocerca gregaria (Forsk. 1775)

Turkana, 1928-1930, 1943-1946 (Swarms.)*

(The Desert Locust, although presumably not permanently present in Turkana, should not, for the sake of completeness, be omitted from this list, since, during outbreaks of this locust, the gregarious phase finds ideal seasonal breeding conditions over most of the area, particularly in Central and Southern Turkana.)

The approximate geographical positions of the localities mentioned are as follows:

Fergusson's Gulf	.	.	02° 30' N.	35° 57' E.
Kalin	.	.	04° 10' N.	35° 35' E.
Lodwar	.	.	03° 08' N.	35° 35' E.
Lokitaung	.	.	04° 18' N.	35° 45' E.
Lopetobong	.	.	02° 10' N.	35° 30' E.
Lorugumu	.	.	02° 55' N.	35° 17' E.

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* During 1931 and 1947 *transiens* and *solitaria* phases occurred in fair numbers, at the end of the 1928-31 and present outbreaks.