INSTITUT DES PARCS NATIONAUX DU CONGO ET DU RWANDA

OUVRAGE PUBLIÉ AVEC L'APPUI
DU MINISTÈRE BELGE DE L'ÉDUCATION NATIONALE ET DE LA CULTURE

Exploration du Parc National de la Garamba

MISSION H. DE SAEGER

en collaboration avec

P. BAERT, G. DEMOULIN, I. DENISOFF, J. MARTIN, M. MICHA, A. NOIRFALISE,
P. SCHOEMAKER, G. TROUPIN et J. VERSCHUREN (1949-1952).

FASCICULE 44

1. **TICKS,** by M. CLIFFORD (Hamilton) and G. ANASTOS (College Park).
2. **SIPHONAPTERA,** by F.G.A.M. SMIT (Tring).
3. **ACRIDOIDEA,** by V.M. DIRSH (London).
4. **SCATOPSIDAE,** by E.F. COOK (St Paul, U.S.A.).
5. Genus **PLEROCHILA,** by C. DRAKE and F.A. RUHOFF (Washington).
6. **PHAEOCHROUS**-Arten, von S. ENDRÖDI (Budapest).

BRUXELLES

1964

IMPRIMERIE HAYEZ, s.p.r.l.
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Bruxelles 15

PARC NATIONAL DE LA GARAMBA. — MISSION H. DE SAEGER

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Fascicule 44 (1)

TICKS (1)

BY

CARLETON M. CLIFFORD (2) and GEORGE ANASTOS (3)

INTRODUCTION

The ticks included in this report were sent by Dr. V. VAN STRAELEN to the Institute of Acarology, University of Maryland, for study. This extensive collection was made from 1949-1952 by the mission of H. DE SAEGER to the National Park of Garamba which is located in the northeastern portion of the Congo near the border of the Sudan.

In all, 24 species, comprising 7 genera, are recorded from Garamba Park (Table 1). All these species but one, *Argas arboreus*, have been recorded previously from the Congo.

Many of the collections were from rodent nests and several fully engorged nymphs were recovered. In certain instances it was possible to dissect away the nymphal skins and determine the almost fully developed adults inside. In such instances the number and sex of the adults are placed in parentheses directly behind the listing of the nymphs. This method permitted us to describe the nymphs of *Rhipicephalus pseudolongus*, *R. senegalensis* and *R. simpsoni*. The nymph of *Dermacentor rhinocerinus* is also described, but the identification of nymphs of this species is based on association with the adults and not on the opening of nymphal skins.

(1) The portion of this project undertaken at the University of Maryland was supported by the Army Medical Research and Development Command, Washington, D. C., under Contract No. DA-49-007-MD-981.

(2) U. S. Department of Health, Education, and Welfare, Public Health Service, National Institutes of Health, National Institute of Allergy and Infectious Diseases, Rocky Mountain Laboratory, Hamilton, Montana.

(3) Department of Zoology, University of Maryland, College Park, Maryland.

This report gives information on the distribution, hosts, and taxonomic status of each species. All of the localities are either in the park itself or in adjacent areas. For further information on the localities the reader is referred to Vol. 1 : Introduction (1954) and Vol. 5 : Entomology (1956) of the Exploration of the National Park of Garamba by H. DE SAEGER. The host names used are exactly as they appeared on a list that was sent to us by H. DE SAEGER, except for the addition of authors' names in the few instances where these were omitted.

The following abbreviations are used to designate the collectors : GD, G. DEMOULIN; HDS, H. DE SAEGER; PSCH, P. SCHOEMAKER; JV, J. VERSCHUREN.

TABLE I.

List of ticks of Garamba Park.

Argas arboreus KAISER, HOOGSTRAAL and KOHLS, 1964.
A. vespertilionis (LATREILLE, 1802).
Amblyomma cohaerens DÖNITZ, 1909.
A. nuttalli DÖNITZ, 1909.
A. rhinocerotis (DE GEER, 1778).
A. variegatum (FABRICIUS, 1794).
Aponomma exornatum (KOCH, 1844).
Ap. latum (KOCH, 1844).
Dermacentor rhinocerinus (DENNY, 1843).
Haemaphysalis hoodi WARBURTON and NUTTALL, 1909.
H. leachii (AUDOUIN, 1827).
H. muhsami SANTOS DIAS, 1954.
H. parmata NEUMANN, 1905.
Ixodes browningi ARTHUR, 1956.
I. paradoxus KOHLS and CLIFFORD, 1961.
I. spinae ARTHUR, 1958.
Rhipicephalus pravus DÖNITZ, 1910.
R. pseudolongus SANTOS DIAS, 1953.
R. sanguineus (LATREILLE, 1806).
R. senegalensis KOCH, 1844.
R. simpsoni NUTTALL, 1910.
R. simus KOCH, 1844.
R. supertritus NEUMANN, 1907.
R. tricuspis DÖNITZ, 1906.

Order ACARINA

Suborder IXODOIDEA

Family ARGASIDAE

Genus **ARGAS** LATREILLE, 1795.

ARGAS ARBOREUS KAISER, HOOGSTRAAL and KOHLS.

Argas arboreus KAISER, HOOGSTRAAL and KOHLS, 1964, Ann. Ent. Soc. Amer., 57, p. 60.

Hosts and Distribution :

HOSTS UNKNOWN.

Nos. 1054, II/e, 6.I.1951, 24 ♂, 15 ♀, 2 N, under the bark of a tree, coll. JV.
Nos. 1959, II/gd/4, 23.VI.1951, 14 ♂, 11 ♀, 1 N, on vegetation, coll. HDS.

A. arboreus was described from rookeries of the Cattle Egret (*Bubulcus ibis ibis*) near Cairo, Egypt.

The Congo specimens were originally determined as *Argas persicus*. After reading the paper by KAISER et al. 3 ♂ and 3 ♀ from each lot that were still in the Rocky Mountain Laboratory collection were re-examined. They possess features that are more like *A. arboreus* than *A. persicus*. Therefore, we have tentatively identified the Congo material as this species.

ARGAS VESPERTILIONIS (LATREILLE).

Caris vespertilionis LATREILLE, 1802, Hist. N. crust. Ins., 3, p. 67.

Hosts and Distribution :

HOST UNKNOWN.

Nos. 2601, II/je/8, 15.X.1951, 1 ♀, on vegetation, coll. HDS.

This species has been reported on bats from several different parts of Africa. HOOGSTRAAL (1956) indicates that this species will eventually be found in many more areas of Africa.

Family IXODIDAE

Genus **AMBLYOMMA** KOCH, 1844.

Amblyomma cohaerens DÖNITZ.

Amblyomma cohaerens DÖNITZ, 1909, Sitzungsber, Ges. Naturf. Fr. Berlin, 8, p. 465.

Hosts and Distribution:

MAMMALS.

Nos. 2163, II/gd/4, 1.VIII.1951, 1 N, 1 L ?, *Genetta tigrina aequatorialis* (No. 3662) HEUGLIN, coll. JV; 2444, II/gd/4, 3 IX.1951, 2 N, 1 L ?, murid (No. Z. 3690), coll. HDS; 2582, II/hc/4, 29.IX.1951, 26 ♂, 1 ♀, 2 N, on buffalo, coll. HDS; 2649, II/hd/4, 22.X.1951, 3 N ?, mammal (No. Z. 3542), coll. HDS; 2671, II/gd/8, 27.X.1951, 1 N, 1 L ?, *Thryonomys swinderianus* (TEMMINCK) (No. Z. 3995), coll. HDS; 2971, II/fd/17, 3.I.1952, 10 ♂, 3 ♀, 1 N, on buffalo, coll. HDS; 3991, II/gd/4, 19.VIII.1952, 3 N, 1 L, *Tragelaphus scriptus dianae* MATSCHIE, coll. HDS.

BIRD.

Nos. 267, I/c/2, 17.II.1950, 1 N, Bird (No. 670), coll. GD.

HOST UNKNOWN.

Nos. 995, II/e, 18.XII.1950, 1 ♂, on vegetation, coll. HDS; 1048, II/e, 5.I.1951, 1 N, on vegetation, coll. JV; 1439, II/db/4, 23.III.1951, 1 ♀, on ground, coll. HDS; 1458. II/fc/5, 27.III.1951, 2 N, on vegetation, coll. HDS; 1576, II/fb/4, 18.IV.1951, 1 N, on vegetation, coll. JV; 1809, II/id/8, 22.V.1951, 1 N, on vegetation, coll. JV; 1842, II/hd/8, 30.V.1951, 1 ♀, on vegetation, coll. HDS; 1899, II/fd/18, 11.VI.1951, 1 ♂, on vegetation, coll. HDS; 1950, II/fd/17, 18.VI.1951, 1 N, on vegetation, coll. HDS; 2072, II/fd/8, 13.VII.1951, 1 ♂, on vegetation, coll. HDS; 2380, II/fd/17, 4.IX.1951, 1 N, on vegetation. coll. HDS; 2452, II/je/4, 20.IX.1951, 3 N, 34 L, on vegetation, coll. HDS; 2615, PpK/52/g, 16.X.1951, 1 ♀, on vegetation, coll. HDS; 2680, II/PpK/55, 26.X.1951, 1 N, on vegetation, coll. HDS; 2761, II/fd/17, 14.XI.1951, 1 ♀, on vegetation, coll. HDS; 2806, II/fc/18, 24.XI.1951, on vegetation, coll. HDS; 2991, II/fd/17, 3.I.1952, 1 N, on vegetation, coll. HDS; 3547, II/gd/4, 27.V.1952, 1 ♂, on vegetation, coll. HDS; 3769, PpK/12, 14.VII.1952, 18 ♂, 12 ♀, 3 N, 2 L ?, coll. HDS.

A. cohaerens is a buffalo parasite that occurs in East and Central Africa. The above records are from near the northern limit of its range which is in Equatoria Province of the Sudan. Although the buffalo is the chief host for this tick it has been reported from cattle and more rarely from other domestic and wild animals.

The identification of the nymphs is based on careful comparison of these specimens with laboratory reared material kindly furnished by Miss JANE WALKER.

Amblyomma nuttalli DÖNITZ.

Amblyomma nuttalli DÖNITZ, 1909, Sitzungsber. Ges. Naturf. Fr. Berlin, 8, p. 469.

Hosts and Distribution :

MAMMALS.

Nos. 1367, II/ed/17, 1.III.1951, 1 N ?, Chiroptera, *Nycteris hispida* (SCHREBER) (No. Z. 2938), coll. JV; 2162, II/gd/4, 1.VIII.1951, 1 N ?, *Herpestes (Herpestes) ichneumon* (LINNÉ) (No. 3683), coll. JV; 2443, II/gd/4, 17.IX.1951, 1 N ?, mammal (No. Z. 3696), *Thryonomys swinderianus* (TEMMINCK), coll. HDS; 2649, II/hd/4, 22.X.1951, 1 N ?, mammal (No. Z. 3542), coll. HDS.

REPTILES.

Nos. 374, région Bagbele, 15.III.1950, 3 ♂, *Kinixys belliana mertseni* (LAURENT) (No. 834), coll. GD; 774, région Bagbele, 15.VI.1950, 2 ♂, *Kinixys belliana mertseni* (LAURENT) (No. 1634), coll. JM; 2868, II/gd/4, 6.XI.1951, 7 N, reptile (No. Z. 3997), coll. HDS; 3045, II/ed/4, 18.III.1951, 1 ♂, 1 ♀, on *Bitis lachesis lachesis* (LAURENT), coll. HDS.

A. nuttalli is widely distributed in Africa south of the Sahara desert. Land tortoises are the chief hosts given for this species by most authors. More extensive information on this species is furnished by HOOGSTRAAL (1956) and THEILER and SALISBURY (1959).

The identification of the nymphs is based on comparison with laboratory reared material kindly furnished by Miss JANE WALKER.

Amblyomma rhinocerotis (DE GEER).

Acarus rhinocerotis DE GEER, 1778, Mem. Hist. Ins., 7, p. 160.

Hosts and Distribution :

HOST UNKNOWN.

Nos. 42-48, Gangala-na-Bodio, X.1949, 1 ♀, coll. GD; 1273, Gangala-na-Bodio, X.1950, 1 ♀, coll. HDS; 1950, II/fd/17, 18.VI.1951, 1 ♀, coll. HDS; 2599, II/je/8, 15.X.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2615, PpK/52/g, 16.X.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 2901, II/gd/8, 13.XII.1951, 1 ♀, on vegetation, coll. HDS.

This species parasitizes the rhinoceros wherever this host is found and it occurs occasionally on other wild and domestic animals.

Amblyomma variegatum (FABRICIUS).

Acarus variegatus FABRICIUS, 1794, Ent. syst., Suppl. p. 572.

Hosts and Distribution:

BIRD.

Nos. 1819, II/fe/6, 23.V.1951, 1 ♂, 1 ♀, *Dendrocygna viduata* (LINNÉ), (No. Z. 3422), coll. JV; 2437, PpK/98, 18.IX.1951, 2 N, bird (No. Z. 3700), coll. HDS; 2853, Ndelele/K/115, 3.XII.1951, 3 N, 36 L ?, *Pseudogyps africanus* (SALVADORI), (No. Z. 3977), coll. HDS; 3636, PFSK/22/3, 10.VI.1952, 1 N, bird (No. Z. 4540), coll. HDS.

MAMMALS.

Nos. 992, II/f, 15.XII.1950, 1 ♀, white rhinoceros, coll. HDS; 1368, II/ge/9, 12.III.1951, 1 N, *Cercopithecus aethiops centralis* NEUMANN (No. Z. 2849), coll. HDS; 1603, II/gc/4, 15.IV.1951, 6 N, *Thryonomys* (No. Z. 1369), coll. JV; 2163, II/gd/4, 1.VIII.1951, 1 N, *Genetta tigrina aequatorialis* HEUGLIN (No. 3662), coll. JV; 2254, II/gd/4, 17.VIII.1951, 1 ♂, *Felis (Leptailurus) serval* SCHREBER (No. Z. 3849), coll. JV; 2443, II/gd/4, 17.IX.1951, 2 N, mammal (No. Z. 3696), *Thryonomys swinderianus* (TEMMINCK), coll. HDS; 2582, II/hc/4, 29.IX.1951, 1 ♂, 2 ♀, buffalo, coll. HDS; 2980, PFK/28/2, 8.I.1952, 7 N, 250+L, mammal (No. Z. 4225), *Ourebia ourebi goslingi* THOMAS & WROUHGTON, coll. HDS; 2981, PFK/8/2, 11.I.1952, 28 N, mammal (No. Z. 4227), coll. HDS; 3043, PFSK/7/2, 25.I.1952, 100+L ?, mammal (No. Z. 4224), coll. HDS; 3044, PFSK/7/2, 25.I.1952, 59 N, *Ourebia ourebi goslingi* THOMAS and WROUGHTON (No. Z. 4224), coll. HDS; 3046, PFSK/11/2, 25.I.1952, 4 N, *Phacochoerus aethiopicus* (PALLAS) (No. Z. 4223), coll. HDS; 3047, PFSK/11/2, 25.I.1952, 23 N, *Phacochoerus aethiopicus* (PALLAS) (No. Z. 4223), coll. HDS; 3390, Ndelele, 28.III.1952, 54 N, *Alcelaphus*, coll. HDS; 3509, PFNK/15, 23.V.1952, 1 ♂, 4 N, *Alcelaphus lelwel lelwel* (HEUGLIN), coll. HDS; 4073, Tori (Sudan), 22.IX.1952, 20 ♂, 5 ♀, buffalo, coll. HDS.

REPTILE.

Nos. 1150, Nakobo, 26.I.1951, 2 N, *Varanus (Polydaedalus) niloticus niloticus* (LINNÉ), (No. Z. 2701), coll. JV; 1744, II/gd/4, 17.V.1951, 1 N, reptile (No. Z. 3394), coll. JV; 3045, II/ed/4, 18.III.1951, 9 N, *Bitis lachesis lachesis* (LAURENT), coll. HDS.

HOSTS UNKNOWN.

Nos. 1443, II/hd/4, 23.III.1951, 1 N, on vegetation, coll. HDS; 2860, PpK/90-115, 3.XII.1951, 2 N, 150 + L, on vegetation, coll. HDS; 3234, II/eb/9, 13.III.1952, 1 N, on vegetation, coll. HDS; 3769, PpK/12, 14.VII.1952, 21 ♂, 2 ♀, coll. HDS.

A. variegatum is widely distributed throughout most of the Ethiopian faunal region north of Angola and the southern portion of southern Rhodesia and parasitizes a wide range of domestic and wild hosts. HOOGSTRAAL (1956) gives an excellent summary of the information on this species.

Identification of the nymphs was accomplished by a comparison with laboratory reared material kindly furnished by Miss JANE WALKER.

Amblyomma sp.

Hosts and Distribution:

BIRDS.

Nos. 1579, II/gd/4, 10.IV.1951, 1 N, *Lamprocolius* (No. Z. 2253), coll. HDS; 1655, II/hc/4, 2.V.1951, 3 N, on a bird (No. Z. 3251), coll. JV; 1740, II/db/9, 15.V.1951, 1 N, bird (No. Z. 3389/3), coll. JV; 2437, PpK/98, 18.IX.1951, 200+L, bird (No. Z. 3700), coll. HDS; 2462, II/gd/4, 22.IX.1951, 34 L, *Francolinus icterorhynchus icterorhynchus* (No. Z. 3722), coll. HDS; 2932, PpK/50, 18.XII.1951, 200+L, bird (No. Z. 4111/4), coll. HDS; 2933, II/gd/4, 12.XII.1951, 5 L, bird (No. Z. 4108), coll. HDS; 3724, Iso/III, 11.VII.1952, 1 N, bird (No. Z. 4547/7), coll. HDS.

MAMMALS.

Nos. 119, I/b/3, 11.I.1950, 200+L, mammal (No. V. 319), *Tragelaphus scriptus dianae* MATSCHIE, coll. HDS; 1698, II/hc/4, 9.IV.1951, 178+L, murid (No. Z. 3361/7), coll. JV; 1714, II/ba/5, 10.V.1951, 81 L, shrew nest (No. Z. 3362/6), coll. JV; 2374, II/gd/4, 6.IX.1951, 2 N, *Felis (Leptailurus) serval* SCHREBER, coll. HDS; 2445, II/gd/4, 14.IX.1951, 2 L, mammal (No. Z. 3687), coll. HDS; 2583, II/hd/4, 10.X.1951, 2 N, *Tragelaphus scriptus dianae* MATSCHIE (No. Z. 3714), coll. HDS.

HOSTS UNKNOWN.

Nos. ....., 1 larva, no other data; 995, II/e, 18.XII.1950, 100+L, on vegetation, coll. HDS; 998, II/d, 21.XII.1950, 16 L, on vegetation, coll. JV; 1283, II/gc/8, 22.II.1951, 400+L, on vegetation, coll. HDS; 1842, II/hd/8, 30.V.1951, 200+L, on vegetation, coll. HDS; 1943, II/fd/14, 18.VI.1951, 1 L, on vegetation, coll. HDS; 2773, PpK/55, 19.XI.1951, 200+L, on vegetation, coll. HDS.

It is impossible to give more than generic identification to a few of the nymphs and most of the larvae due to the lack of a definitive study on the immature stages of the *Amblyomma* species that occur in Africa.

Genus **APONOMMA** NEUMANN, 1899.

Aponomma exornatum (KOCH).

Amblyomma exornatum KOCH, 1844, Arch. f. Naturgesch., 10, p. 231.

Hosts and Distribution:

REPTILES.

Nos. 370, 9.III.1950, 52 ♂, on *Varanus (Polydaedalus) niloticus niloticus* (LINNÉ), (No. 762), coll. GD; 969, I/o/3, 15.XI.1950, 3 ♂, 2 ♀, on *Varanus* sp. (No. 3503), coll. JV; 1020, II/h, 28.XII.1950, 1 ♀, on *Varanus (Polydaedalus) niloticus niloticus* (L.), coll. JV;

1150, Nakobo, 26.I.1951, 19 ♂, 2 ♀, 7 N, on *Varanus (Polydaedalus) niloticus niloticus* (L.) (No. Z. 2701), coll. JV; 1182, Garamba between Kiliwa and Naworoko, 3.II.1951, 25 ♂, 6 ♀, 2 N, on *Varanus (Polydaedalus) niloticus niloticus* (L.), coll. JV; 1348, II/fb/16, 6.III.1951, 20 ♂, 4 ♀, 24 N, on *Varanus (Polydaedalus) niloticus niloticus* (L.) (No. Z. 2745), coll. JV; 2868, II/gd/4, 6.XI.1951, 15 ♂, on reptile (No. Z. 3997), coll. HDS; 3052, II/gd/4, 28.I.1952, 12 ♂, 2 N, on *Varanus (Polydaedalus) niloticus niloticus* (L.) (No. Z. 3891/4), coll. HDS; 3247, II/gd/18, 19.III.1952, 1 ♂, 4 ♀, on *Varanus niloticus* (L.), coll. JV.

HOSTS UNKNOWN.

Nos. 837, region Bagbele, 22.IX.1950, 8 ♂, 2 ♀, 1 N, coll. GD; 1136, II/d, at the source of the Nambirima, 24.I.1951, 1 ♂, on vegetation, coll. JV; 1142, II/d, 20.I.1951, 4 ♂, 4 ♀, on vegetation, coll. HDS.

This species is widely distributed throughout Africa wherever lizards of the genus *Varanus* occur. Other animals are also occasionally parasitized.

These specimens were identified following THEILER (1945) who considers *A. arcanum* to be a synonym of *A. exornatum*.

Dr. SANTOS DIAS identified samples of this material as *Aponomma arcanum* (KARSCH, 1879), following TENDEIRO (1955, 1958). If this opinion is ever accepted, the above statement regarding the distribution of this species will have to be revised.

Aponomma latum (KOCH).

Amblyomma latum KOCH, 1844, Arch. f. Naturgesch., 10, p. 231.

Hosts and Distribution:

REPTILES.

Nos. 375, I/b/1, 29.III.1950, 1 ♀, *Crotaphopeltis hotamboeia hotamboeia* (LAURENT) (No. 913), coll. GD; 2436, II/fd/17, 5.IX.1951, 1 ♂, 1 ♀, *Natriciteres olivacea olivacea* (PETERS) (No. Z. 3775), coll. HDS; 3045, II/ed/4, 18.III.1951, 1 ♀, *Bitis lachesis lachesis* (LAURENT).

HOST UNKNOWN.

Nos. 3626, PFNK 7/9, 28.VII.1952, 2 N, 15 L, coll. HDS.

A. latum occurs on snakes throughout most of the Ethiopian faunal region. According to THEILER (1945), this species has no predilection for any one group of snakes.

Genus **DERMACENTOR** KOCH, 1844.

Dermacentor rhinocerinus (DENNY).

Ixodes rhinocerinus DENNY, 1843, Ann. Mag. nat. Hist., 12, p. 313.

Hosts and Distribution:

MAMMALS.

Nos. 1010, II/e, 20.XII.1950, 1 N, abandoned nests of rodents, coll. JV; 1013, II/f, source Naworoko, 27.XII.1950, 12 N ?, rodent nest, coll. JV; 1081, II/i/4, 15.I.1951, 5 N ?, rodent nests, coll. JV; 1212, II/i, 26.I.1951, 2 ♀, rodent nest (No. Z. 2702), coll. JV; 1255, II/hc/4, 14.II.1951, 1 ♂, 3 N, rodent nest (No. Z. 1731), coll. JV; 1256, II/hc/4, 14.II.1951, 2 N (?), rodent nest, coll. JV; 1264, II/bb/4, 15.II.1951, 1 ♀, nest inhabited by macroscelid, coll. JV; 1349, Biadimbi, 22.I.1951, 2 ♂, 2 ♀, rodent nest (No. Z. 2684), coll. JV; 3088, II/gd/4, 29.I.1952, 1 ♂, 1 ♀, 10 N (?), abandoned rodent nests, coll. JV.

HOST UNKNOWN.

Nos. ....., 6 ♂, 3 ♀, no other data; 563, I/b/3', 26.V.1950, 1 ♂, 3 ♀, on vegetation, coll. GD; 571, I/o/3, 1.VI 1950, 12 ♂, 6 ♀, on vegetation, coll. GD; 643, I/o/3, 27.VI.1950, 1 ♀, on vegetation, coll. GD; 705, I/a/1, 17.VII.1950, 1 ♂, on vegetation, coll. GD; 1328, II/fd/4, 3.III.1951, 1 ♂, on vegetation, coll. JV; 1412, II/gd/4, 17.III.1951, 1 ♂, on vegetation, coll. HDS; 1439, II/db/4, 23.III.1951, 3 ♂, on ground, coll. HDS; 1444, II/hd/4, 23.III.1951, 96 ♂, 89 ♀, on vegetation, coll. HDS; 1700, II/gd/8, 9.V.1951, 1 ♂, on vegetation, coll. HDS; 1754, II/gc/13s, 19.V.1951, 1 ♂, on vegetation, coll. HDS; 1809, II/id/8, 22.V.1951, 1 ♂, on vegetation, coll. JV; 1842, II/hd/8, 30.V.1951, 1 ♀, on vegetation, coll. HDS; 2055, II/gd/4, 6.VII.1951, 1 ♀, on vegetation, coll. HDS; 2984, II/gd/4, 4.I.1952, 1 N (?), on vegetation, coll. JV; 3547, II/gd/4, 27.V.1952, 10 ♂, 10 ♀, on vegetation, coll. HDS; 3589, Ndelele/2, 6.VI.1952, 34 ♂, 48 ♀, on vegetation, coll. HDS; 3694, II/fd/4, 3.VI.1952, 28 ♂, 19 ♀, on vegetation, coll. HDS.

D. rhinocerinus is distributed in central, eastern and southern Africa where it parasitizes the black and the white rhinoceros.

Most of the adult specimens listed above were collected from vegetation. However, a smaller number of adults and several nymphs were collected from rodent nests, indicating that these animals are possibly important hosts for the immature stages. The association of nymphs with adults permitted the following description of this stage :

NYMPH.

(Fig. 1, A, B.)

Body. — Unengorged specimens 1,15 mm long; 0,75 mm wide. Widest posterior to midlength. Posterior portion of body covered with long, rather thick setae.

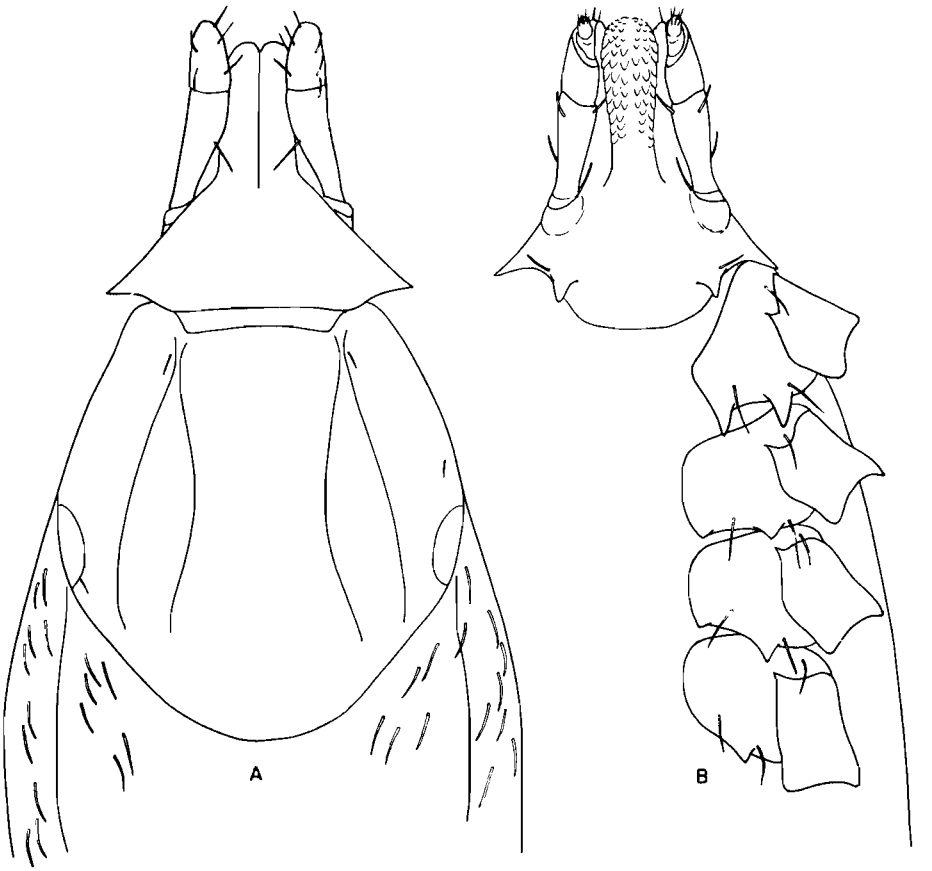

FIG. 1. — *Dermacentor rhinocerinus*, nymph.
A : Dorsal view; B : Ventral view.

S c u t u m . — Length 0,59 mm; width 0,60 mm. Widest at level of eyes. Eyes flat, located posterior of midlength. Shape as figured. Cervical pits deep, shallower cervical grooves extend almost to posterior margin. Lateral grooves pronounced, running parallel to margin.

C a p i t u l u m . — Length 0,39 mm; width 0,35 mm.

B a s i s c a p i t u l i . — Length 0,17 mm; width 0,35 mm. Anterolateral and posterolateral margins slightly concave. Posterior margin slightly concave. Cornua absent. Lateral angles sharp and extend beyond the scapulae. Ventrally with long sharp spurs.

P a l p s . — Length 0,24 mm. Shape as figured. Article 2 about twice as long as article 3.

H y p o s t o m e . — Dentition 3/3.

C o x a e . — Coxae I with two long, subequal spurs. Coxae II and III with moderate sized external spur and smaller internal spur. Coxae IV with a single moderate sized external spur. All coxal spurs triangular.

Genus **HAEMAPHYSALIS** KOCH, 1844.

Haemaphysalis hoodi WARBURTON and NUTTALL.

Haemaphysalis hoodi WARBURTON and NUTTALL, 1909, Parasitology, 2, p. 62.

H o s t s a n d D i s t r i b u t i o n :

BIRDS.

Nos. 273, I/a/3, 10.II.1950, 1 N, on bird (No. 561), coll. GD; 3636, PFSK/22/3, 10.VI.1952, 5 ♂, 4 ♀, on bird (No. Z. 4540), coll. HDS.

HOST UNKNOWN.

Nos. 25, Gangala-na-Bodio, X and XI.1949, 1 L, coll. HDS.

This species is widely distributed throughout tropical Africa and is exclusively a parasite of birds. Several other records of this species in the Congo were given in a paper on the ticks of Upemba National Park (CLIFFORD and ANASTOS, 1962).

Haemaphysalis leachii (AUDOUIN).

Ixodes leachii AUDOUIN, 1827, in SAVIGNY, Description de l'Egypt, 2nd Ed., 22, Zool., p. 428.

H o s t a n d D i s t r i b u t i o n :

BIRDS.

Nos. 4063, II/gd/4, 18.IX.1952, 39 ♂, 5 ♀, *Colius passer ardeus concolor* (CASS) (No. Z. 5126), coll. HDS; 4064, II/gd/4, 18.IX.1952, 13 ♂, 3 ♀, *Chrysococcyx cupreus* (BODD), coll. HDS.

MAMMALS.

Nos. 943, I/o/3, 9.XI.1950, 14 N (4 ♀), 1 L, abandoned nest of *Lemniscomys* (?), coll. JV; 947, I/o/1, 9.XI.1950, 1 ♂, 3 ♀, 3 N (1 ♀), nest of rodent (No. Z. 2527), coll. JV; 1008, II/e, 21.XII.1950, 1 ♂, 1 N (1 ♂), rodent nests, coll. JV; 1081, II/i/4, 15.I.1951, 1 ♀, rodent nests, coll. JV; 1211, source Wilibadi, 31.I.1951, 1 ♀, rodent nests (No. Z. 785 ?), coll. JV; 1255, II/hc/4, 14.II.1951, 1 ♂, rodent nests (No. Z. 1731), coll. JV; 1269, II/dg/10, 16.II.1951, 1 ♀, rodent nest, coll. JV; 1368, II/ge/9, 12.III.1951, 1 ♂, *Cercopithecus aethiops centralis* NEUMANN (No. Z. 2849), coll. HDS; 1554, II/gd/4, 12.IV.1951, 7 ♂, 14 ♀, *Crocuta crocuta* (ERXLEBEN) (No. Z. 2595), coll. PSCH; 1581, II/fd/4, 18.IV.1951, 1 ♀, rodent nest, coll. JV; 1767, II/gd/4, 18.V.1951, 4 ♂, 8 ♀, rodent nests, coll. JV; 1997, II/hc/4, 28.VI.1951, 2 ♂, 3 ♀, 1 N, rodent nest, murid (No. 1509/16), coll. JV; 1999, II/gd/4, 27.VI.1951, 1 ♂, rodent nest, coll. JV; 2254, II/gd/4, 17.VIII.1951, 114 ♂, 7 ♀, *Felis (Leptailurus) serval* SCHREBER (No. Z. 3849), coll. JV; 2270, II/gd/4, 10.VIII.1951, 11 ♂, 3 ♀, *Panthera (Panthera) pardus* (LINNÉ) (No. Z. 3659), coll. JV; 2374, II/gd/4, 6.IX.1951, 7 ♂, 3 ♀, *Felis (Leptailurus) serval* SCHREBER (No. 3686), coll. HDS; 2438, II/gd/4, 16.IX.1951, 10 ♂, 2 ♀, *Genetta trigrina aequatorialis* HEUGLIN (No. Z. 3699), coll. HDS; 2444, II/gd/4, 3.IX.1951, 5 ♂, 2 ♀, murid (No. Z. 3690), coll. HDS; 2588, II/hc/4, 29.IX.1951, 49 ♂, 16 ♀, *Felis (Leptailurus) serval* SCHREBER (No. Z. 3712), coll. HDS.

HOSTS UNKNOWN.

Nos. 800, I/o/1, 4.IX.1950, 1 ♂, on vegetation, coll. GD; 802, I/o/2, 5.IX.1950, 1 ♀, on vegetation, coll. GD; 808, I/o/1, 7.IX.1950, 2 ♂, on vegetation, coll. GD; 832, I/o/2, 20.IX.1950, 6 ♂, 1 ♀, on vegetation, coll. GD; 845, I/o/1, 25.IX.1950, 1 ♂, on vegetation, coll. GD; 866, I/o/2, 3.X.1950, 1 ♀, on vegetation, coll. GD; 873, I/o/2, 6.X.1950, 1 ♂, 1 ♀, on vegetation, coll. GD; 1276, II/gd/11, 19.II.1951, 2 ♂, on vegetation, coll. HDS; 1443, II/hd/4, 23.III.1951, 1 ♂, on vegetation, coll. HDS; 1886, II/gc/6, 8.VI.1951, 1 ♀, on vegetation, coll. HDS; 2061, II/gd/8, 12.VII.1951, 1 ♂, on vegetation, coll. HDS; 2291, II/fe/73, 23.VIII.1951, 1 ♀, on vegetation, coll. HDS; 2615, PpK/52/g, 16.X.1951, 1 ♂, on vegetation, coll. HDS; 2699, II/fc/6, 30.X.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 3424, II/fd/7″, 5.V.1952, 4 ♂, 4 ♀, on vegetation, coll. HDS.

H. leachii occurs throughout most of the Ethiopian faunal region. Adults are often collected on large carnivores and are less frequently found on small carnivores. HOOGSTRAAL (1956, 1958) summarizes the available data on this species.

As we stated in a previous paper on the Upemba park (CLIFFORD and ANASTOS, 1962), the systematic status of species in the *H. leachii* group is extremely confused at the present time. Therefore, until a definitive study has been completed, we recognize only two species, *H. leachii* and *H. muhsami* and separate them according to the criteria outlined by HOOGSTRAAL (1956). The larger ticks with well developed spurs and narrow scutal outlines we call *H. leachii* and the smaller ticks with less well developed spurs and narrower scutal outlines are labeled *H. muhsami*.

SANTOS DIAS examined samples of material that we call *H. muhsami* and concluded that they were *H. ethiopica* SANTOS DIAS, 1956. As we

stated above, until a definitive study is completed, we prefer the more conservative approach of HOOGSTRAAL. The recognition of species such as *H. ethiopica* must await such a study.

Haemaphysalis muhsami SANTOS DIAS.

Haemaphysalis muhsami SANTOS DIAS, 1954, Mem. Mus. Zool. Univ. Coimbra, 225, p. 3.

Hosts and Distribution:

MAMMALS.

Nos. 172, I/a/2, 16.XII.1949, 5 ♂, 3 ♀, 1 N, *Mungos mungo gotneh* (HEUGLIN and FITZINGER) (Nos. 157 and 158), coll. JM; 781, région Bagbele, 13.VIII.1950, 17 ♂, 12 ♀, *Genetta tigrina aequatorialis* HEUGLIN (No. 2130), coll. JM; 1061, II/f, 8.I.1951, 1 ♀, in the hairs of a rodent (No. Z. 2298), coll. PSCH; 1081, II/i/4, 15.I.1951, 1 ♀, rodent nests, coll. JV; 1134, Kassi-Garamba, 20.I.1951, 1 ♀, rodent nests, coll. JV; 1365, II/fd/4, 3.III.1951, 1 ♀, rodent nests, coll. JV; 1451, II/gd/4, 23.III.1951, 1 ♀, nest of *Lemniscomys striatus*, coll. JV; 1582, II/gd/4, 17.IV.1951, 1 ♀, rodent nest, coll. JV; 1964, II/gd/4, 9.VI.1951, 18 ♂, 7 ♀, *Mungos mungo gotneh* (HEUGLIN and FITZINGER) (No. Z. 3463), coll. JV; 2162, II/gd/4, 1.VIII.1951, 7 ♂, 4 ♀, *Herpestes (Herpestes) ichneumon* (LINNÉ) (No. 3683), coll. JV; 2163, II/gd/4, 1.VIII.1951, 13 ♂, 9 ♀, *Genetta tigrina aequatorialis* HEUGLIN (No. 3662), coll. JV; 2238, II/gd/6, 4.VIII.1951, 19 ♂, 10 ♀, *Genetta tigrina aequatorialis* (No. 3636), coll. JV; 2438, II/gd/4, 16.IX.1951, 4 ♂, 9 ♀, *Genetta tigrina aequatorialis* (No. Z. 3699), coll. HDS; 2439, II/hd/4, 7.IX.1951, 12 ♂, 8 ♀, *Crocuta crocuta* (ERXLEBEN) (No. Z. 3688), coll. HDS; 2442, II/hd/4, 10.IX.1951, 14 ♂, 11 ♀, *Genetta tigrina aequatorialis* (No. Z. 3685), coll. HDS; 2585, II/gd/4, 1.X.1951, 7 ♂, 15 ♀, *Genetta tigrina aequatorialis* (No. Z. 3711), coll. HDS; 2586, II/hc/4, 5.X.1951, 9 ♂, 6 ♀, murid (No. Z. 3502), coll. HDS; 2587, II/hd/4, 8.X.1951, 6 ♂, 4 ♀, murid (No. Z. 3503), coll. HDS; 2872, II/hd/4, 19.X.1951, 7 ♂, 4 ♀, *Genetta tigrina aequatorialis* (No. Z. 3990), coll. JV; 3087, II/gd/4, 29.I.1952, 1 ♀, rodent nest, « Tula » (No. Z. 4472), coll. JV; 3088, II/gd/4, 29.I.1952, 2 ♂, 5 ♀, 1 N, abandoned rodent nests, coll. JV; 3248, II/gd/6, 26.III.1952, 1 ♀, rodent nest, « Gwa » (No. Z. 4412/2), coll. JV.

HOSTS UNKNOWN.

Nos. 914, I/o/2, 30.X.1950, 1 ♀, on vegetation, coll. HDS; 2984, II/gd/4, 4.I.1952, 1 ♀, on vegetation, coll. JV; 2985, II/gd/4, 4.I.1952, 1 ♀, 5 N ?, on vegetation, coll. JV.

This species occurs in all areas of the Ethiopian faunal region and commonly parasitizes small carnivores such as mongooses, genets, civets and wild cats. The above records are in accord with the existing information on this species. For comments on the systematic status of this species and others in the *H. leachii* group see remarks following information on *H. leachii*.

Haemaphysalis leachii or **muhsami.**

Hosts and Distribution:

MAMMALS.

Nos. 958, I/o/1, 11 N, 24 L, nest of rodent, murid (No. Z. 2528), coll. JV; 959, I/o/1, 9.XI.1950, 1 N, 1 L, rodent nest with 8 young (No. Z. 2526), coll. JV; 973, I/o/1, 15.XI.1950, 5 N, nests of rodents, coll. JV; 980, I/b/3, 17.XI.1950, 3 N, nest of rodent (No. 1476), coll. JV; 1038, II/d, 3.I.1951, 29 N, 73 L, rodent nests, coll. JV; 1039, II/e, 4.I.1951, 156 L, 23 N, rodent nests, coll. JV; 1051, II/f, 4.I.1951, 1 N, 3 L, rodent nests, coll. JV; 1058, II/e, 6.I.1951, 2 N, rodent nest, coll. JV; 1076, II/d/1, 12.I.1951, 4 N, 13 L, rodent nests, coll. JV; 1081, II/i/4, 15.I.1951, 1 N, rodent nests, coll. JV; 1083, II/g/1, 12.I.1951, 1 N, rodent nests, coll. JV; 1132, Kassi-Garamba, 20.I.1951, 1 N, 1 L, rodent nests, coll. JV; 1159, II/e, 24.I.1951, 1 N, rodent nest, coll. JV; 1878*a*, II/gd/4, 6.VI.1951, 1 L, rodent nest, coll. HDS; 2027, II/db/6, 29.VI.1951, 1 L, rodent nest (No. 354/8), coll. JV; 2986, II/fd/17, 9.I.1952, 1 N, 8 L, rodent nest (No. Z. 4157/2), coll. JV.

HOSTS UNKNOWN.

Nos. 21, Gangala-na-Bodio, X and XI.1949, 1 N, coll. HDS; 2361, II/ge/13[s], 3.IX.1951, 1 L, on vegetation, coll. HDS; 3127, II/ic/9, 14.II.1952, 1 N, on vegetation, coll. JV; ....., 1 N, no other data.

At the present time it is impossible to separate the nymphs of *H. leachii* and *H. muhsami*.

Haemaphysalis parmata NEUMANN.

Haemaphysalis parmata NEUMANN, 1905, Arch. de Parasitologie, 9, p. 228.

Host and Distribution:

VEGETATION OR OTHER.

Nos. 723, I/o/2, 26.VII.1950, 1 ♀, on granite river bank, coll. GD; 2128, II/fd/5, 23.VII.1951, 1 ♀, on vegetation, coll. HDS.

H. parmata is a common central and west African tick and is chiefly a parasite of antelopes and domestic animals. HOOGSTRAAL (1956) provides a summary of the information available on this species.

Genus **IXODES** LATREILLE, 1795.

Ixodes browningi ARTHUR.

Ixodes browningi ARTHUR, 1956, Rev. Zool. Bot. Afr., 54, p. 312.

Host and Distribution:

Nos. 3504, Aka, 14.V.1952, 3 ♀, 2 ♂, sciurid (No. Z. 4698), coll. HDS.

The only previous record of this species is the type lot which consisted of 1 ♂ and ♀ from a squirrel collected at Mt. Mikeno in the Congo.

Ixodes paradoxus KOHLS and CLIFFORD.

Ixodes paradoxus KOHLS and CLIFFORD, 1961, Acarologia, 3, p. 285.

Host and Distribution:

Nos. 1691, II/ba/5, 10.V.1951, 6 ♀, *Tadarida (Mops) condylura* (No. Z. 3369), coll. JV.

During a preliminary study of the Garamba Park material these six female specimens were found to be the same as a new species in the Rocky Moutain Laboratory collection and were, therefore, included in a separate publication.

The distribution reported for *I. paradoxus* in the original description was Malaya, North Borneo and the Congo. Since this time specimens have also been received from New Guinea. This species is exclusively a parasite of bats which helps to explain its extremely broad distribution. The females are exceptional in that porose areas, present in females of all other species of Ixodidae, are apparently lacking.

Ixodes spinae ARTHUR.

Ixodes spinae ARTHUR, 1958, Parasitology, 48, p. 61.

Hosts and Distribution:

MAMMALS.

Nos. 1061, II/f, 8.I.1951, 1 ♀, in the hairs of a rodent (No. Z. 2298), coll. PSCH; 3087, II/gd/4, 29.I.1952, 1 ♀, rodent nest, « Tula » (No. Z. 4472), coll. JV.

In a previous paper (CLIFFORD and ANASTOS, 1962) these specimens were identified as *Ixodes* species nr. *spinae*. Since this time the above specimens,

which are in excellent condition, have been compared in detail with the description and figures of *Ixodes spinae* and they are identical. Therefore, a more precise identification is now possible.

The two previous records from the Upemba Park (CLIFFORD and ANASTOS *supra. cit.*) and the above records expand the distribution and host range of this species considerably.

Ixodes sp.

Host and Distribution:

Nos. 2871, II/gd/4, 30.XI.1951, 1 N, mammal (No. Z. 3986), coll. HDS.

It is impossible to identify the immature stages of most African *Ixodes* at the present time.

Genus **RHIPICEPHALUS** KOCH, 1844.

Rhipicephalus pravus DÖNITZ.

Rhipicephalus pravus DÖNITZ, 1910, in « Die Zecken Südafrikas », p. 479.

Hosts and Distribution:

MAMMALS.

Nos. 1008, II/e, 21.XII.1950, 1 N, rodent nests, coll. JV.

HOSTS UNKNOWN.

Nos. 789, Napokomweli, 26.VIII.1950, 1 ♀, on vegetation, coll. GD; 2391, II/ic/10, 7.IX.1951, 2 ♀, on vegetation, coll. HDS.

According to HOOGSTRAAL (1956), the semi-dry areas of East Africa are the center of distribution for this species. It extends into central and southern Africa and westward it is recorded from British Cameroons, but not the intervening French colonies. Hosts include a large variety of domestic and wild animals.

Rhipicephalus pseudolongus SANTOS DIAS.

Rhipicephalus capensis pseudolongus SANTOS DIAS, 1953, Mem. Mus. Zool. Univ. Coimbra, 214, p. 1.

Hosts and Distribution:

MAMMALS.

Nos. 993, II/e, 16.XII.1950, 15 N (2 ♀), nest of rodent, coll. JV; 1008, II/e, 21.XII.1950, 4 ♂, 3 ♀, 2 N, rodent nest, coll. JV; 1009, II/f, 23.XII.1950, 1 ♀, 14 N, rodent nests,

coll. JV; 1011, II/f, 20.XII.1950, 11 N (1 ♂), rodent nests, coll. JV; 1051, II/f, 4.I.1951, 5 N, rodent nests, coll. JV; 1076, II/d/1, 12.I.1951, 1 ♂, rodent nests, coll. JV; 1080, II/i/4, 15.I.1951, 1 N, burrows of macroscelids, coll. JV; 1083, II/g/1, 12.I.1951, 3 ♂, 1 ♀, 3 N, rodent nests, coll. JV; 1132, Kassi-Garamba, 20.I.1951, 2 ♂, 2 ♀, 10 N, rodent nests, coll. JV; 1133, Bagunda, 17.I.1951, 1 N, rodent nests, coll. JV; 1134, Kassi-Garamba, 20.I.1951, 7 ♂, 13 ♀, 8 N, rodent nests, coll. JV; 1135, Bagunda, 18.I.1951, 4 ♂, 5 ♀, 1 N, rodent nest, coll. JV; 1159, II/e, 24.I.1951, 1 ♂, 1 ♀, 1 N, rodent nest, coll. JV; 1206, source Wilibadi, 30.I.1951, 5 N, rodent nest, coll. JV; 1208, source Wilibadi, 31.I.1951, 1 ♂, 1 ♀, rodent nest, *Lemniscomys striatus* (No. Z. 790 (?), coll. JV; 1211, source Wilibadi, 31.I.1951, 3 N (1 ♀), rodent nest, (No. Z. 785 (?), coll. JV; 1254, II/gd/4, 9.II.1951, 1 N (1 ♂), rodent nest, coll. JV; 1263, II/hc/8, 14.II.1951, 1 N, rodent nest, coll. JV; 1269, II/gd/10, 16.II.1951, 1 ♀, rodent nest, coll. JV; 1580, II/gd/4, 18.IV.1951, 1 N, murid (No. Z. 1374/1), coll. JV; 1581, II/fb/4, 18.IV.1951, 1 ♂, 7 N, rodent nest, coll. JV; 1601, II/hc/4, 24.IV.1951, 2 ♂, rodent nests, coll. JV; 1659, II/hc/4, 2 V.1951, 1 N, rodent nests, coll. JV; 1767, II/gd/4, 18.V.1951, 3 N, rodent nests, coll. JV; 1768, II/gd/4, 18.V.1951, 2 ♂, 2 ♀, 3 N, rodent nests, coll. JV; 1997, II/hc/4, 28.VI.1951, 3 ♂, 6 ♀, 14 N, rodent nests, murid (No. 1509/16), coll. JV; 2000, II/hc/4, 21.VI.1951, 1 N, rodent nest or rodent (No. 1480/2), coll. JV; 2582, II/hc/4, 29.IX.1951, 4 ♂, 4 ♀, buffalo, coll. HDS; 2971, II/fd/17, 3.I.1952, 10 ♂, 3 ♀, buffalo, coll. HDS; 2986, II/fd/17, 9.I.1952, 1 N, rodent nest, coll. JV; 3030, II/id/4, 31.I.1952, 3 N, rodent nest, coll. JV; 4073, Tori (Sudan), 22.IX.1952, 3 ♀, buffalo, coll. HDS.

HOSTS UNKNOWN.

Nos. 208, I/b/1, 15.II.1950, 1 ♀, on vegetation, coll. GD; 305, Mt Ndogo, 15.III.1950, 1 ♀, on vegetation, coll. HDS; 352, I/o/3, 31.III.1950, 1 ♀, on vegetation, coll. HDS; 768, I/c/2‴, 23.VIII.1950, 11 ♂, 10 ♀, on vegetation, coll. GD; 806, Napokomweli, 6.IX.1950, 1 ♂, on vegetation, coll. GD; 835, Napokomweli, 22.IX.1950, 1 ♂, on vegetation, coll. GD; 903, I/a/1, 26.X.1950, 1 ♂, on vegetation, coll. HDS; 991, II/f, 15.XII.1950, 2 ♂, 1 ♀, on vegetation, coll. HDS; 1101, II/e, 18.I.1951, 1 ♂, in sand of river bank, coll. HDS; 1136, II/d, source of river, 24.I.1951, 2 ♂, on vegetation, coll. JV; 1137, II/d/4, 24.I.1951, 3 ♀, on vegetation, coll. JV; 1167, II/fc/5, 31.I.1951, 2 ♂, on vegetation, coll. HDS; 1260, II/fc, 16.II.1951, 3 ♂, on vegetation, coll. HDS; 1276, II/gd/11, 19.II.1951, 4 ♂, 1 ♀, on vegetation, coll. HDS; 1328, II/fd/4, 3.III.1951, 7 ♂, 13 ♀, on vegetation, coll. JV; 1361, II/gd/11, 12.III.1951, 2 ♂, 3 ♀, on vegetation, coll. HDS; 1458, II/fc/5, 27.III.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 1474, II/gc/11, 30.III.1951, 1 ♂, on vegetation, coll. HDS; 1481, II/gd/4, 2.IV.1951, 23 ♂, 26 ♀, on vegetation, coll. HDS; 1494, II/fd/17, 4.IV.1951, 7 ♂, 6 ♀, on vegetation, coll. JV; 1576, II/fb/4, 18.IV.1951, 1 ♂, 1 ♀, on vegetation, coll. JV; 1633, II/ee/7, 27.IV.1951, 1 ♂, on vegetation, coll. JV; 1684, II/gd/4, 7.V.1951, 2 ♂, on vegetation, coll. HDS; 1700, II/gd/8, 9.V.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 1842, II/hd/8, 30.V.1951, 5 ♂, 5 ♀, on vegetation, coll. HDS; 1872, II/hc/8, 5.VI.1951, 1 ♂, 3 ♀, on vegetation, coll. HDS; 1886, II/gc/6, 8.VI.1951, 4 ♂, 3 ♀, on vegetation, coll. HDS; 1899, II/fd/18, 11.VI.1951, 1 ♂, on vegetation, coll. HDS; 1969, II/gd/11, 23.VI.1951, 2 ♂, on vegetation, coll. HDS; 1988, II/gd/10, 27.VI.1951, 1 ♂, on vegetation, coll. JV; 2055, II/gd/4, 6.VII.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2061, II/gd/8, 12.VII.1951, 3 ♂, 2 ♀, on vegetation, coll. HDS; 2072, II/fd/8, 13.VII.1951, 2 ♂, 3 ♀, on vegetation, coll. HDS; 2102, II/fc/3, 16.VII.1951, 3 ♂, on vegetation, coll. HDS; 2128, II/fd/5, 23.VII.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2134, II/gd/4, 20.VII.1951, 1 ♂, on vegetation, coll. HDS; 2158, II/gc/8, 27.VII.1951, 11 ♂, 4 ♀, on vegetation, coll. HDS; 2160, II/gd/11, 28.VII.1951, 1 ♀, on vegetation, coll. HDS; 2172, II/ec/4, 30.VII.1951, 1 ♀, on vegetation, coll. HDS; 2226, II/gd/8, 6.VIII.1951, 2 ♂, on vegetation, coll. HDS; 2291, II/fe/73, 23.VIII.1951, 7 ♂, 13 ♀, on vegetation, coll. HDS; 2315, II/gd/4, 25.VIII.1951, 3 ♀, on vegetation, coll. JV; 2391, II/ic/10, 7.IX.1951, 3 ♂, 6 ♀, on vegetation, coll. HDS; 2397, II/gd/10, 10.IX.1951,

1 ♀, on vegetation, coll. HDS; 2522, II/fd/18, 6.X.1951, 2 ♂, 1 ♀, on vegetation, coll. HDS; 2615, PpK/52/g, 16.X.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 2668, II/fd/4, 24.X.1951, 1 ♀, on vegetation, coll. HDS; 2680, II/PpK/55, 26.X.1951, 3 ♂, on vegetation, coll. HDS; 2699, II/fc/6, 30.X.1951, 5 ♂, 3 ♀, on vegetation, coll. HDS; 2717, II/gd/4, 3.XI.1951, 2 ♀, on vegetation, coll. HDS; 2740, II/gd/9, 8.XI.1951, 2 ♂, 3 ♀, on vegetation, coll. HDS; 2757, II/gc/11, 13.XI.1951, 2 ♂, 5 ♀, on vegetation, coll. HDS; 2761, II/fd/17, 14.XI.1951, 2 ♂, 1 ♀, on vegetation, coll. HDS; 2935, II/fd/10, 20.XII.1951, 2 ♂, 6 ♀, on vegetation, coll. HDS; 3127, II/ic/9, 14.II.1952, 1 ♀, 1 N, on vegetation, coll. JV; 3158, II/fd/18, 3.III.1952, 1 ♂, on vegetation, coll. HDS; 3178, II/fd/12, 10.III.1952, 5 ♀, on vegetation, coll. HDS; 3424, II/fd/7″, 5.V.1952, 1 ♂, 4 ♀, on vegetation, coll. HDS; 3437, II/fd/16, 6.V.1952, 3 N ?, on vegetation, coll. JV; 3547, II/gd/4, 27.V.1952, 5 ♂, 1 ♀, on vegetation, coll. HDS; 3694, II/fd/4, 3.VI.1952, 8 ♂, 4 ♀, on vegetation, coll. HDS; 3769, PpK/12, 14.VII.1952, 100 ♂, 65 ♀, coll. HDS; ....., 1 ♂, no other data.

A detailed characterization and explanation of the material we identified here as *R. pseudolongus* has been presented by CLIFFORD and ANASTOS (1962). Therefore, only a brief resumé will be given here.

R. pseudolongus was originally described as a subspecies of *R. capensis* by SANTOS DIAS in 1953 on the basis of material from the Cameroon. In 1955 he elevated *R. pseudolongus* to species rank. Then in 1956*b*, he synonymized this species with *R. longus* and in 1958 reiterated this opinion.

We examined the male holotype of *R. pseudolongus* and found that this species is entirely different from *R. longus* (sensu NEUMANN). This fact was substantiated by a comparison of the immature stages, i.e., the nymphs of the material we are calling *R. pseudolongus* have definite cornua; whereas, the nymphs of *R. longus* (specimens from East Africa furnished by Miss JANE WALKER) lack cornua entirely. Furthermore the genital apertures of the females of these two species are entirely different.

R. pseudolongus is closely related to both *R. capensis* and *R. compositus*. In fact, if the males did not have sickle-shaped adanal shields, it would be very difficult to differentiate these species. A sample of this material was determined by Dr. THEILER as *Rhipicephalus capensis* ?

R. pseudolongus is widely distributed in West Africa and ranges across into the Sudan, northern Congo and northern Uganda. The hosts for the adults are larger wild and domestic animals. According to the records given above, various species of rodents are the hosts of predilection for the nymphs of this species.

The following description of the nymph of *R. pseudolongus* is based on material that was positively identified by breaking open the nymphal skin and examining the fully developed adults within :

NYMPH.

(Fig. 2, A, B.)

B o d y . — Unengorged specimen 1,17 mm long; 0,78 mm wide. Engorged specimen 3,90 mm long; 2,40 mm wide. Broadest posterior to midlength.

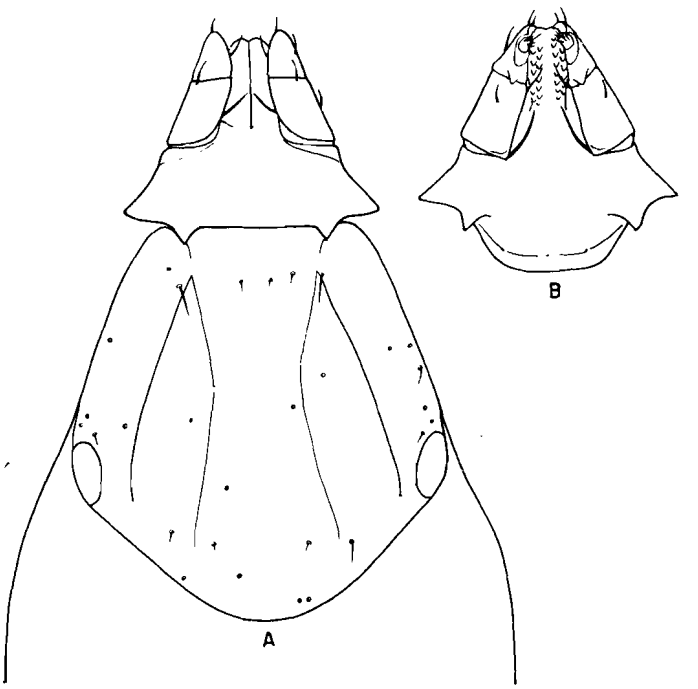

FIG. 2. — *Rhipicephalus pseudolongus*, nymph.
A ; Dorsal view; B : Ventral view of capitulum.

S c u t u m . — Length 0,53 mm; width 0,54 mm. Broadest at level of eyes which are located at edge of scutum in posterior third of its length. Shape of scutum as figured. Cervical pits deep, shallow cervical grooves almost reach to posterior margin of scutum. Lateral groove pronounced, running parallel to margin.

C a p i t u l u m . — Length 0,29 mm; width 0,36 mm. Palps slope toward each other.

B a s i s C a p i t u l i . — Length 0,12 mm; width 0,36 mm. Antero-lateral and posterolateral margins slightly concave; posterior margin between the sharp welldefined cornua straight. Lateral angles extend beyond scapulae. Ventrally with long sharp spurs.

P a l p s . — Length 0,12 mm. Shape as figured. Lateral margins almost straight. Small spur on article III just posterior to insertion of article IV.

C o x a e . — Two large triangular spurs on coxae I; external spur longest. A single smaller, triangular external spur on coxae II, III and IV.

Rhipicephalus sanguineus (LATREILLE).

Ixodes sanguineus LATREILLE, 1806, Gen. Crust. et Ins., 1, p. 157.

H o s t s a n d D i s t r i b u t i o n :

BIRDS.

Nos. 2853, Ndelele/K/115, 3.XII.1951, 3 ♂, 2 ♀, *Pseudogyps africanus* (SALVADORI). (No. Z. 3977), coll. HDS; 4063, II/gd/4, 18.IX.1952, 3 ♂, *Colius passer ardeus concolor* (CASS) (No. 5126), coll. HDS; 4064, II/gd/4, 18.IX.1952, 10 ♂, 21 ♀, *Chrysococcyx cupreus* (BODD) (No. Z. 5126), coll. HDS.

MAMMALS.

Nos. 2254, II/gd/4, 17.VIII.1951, 1 ♂, *Felis (Leptailurus) serval* SCHREBER (No. Z. 3849), coll. JV; 2270, II/gd/4, 10.VIII.1951, 12 ♂, 11 ♀, *Panthera (Panthera) pardus* (LINNÉ) (No. Z. 3659), coll. JV; 2438, II/gd/4, 16.IX.1951, 12 ♂, 5 ♀, *Genetta tigrina aequatorialis* HEUGLIN (No. Z. 3699), coll. HDS; 2583, II/hd/4, 10.X.1951, 11 ♂, 8 ♀, *Tragelaphus scriptus dianae* MATSCHIE (No. Z. 3714), coll. HDS; 2585, II/gd/4, 1.X.1951, 1 ♀, *Genetta tigrina aequatorialis* (No. Z. 3711), coll. HDS; 2986, II/fd/17, 9.I.1952, 1 ♂, rodent nest (No. Z. 4157/2), coll. JV; 3044, PFSK/7/2, 25.I.1952, 1 ♂, *Ourebia ourebi goslingi* THOMAS and WROUGHTON (No. Z. 4224), coll. HDS; 3772, II/gd/4, 11.VII.1952, 8 ♂, 2 ♀, mammal (No. Z. 4951), coll. HDS; 3875, II/gd/4, 5.VIII.1952, 3 ♂, 3 ♀, *Tragelaphus scriptus dianae*, coll. HDS; 3991, II/gd/4, 19.VIII.1952, 20 ♂, 3 ♀, *Tragelaphus scriptus dianae* (No. 5038), coll. HDS; 4073, Tori (Sudan), 22.IX.1952, 2 ♀, buffalo, coll. HDS.

HOSTS UNKNOWN.

Nos. ....., 1 ♀, no other data; 729, Akam, 28.VII.1950, 1 ♀, on vegetation, coll. GD; 763, I/o/1, 19.VIII.1950, 1 ♀, on vegetation, coll. GD; 800, I/o/1, 4.IX.1950, 1 ♀, on vegetation, coll. GD; 808, I/o/1, 7.IX.1950, 1 ♂, on vegetation, coll. GD; 812, I/o/1, 11.IX.1950, 2 ♂, on vegetation, coll. GD; 817, I/o/1, 13.IX.1950, 1 ♂, on vegetation, coll. GD; 866, I/o/2, 3.X.1950, 1 ♀, on vegetation, coll. GD; 884, I/o/2, 11.X.1950, 1 ♀, on vegetation, coll. HDS; 1902, II/gd/4, 12.VI.1951, 1 ♀, on vegetation, coll. HDS; 2158, II/gc/8, 27.VII.1951, 1 ♂, 2 ♀, on vegetation, coll. HDS; 2172, II/ec/4, 30.VII.1951, 1 ♀?, on vegetation, coll. HDS; 2291, II/fe/73, 23.VIII.1951, 3 ♀, on vegetation, coll. HDS; 2315, II/gd/4, 25 VIII.1951, 1 ♀, on vegetation, coll. JV; 2419, II/id/10, 11.IX.1951, 2 ♂, 1 ♀, on vegetation, coll. HDS; 2452, II/je/4, 20.IX.1951, 6 ♂, 5 ♀, on vegetation, coll. HDS; 2740, II/gd/9, 8.XI.1951, 1 ♂, on vegetation, coll. HDS; 2806, II/fc/18, 24.XI.1951, 1 ♂, on vegetation, coll. HDS; 4025, II/gd/4, 3.X.1952, 1 ♀, on vegetation, coll. HDS.

R. sanguineus is widely distributed in Africa and parasitizes a variety of mammals and birds. HOOGSTRAAL (1956) gives an excellent summary of the distribution and host range of this species in Africa.

Rhipicephalus senegalensis KOCH.

Rhipicephalus senegalensis KOCH, 1844, Arch. f. Naturgesch. 10, p. 238.

Hosts and Distribution:

BIRDS.

Nos. 1819, II/fe/6, 23.V.1951, 47 ♂, 26 ♀, *Dendrocygna viduata* (LINNÉ) (No. Z. 3422), coll. JV; 2246, II/gd/4, 10.VIII.1951, 2 N, bird (No. Z. 3640), coll. JV.

MAMMALS.

Nos. 372, 9.III.1950, 4 ♂, 2 ♀, *Manis (Smutsia) gigantea* ILLIGER (No. 765), coll. GD; 373, ?Ndojo, 15.III.1950, 14 ♂, 12 ♀, *Phacochoerus aethiopicus* (PALLAS) (No. 781), coll. GD; 1008, II/e, 21.XII.1950, 1 ♀, rodent nests, coll. JV; 1009, II/f, 23.XII.1950, 1 ♂, rodent nests, coll. JV; 1011, II/f, 20.XII.1950, 3 ♂, 1 ♀, rodent nests, coll. JV; 1036, II/f, 29.XII.1950, 1 N, rodent nest with 4 young (No. Z. 2270), coll. JV; 1072, II/f/3, 9.I.1951, 1 N, *Mungos mungo gotneh* (HEUGLIN and FITZINGER) (No. Z. 1702), coll. JV; 1134, Kassi-Garamba, 20.I.1951, 5 ♂, 2 ♀, rodent nests, coll. JV; 1160, II/g, 25.I.1951, 1 N, rodent nest (No. Z. 772), coll. JV; 1206, source Wilibadi, 30.I.1951, 4 N, rodent nest, coll. JV; 1208, source Wilibadi, 31.I.1951, 1 N, rodent nest, *Lemniscomys striatus* (No. Z. 790 ?), coll. JV; 1211, source Wilibadi, 31.I.1951, 1 ♀, rodent nest (Z. 785 ?), coll. JV; 1212, II/1, 26.I.1951, 1 ♂, rodent nest (No. Z. 2702), coll. JV; 1254, II/gd/4, 9.II.1951, 1 ♀, rodent nest, coll. JV; 1269, II/gd/10, 16.II.1951, 1 N, rodent nest, coll. JV; 1365, II/fd/4, 3.III.1951, 1 ♂, 1 ♀, rodent nest, coll. JV; 1451, II/gd/4, 23.III.1951, 1 ♂, nest of *Lemniscomys striatus*, coll. JV, 1496, II/id/4, 30.XI.1950, 1 N, macroscelid (No. Z. 2609), *Elephantulus* sp., coll. JV; 1597, II/hc/4, 23.IV.1951, 1 N ?, rodent nest, coll. JV; 1601, II/hc/4, 24.IV.1951, 1 ♀, rodent nest, coll. JV; 1768, II/gd/4, 18.V.1951, 1 N (1 ♀), rodent nests, coll. JV; 1818, II/db/4, 29.V.1951, 2 N, rodent nest, coll. JV; 1878*a*, II/gd/4, 6.VI.1951, 3 N, rodent nest, coll. HDS; 2192, II/gd/4, 29.VII.1951, 1 N, rodent nest, *Lemniscomys*; 2240, II/hc/4, 1.VIII.1951, 14 N (1 ♂), rodent nest, murid, (No. 3627/1), coll. JV; 2582, II/hc/4, 29 IX.1951, 12 ♂, 2 ♀, buffalo, coll. HDS; 2671, II/gd/8, 27.X.1951, 2 N, *Thryonomys* (No Z. 3995), coll. HDS; 3090, II/id/4, 31.I.1952, 1 N, rodent nest (No. Z. 4237/1), coll. JV; 4073, Tori (Sudan), 22.IX.1952, 2 ♂, buffalo, coll. HDS.

HOSTS UNKNOWN.

Nos. 422, I/a/3, 17.IV.1950, 1 ♂, on vegetation, coll. HDS; 548, I/o/1, 22.V.1950, 12 ♂, 5 ♀, on vegetation, coll. HDS; 563, I/b/3′, 26.V.1950, 3 ♂, 4 ♀, on vegetation, coll. GD; 639, I/a/1, 26.VI.1950, 1 ♂, on vegetation, coll. GD; 643, I/o/3, 27.VI.1950, 9 ♂, 10 ♀, on vegetation, coll. GD; 649. I/b/2, 28.VI.1950, 1 ♂, 1 ♀, on vegetation, coll. GD; 686, I/a/1, 10.VII.1950, 1 ♀, on vegetation, coll. GD; 705, I/a/1, 17.VII.1950, 1 ♂, 1 ♀, on vegetation, coll. GD, 723, I/o/2, 26.VII.1950, 1 ♀, on granite river bank, coll. GD; 753, I/o/1, 10.VIII.1950, 3 ♂, 1 ♀, on vegetation, coll. GD; 763, I/o/1, 19.VIII.1950, 1 ♂, 1 ♀, on vegetation, coll. GD; 766, I/o/1, 21.VIII.1950, 1 ♂, on vegetation, coll. GD; 768, I/c/2‴, 23.VIII.1950, 1 ♂, on vegetation, coll. GD; 790, I/o/2, 30.VIII.1950, 1 ♀, on vegetation, coll. GD; 800, I/o/1, 4.IX.1950, 1 ♀, on vegetation, coll. GD; 808, I/o/1, 7.IX.1950, 1 ♀, on vegetation, coll. GD; 824, Napokomweli, 15.IX.1950, 1 ♂, on vegetation, coll. GD; 1276, II/gd/11, 19.II.1951, 1 ♀, on vegetation, coll. HDS; 1361, II/gd/11, 12.III.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 1443, II/hd/4, 23.III.1951, 1 ♂, 1 ♀, on

vegetation, coll. HDS; 1458, II/fc/5, 27.III.1951, 1 ♂, 2 ♀, on vegetation, coll. HDS; 1487, II/gc/11, 30.VII.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 1494, II/fd/17, 4.IV.1951, 2 ♀, on vegetation, coll. HDS; 1842, II/hd/8, 30.V.1951, 1 ♀, on vegetation, coll. HDS; 1872, II/hc/8, 5.VI.1951, 1 ♂, on vegetation, coll. HDS; 1886, II/gc/6, 8.VI.1951, 3 ♂, 1 ♀, on vegetation, coll. HDS; 1902, II/gd/4, 12.VI.1951, 5 ♂, 7 ♀, on vegetation, coll. HDS; 1903, II/gd/11, 12.VI.1951, 2 ♂, on vegetation, coll. HDS; 1969, II/gd/11, 23.VI.1951, 2 ♂, 1 ♀, on vegetation, coll. HDS; 1988, II/gd/10, 27.VI.1951, 1 ♂, on vegetation, coll. JV; 2013, II/gd/4, 27.VI.1951, 2 ♀, on vegetation, coll. JV; 2052, II/gd/4, 5.VII.1951, 2 ♂, 9 ♀, on vegetation, coll. HDS; 2055, II/gd/4, 6.VII.1951, 2 ♂, 6 ♀, on vegetation, coll. HDS; 2061, II/gd/8, 12.VII.1951, 4 ♂, 4 ♀, on vegetation, coll. HDS; 2072, II/fd/8, 13.VII.1951, 1 ♂, 3 ♀, on vegetation, coll. HDS; 2102, II/fc/3, 16.VII.1951, 9 ♂, 5 ♀, on vegetation, coll. HDS; 2128, II/fd/5, 23.VII.1951, 3 ♂, 3 ♀, on vegetation, coll. HDS; 2134, II/gd/4, 20.VII.1951, 1 ♂, on vegetation, coll. HDS; 2158, II/gc/8, 27.VII.1951, 1 ♂, 4 ♀, on vegetation, coll. HDS; 2160, II/gd/11, 28.VII.1951, 2 ♂, 1 ♀, on vegetation, coll. HDS; 2172, II/ec/4, 30.VII.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 2181, II/gd/4, 31.VII.1951, 1 ♀, on vegetation, coll. JV; 2236, II/gd/14[a], 9.VIII.1951, 2 ♂, 1 ♀, on vegetation, coll. HDS; 2380, II/fd/17, 4.IX.1951, 1 ♂, on vegetation, coll. HDS; 2391, II/ic/10, 7.IX.1951, 1 ♀, on vegetation, coll. HDS; 2452, II/je/4, 20.IX.1951, 4 ♂, 3 ♀, on vegetation, coll. HDS; 2615, PpK/52/g, 16.X.1951, 1 ♀, on vegetation, coll. HDS; 2668, II/fd/4, 24.X.1951, 1 ♀, on vegetation, coll. HDS; 2680, II/PpK/55, 26.X 1951, 1 ♂, 3 ♀, on vegetation, coll. HDS; 2717, II/gd/4, 3.XI.1951, 4 ♂, 2 ♀, on vegetation, coll. HDS; 2740, II/gd/9, 8.XI.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 3127, II/ic/9, 14.II.1952, 1 ♂, 1 ♀, 1 N, on vegetation, coll. JV; 3178, II/fd/12, 10.III.1952, 1 ♀, on vegetation, coll. HDS; 3424, II/fd/7″, 5.V.1952, 1 ♂, on vegetation, coll. HDS; 3547, II/gd/4, 27.V.1952, 7 ♂, 16 ♀, on vegetation, coll. HDS; 3589, Ndelele/2, 6.VI.1952, 1 ♂, 2 ♀, on vegetation, coll. HDS; 3694, II/fd/4, 3.VI.1952, 17 ♂, 11 ♀, on vegetation, coll. HDS; 3769, PpK/12, 14.VII.1952, 22 ♂, 18 ♀, 1 N, coll. HDS; ....., 3 ♂, 1 ♀, 1 N, no other data.

In a previous paper on the ticks of the Upemba National Park (CLIFFORD and ANASTOS, 1962), we gave a summary of our views on the rhipicephalid species whose males have sickle-shaped adanal shields. At that time, the above specimens were considered to be *R. senegalensis*; however, attention was directed to some of the similarities that existed between these specimens and the material that we were identifying as *R. longus*, and it was pointed out that future studies on laboratory reared material using all stages may show these specimens to be nothing more than lightly punctate *R. longus*. If this proved to be true, *R. senegalensis* would be essentially a West African species.

At the present time our distribution picture for *R. senegalensis* includes West Africa, the northern edge of the Congo and parts of the Sudan and Uganda. Adults feed on a variety of animals and from the information presented above it would appear that rodents are the primary hosts for the immature stages. The identity of some of these nymphs was confirmed by breaking open the nymphal skins and examining the fully developed adults which were present inside. The following description is based on nymphs that were identified by this procedure :

NYMPH.

(Fig. 3, A, B.)

The measurements given below represent an average of 5 measurements except where otherwise stated.

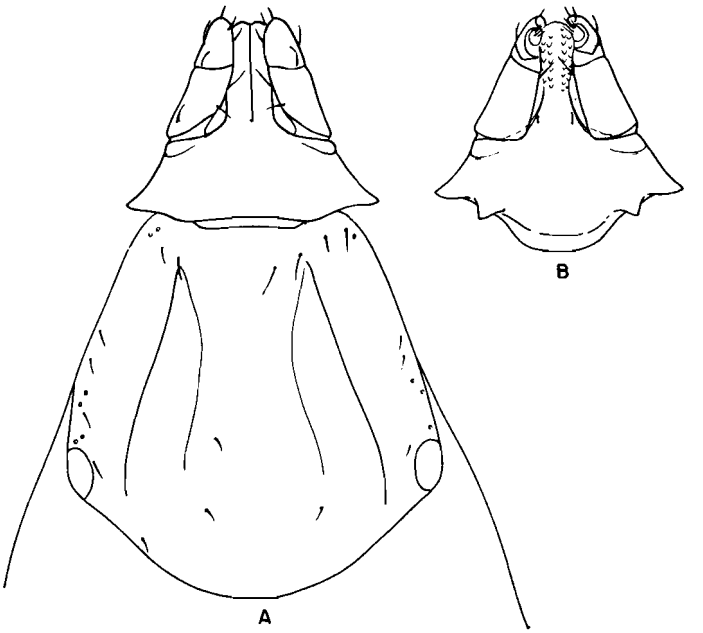

FIG. 3. — *Rhipicephalus senegalensis*, nymph.
A : Dorsal view; B : Ventral view of capitulum.

B o d y . — Unengorged specimen 1,22 mm long; 0,68 mm wide. Engorged specimen 3,70 mm long; 2,40 mm wide. Widest posterior to midlength.

S c u t u m . — Length 0,51 mm; width 0,50 mm. Widest at level of eyes. Eyes elongate, slightly raised above surface of scutum. Shape of scutum as figured. Cervical pits deep with shallower cervical grooves which extend about 3/4 the length of scutum. Lateral groove pronounced, running parallel to margin.

C a p i t u l u m . — Length 0,28 mm; width 0,34 mm. Palps slope toward each other.

Basis Capituli. — Length 0,14 mm; width 0,34 mm; shape as figured. Anterolateral margin concave, posterolateral margin only slightly idented. Posterior margin slightly concave. Cornua absent. Lateral angles extend beyond scapulae. Ventrally with long sharp spurs.

Hypostome. — Dentition 2/2.

Palps. — Length 0,19 mm. Shape as figured. Lateral margins slightly concave.

Coxae. — Coxa I with two large triangular spurs. Coxae II-IV each with single rounded external spur, decreasing progressively in size.

Rhipicephalus simpsoni NUTTALL.

Rhipicephalus simpsoni NUTTALL, 1910, Parasitology, 3, p. 413.

Hosts and Distribution:

BIRDS.

Nos. 1050, II/f, 4.I.1951, 1 ♀, *Hypochera amauropteryx camerunensis* GROTE (No. Z. 2286), coll. JV.

MAMMALS.

Nos. 1132, Kassi-Garamba, 20.I.1951, 1 ♂, 1 ♀, 1 N (1 ♀), rodent nests, coll. JV; 1134, Kassi-Garamba, 20.I.1951, 1 ♂, rodent nests, coll. JV; 1159, II/e, 24.I.1951, 6 ♂, 15 ♀, rodent nest, coll. JV; 1211, source Wilibadi, 31.I.1951, 1 ♂, rodent nest (No. Z. 785 ?), coll. JV; 1254, II/gd/4, 9.II.1951, 1 ♀, 3 N, rodent nest, coll. JV; 1365, II/fd/4, 3.III.1951, 1 ♂, 2 ♀, 1 N, rodent nests, coll. JV; 2649, II/hd/4, 22.X.1951, 6 ♂, 4 ♀, mammal (No. Z. 3542), *Arvicanthis* sp., coll. HDS; 2671, II/gd/8, 27.X.1951, 2 ♂, *Thryonomys* (No. Z. 3995), coll. HDS; 3014, II/gd/4, 11.I.1952, 1 ♂, rodent burrow, coll. JV.

HOSTS UNKNOWN.

Nos. 260, I/b/2, 1.III.1950, 1 ♂, vegetation, coll. HDS; 1032, II/e, 3.I.1951, 1 ♂, on vegetation, coll. JV; 2280, II/ge/7", 20.VIII.1951, 1 ♀, on vegetation, coll. HDS.

This species has been reported from several widely scattered localities in the Ethiopian faunal region. Its distribution appears to be closely allied to that of its chief hosts, the cane rats. The above record from a bird is unusual and requires confirmation. CLIFFORD and ANASTOS (1962) also record a single ♂ off a bird.

The following description is based on a single nymphal skin from which a fully developed female of this species was removed. Because the posterior area of the skin was badly damaged it was not possible to get an accurate measurement of the body size.

NYMPH.

(Figs. 4, A, B.)

Scutum. — Length 0,48 mm; width 0,46 mm. Widest at level of the eyes. Eyes indistinct, not raised above level of scutum. Cervical pits deep, shallower cervical groove extends about 3/4 the length of the scutum. Lateral groove only slightly indicated, running parallel to margin.

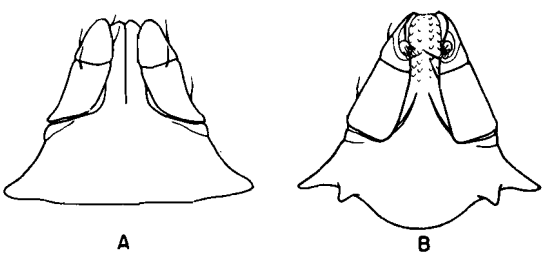

FIG. 4. — *Rhipicephalus simpsoni*, nymph.
A : Dorsal view of capitulum; B : Ventral view of capitulum.

Capitulum. — Length 0,26 mm; width 0,35 mm. Palps slope toward each other.

Basis Capituli. — Length 0,10 mm; width 0,35 mm. Shape as figured, anterolateral margin concave, postero-lateral margin only slightly concave. Posterior margin straight. Cornua absent. Lateral angles extend well beyond scapulae. Ventrally with sharp spurs.

Hypostome. — Dentition 2/2.

Palps. — Length 0,16 mm. Shape as figured. Lateral margins of palpal article 2 concave.

Coxae. — Coxae I with two large spurs, internal spur more rounded and shorter than external spur. Coxae II and III each with a single, rounded external spur, decreasing progressively in size. Coxae IV damaged on single available specimen.

Rhipicephalus simus KOCH.

Rhipicephalus simus KOCH, 1844, Arch. f. Naturgesch., 10, p. 238.

Hosts and Distribution :

MAMMALS.

Nos. 1099, II/f, 23.XII.1950, 14 N ?, rodent nests, coll. JV; 1038, II/d, 3.I.1951, 2 N (1 ♂, 1 ♀), rodent nests, coll. JV; 1051, II/f, 4.I.1951, 11 N ?, rodent nest, coll. JV; 1134, Kassi-Garamba, 20.I.1951, 4 N, rodent nests, coll. JV; 1135, Bagunda, 18.I.1951, 1 N, rodent nests, coll. JV; 1159, II/e, 24.I.1951, 14 N (*simus* group) (1 ♀, *R. simus*), rodent nest, coll. JV; 1206, source Wilibadi, 30.I.1951, 2 N ?, rodent nest, coll. JV; 1211, source Wilibadi ,31.I.1951, 2 ♀, 4 N (2 ♂), rodent nest (No. Z. 785 ?), coll. JV; 1601, II/hc/4, 24.IV.1951, 3 N, rodent nests (No. Z. 1390/2), coll. JV; 1878*a*, II/gd/4, 6.VI.1951, 1 N ?, rodent nest, coll. HDS; 2986, II/fd/17, 9.I.1952, 3 N ?, rodent nests (No. Z. 4157/2), coll. JV; 3014, II/gd/4, 11.I.1952, 3 N ?, rodent burrow, coll. JV; 3087, II/gd/4, 29.I.1952,1 N ?, rodent nest, « Tula » (No. Z. 4472), coll. JV; 3089, II/hd/8 Nduma, 30.I.1952, 1 N ?, nests of *Talera* sp. (No. Z. 4246/4), coll. JV; 3248, II/gd/6, 26.III.1952, 1 N, rodent nest, « Gwa » (No. Z. 4412/2), coll. JV.

HOSTS UNKNOWN.

Nos. 214, I/b/2, 22.II.1950, 1 ♀, vegetation, coll. HDS; 763, I/o/1, 19.VIII.1950, 2 ♂, on vegetation, coll. GD; 766, I/o/1, 21.VIII.1950, 2 ♂, 2 ♀, on vegetation, coll. GD; 827, I/o/1, 16.IX.1950, 1 ♀, on vegetation, coll. HDS; 903, I/a/1, 26.X.1950, 1 ♂, 1 ♀, on vegetation, coll. HDS.

R. simus is widely distributed throughout Africa. Adults parasitize a variety of large and medium sized wild and domestic animals, while the immature stages feed chiefly on burrowing rodents. For further information on this species see HOOGSTRAAL (1956).

Rhipicephalus supertritus NEUMANN.

Rhipicephalus supertritus NEUMANN, 1907, Arch. de Parasitologie, 11, p. 216.

Hosts and Distribution :

MAMMALS.

Nos. 2582, II/hc/4, 29.IX.1951, 8 ♂, 5 ♀, buffalo, coll. HDS; 4073, Tori (Sudan), 22.IX.1952, 26 ♂, 13 ♀, buffalo, coll. HDS.

HOSTS UNKNOWN.

Nos. 55, Bagbele, 16.XII.1949, 1 ♀, coll. HDS; 563, I/b/3', 26.V.1950, 8 ♂, 8 ♀, on vegetation, coll. GD; 705, I/a/1, 17.VII.1950, 1 ♂, 1 ♀, on vegetation, coll. GD; 808, I/o/1, 7.IX.1950, 1 ♂, on vegetation, coll. GD; 991, II/f, 15.XII.1950, 1 ♂, 1 ♀, on vege-

tation, coll. HDS; 997, II/g, 18.XII.1950, 1 ♀, on vegetation, coll. HDS; 1003, II/f, 26.XII.1950, 1 ♂, on vegetation, coll. JV; 1458, II/fc/5, 27.III.1951, 3 ♂, 5 ♀, on vegetation, coll. HDS; 1494, II/fd/17, 4.IV.1951, 1 ♂, on vegetation, coll. HDS; 1684, II/gd/4, 7.V.1951, 1 ♀, on vegetation, coll. HDS; 1887, II/gd/7‴, 8.VI.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 1902, II/gd/4, 12.VI.1951, 2 ♀, on vegetation, coll. HDS; 1903. II/gd/11, 12.VI.1951, 1 ♂, on vegetation, coll. HDS; 1969, II/gd/11, 23.VI.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 1988, II/gd/10, 27.VI.1951, 1 ♂, on vegetation, coll. JV; 2013, II/gd/4, 27.VI.1951, 1 ♂, 1 ♀, on vegetation, coll. JV; 2052, II/gd/4, 5.VII.1951, 2 ♂, on vegetation, coll. HDS; 2055, IIgd/4. 6.VII.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2061, II/gd/8, 12.VII.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2102, II/fc/3, 16.VII.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 2128, II/fd/5, 23.VII.1951, 11 ♂, 13 ♀, on vegetation, coll. HDS; 2134, II/gd4, 20.VII.1951, 1 ♀, on vegetation, coll. HDS; 2172, II/ec/4, 30.VII.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 2181, II/gd/4, 31.VII.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2226, II/gd/8, 6.VIII.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2236, II/gd/14ˢ, 9.VIII.1951, 2 ♂, on vegetation, coll. HDS; 2391, II/ic/10, 7.IX 1951, 1 ♀, on vegetation, coll. HDS; 2452, II/je/4, 20.IX.1951, 2 ♂, 2 ♀, on vegetation, coll. HDS; 2615, PpK/52/g, 16.X.1951, 7 ♂, 16 ♀, on vegetation, coll. HDS; 2668, II/fd/4, 24.X.1951, 1 ♂, on vegetation, coll. HDS; 2680, II/PpK/55, 26.X.1951, 8 ♂, 8 ♀, on vegetation, coll. HDS; 2717, II/gd/4, 3.XI.1951, 1 ♂, 1 ♀, on vegetation, coll. HDS; 2761, II/fd/17, 14.XI.1951, 1 ♀, on vegetation, coll. HDS; 3547, II/gd/4, 27.V.1952, 11 ♂, 20 ♀, on vegetation, coll. HDS; 3589, Ndelele/2, 6.VI.1952, 7 ♂, 5 ♀, on vegetation, coll. HDS; 3694, II/fd/4, 3.VI.1952, 22 ♂, 17 ♀, on vegetation, coll. HDS; ....., 1 ♂, 1 ♀, no other data.

The specimens identified here as *R. supertritus* agree with the description given by THEILER (1947) and the characteristics presented by HOOGSTRAAL (1956). This species has a spotty distribution in east, central and parts of southern Africa. It parasitizes larger wild animals and occasionally domestic animals.

Rhipicephalus tricuspis DÖNITZ.

Rhipicephalus tricuspis DÖNITZ, 1906, Sitzungsber. Ges. Naturf. Fr. Berlin, 5, p. 146.

Hosts and Distribution :

BIRD.

Nos. 1819, II/fe/6, 23.V.1951, 35 ♂, 15 ♀, *Dendrocygna viduata* (LINNÉ) (No. Z. 3422), coll. JV.

MAMMALS.

Nos. 1134, Kassi-Garamba, 20.I.1951, 1 ♀, rodent nests, coll. JV; 1365, II/fd/4, 3.III.1951, 1 ♂, rodent nests, coll. JV; 1767, II/gd/4, 18.V.1951, 1 ♂, rodent nests, coll. JV; 2582, II/hc/4, 29.IX.1951, 11 ♂, 4 ♀, buffalo, coll. HDS; 3509, PFNK/15, 23.V.1952, 1 ♀, *Alcelaphus lelwel lelwel* (HEUGLIN) (No. 4673), coll. HDS.

HOSTS UNKNOWN.

Nos. 548, I/o/1, 22.V.1950, 1 ♀, on vegetation, coll. HDS; 643, I/o/3, 27.VI.1950, 1 ♂, on vegetation, coll. GD; 686, I/a/1, 10.VII.1950, 2 ♂, on vegetation, coll. GD; 753,

I/o/1, 10.VIII.1950, 4 ♀, on vegetation, coll. GD; 789, Napokomweli, 26.VIII.1950, 1 ♀, on vegetation, coll. GD; 790, I/o/2, 30.VIII.1950, 1 ♀, on vegetation, coll. GD; 1443, II/hd/4, 23.III.1951, 2 ♂, on vegetation, coll. HDS; 1809, II/id/8, 22.V.1951, 1 ♂, on vegetation, coll. JV; 1886, II/gc/6, 8.VI.1951, 1 ♂, on vegetation, coll. HDS; 1902, II/gd/4, 12.VI.1951, 1 ♀, on vegetation, coll. HDS; 1903, II/gd/11, 12.VI.1951, 1 ♂, on vegetation, coll. HDS; 1969, II/gd/11, 23.VI.1951, 1 ♀, on vegetation, coll. HDS; 1988, II/gd/10, 27.VI.1951, 1 ♂, on vegetation, coll. JV; 2052, II/gd/4, 5.VII.1951, 1 ♀, on vegetation, coll. HDS; 2102, II/fc/3, 16.VII.1951, 1 ♂, on vegetation, coll. HDS; 2128, II/fd/5, 23.VII.1951, 3 ♂, 2 ♀, on vegetation, coll. HDS; 2134, II/gd/4, 20.VII.1951, 1 ♀, on vegetation, coll. HDS; 2158, II/gc/8, 27.VII.1951, 1 ♂, on vegetation, coll. HDS; 2172, II/ec/4, 30.VII.1951, 1 ♀, on vegetation, coll. HDS; 2397, II/gd/10, 10.IX.1951, 1 ♀, on vegetation, coll. HDS; 2419, II/id/10, 11 IX.1951, 1 ♂, on vegetation, coll. HDS; 2452, II/je/4, 20.IX.1951, 9 ♂, 5 ♀, on vegetation, coll. HDS; 2615, PpK/52/g, 16.X.1951, 2 ♀, on vegetation, coll. HDS; 2740, II/gd/9, 8.XI.1951, 1 ♂, on vegetation, coll. HDS; 3547, II/gd/4, 27.V.1952, 1 ♂, 2 ♀, on vegetation, coll. HDS; 3589, Ndelele/2, 6.VI.1952, 1 ♀, on vegetation, coll. HDS; 3694, II/fd/4, 3.VI.1952, 3 ♂, 4 ♀, on vegetation, coll. HDS; ....., Garamba Park, 2 ♂, 1 ♀, no other data.

The material listed above was identified according to the criteria presented by THEILER (1947) and HOOGSTRAAL (1956). Several specialists including TENDEIRO and SANTOS DIAS would not agree with this identification and would call these specimens *R. lunulatus* (see TENDEIRO, 1959). However, until such time as a study of variation that occurs in the morphological features of *R. tricuspis* is completed, we prefer to follow the reasoning of THEILER and HOOGSTRAAL and consider *R. lunulatus* as a synonym of *R. tricuspis*.

R. tricuspis is scattered throughout most of Africa and parasitizes a variety of domestic and wild animals. For host and distribution information where *R. tricuspis* and *R. lunulatus* are considered as separate species the reader is referred to TENDEIRO (1959).

Rhipicephalus spp.

Hosts and Distribution :

BIRD.

Nos. 1030, II/h, 28.XII.1950, 3 N, *Treron calva wellensis* (REHW), (No. Z. 2266), coll. JV.

MAMMALS.

Nos. 1072, II/f/3, 9.I.1951, 1 N, rodent nest of *Mungos mungo gotneh* (HEUGLIN and FITZINGER) (No. Z. 1702), coll. JV; 1134, Kassi-Garamba, 20.I.1951, 1 N, rodent nests, coll. JV; 1878*a*, II/gd/4, 6.VI.1951, 3 L, rodent nest, coll. HDS; 2671, II/gd/8, 27.X.1951, 7 L, *Thryonomys* (No. Z. 3995), coll. HDS; 3014, II/gd/4, 11.I.1952, 2 N, rodent burrow, coll. JV.

HOSTS UNKNOWN.

Nos. 2160, II/gd/11, 28.VII.1951, 1 ♀, on vegetation, coll. HDS; 3127, II/ic/9, 14.II.1952, 1 L, on vegetation, coll. JV; 3437/3, Namberima-Garamba, 6.V.1952, 2 L, on vegetation, coll. JV.

At the present time it is impossible for us to furnish specific determination for the above specimens.

CLASSIFIED HOST LIST

REPTILES.

ORDER TESTUDINATA.

TESTUDINIDAE.

Kinixys belliana mertensi ... ... *Amblyomma nuttalli.*

ORDER SQUAMATA.

VARANIDAE.

Varanus niloticus niloticus .. .. *Amblyomma variegatum.*
Aponomma exornatum.
Varanus sp. ... ... *Aponomma exornatum.*
Reptile ... ... *Amblyomma nuttalli.*
Amblyomma variegatum.
Aponomma exornatum.

COLUBRIDAE.

Crotaphopeltis hotamboeia hotamboeia . ... *Aponomma latum.*
Neusterophis olivaceus olivaceus ... ... *Aponomma latum.*

VIPERIDAE.

Bitis lachesis lachesis ... ... *Amblyomma nuttalli.*
Amblyomma variegatum.
Aponomma latum.

MAMMALS.

ORDER PRIMATES.

CERCOPITHECIDAE.

Cercopithecus aethiops centralis ... ... *Amblyomma variegatum.*
Haemaphysalis leachii.

ORDER PHOLIDOTA.

MANIDAE.

Manis gigantea ... ... *Rhipicephalus senegalensis.*

ORDER CHIROPTERA.

MOLOSSIDAE.

Tadarida condylura .. .. *Ixodes paradoxus.*
Chiroptera ... ... *Amblyomma nuttalli.*

ORDER CARNIVORA.

FELIDAE.

Felis serval	*Amblyomma variegatum.*
	Amblyomma sp.
	Haemaphysalis leachii.
	Rhipicephalus sanguineus.
Panthera pardus	*Haemaphysalis leachii.*
	Rhipicephalus sanguineus.

VIVERRIDAE.

Genetta tigrina aequatorialis	*Amblyomma cohaerens.*
	Amblyomma variegatum.
	Haemaphysalis leachii.
	Haemaphysalis muhsami.
	Rhipicephalus sanguineus.

HERPESTIDAE.

Herpestes ichneumon	*Amblyomma nuttalli.*
	Haemaphysalis muhsami.
Mungos mungo gotneh	*Haemaphysalis muhsami.*
	Rhipicephalus senegalensis.
	Rhipicephalus spp.

HYAENIDAE.

Crocotta crocuta	*Haemaphysalis leachii.*
	Haemaphysalis muhsami.

ORDER UNGULATA.

SUIDAE.

Phacochoerus aethiopicus	*Amblyomma variegatum.*
	Rhipicephalus senegalensis.

BOVIDAE.

Alcelaphus lelwel lelwel	*Amblyomma variegatum.*
	Rhipicephalus tricuspis.
Alcelaphus	*Amblyomma variegatum.*
Buffalo	*Amblyomma cohaerens.*
	Amblyomma variegatum.
	Rhipicephalus pseudolongus.
	Rhipicephalus sanguineus.
	Rhipicephalus senegalensis.
	Rhipicephalus supertritus.
	Rhipicephalus tricuspis.
Ourebia ourebi goslingi	*Amblyomma variegatum.*
	Rhipicephalus sanguineus.
Tragelaphus scriptus dianae	*Amblyomma cohaerens.*
	Amblyomma sp.
	Rhipicephalus sanguineus.

RHINOCEROTIDAE.

White rhinoceros	*Amblyomma variegatum.*

ORDER RODENTIA.

MURIDAE.	
Lemniscomys striatus	*Haemaphysalis muhsami.*
	Rhipicephalus pseudolongus.
	Rhipicephalus senegalensis.
Lemniscomys (?)	*Haemaphysalis leachii.*
	Rhipicephalus senegalensis.
Tatera sp.	*Rhipicephalus simus.*
ECHIMYIDAE.	
Thryonomys	*Amblyomma cohaerens.*
	Amblyomma variegatum.
	Rhipicephalus senegalensis
	Rhipicephalus simpsoni.
	Rhipicephalus spp.
⁂	
Burrows of macroscelid *Elephantulus* sp. ..	*Rhipicephalus pseudolongus.*
	Rhipicephalus senegalensis.
Murid	*Amblyomma cohaerens.*
	Amblyomma sp.
	Haemaphysalis leachii.
	Haemaphysalis muhsami.
	Haemaphysalis leachii or *muhsami.*
	Rhipicephalus pseudolongus.
	Rhipicephalus senegalensis.
Rodent hairs	*Haemaphysalis muhsami.*
	Ixodes spinae.
Rodent nests	*Haemaphysalis leachii.*
	Dermacentor rhinocerinus.
	Haemaphysalis leachii or *muhsami.*
	Rhipicephalus pravus.
	Rhipicephalus pseudolongus.
	Rhipicephalus sanguineus.
	Rhipicephalus senegalensis.
	Rhipicephalus simpsoni.
	Rhipicephalus simus.
	Rhipicephalus tricuspis.
	Rhipicephalus spp.
Rodent nest « Gwa »	*Haemaphysalis muhsani.*
	Rhipicephalus simus.
Rodent nest « Tula »	*Haemaphysalis muhsami.*
	Ixodes spinae.
	Rhipicephalus simus.
Shrew nest	*Amblyomma* sp.
Sciurid	*Ixodes browningi.*
Mammals	*Amblyomma cohaerens.*
	Amblyomma nuttalli.
	Amblyomma variegatum.
	Amblyomma sp.
	Ixodes sp.
	Rhipicephalus sanguineus.
	Rhipicephalus simpsoni.

BIRDS.

ORDER ANSERIFORMES.

ANATIDAE.

Dendrocygna viduata ... ... *Amblyomma variegatum.*
Rhipicephalus senegalensis.
Rhipicephalus tricuspis.

ORDER ACCIPITRIFORMES.

AEGYPIIDAE.

Pseudogyps africanus ... ... *Amblyomma variegatum.*
Rhipicephalus sanguineus.

ORDER GALLIFORMES.

PHASIANIDAE.

Francolinus icterorhynchus icterorhynchus. *Amblyomma* sp.

ORDER COLUMBIFORMES.

COLUMBIDAE.

Treron calva wellensis ... ... *Rhipicephalus* spp.

ORDER CUCULIFORMES.

CUCULIDAE.

Chrysococcyx caprius ... ... *Haemaphysalis leachii.*
Rhipicephalus sanguineus.

ORDER MACROCHIRIFORMES.

COLIIDAE.

Colius passer ardeus concolor ... ... *Haemaphysalis leachii.*
Rhipicephalus sanguineus.

ORDER PASSERIFORMES.

STURNIDAE.

Lamprocolius ... ... *Amblyomma* sp.

PLOCEIDAE.

Hypochera amauropteryx camerunensis ... *Rhipicephalus simpsoni.*
Bird .. .. *Amblyomma cohaerens.*
Amblyomma variegatum.
Amblyomma sp.
Haemaphysalis hoodi.
Rhipicephalus senegalensis.

***

On vegetation	*Argas arboreus.*
	Argas vespertilionis.
	Amblyomma cohaerens.
	Amblyomma rhinocerotis.
	Amblyomma variegatum.
	Amblyomma sp.
	Aponomma exornatum.
	Dermacentor rhinocerinus.
	Haemaphysalis leachii.
	Haemaphysalis muhsami.
	Haemaphysalis muhsami or *leachii.*
	Haemaphysalis parmata.
	Rhipicephalus pravus.
	Rhipicephalus pseudolongus.
	Rhipicephalus sanguineus.
	Rhipicephalus senegalensis.
	Rhipicephalus simpsoni.
	Rhipicephalus simus.
	Rhipicephalus supertritus.
	Rhipicephalus tricuspis.
	Rhipicephalus spp.

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ARRANGED ALPHABETICALLY

GENUS.

SPECIES.

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Published December 31, 1964.

PARC NATIONAL DE LA GARAMBA. — MISSION H. DE SAEGER

en collaboration avec

P. BAERT, G. DEMOULIN, I. DENISOFF, J. MARTIN, M. MICHA, A. NOIRFALISE, P. SCHOEMAKER, G. TROUPIN et J. VERSCHUREN (1949-1952).

Fascicule 44 (2)

SIPHONAPTERA

BY

F. G. A. M. SMIT (Tring)

Although the fleas of nearby Uganda are fairly well known, no fleas have been recorded from the north-eastern corner of the Congo where the Parc National de la Garamba is situated (between 3°8′ and 4°4′ N, and 29° and 30° W). This area is a vast undulating grassy plain, surrounded by bush/savannah country. The relatively few large hills in the Parc reach at most an altitude of about 1.000 m. As low-lying monotonous stretches of land in the tropics have a rather monotonous flea-fauna with a species-composition of low numerosity, it was no surprise to find that the same appears to hold true for the Parc National de la Garamba. Although the large-scale program of research and general collecting did not permit an emphasis on flea-collecting, the sample obtained (99 specimens) gives some insight into the flea-fauna of the Parc and thus furthers our still scanty knowledge of the fleas occurring in central Africa.

Apart from a few specimens collected at Gangala-na-Bodio (3°41′ N, 29°09′ E), all fleas were collected in the environs of Bagbele (±4°20′ N, 29°20′ E) and in the environs of Naworoko (±3°50′—4° N, 29°25′ E).

The numbers in square brackets after each record listed below are the collecting-numbers as specified in H. DE SAEGER, 1956, Exploration du Parc National de la Garamba. Mission H. DE SAEGER. Vol. 5 : Entomologie. Renseignements éco-biologiques : 1-555.

Family HYSTRICHOPSYLLIDAE

Subfamily DINOPSYLLINAE

Dinopsyllus lypusus JORDAN and ROTHSCHILD, 1913.

Dinopsyllus lypusus JORDAN and ROTHSCHILD, 1913, Novit. zool., 20 : 570, figs. 36, 37.

Gangala-na-Bodio, X-XI.1949, host unknown, leg. H. DE SAEGER, 1 ♂ [25]. Bagbele, 9.XI.1950, from nest of a rodent, leg. J. VERSCHUREN, 1 ♂, 3 ♀ [947].

A common flea in the lower parts — occurring from sea level to about 2.300 m — of central, eastern and southern Africa and known from Sudan, Uganda, Kenya, Tanganyika, Congo, Angola, Malawi, Southern Rhodesia and Natal. The normal hosts are murid rodents such as *Rattus*, *Arvicanthis*, *Thamnomys*, *Lemniscomys*, *Lophuromys*, *Steatomys*, *Dasymys*, *Oenomys*, *Pelomys*, *Otomys* and *Tachyoryctes*.

Subfamily CTENOPHTHALMINAE

Ctenophthalmus bacopus JORDAN, 1933.

Ctenophthalmus bacopus JORDAN, 1933, Novit. zool., 38 : 350, figs. 69, 71.

Bagbele, leg. J. VERSCHUREN : 9.XI.1950, from nest of a rodent, 1 ♂, 2 ♀ [947]; XI.1950, from burrow of a rodent, 1 ♀ [958]. Naworoko, leg. J. VERSCHUREN : 3.I.1951, from a surface nest of a rodent, 4 ♂, 5 ♀ [1038]; 4.I.1951, from a nest of a rodent in hollow of a tree at 6 m above ground, 1 ♀ [1050]; 12.I.1951, from a surface nest of a rodent, 2 ♂, 4 ♀ [1076]; 15.I.1951, from the burrow of an elephant shrew, 1 ♀ [1080]; 12.I.1951, from a surface nest of a rodent, 2 ♀ [1083]; 24.IV.1951, from nest of a rodent, 1 ♂, 1 ♀ [1602]; 23.V.1951, from *Dendrocygna viduata*, 1 ♂ [1819]; 6 VI.1951, from a surface nest of a murid rodent, 4 ♀ [1878]; 7.VI.1951, from a murid rodent, 1 ♂ [1965]; 21.VI.1951, from nest of a rodent, 2 ♀ [2000]; 1.VIII.1951, from nest of a murid rodent, 4 ♂, 4 ♀ [2240]; 26.III.1952, from nest of a rodent, 1 ♀ [3248].

Hitherto this species, a parasite of murid rodents (the above recorded occurrence on the bird *Dendrocygna viduata* is accidental), was only known from the Congo Republic, Central African Republic and Uganda. The new records indicate that the distribution of this common species is con-

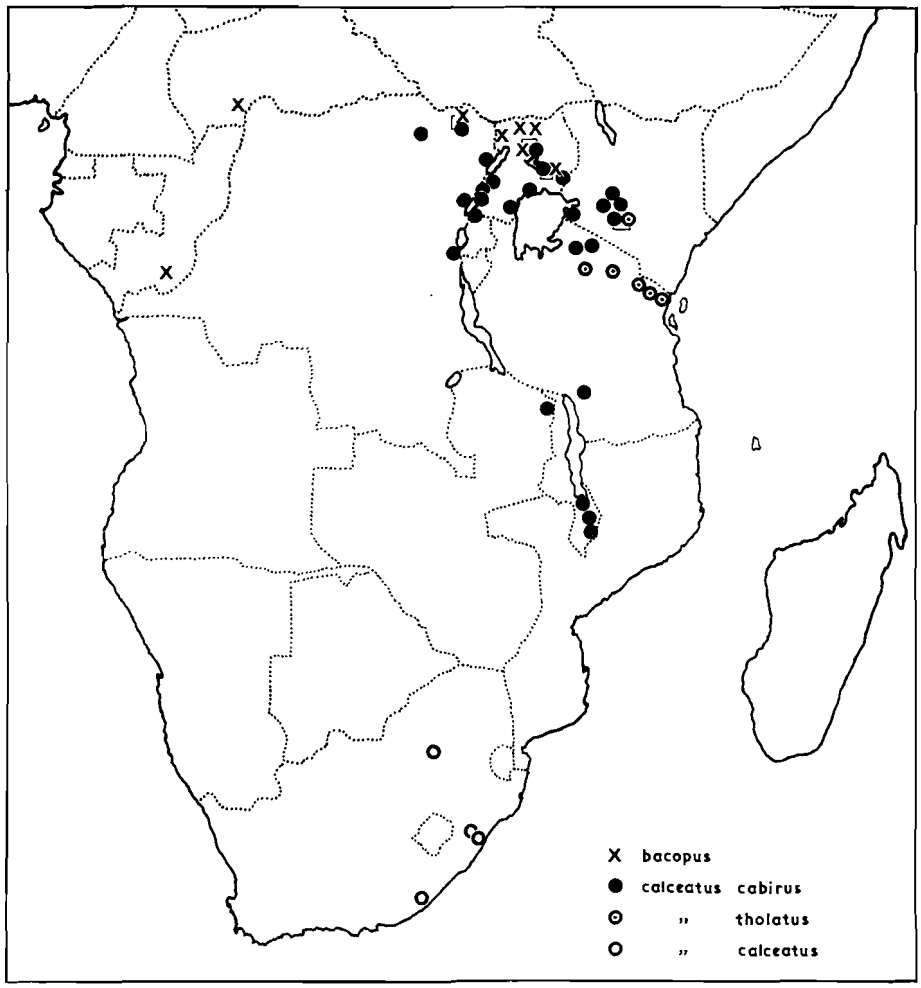

FIG. 1. — Map showing the distribution of *Ctenophthalmus bacopus* and the three subspecies of *C. calceatus*.

tinuous throughout the northern part of the Congo and presumably also the southern half of the Central African Republic. As can be seen in Fig. 1, *C. bacopus* replaces the closely related *C. calceatus cabirus* to the north of the range of the latter. The two forms were found together, even in the same nest, at Bagbele, and in Uganda at Lira and Serere.

Ctenophthalmus calceatus cabirus JORDAN and ROTHSCHILD, 1913.

Ctenophthalmus cabirus JORDAN and ROTHSCHILD, 1913, Novit. zool., 20 : 549, figs. 20, 21.

Bagbele, leg. J. VERSCHUREN : 9.XI.1950, from a surface nest of (?) *Lemniscomys* in an abandoned manioc field, 1 ♂, 6 ♀ [943]; 9.XI.1950, from nest of a rodent, 3 ♀ [947].

A very common flea of murid rodents at rather low elevations in east-central Africa. The distribution of this and the two other subspecies of *C. calceatus*, based on specimens which I have examined, is shown in Fig. 1.

Family ISCHNOPSYLLIDAE

Subfamily ISCHNOPSYLLINAE

Lagaropsylla hoogstraali SMIT, 1957.

Lagaropsylla hoogstraali SMIT, 1957, Rev. Zool. Bot. afr., 55 : 171, figs. 34-39.

Naworoko, 3.X.1951, from *Tadarida faradjius*, leg. H. DE SAEGER, 1 ♂ [4033].

Quite a widespread flea of bats of the genus *Tadarida*, recorded from Sudan, Rwanda and Madagascar.

Lagaropsylla idae SMIT, 1957.

Lagaropsylla idae SMIT, 1957, Rev. Zool. Bot. afr., 55 : 165, figs. 7-12.

Naworoko, 30.IV.1952, from *Tadarida condylura*, leg. J. VERSCHUREN, 1 ♂ [4731-4].

A common parasite of *Tadarida* in Malawi, Tanganyika, Congo, Angola, Uganda, Central African Republic, Congo Republic, Nigeria, Sierra Leone and Dahomey.

Family PULICIDAE

Subfamily XENOPSYLLINAE

Xenopsylla brasiliensis (BAKER, 1904).

Pulex brasiliensis BAKER, 1904, Proc. U. S. nat. Mus., 27 : 378, 379, 435.

Gangala-na-Bodio, X-XI.1949, host unknown, leg. H. DE SAEGER, 1 ♀ [25].

A very common flea of rats in Africa, especially in central and eastern parts of the continent.

Xenopsylla cheopis (ROTHSCHILD, 1903).

Pulex cheopis ROTHSCHILD, 1903, Ent. mon. Mag., 39 : 85, pl. 1 figs. 3, 9, pl. 2 figs. 12, 19.

Gangala-na-Bodio, X-XI.1949, host unknown, leg. H. DE SAEGER, 1 ♂ [25].

The well-know and in many tropical and subtropical regions very common rat-flea which in many parts of the world is the principal vector of the plague bacillus.

Xenopsylla nubica (ROTHSCHILD, 1903).

Pulex nubicus ROTHSCHILD, 1903, Ent. mon. Mag., 39 : 84, pl. 2 figs. 10, 16.

Naworoko, leg. J. VERSCHUREN : 17.I.1952, from nest of a rodent, 1 ♂ [3028]; 24.I.1952, from a rodent's nest in a burrow, 3 ♀ [3051].

This species is principally associated with gerbilline rodents (*Gerbillus*, *Jaculus*, *Dipodillus*, *Tatera*), but occasionally also found on other rodents; known from Egypt, Sudan, Uganda, Kenya, Malawi, Nigeria, Senegal, Ghana and Israel.

Subfamily ARCHAEOPSYLLINAE

Ctenocephalides felis strongylus (JORDAN, 1925).

Ctenocephalus felis strongylus JORDAN, 1925, Novit. zool., 32 : 98.

Bagbele, 16.XII.1949, from *Mungos mungo gotneh*, leg. J. MARTIN, 2 ♀ [172]; Naworoko, leg. J. VERSCHUREN : 14.I.1951, from *Mungos mungo gotneh*, 1 ♀ [1079]; 9.VI.1951, from *Mungos mungo gotneh*, 1 ♀ [1964]; 1.VIII.1951, from *Herpestes ichneumon*, 1 ♂ [2163]; Naworoko, leg. H. DE SAEGER : 12.IX.1951, from *Felis serval*, 3 ♂ [2440]; 14.IX.1951, from *Felis serval*, 1 ♂, 1 ♀ [2445]; 15.III.1952, from *Genetta tigrina aequatorialis*, 3 ♂, 6 ♀ [3398].

An extremely common flea of fairly large mammals, usually carnivores, which do not construct a proper nest.

Subfamily PULICINAE

Echidnophaga gallinacea (WESTWOOD, 1875).

Sarcopsyllus gallinaceus WESTWOOD, 1875, Ent. mon. Mag., 11 : 246.

Naworoko, leg. J. VERSCHUREN : 14.I.1951, from *Mungos mungo gotneh*, 4 ♂, 7 ♀ [1079]; 11.VII.1951, from *Phalacrocorax africanus africanus*, 1 ♂ [2077].

This common stick-fast flea occurs on poultry and other birds as well as on a large variety of mammals in many tropical and subtropical parts of the world.

Echidnophaga larina JORDAN and ROTHSCHILD, 1906

Echidnophaga larina JORDAN and ROTHSCHILD, 1906, Thomp. Yates Lab. Rep. (N.S.), 7 : 49, pl. 1 fig. 12, pl. 2 fig. 18, pl. 3 fig. 25.

Naworoko, 23.V.1951, from *Dendrocygna viduata*, leg. J. VERSCHUREN, 2 ♀ [1819]; Naworoko, 25.I.1952, from *Phacochoerus aethiopicus*, leg. H. DE SAEGER, 1 ♀ [3045].

Quite a common flea in tropical Africa, occurring preferably on *Phacochoerus*, but also on other large animals such as *Orycteropus*, *Proteles*, *Hyaena* and *Canis*. The occurrence on the bird *Dendrocygna viduata* is doubtless accidental. The three females recorded above are not quite typical, but they would still seem to fit in the range of individual variation (which is rather great) of this species.

INDEX
ARRANGED ALPHABETICALLY

FAMILIES AND SUBFAMILIES.

GENUS.

SPECIES.

Published December 31, 1964.

PARC NATIONAL DE LA GARAMBA. — MISSION H. DE SAEGER

en collaboration avec

P. BAERT, G. DEMOULIN, I. DENISOFF, J. MARTIN, M. MICHA, A. NOIRFALISE, P. SCHOEMAKER, G. TROUPIN et J. VERSCHUREN (1949-1952).

Fascicule 44 (3)

ACRIDOIDEA

BY

V. M. DIRSH (London)

INTRODUCTION

The National Park of Garamba is situated in the north-eastern corner of the former Belgian Congo, at the border of Sudan, approximately at 4° N latitude. This position is of considerable interest, as the vegetation of this part of the territory is composed mostly of savanna of relatively moist type; in the northern area the savanna has a predominance of Isoberlinia and also patches of woodland (gallery-forest). The driest months are December, January and February; the rest of the year is rather moist, with rainfall between 80 and 260 mm a month. A detailed climatic description of the locality is given by A. NOIRFALISE, 1956.

The *Acridoidea* for this study, together with other rich entomological material, were collected in the years 1950-52 by the Mission of Mr. Henri DE SAEGER; most of the of *Acridoidea* by him personally. Each sample collected and all specimens are recorded with bio-ecological observations and other relevant data arranged under numbers in his book (H. DE SAEGER, 1952). This makes the collected material extremely valuable, as the bio-ecological data can be used to the fullest extent by taxonomists, ecologists and entomologists interested in them.

In this paper only brief citations from DE SAEGER's observations are used, but all the samples are cited under the numbers used in his book, thus making it possible to find relevant data in detail.

The fauna of *Acridoidea* of Garamba Park represents the usual complex of species, in the zone of vegetation of the savanna type in which the park

is situated. The value of this material, however, is that all this quantity of species was found in a comparatively limited area and is accompanied by bio-ecological data. Some of the species, as can be seen below, have their area greatly extended thus emphasising also the zoogeographical interest of the material. Two new species were found, one of them, *Ramburiella garambana*, represents the most southern extension of the palaearctic genus *Remburiella*. The second new species, which I have pleasure in naming after Mr. Henri DE SAEGER, *Amesotropis desaegeri* is the third species of its genus which was originally described from Togo.

The material comprises no less than 114 species.

Family PYRGOMORPHIDAE

Taphronota calliparea SCHAUM, 1853.

Nos. 78, 1 ♀; 733, 1 ♂. July-December.

The specimens were collected in gallery-forest.

This species is distributed over the whole of Africa except North Africa and the Sahara.

Phymateus karschi I. BOLIVAR, 1904.

Nos. 403, 1 ♂, 1 ♀; 427, 1 ♀; 2597, 4 ♂; 2739, 1 ♀. April-November.

The specimens were collected in arboraceous and herbaceous savanna.

This species was described from Mozambique. It was recorded also from Gambia, Sierra Leone, Nigeria, Uganda and Tanganyika.

Dictyophorus karschi (I. BOLIVAR, 1904).

Nos. 12, 1 ♂; 96, 2 ♂, 2 ♀; 210, 1 ♂; 289, 2 ♀; 426, 1 ♂, 1 ♀; 2080, 1 ♂, 1 ♀. February-November.

Humid gallery-forest; arboraceous savanna.

This species was described from the former French Congo and recorded later from Cameroons and the former Belgian Congo.

Tanita parva violacea KEVAN, 1962.

Nos. 97, 2 ♀; 733, 1 ♀; 907, 1 ♂; 997, 1 ♂; 1000, 1 ♀; 1091, 1 ♀; 1227, 1 ♂, 2 ♀; 1228, 1 ♀; 1271, 1 ♂; 1324, 2 ♂; 1334, 3 ♂, 1 ♀; 1412, 2 ♂; 1610, 2 ♀; 1632, 1 ♀; 1704, 2 ♀; 1949, 1 ♀; 2928, 1 ♀; 3123, 1 ♂; 3150, 1 ♂, 2 ♀; 3328, 1 ♂. The whole year round.

The specimens were collected in arboraceous, herbaceous, humid and burnt savanna; it was also found on the soil covered with detritus and in gallery-forests.

The specimens caught in the burnt savanna have a much darker general colouration than those from areas undamaged by fire.

This species was described from « British Sudan » and was recorded later from Southern Sudan, Northern Uganda and N.E. Congo.

Zonocerus variegatus (LINNAEUS, 1758).

Nos. 47, 1 ♂, 3 ♀; 322, 1 ♂; 605, 1 ♀. February-October.

Arboraceous, humid savanna.

According to the material of the British Museum (Natural History) this species is distributed in the following countries : Senegal, Sierra Leone, Liberia, Ghana, Niger (part of former French West Africa), Nigeria, former Belgian Congo, Angola. There are many other localities mentioned in literature (see JOHNSTON, 1956) but most of the records need to be checked.

Atractomorpha acutipennis (GUÉRIN-MÉNEVILLE, 1844).

Nos. 790, 3 ♂; 812, 1 ♂; 832, 1 ♂; 868, 1 ♂; 1167, 1 ♂, 1 ♀; 1458, 3 ♂; 2744, 1 ♂; 3178, 1 ♀; 3424, 1 ♀. January-November.

Herbaceous savanna, burnt savanna, humid gallery-forest.

Widely distributed species; almost the whole of Africa south of the Sahara.

Family ACRIDIDAE

Subfamily HEMIACRIDINAE

Phalinus dromedarius (RAMME, 1929).

Nos. 409, 1 ♂; 467, 1 ♂, 1 ♀; 469, 1 ♀; 484, 1 ♂. April-May.

The specimens were found in arboraceous savanna and in gallery-forests.

This species was described and hitherto known only from the Cameroons.

Leptacris monteiroi (I. BOLIVAR, 1890).

Nos. 1003, 1 ♂; 1041, 1 ♂, 1 ♀. December, January.

Graminaceous savanna.

This species was described from Angola. Later records include: Togo, Nigeria, Tanganyika, Kenya, former Belgian Congo, former French Congo, Nyasaland and N. and S. Rhodesia.

Leptacris violacea (KARNY, 1907).

Nos. 205, 1 ♂; 1041, 1 ♂; 1077, 1 ♀; 1259, 1 ♀; 1561, 1 ♀; 2928, 2 ♀; 3150, 1 ♀. January-December.

Graminaceous, herbaceous and burnt savannas.

This species, described from S. Sudan, was recorded also from Ghana, Nigeria, former French Sudan, Cameroons, former Belgian Congo, Uganda and Ethiopia.

Leptacris kraussi (I. BOLIVAR, 1890).

Nos. 97, 1 ♂; 109, 1 ♂, 1 ♀; 205, 1 ♂; 210, 1 ♂; 305, 1 ♂; 467, 1 ♀; 469, 1 ♀; 997, 3 ♂; 1000, 1 ♀; 1002, 1 ♂; 1003, 1 ♂; 1026, 1 ♂; 1027, 1 ♂; 1041, 1 ♂; 1055, 1 ♀; 1077, 2 ♂; 1081, 1 ♂; 1091, 3 ♂; 1125, 1 ♂; 1251, 1 ♂; 1561, 1 ♂; 1638, 1 ♀. January-December.

It occurs in the savannas of all descriptions which are represented in Garamba Park.

This species was described from Angola and recorded also from Togo, Nigeria, Tanganyika, Sudan, former Belgian Congo, former French Congo and S. Rhodesia.

Acanthoxia lanceolata (I. BOLIVAR, 1890).

No. 109, 1 ♀. January.

The specimen was collected in gallery-forest.

This species was described from Angola and recorded later from the former French and Belgian Congo.

Acanthoxia gladiator (WESTWOOD, 1841).

Nos. 87, 1 ♂; 208, 1 ♀; 379, 1 ♀; 424, 1 ♀; 889, 1 ♂; 1067, 1 ♀; 1127, 1 ♂; 1561, 1 ♀; 1589, 2 ♀; 2862, 1 ♀; 2928, 4 ♂, 2 ♀; 3140, 2 ♂; 3197, 1 ♀. January-December.

The specimens were collected in graminaceous, herbaceous and arboraceous savanna, in tall grass and in gallery-forest.

This species was described from Sierra Leone, but it is distributed throughout Africa. It was also recorded from Togo, Nigeria, Cameroons, Sudan, Tanganyika, Uganda, Kenya, the former Belgian Congo, and former French Congo.

Spathosternum pygmaeum KARSCH, 1893.

Nos. 13, 1 ♂, 1 ♀; 15, 4 ♂, 10 ♀; 16, 1 ♂; 43, 3 ♂, 2 ♀; 71, 1 ♀; 75, 1 ♂; 87, 1 ♂, 2 ♀; 133, 2 ♂, 4 ♀; 138, 1 ♀; 191, 2 ♂; 188, 1 ♂, 2 ♀; 195, 1 ♂, 1 ♀; 497, 12 ♂, 5 ♀; 530, 6 ♂; 536, 1 ♂, 2 ♀; 585, 5 ♂, 4 ♀; 605, 4 ♂, 4 ♀; 610, 1 ♀; 652, 2 ♂; 656, 1 ♂; 663, 1 ♂; 704, 3 ♂; 848, 3 ♂; 866, 2 ♂; 888, 10 ♂, 4 ♀; 895, 2 ♂; 999, 1 ♂; 1022, 1 ♀; 1027, 1 ♂; 1033, 1 ♂, 1 ♀; 1040, 1 ♂; 1055, 1 ♂; 1082, 3 ♂; 1101, 10 ♂, 6 ♀; 1136, 14 ♂, 3 ♀; 1137, 2 ♂; 1143, 2 ♂, 1 ♀; 1165, 1 ♂; 1167, 3 ♂; 1176, 1 ♂; 1214, 1 ♂; 1215, 1 ♀; 1251, 1 ♂, 1 ♀; 1260, 1 ♂; 1271, 5 ♂; 1273, 1 ♀; 1275, 1 ♂, 1 ♀; 1328, 1 ♂; 1506, 1 ♀; 1537, 14 ♂, 5 ♀; 1576, 2 ♀; 1588, 3 ♂; 1590, 2 ♂, 3 ♀; 1633, 2 ♂, 2 ♀; 1641, 1 ♂; 1824, 3 ♂; 1867, 11 ♂, 1 ♀; 1872, 4 ♂, 3 ♀; 1887, 2 ♀; 1903, 3 ♂; 1943, 1 ♂; 1988, 7 ♂, 1 ♀; 2015, 1 ♂, 1 ♀; 2024, 7 ♂; 2041, 1 ♂, 1 ♀; 2056, 1 ♀; 2057, 1 ♂; 2061, 3 ♂; 2102, 2 ♂; 2174, 1 ♂; 2236, 1 ♀; 2699, 7 ♂, 1 ♀; 2708, 1 ♂; 2744, 1 ♀; 2765, 9 ♂, 2 ♀; 2768, 13 ♂, 6 ♀; 2774, 13 ♂, 1 ♀; 2780, 2 ♂; 2806, 4 ♂, 6 ♀; 2881, 5 ♂, 1 ♀; 2901, 1 ♂; 2910, 1 ♂, 1 ♀; 2916, 1 ♂, 1 ♀; 2917, 2 ♂, 2 ♀; 2935, 17 ♂, 2 ♀; 2941, 20 ♂, 10 ♀; 2943, 1 ♂; 2954, 3 ♂, 1 ♀; 2998, 6 ♂; 3071, 4 ♂; 3011, 2 ♂; 3024, 1 ♂; 3277, 2 ♂; 3399, 11 ♂, 12 ♀; 3424, 2 ♂, 1 ♀; 3429, 4 ♂, 2 ♀; 3449, 2 ♂; 3567, 22 ♂, 5 ♀; 3642, 13 ♂, 3 ♀; 3643, 1 ♂; 3653, 4 ♂, 2 ♀; 3656, 5 ♂, 2 ♀; 3678, 1 ♂, 2 ♀; 3694, 3 ♂, 1 ♀; 3700, 4 ♂, 4 ♀; 3729, 7 ♂, 3 ♀; 3844, 1 ♂; 3862, 1 ♂; 3884, 6 ♂, 1 ♀; 4083, 1 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♂. The whole year round.

This species is widely distributed in Garamba Park and it seems to occur in every kind of ecological condition.

The geographical area of this species is very wide; it was recorded from the following countries : Sierra Leone, Ivory Coast, Ghana, Togo, Nigeria, Spanish Guinea, Cameroons, Tanganyika, Uganda, Kenya, the former French and Belgian Congo and S. Rhodesia.

Subfamily TROPIDOPOLINAE

Homoxyrrhepes punctipennis (WALKER, 1870).

Nos. 86, 1 ♀; 427, 1 ♀; 2280, 1 ♀; 2654, 1 ♀. January-November.

The specimens were collected in herbaceous savanna.

This species is widely distributed in West, Central and East Africa.

Afroxyrrhepes obscuripes UVAROV, 1943.

Nos. 81, 1 ♀; 87, 1 ♀; 96, 1 ♀; 97, 1 ♂, 1 ♀; 109, 3 ♂; 214, 2 ♂; 289, 1 ♀; 332, 1 ♂; 356, 1 ♂; 427, 1 ♀; 997, 2 ♂, 1 ♀; 799, 1 ♂; 1001, 1 ♂; 1002, 2 ♂; 1040, 1 ♂; 1090, 1 ♂; 1066, 1 ♂, 2 ♀; 1101, 1 ♂; 1125, 2 ♂; 1127, 1 ♀; 1137, 1 ♂; 1191, 1 ♂, 1 ♀; 1245, 1 ♀; 1260, 1 ♂; 1271, 1 ♂; 1275, 4 ♂; 1464, 2 ♂, 1 ♀; 1494, 1 ♀; 1704, 1 ♂, 1 ♀; 1766, 2 ♀; 2928, 1 ♂, 1 ♀; 2944, 2 ♂; 3011, 1 ♂; 3150, 1 ♂; 3778, 1 ♂, 2 ♀. January-December.

Ecologically this species is connected with the savanna. It was collected in the graminaceous, herbaceous, arboraceous and burnt savanna, in the herbaceous and graminaceous margins of gallery-forest and in gallery-forest.

It was described from Uganda and has been recorded also from Togo, Nigeria, Cameroons, the former Belgian Congo, Angola and Sudan.

Petamella prosternalis (KARNY, 1907).

Nos. 1003, 1 ♂; 1027, 2 ♂; 1034, 1 ♀; 1214, 1 ♂; 1260, 1 ♂; 1275, 1 ♂, 1 ♀; 2739, 1 ♀; 3123, 1 ♂; 3150, 1 ♂. November-February.

The specimens were collected in graminaceous savanna and in grasses in the gallery-forest.

This species was described from Sudan and has been recorded also from the former French Guinea, Ghana, Cameroons and Tanganyika.

Chloroxyrrhepes virescens (STÅL, 1873).

Nos. 1766, 1 ♂; 3678, 1 ♂, 4 ♀. May-June.

The specimens were found in swamp grasses and herbaceous savanna.

This species was described from Sierra Leone and has been recorded also from Senegal, the former French Guinea and former French West Africa, Togo, Nigeria, and Sudan.

Tristria conops KARSCH, 1896.

Nos. 997, 1 ♀; 1003, 1 ♂, 1 ♀; 1412, 1 ♀; 1444, 1 ♀. March, December.

The specimens were collected in graminaceous, herbaceous, arboraceous and burnt savannas.

This species was described from Togo and recorded also from Nigeria.

Tristria brunneri KARNY, 1907.

Nos. 109, 2 ♂, 1 ♀; 188, 1 ♂; 214, 2 ♀; 1003, 1 ♀; 1125, 2 ♂, 2 ♀; 1127, 1 ♂; 1334, 1 ♀; 1412, 3 ♂; 2940, 1 ♂, 2 ♀; 3100, 2 ♂; 3142, 2 ♂; 3150, 5 ♂, 2 ♀; 3778, 1 ♀. December-July.

The specimens were collected in graminaceous, herbaceous and arboraceous savanna and in herbaceous borders of the gallery-forest.

This species was described and later recorded from Tanganyika.

Tristria coeruleipes UVAROV, 1923.

Nos. 63, 1 ♂; 188, 1 ♂; 191, 1 ♂; 205, 3 ♂; 208, 1 ♂, 1 ♀; 214, 1 ♂; 1001, 1 ♂; 1018, 1 ♀; 1125, 2 ♂, 1 ♀; 1165, 2 ♂, 1 ♀; 1167, 1 ♂; 1176, 1 ♂; 1271, 2 ♂; 1280, 1 ♀; 1283, 1 ♂; 1320, 2 ♂; 1328, 1 ♀; 1464, 1 ♂, 1 ♀; 2935, 1 ♀; 2941, 1 ♀; 3123, 1 ♀; 3150, 6 ♂, 2 ♀. December-March.

The specimens were collected in the herbaceous, graminaceous, arboraceous and burnt savanna, in short herbs and graminaceous vegetation and in gallery-forest.

This species was described from Uganda and recorded also from Tanganyika.

Subfamily OXYINAE

Oxya hyla SERVILLE, 1831.

Nos. 1033, 1 ♀; 1040, 1 ♂; 1537, 1 ♂; 1590, 3 ♂, 2 ♀; 1867, 1 ♂; 1872, 1 ♂; 1943, 1 ♂; 2061, 1 ♂, 1 ♀; 2739, 1 ♂; 2744, 4 ♂, 2 ♀; 2765, 4 ♂, 2 ♀; 2768, 4 ♂, 2 ♀; 2901, 1 ♂; 2998, 1 ♂; 3188, 1 ♂; 3399, 3 ♀; 3429, 1 ♀; 3729, 1 ♂; 4008, 3 ♂. The whole year.

The specimens were collected in graminaceous and herbaceous savanna, humid prairie, swamps, in places near the sources of water and in gallery-forest.

This species was described from Senegal. It is recorded from the whole of Africa except North Africa and Sahara. However, the records should be treated with caution, because almost certainly *Oxya hyla* is a mixture of several species.

Zulua cyanoptera (STÅL, 1873).

Nos. 133, 3 ♂, 2 ♀; 188, 2 ♀; 191, 1 ♀; 205, 2 ♂, 2 ♀; 208, 1 ♀; 261, 1 ♂; 305, 1 ♂, 2 ♀; 352, 2 ♂; 497, 2 ♂, 3 ♀; 999, 9 ♂, 8 ♀; 1000, 1 ♀; 1001, 2 ♀; 1003, 3 ♂; 1022, 1 ♀; 1026, 6 ♂; 1027, 2 ♂, 1 ♀; 1033, 5 ♂, 2 ♀; 1040, 4 ♂, 2 ♀; 1041, 1 ♂; 1048, 2 ♂, 2 ♀; 1055, 2 ♂; 1066, 1 ♂; 1081, 2 ♂; 1082, 7 ♂, 3 ♀; 1083, 1 ♂; 1085, 1 ♀; 1101, 43 ♂, 7 ♀; 1136, 5 ♂; 1137, 1 ♂; 1138, 1 ♂; 1144, 1 ♂, 2 ♀; 1165, 9 ♂, 1 ♀; 1167, 13 ♂, 4 ♀; 1176, 18 ♂, 2 ♀; 1205, 7 ♂, 2 ♀; 1214, 15 ♂, 2 ♀; 1240, 4 ♂, 5 ♀; 1251, 1 ♂, 1 ♀; 1260, 15 ♂, 3 ♀; 1271, 26 ♂, 8 ♀; 1275, 31 ♂, 8 ♀; 1276, 9 ♂, 2 ♀; 1285, 6 ♂, 4 ♀; 1308, 5 ♂, 1 ♀; 1309, 1 ♂, 2 ♀, 1328, 30 ♂, 10 ♀; 1346, 2 ♂; 1361, 3 ♂, 2 ♀; 1464, 1 ♂; 1474, 11 ♂, 1 ♀; 1576, 1 ♂; 1588, 2 ♂; 1633, 1 ♂; 1645, 1 ♂; 1734, 1 ♂; 1867, 3 ♂; 1916, 1 ♀; 1988, 7 ♂; 2015, 1 ♂, 1 ♀; 2024, 5 ♂, 1 ♀; 2059, 3 ♂, 4 ♀; 2061, 2 ♂, 2 ♀; 2345, 1 ♀; 2408, 2 ♂; 2699, 7 ♂, 2 ♀; 2765, 1 ♀; 2768, 2 ♂, 1 ♀; 2774, 5 ♂, 3 ♀; 2768, 1 ♂; 2917, 3 ♂, 3 ♀; 2935, 4 ♂, 2 ♀; 2940, 1 ♂; 2998, 1 ♀; 2941, 3 ♂, 1 ♀; 2954, 5 ♂, 3 ♀; 3011, 2 ♂; 3033, 1 ♂; 3129, 1 ♀; 3134, 2 ♂; 3142, 1 ♂; 3144, 1 ♀; 3167, 1 ♂; 3178, 3 ♂, 1 ♀; 3188, 9 ♂, 4 ♀; 3224, 2 ♂, 3 ♀; 3234, 1 ♂; 3277, 1 ♀; 3287, 3 ♂; 3424,

1 ♂; 3567, 1 ♀; 3567, 1 ♀; 3642, 1 ♂, 1 ♀; 3656, 1 ♂; 3701, 1 ♂, 2 ♀; 3729, 3 ♂, 2 ♀; 3844, 2 ♂; 3862, 2 ♂; 3940, 5 ♂, 1 ♀; 3941, 1 ♂; 3952, 6 ♂; 3964, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, réc. H. DE SAEGER, 10 ♂.

This is one of the most abundant species of Garamba Park. It occurs all the year round in a wide range of ecological conditions, but particularly in humid places. It was collected in all varieties of savanna, in swamps, in any graminaceous and herbaceous vegetation near water and in gallery-forest.

It was described from Sierra Leone and recorded also from Uganda, Kenya, Tanganyika, the former Belgian Congo and Angola.

Subfamily COPTACRIDINAE

Eucoptacra anguliflava (KARSCH, 1893).

Nos. 96, 1 ♀; 97, 1 ♂; 109, 2 ♀; 188, 1 ♂, 2 ♀; 208, 1 ♂; 214, 1 ♂, 1 ♀; 217, 1 ♀; 265, 1 ♂; 304, 1 ♂; 352, 2 ♂; 456, 1 ♀; 467, 2 ♀; 531, 1 ♀; 560, 1 ♀; 997, 3 ♂; 1001, 1 ♀; 1022, 1 ♂; 1026, 2 ♂, 1 ♀; 1049, 4 ♂; 1067, 1 ♀; 1125, 5 ♂, 1 ♀; 1126, 3 ♂; 1127, 2 ♂, 1 ♀; 1138, 4 ♀; 1143, 1 ♂; 1163, 2 ♂; 1164, 3 ♂, 4 ♀; 1167, 2 ♂; 1176, 1 ♂, 1 ♀; 1191, 3 ♂, 2 ♀; 1223, 3 ♂, 3 ♀; 1308, 2 ♀; 1309, 6 ♂, 5 ♀; 1458, 1 ♀; 1588, 1 ♀; 1724, 1 ♂; 2181, 1 ♀; 2243, 1 ♂; 2910, 2 ♀; 2928, 1 ♀; 2954, 3 ♂; 3011, 1 ♀; 3030, 3 ♂, 1 ♀; 3080, 1 ♀; 3083, 3 ♂, 1 ♀; 3096, 4 ♂, 5 ♀; 3100, 1 ♀; 3116, 1 ♂, 3 ♀; 3125, 1 ♂, 2 ♀; 3129, 1 ♀; 3140, 8 ♂, 5 ♀; 3142, 1 ♂; 3149, 1 ♂; 3150, 1 ♂, 3 ♀; 3167, 1 ♀; 3188, 1 ♂, 3 ♀; 3234, 2 ♂, 1 ♀; 3311, 1 ♂, 1 ♀; 3461, 1 ♂, 1 ♀; 3488, 1 ♂; 3547, 1 ♀; 3706, 1 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 3 ♂, 3 ♀. The whole year.

The specimens were collected in all types of savanna in Garamba Park, in graminaceous and herbaceous vegetation generally and in the margins of gallery-forest.

This species was described from Togo and recorded also from Sierra Leone, Nigeria, Cameroons, Spanish Guinea, Uganda, Ubangi-Shari, the former French and Belgian Congo.

Eucoptacra exigua I. BOLIVAR, 1912.

Nos. 87, 1 ♀; 109, 1 ♂; 456, 1 ♂; 531, 1 ♂, 1 ♀; 997, 2 ♂, 2 ♀; 1000, 3 ♂; 1027, 1 ♀; 1077, 1 ♂; 1085, 1 ♂; 1137, 1 ♂; 1259, 1 ♀; 1324, 1 ♂; 1334, 1 ♂; 1458, 1 ♂, 1 ♀; 3123, 1 ♂; 3410, 1 ♀; 2449, 1 ♂, 1 ♀; 3694, 1 ♀. Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952. H. DE SAEGER, 1 ♀. December-June.

The specimens were collected in herbaceous, graminaceous and arboraceous savanna and also in burnt savanna, in herbaceous and graminaceous vegetation on the fringes of swamps and in gallery-forest in herbaceous and graminaceous undergrowth.

This species was described from Katanga but recorded as common from the whole of the former Belgian Congo, and from Ethiopia, Tanganyika, Nyasaland and Angola.

Epistaurus succineus (KRAUSS, 1877).

Nos. 97, 1 ♂, 1 ♀; 205, 1 ♂; 2768, 1 ♂; 2944, 1 ♂; 3224, 1 ♂; 3234, 1 ♂. November-March.

The specimens were collected in herbaceous savanna, burnt savanna with sprouting vegetation and in gallery-forest.

This species was described from Senegal and recorded also from Sierra Leone, Ghana, Nigeria, Cameroons, the former French and the Belgian Congo, and Natal.

Bocagella acutipennis MILLER, 1932.

No. 2831, 1 ♀. The specimen was collected in November, in herbaceous savanna.

This species was described and hitherto known only from N. Nigeria

Subfamily CALLIPTAMINAE

Caloptenopsis karschi (MARTINEZ, 1902).

Nos. 97, 1 ♂; 560, 1 ♂; 1919, 1 ♂. January-June.

The specimens were collected in herbaceous and arboraceous savanna.

The species was described from Togo and recorded also from Cameroons, Uganda, and N.E. former Belgian Congo.

Caloptenopsis unicarinata (KRAUSS, 1877).

No. 2928, 1 ♂, 1 ♀.

The specimens were collected in December, in herbaceous savanna.

This species was described from Senegal and recorded later from Sierra Leone, Ghana, Nigeria, S. Sudan and Northern Uganda.

Subfamily EYPREPOCNEMIDINAE

Eyprepocnemis plorans ibandana (GIGLIO-TOS, 1907).

Nos. 87, 1 ♀; 97, 1 ♂; 188, 2 ♂; 199, 1 ♂; 214, 2 ♀; 605, 2 ♂; 1001, 1 ♀; 1022, 1 ♂; 1033, 1 ♂; 1101, 1 ♂; 1138, 2 ♂; 1167, 1 ♀; 1215, 2 ♂, 1 ♀; 1251, 1 ♂; 1260, 2 ♂; 1271, 1 ♂, 1 ♀; 1275, 1 ♂, 2 ♀; 1308, 1 ♀; 1916, 1 ♂; 2015, 1 ♂; 2806, 1 ♂; 2910, 1 ♂; 2935, 1 ♂; 2941, 1 ♀; 3158, 1 ♂; 3429, 1 ♂; 3719, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1940-1952; réc. H. DE SAEGER, 1 ♂. Found during the whole of the year.

The specimens were collected in herbaceous, graminaceous and arboraceous savanna, in humid savanna on the fringes of swamps, and in gallery-forest, amongst short and tall graminaceous and herbaceous vegetation, predominantly in humid places.

This sub-species was described from Uganda, and its geographical distribution according to DIRSH (1958) is as follows : Sierra Leone, Ghana, S. Nigeria, Cameroons, the former Belgian Congo, S. Sudan, Fernando Po and Sao Tomé Island.

Heteracris guineensis (KRAUSS, 1890).

No. 3820, 1 ♂.

The specimen was collected in July, in gallery-forest.

The species was described from Ghana. It was recorded also from Togo, Nigeria, San Thomé Is., Fernando Po, Cameroons, Uganda, Kenya, the former Belgian Congo and Natal.

Oxyaeida carli I. BOLIVAR, 1914.

Nos. 1275, 1 ♀; 1328, 1 ♂; 1361, 1 ♂; 1537, 1 ♂, 1 ♀; 3188, 4 ♂, 4 ♀; 3884, 1 ♂; 4008, 1 ♂. February-September.

The specimens were collected in savanna, burnt savanna and prairie, in boggy places, and in gallery-forest.

This species was described from Tanganyika and recorded also from Kenya and the former Belgian Congo.

Tylotropidius gracilipes BRANCSIK, 1895.

Nos. 71, 1 ♀; 87, 1 ♀; 188, 1 ♂, 2 ♀; 427, 1 ♀; 997, 1 ♀; 1022, 1 ♂; 1125, 2 ♂, 1 ♀; 1138, 2 ♀; 1157, 1 ♂; 1176, 1 ♂; 1205, 1 ♀; 1223, 1 ♂; 1240, 1 ♀; 1259, 1 ♂; 2780, 1 ♂; 2940, 1 ♂; 3123, 1 ♂; 3125, 1 ♂; 3234, 2 ♀. November-March.

The specimens were collected in herbaceous, graminaceous and arboraceous savanna, and in burnt savanna.

This species was described from « Zambezi River »; it is distributed throughout Africa except North Africa and Sahara.

Tylotropidius speciosus (WALKER, 1870).

Nos. 1000, 1 ♂, 1 ♀; 1003, 3 ♂; 1018, 1 ♂; 1041, 1 ♂, 1 ♀; 1092, 1 ♀; 1566, 1 ♀; 2928, 1 ♂; 3150, 1 ♂. December-April.

The specimens were collected in graminaceous and herbaceous savanna.

This species was described from Sierra Leone and recorded also from Mauritania, the former French Guinea, the former French Sudan, Upper Volta, Nigeria, Cameroons, Uganda, Tanganyika, Ethiopia, Sudan, Kenya, and Angola.

Subfamily CATANTOPINAE

Staurocleis magnifica UVAROV, 1923.

Nos. 1000, 1 ♂; 1041, 1 ♂. December, February.

The specimens were collected in savanna.

This species was described from Uganda and recorded also from Sierra Leone, Ghana, Upper Volta, Nigeria and Cameroons.

Cardeniopsis pauperatus (KARNY, 1907).

Nos. 67, 1 ♀; 185, 1 ♂, 2 ♀; 217, 1 ♂, 1 ♀; 456, 3 ♂; 467, 3 ♂, 2 ♀; 469, 2 ♂, 4 ♀; 531, 5 ♂, 2 ♀; 560, 3 ♂, 3 ♀; 991, 2 ♀; 995, 2 ♂, 2 ♀; 997, 7 ♂, 8 ♀; 999, 2 ♂; 1000, 2 ♂, 3 ♀; 1002, 2 ♂; 1041, 9 ♂, 8 ♀; 1091, 1 ♂; 1092, 1 ♀; 1101, 1 ♀; 1138, 1 ♂, 1 ♀; 1191, 1 ♂; 1227, 11 ♂, 13 ♀; 1228, 19 ♂, 33 ♀; 1250, 1 ♀; 1259, 2 ♀; 1271, 2 ♂; 1276, 1 ♂; 1309, 1 ♂; 1320, 1 ♂, 2 ♀; 1328, 1 ♂; 1334, 16 ♂, 12 ♀; 1361, 1 ♂; 1412, 3 ♂, 1 ♀; 1443, 1 ♂; 1444, 10 ♂, 4 ♀; 1458, 8 ♂, 3 ♀; 1464, 2 ♂, 1 ♀; 1494, 1 ♂, 2 ♀; 1566, 2 ♂; 1576, 2 ♂; 1588, 3 ♂, 1 ♀; 1610, 1 ♂, 2 ♀; 1612, 1 ♂; 1661, 1 ♀; 2928, 3 ♂, 8 ♀; 2940, 2 ♂, 3 ♀; 2944, 1 ♂; 3150, 1 ♀; 3399, 1 ♀; 3410, 2 ♂; 3449, 3 ♂, 1 ♀; 3476, 2 ♀; 3480, 2 ♀; 3488, 2 ♂; 3051. 2 ♀; 3694, 2 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♂, 8 ♀. December-June.

The specimens were collected in herbaceous, graminaceous, arboraceous and burnt savanna; in prairie, swamp, flooded vegetation and gallery-forest.

This species was described from « Südafrika ». The latest records of the distribution based on the available material (DIRSH, 1955) are as follows : Uganda, Kenya, the former Belgian Congo, Cameroons, the former Chad Territory, N. Nigeria, Tanganyika, Nyasaland, N. and S. Rhodesia, and Transvaal.

Catantops melanostictus SCHAUM, 1853.

Nos. 15, 1 ♀; 605, 1 ♂; 1273, 3 ♀; Congo, P.N.G., Nagero, 12-27.X.1954; réc. C. NEBAY, 2 ♀. June, October and November.

The specimens were collected in savanna.

This species was described from Mozambique. It is one of the most common species, distributed throughout Africa, except North Africa and the Sahara.

Catantops clathratus RAMME, 1929.

Nos. 999, 1 ♂; 1041, 1 ♂; 1228, 3 ♂; 1259, 2 ♂; 1612, 1 ♂; 2831, 1 ♂; 3461, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 1 ♀. December-May.

The specimens were collected in herbaceous, graminaceous and arboraceous savanna and in burnt savanna.

This species was described from the Cameroons. It was recorded also from Sudan, Uganda, the former Belgian Congo, Togo, Cameroons and Angola.

Catantops curvicercus MILLER, 1929.

Nos. 15, 1 ♂. October-November.

This species was described from Tanganyika and recorded also from Ethiopia, Uganda, Kenya and the former Belgian Congo.

Catantops kissenjianus REHN, 1914.

Nos. 6, 1 ♀; 79, 2 ♂, 1 ♀; 96, 1 ♂, 1 ♀; 97, 1 ♀; 210, 3 ♂, 1 ♀; 217, 1 ♂, 2 ♀; 360, 1 ♀; 379, 1 ♂; 1191, 1 ♂; 3140, 1 ♂; 3311, 1 ♂; 3416, 1 ♀. October-May.

Herbaceous and arboraceous savanna, humid gallery-forest, sometimes in graminaceous vegetation.

This species was described from the former Belgian Congo. It is distributed, according to records based on the available material (DIRSH, 1956), in Nigeria, the former French and Belgian Congo, Angola, Sudan, Uganda, Tanganyika, N. Rhodesia, and Cape Province.

Catantops quadratus (WALKER, 1870).

Nos. 79, 1 ♀; 379, 1 ♀; 1191, 2 ♂, 1 ♀; 3311, 1 ♀; 3468, 1 ♀. April, May, December.

Humid gallery forest, humid arboraceous savanna, arboraceous savanna and tall graminaceous vegetation.

This species was described from the « Congo ». The latest records from the available material (DIRSH, 1956) are as follows : Ivory Coast, Togo, Nigeria, Cameroons, the former French Equatorial Africa, Sudan, Uganda, the former Belgian Congo.

Catantops spissus adustus (WALKER, 1870).

Nos. 81, 1 ♀; 217, 1 ♀; 379, 1 ♀; 999, 1 ♂; 1000, 1 ♀; 1137, 1 ♂, 2 ♀; 1167, 2 ♂, 1 ♀; 1191, 3 ♂; 1259, 2 ♀; 3140, 1 ♂. December-April.

Arboraceous savanna, herbaceous savanna, tall graminaceous vegetation, gallery-forest (degraded).

This subspecies was described from « East Africa ». It was recorded (the records based on the available material, DIRSH 1956) from Tanganyika, Nyasaland, N. and S. Rhodesia, Mozambique, Angola and Cape Province.

Catantopsis opomaliformis I. BOLIVAR, 1912.

Nos. 1271, 1 ♀; 2935, 1 ♂. December, February.

Short herbaceous vegetation, dry valley.

This species was described from the former Belgian Congo and was also recorded from N. Rhodesia and Togo.

Catantopsis astmaticus (KARSCH, 1893).

Nos. 185, 1 ♂; 1125, 1 ♀; 1167, 1 ♂; 1191, 5 ♀; 1227, 1 ♀; 1228, 1 ♂; 1240, 1 ♀; 1259, 1 ♀. January-April.

Arboraceous, herbaceous and burnt herbaceous savanna; short graminaceous vegetation.

This species was described from Togo and recorded also from the Cameroons and Sudan.

Catantopsilus taeniolatus (KARSCH, 1893).

Nos. 17, 1 ♂; 67, 1 ♂; 97, 1 ♂, 1 ♀; 205, 3 ♂; 208, 2 ♂; 210, 1 ♂; 352, 1 ♂, 1 ♀; 456, 1 ♂; 531, 3 ♂, 1 ♀; 560, 1 ♂; 733, 1 ♂; 804, 1 ♀; 812, 1 ♂; 997, 3 ♂, 4 ♀; 1000, 1 ♀; 1001, 2 ♂; 1002, 1 ♂; 1018, 2 ♀; 1034, 1 ♂, 2 ♀; 1091, 1 ♀; 1092, 1 ♀; 1136, 2 ♂; 1137, 1 ♂; 1144, 1 ♂; 1191, 1 ♂; 1205, 1 ♂; 1227, 3 ♂; 1228, 2 ♀; 1320, 1 ♀; 1324, 1 ♂; 1328, 3 ♂, 1 ♀; 1385, 1 ♂; 1412, 6 ♂, 5 ♀; 1443, 1 ♂; 1444, 7 ♂, 4 ♀; 1458, 1 ♂; 1537, 2 ♀; 1566, 10 ♂, 3 ♀; 1576, 1 ♂; 1588, 1 ♂, 4 ♀; 1610, 1 ♂; 1612, 1 ♂; 1724, 1 ♂, 1 ♀; 1735, 1 ♂; 1852, 1 ♂; 2041, 1 ♂; 2161, 1 ♀; 2243, 1 ♂; 2408, 1 ♀; 3033, 1 ♂; 3100, 1 ♂; 3123, 1 ♂, 3 ♀; 3150, 5 ♂; 3410, 1 ♂, 1 ♀; 3694, 1 ♀; 3706, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♀.

This species was found during the whole year in almost every kind of ecological condition in Garamba Park.

It was described from Togo, and was recorded from Nigeria and the former French West Africa.

Catantopsilus plagiatus (UVAROV, 1926).

Nos. 195, 1 ♂; 1018, 1 ♂, 1 ♀; 2861, 1 ♂; 3123, 1 ♂; Congo Belge, P.N.G., Miss. H. DE SAEGER, 1949-1952, 1 ♀. December, February.

Herbaceous savanna, graminaceous vegetation, herbaceous borders of swamps, dense gallery-forest.

This species was described from N. Nigeria. It was recorded from the former Belgian Congo also.

Catantopsilus carli RAMME, 1929.

Nos. 97, 2 ♂; 214, 1 ♂; 1205, 1 ♂; 1334, 1 ♂; 2181, 1 ♀; 3033, 1 ♂; 3034, 1 ♂; 3150, 1 ♂. January-July.

Herbaceous and burnt savanna, tall graminaceous vegetation, aquatic plants.

The species was described from the former Belgian Congo and was recorded only from that country.

Catantopsilus elongatus RAMME, 1929.

Nos. 205, 1 ♂; 304, 1 ♀; 456, 1 ♀; 467, 1 ♀; 531, 1 ♂; 1191, 1 ♂; 1228, 1 ♂; 1361, 1 ♀; 1412, 1 ♀; 1444, 1 ♀; 1458, 1 ♀; 1494, 1 ♀; 1537, 1 ♀; 1566, 2 ♂, 2 ♀; 1610, 1 ♀; 1704, 1 ♂; 1907, 1 ♂; 3142, 1 ♀; 3399, 1 ♀; 3410, 1 ♀; 3449, 1 ♂; 3694, 1 ♀. January-June.

Herbaceous and arboraceous savanna, tall graminaceous vegetation, prairie, gallery-forest.

This species was described from the Cameroons. It was also recorded from the former French Congo.

Phaeocatantops signatus (KARSCH, 1891).

Nos. 3347, 1 ♂; 3468, 1 ♀; April-May.

Dense gallery-forest, river banks.

This species was described from Cameroons and was recorded from S. Sudan, N. Rhodesia and the former Belgian Congo also.

Exopropacris modica modica (KARSCH, 1893).

Nos. 87, 1 ♀; 1049, 1 ♀; 1412, 1 ♂; 1416, 3 ♀; 1458, 1 ♀; 1464, 1 ♂; 2861, 1 ♀; 2910, 1 ♀; 2939, 2 ♂, 1 ♀; 2944, 1 ♂; 2954, 1 ♂; 3188, 1 ♂, 1 ♀; 3197, 1 ♀; 3201, 8 ♂, 3 ♀; 3234, 3 ♂, 1 ♀. December-March.

Herbaceous and arboraceous savanna, herbaceous borders of swamps, gallery-forest.

This subspecies was described from Togo. It was also recorded from the former French Guinea, N. Ivory Coast, N. Ghana, the former French Sudan, Cameroons, Sudan, Uganda, and the former Belgian Congo (North East).

This subspecies has all intermediate forms with the next subspecies. Thus there is no doubt that they belong to the same species. However, as their distribution widely overlaps, it is doubtful which subspecies they represent. It is possible that they are ecological forms, but this cannot be decided from the ecological observations offered for the material studied, as more precise field observations are necessary.

Exopropacris modica mellita (KARSCH, 1893).

Nos. 78, 5 ♂, 4 ♀; 79, 3 ♂, 1 ♀; 96, 1 ♀; 188, 1 ♂; 199, 1 ♂, 2 ♀; 208, 1 ♂; 210, 1 ♂, 3 ♀; 217, 2 ♂, 1 ♀; 265, 5 ♀; 322, 1 ♂; 352, 1 ♂; 409, 1 ♂; 496, 1 ♀; 1191, 4 ♂, 2 ♀; 1308, 1 ♂; 3144, 1 ♀. December-May.

Gallery-forest, humid and dense; arboraceous savanna; tall graminaceous vegetation.

This subspecies was described from Togo. It has been recorded also from Senegal, Portuguese Guinea, Ivory Coast, Ghana, the former French Sudan, Cameroons, Nigeria, Uganda, Tanganyika, the former French and Belgian Congo, N. Rhodesia and Angola.

Anacatantops notatus (KARSCH, 1891).

Nos. 97, 1 ♀; 188, 1 ♂; 352, 2 ♀; 456, 1 ♂; 469, 1 ♀; 474, 1 ♀; 484, 1 ♂; 536, 1 ♀; 733, 1 ♀; 995, 1 ♂; 997, 2 ♂, 3 ♀; 1002, 1 ♂; 1018, 1 ♂; 1077, 1 ♂; 1144, 1 ♀; 1164, 2 ♀; 1191, 3 ♀; 1223, 1 ♂; 1227, 1 ♂; 1259, 1 ♀; 1271, 1 ♂; 1308, 1 ♀; 1412, 2 ♂, 1 ♀; 1444, 1 ♂: 1610, 1 ♂; 1724, 1 ♂, 1 ♀; 1803, 2 ♂; 1852, 1 ♂; 2944, 1 ♂, 1 ♀; 3096, 1 ♂; 3123, 1 ♀; 3140, 1 ♀; 3167, 1 ♀; 3958, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 2 ♀. December-August.

Herbaceous, graminaceous, arboraceous and burnt savanna; tall graminaceous vegetation, gallery-forest.

This species was described from the Cameroons. It is distributed widely across whole of the African continent, between 15° N. and 15° S. lat.

Anthermus violaceus I. BOLIVAR, 1889.

No. 7, 1 ♀. October-November.

This species was described from Angola. It was recorded also from Nigeria, Nyasaland, and the former Belgian Congo.

Anthermus viridipes (KARNY, 1915).

No. 204, 1 ♂. February.

The specimen was collected in the gallery-forest.

This species was described and is known only from Tanganyika.

Abisares viridipennis (BURMEISTER, 1838).

Nos. 381, 1 ♂; 409, 1 ♂; 3311, 1 ♂, 2 ♀. April.

Dense arboraceous savanna, gallery-forest, arboraceous fringes of ravines.

This species was described from the Cape (S. Africa). It is distributed throughout Africa except North Africa and the Sahara.

Subfamily CYRTACANTHACRIDINAE

Anacridium wernerellum (KARNY, 1907).

No. 2967, 1 ♀. December.

At a small creek.

This species was described from S. Sudan. It is widely distributed in Africa approximately between 15° N. and 25° S. lat.

Phyxacra strenua (WALKER, 1870).

Nos. 96, 1 ♀; 265, 1 ♀; 289, 1 ♀; 469, 1 ♀; 1137, 1 ♂; 1610, 1 ♂; 3480, 1 ♀; 3678, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♀. January-June.

Gallery-forest, arboraceous savanna, sometimes herbaceous savanna and tall graminaceous vegetation.

This species was described from Gambia. It has been recorded also from Senegal, the former French Guinea, Liberia, Togo, Ghana, Nigeria, Upper Volta, the former French Sudan, Cameroons, Sudan, Uganda and the former Belgian Congo.

Rhytidacris tectifera (KARSCH, 1896).

Nos. 2924, 1 ♀; 2928, 1 ♂; 3130, 1 ♂. December-February.

Gallery-forest, herbaceous savanna.

This species was described from Togo and is recorded from the whole of tropical Africa.

Ornithacris cyanea imperialis REHN, 1943.

Nos. 86, 1 ♀; 426, 1 ♀; 427, 2 ♂, 1 ♀; 926, 1 ♀; 1093, 1 ♀; 1137, 1 ♀; 1275, 1 ♂; 1610, 1 ♀; 2739, 1 ♂; 2863, 1 ♀; 2928, 1 ♂, 1 ♀; 3449, 1 ♀. November-July.

The specimens were collected mostly in herbaceous savanna, partly in tall graminaceous vegetation and one from a tree.

This subspecies was described from the former Belgian Congo and according to the material in the British Museum (Natural History) is distributed in N. Nigeria, Cameroons, Somaliland, Ethiopia, Uganda, the former N.E. Belgian Congo, Kenya and Tanganyika.

Ornithacris turbida turbida (WALKER, 1870).

Nos. 1275, 1 ♂; 1610, 1 ♀; 2928, 1 ♂; 3287, 1 ♂; 3399, 1 ♂; 3547, 1 ♂. December, February, April, May.

The specimens were collected mostly in herbaceous savanna and partly in gallery-forest.

This subspecies was described from « Congo ». According to the material in the British Museum (Natural History) it is distributed in Ghana, Togo, Nigeria, the former French Sudan, Sudan, Uganda and in Libya approximately at 13° N. lat.

Ornithacris turbida cavroisi (FINOT, 1907).

No. 2928, 1 ♀.

The specimen was collected in December in herbaceous savanna.

This subspecies was described from Senegal. According to the material in the British Museum (Natural History), it is distributed in N.E. Congo, Uganda and Tanganyika. According to the literature it covers an enormous area of almost the whole African continent except North Africa, Sahara and S. Africa. This area includes that of the preceeding subspecies, and suggests they may be different species. Further taxonomic study is necessary for a definite decision.

Acanthacris ruficornis ruficornis (FABRICIUS, 1787).

Nos. 10, 1 ♂; 16, 1 ♀; 47, 1 ♂; 426, 1 ♀; 427, 1 ♀; 469, 1 ♂; 3476, 1 ♂; 3488, 1 ♀; 3612, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, Gangala, 8.XI.1949-1952; réc. H. DE SAEGER, 1 ♀. May, June, October, November.

The specimens were collected in arboraceous savanna and in *Isoberlinia* forest.

This subspecies was described from Sierra Leone. It was recorded also from Ghana, Dahomey, Nigeria, Cameroons, Sudan, Uganda and the former Belgian Congo. All geographical data relating to it should to be checked, as it is frequently confused with the other subspecies of the species.

Cyrtacanthacris aeruginosa unicolor UVAROV, 1924.

Nos. 1703, 1 ♀; 2928, 1 ♀. May, December.

The specimens were found in herbaceous savanna.

This subspecies was described from Ghana. It is recorded also from Sierra Leone, Nigeria, Cameroons and the former Belgian Congo.

Subfamily ACRIDINAE

Acrida turrita LINNAEUS, 1758.

Nos. 86, 1 ♀; 133, 1 ♀; 1589, 1 ♀; 2861, 1 ♀; 2917, 1 ♂; 3449, 1 ♂; 3488, 1 ♂; 3844, 1 ♂. April-December.

Herbaceous and arboraceous savanna, fringes of swamps.
This species is distributed throughout Africa except the Sahara.

Acrida confusa DIRSH, 1954.

Nos. 352, 1 ♂; 1887, 1 ♀; 3449, 1 ♂. March-June.

Herbaceous savanna, fringes of gallery-forest, fringes of flooded graminaceous vegetation.
This species was described from Sudan. It is distributed throughout the whole of tropical Africa south of the Sahara (DIRSH, 1954).

Amphicremma scalata KARSCH, 1896.

Nos. 409, 1 ♀; 806, 1 ♀; 1001, 1 ♀; 1002, 2 ♂; 1018, 2 ♂; 1022, 1 ♀; 1026, 1 ♂; 1101, 2 ♂; 1127, 1 ♂; 1134, 1 ♂; 1138, 1 ♂; 1334, 1 ♂; 1576, 2 ♂; 1724, 1 ♂; 1776, 1 ♂; 2107, 1 ♀; 2668, 1 ♀; 2861, 1 ♂; 3158, 2 ♂; 3178, 1 ♀; 3188, 5 ♂, 1 ♀; 3311, 2 ♀; 3431, 1 ♀; 3449, 1 ♂; 4085, 1 ♂. Found during the whole year.

The specimens were collected in herbaceous and graminaceous savanna; in gallery-forest, herbaceous and graminaceous vegetation generally and in flooded vegetation.
This species was described from West Africa. It was recorded also from Togo, Nigeria, Cameroons, Sudan, the former French and Belgian Congo.

Cannula linearis (SAUSSURE, 1861).

Nos. 79, 1 ♂; 109, 2 ♂, 2 ♀; 188, 1 ♀; 195, 1 ♂, 1 ♀; 213, 1 ♀; 214, 2 ♀; 305, 1 ♀; 422, 1 ♂; 427, 1 ♀; 456, 1 ♀; 528, 1 ♀. 531, 1 ♂; 997, 4 ♂, 2 ♀; 1002, 1 ♀; 1003, 1 ♀; 1018, 1 ♂, 1 ♀; 1022, 1 ♀; 1048, 1 nymph; 1085, 2 ♂, 1 ♀; 1091, 1 ♂, 2 ♀; 1125, 1 ♂; 1127, 2 ♂, 2 ♀; 1137, 1 ♀; 1260, 1 ♀; 1275, 1 ♂; 1328, 1 ♀; 1334, 2 ♂; 1561, 1 ♀; 1566, 1 ♂; 1610, 1 ♀; 1638, 2 ♀; 1704, 1 ♀, 1734, 1 ♀; 2940, 1 ♀; 2941, 1 ♀; 3142, 1 ♀; 3488, 1 ♂; 3678, 2 ♀; 3706, 1 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♀. November-June.

Arboraceous, herbaceous and less frequently graminaceous savanna; gallery-forest and graminaceous and herbaceous vegetation generally.

This species is distributed almost throughout the African continent, except N. Africa, and Sahara, but it is recorded from S. Algeria.

Parga cyanoptera UVAROV, 1926.

Nos. 87, 1 ♀; 217, 1 ♀; 995, 1 ♀; 997, 2 ♂; 1000, 2 ♂; 1002, 1 ♂, 2 ♀; 1003, 1 ♂; 1018, 1 ♂, 1 ♀; 1137, 1 ♀; 1442, 1 ♂, 2 ♀; 1444, 1 ♂, 1 ♀; 2831, 1 ♂; 2928, 1 ♀. November-March.

Arboraceous, herbaceous, graminaceous and burnt savanna; herbaceous and graminaceous vegetation generally.

This species was described from N. Nigeria. It was recorded also from Upper Volta, the former French West Africa and Cameroons.

Glyphoclonus miripennis KARSCH, 1896.

Nos. 97, 2 ♂, 2 ♀; 199, 1 ♂; 352, 2 ♂, 3 ♀; 479, 1 ♀; 531, 1 ♀. January-May.

Herbaceous and arboraceous savannas; gallery-forest.

This species was described from Nyasaland. It was recorded from all countries of tropical Africa.

Machaeridia acuminata (I. BOLIVAR, 1908).

Nos. 205, 2 ♂; 208, 2 ♂; 214, 1 ♀, 467, 1 ♂; 531, 1 ♀; 991, 1 ♀; 995, 1 ♂; 997, 1 ♂, 3 ♀; 1000, 6 ♀; 1002, 1 ♂, 1 ♀: 1018, 6 ♂, 1 ♀; 1027, 2 ♂; 1041, 3 ♂, 1 ♀; 1047, 1 ♀; 1055, 2 ♀; 1091, 1 ♀; 1224, 1 ♂; 1227, 1 ♂, 1 ♀; 1228, 1 ♂, 1 ♀; 1240, 1 ♂; 1259, 2 ♀; 1271, 1 ♂; 1278, 1 ♂; 1328, 1 ♂, 1 ♀; 1334, 1 ♂; 1412, 2 ♂, 4 ♀; 1458, 1 ♀; 1494, 1 ♂; 1566, 1 ♀; 1576, 1 ♂; 1618, 2 ♂; 1624, 1 ♂; 1704, 1 ♂, 1 ♀; 3080, 1 ♂; 3142, 1 ♂; 3150, 1 ♂; 3328, 1 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♂. December-May.

Herbaceous, graminaceous, arboraceous and burnt savanna; gallery-forest.

This species was described from the former Belgian Congo. It is distributed throughout tropical Africa.

Rhabdoplea munda KARSCH, 1893.

Nos. 71, 3 ♂; 87, 1 ♂; 97, 1 ♂, 2 ♀: 109, 15 ♂, 4 ♀; 188, 27 ♂, 12 ♀; 191, 5 ♂, 4 ♀; 195, 15 ♂, 5 ♀; 199, 5 ♂, 2 ♀; 205, 6 ♂, 1 ♀; 208, 10 ♂; 210, 1 ♀; 213, 1 ♂; 214, 44 ♂, 28 ♀; 261, 1 ♂; 304, 1 ♂; 305, 5 ♂, 3 ♀; 352, 2 ♂, 2 ♀; 467, 1 ♀; 469, 1 ♂; 763, 1 ♀; 766, 1 ♂, 3 ♀; 786, 1 ♀; 991, 17 ♂, 1 ♀; 997, 1 ♂, 7 ♀; 999, 2 ♂; 1000, 7 ♂, 3 ♀; 1001, 1 ♂, 2 ♀; 1002, 5 ♂, 1 ♀; 1003, 11 ♂, 6 ♀; 1018, 24 ♂, 27 ♀; 1022, 2 ♂, 2 ♀; 1033, 1 ♂; 1034, 2 ♂, 4 ♀; 1040, 1 ♂, 3 ♀; 1041, 2 ♂, 2 ♀; 1047, 2 ♂, 1 ♀; 1055, 10 ♂, 7 ♀; 1062, 3 ♂, 2 ♀; 1081, 2 ♀; 1085, 2 ♂, 1 ♀; 1090, 1 ♂, 1 ♀; 1091, 7 ♂, 1 ♀; 1125, 31 ♂, 22 ♀; 1127, 8 ♂, 8 ♀; 1138, 5 ♂; 1143, 8 ♂; 1144, 5 ♂, 8 ♀; 1157, 3 ♂; 1165,

22 ♂, 11 ♀; 1167, 10 ♂, 8 ♀; 1176, 6 ♂, 6 ♀; 1205, 1 ♂; 1214, 24 ♂, 7 ♀; 1240, 1 ♂, 2 ♀; 1251, 6 ♂; 1259, 1 ♀; 1271, 11 ♂, 13 ♀; 1275, 16 ♂, 28 ♀; 1320, 1 ♂; 1328, 4 ♂; 1346, 1 ♂, 1 ♀; 1361, 2 ♂, 1 ♀; 1412, 1 ♂; 1443, 1 ♂; 1458, 1 ♂, 1 ♀; 1464, 1 ♂; 1474, 1 ♂; 1566, 1 ♀; 1612, 1 ♂; 1618, 1 ♀; 1638, 1 ♀; 2172, 1 ♀; 2243, 1 ♀; 2780, 3 ♂, 1 ♀; 2861, 1 ♀; 2831, 2 ♂, 1 ♀; 2882, 1 ♀; 2928, 1 ♂, 1 ♀; 2935, 1 ♂; 2940, 1 ♀; 2941, 1 ♀; 2944, 19 ♂, 7 ♀; 3011, 1 ♂, 3 ♀; 3012, 1 ♀; 309, 1 ♂; 3100, 2 ♂, 3 ♀; 3123, 6 ♂, 11 ♀; 3129, 1 ♀; 3140, 1 ♂, 2 ♀; 3142, 2 ♀; 3150, 19 ♂, 55 ♀; 3158, 2 ♂, 3 ♀; 3161, 1 ♀; 3167, 1 ♂, 3 ♀; 3178, 1 ♂, 1 ♀; 3188, 1 ♂; 3196, 2 ♂; 3287, 1 ♂, 2 ♀; 3449, 1 ♂; 3656, 2 ♀. Congo, P.N.G., Miss. H. De Saeger, 1949-1952, 1 ♂, 2 ♀.

This species occurs in Garamba Park throughout the year. It was found in all ecological conditions.

Rhabdoplea munda was described from Togo and recorded also from Kenya.

Rhabdoplea mira Karsch, 1893.

Nos. 214, 1 ♂, 1 ♀; 585, 1 ♂; 605, 3 ♂; 664, 1 ♂; 1165, 1 ♂; January-July.

Herbaceous savanna, humid savanna; tall graminaceous vegetation; herbaceous vegetation.

This species was described from Togo. It was recorded also from Nigeria, Cameroons, Kenya.

Hyperocnocerus angolensis Uvarov, 1953.

No. 2928, 1 ♀.

The specimen was collected in December in herbaceous savanna.

This species was described from Angola.

Sumba roseipennis I. Bolivar, 1912.

Nos. 71, 1 ♂; 97, 1 ♂, 1 ♀; 109, 2 ♂, 1 ♀; 195, 2 ♂; 199, 1 ♂; 205, 14 ♂, 4 ♀; 208, 1 ♂; 217, 1 ♀; 352, 2 ♂, 1 ♀; 763, 1 ♂; 766, 1 ♂; 997, 3 ♂, 3 ♀; 1000, 2 ♂; 1026, 1 ♂; 1027, 1 ♀; 1033, 1 ♂; 1034, 1 ♂; 1040, 1 ♀; 1055, 1 ♂; 1085, 1 ♂; 1091, 1 ♂, 1 ♀; 1165, 1 ♂; 1176, 2 ♂; 1214, 2 ♂; 1215, 1 ♀; 1227, 3 ♂, 1 ♀; 1228, 1 ♂, 1 ♀; 1259, 1 ♂; 1271, 1 ♀; 1361, 2 ♀; 1458, 1 ♂, 5 ♀; 1494, 1 ♂, 1 ♀; 1566, 1 ♂, 1 ♀; 2243, 1 ♂; 3123, 1 ♀; 3140, 1 ♂; 3142, 1 ♀; 3449, 1 ♂; 3656, 1 ♂; 3706, 1 ♂; 3743, 1 ♂; 3958, 1 ♂; 3988, 1 ♂. Congo, P.N.G., Miss. H. De Saeger, 1949-1952; réc. H. De Saeger, 2 ♀. December-August.

Herbaceous, graminaceous, arboraceous savanna, humid savanna and burnt savanna; tall and short graminaceous vegetation; herbaceous vegetation; prairie.

The specimens from burnt savanna are of darker general colouration than those from the lighter coloured background.

This species was described and is known from N. Rhodesia.

Duriona chloronata (STÅL, 1876).

Nos. 340, 1 ♀; 531, 1 ♀; 1576, 1 ♂; 2812, 1 ♀; November-May.

The specimens were collected in arboraceous savanna.

This species is widely distributed throughout the whole of Africa south of the Sahara.

Roduniella insipida (KARSCH, 1896).

Nos. 4, 1 ♂; 7, 1 ♂; 15, 1 ♀; 109, 4 ♂, 1 ♀; 188, 17 ♂, 1 ♀; 199, 8 ♂; 214, 1 ♂; 304, 3 ♂; 305, 1 ♂; 422, 2 ♂; 497, 2 ♂; 528, 1 ♂, 2 ♀; 585, 1 ♂, 4 ♀; 595, 2 ♂; 704, 5 ♂, 2 ♀; 1033, 9 ♂, 4 ♀; 1066, 1 ♂; 1127, 1 ♂, 1 ♀; 1157, 1 ♂; 1167, 1 ♂, 1 ♀; 1176, 9 ♂, 2 ♀; 1309, 1 ♂, 1 ♀; 1223, 21 ♂, 10 ♀; 1824, 1 ♀; 1916, 1 ♀; 1952, 1 ♂; 2471, 4 ♂; 2708, 1 ♂, 1 ♀; 2808, 1 ♀; 2901, 11 ♂, 7 ♀; 2910, 13 ♂, 5 ♀; 2916, 3 ♂, 3 ♀; 2935, 1 ♀; 2939, 2 ♂, 7 ♀; 2941, 1 ♀; 2954, 2 ♂; 2991, 1 ♂; 3012, 1 ♂, 1 ♀; 3030, 1 ♀; 3080, 1 ♂; 3091, 1 ♂; 3149, 2 ♂; 3158, 1 ♂; 3161, 3 ♂; 3177, 9 ♂, 2 ♀; 3179, 2 ♂; 3188, 7 ♂, 4 ♀; 3214, 1 ♂; 3125, 4 ♂; 3158, 8 ♀, 2 ♀; 3229, 2 ♂; 3277, 1 ♀; 3311, 5 ♂, 1 ♀; 3399, 5 ♂, 1 ♀; 3431, 13 ♂, 1 ♀; 3449, 1 ♂; 3501, 1 ♂; 3694, 1 ♂, 1 ♀; 3708, 2 ♂; 3719, 3 ♂, 1 ♀; 3765, 3 ♂; 3792, 1 ♂; 3820, 2 ♂; 3844, 4 ♂; 4038, 1 ♂; 4044, 1 ♂. Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 3 ♂. During the whole of the year.

Gallery-forest; arboraceous, graminaceous and herbaceous savanna; in herbaceous and graminaceous vegetation generally.

This species was described from Uganda. It was recorded also from the former Belgian Congo : Mt. Ruwenzori and Mt. Elgon.

Coryphosima producta (WALKER, 1870).

Nos. 15, 1 ♂; 16, 1 ♂; 56, 1 ♂; 71, 1 ♂; 87, 1 ♀; 109, 1 ♂, 3 ♀; 133, 1 ♂; 188, 6 ♂, 6 ♀; 191, 3 ♀; 195, 2 ♂, 1 ♀; 199, 5 ♂, 1 ♀; 205, 2 ♂, 8 ♀; 208, 5 ♂, 2 ♀; 213, 1 ♀; 214, 6 ♂, 10 ♀; 217, 5 ♂; 305, 2 ♂, 2 ♀; 422, 2 ♂, 1 ♀; 497, 6 ♂, 1 ♀; 516, 1 ♂; 528, 4 ♂, 3 ♀; 530, 5 ♂; 531, 2 ♀; 560, 1 ♀; 585, 6 ♂, 2 ♀; 605, 6 ♂, 3 ♀; 610, 1 ♂, 1 ♀; 703, 1 ♂; 704, 1 ♂, 3 ♀; 768, 2 ♂; 769, 1 ♂; 789, 5 ♂; 802, 2 ♀; 804, 1 ♂, 1 ♀; 806, 3 ♂, 3 ♀; 808, 2 ♂; 809, 1 ♀; 812, 3 ♂, 4 ♀; 817, 1 ♂; 824, 3 ♂, 2 ♀; 848, 6 ♂, 2 ♀; 853, 12 ♂, 3 ♀; 857, 1 ♀; 868, 1 ♂; 881, 1 ♂; 883, 2 ♂; 884, 1 ♀; 888, 10 ♂, 5 ♀; 898, 3 ♂, 1 ♀; 995, 1 ♀; 999, 1 ♂; 1000, 1 ♂; 1001, 5 ♂, 4 ♀; 1003, 1 ♀; 1018, 2 ♂; 1022, 3 ♂; 1026, 1 ♀: 1027, 1 ♂; 1027, 1 ♂; 1033, 1 ♂, 1 ♀; 1040, 1 ♂, 1 ♀; 1041, 1 ♀; 1048, 2 ♂, 1 ♀; 1055, 4 ♂, 3 ♀; 1066, 2 ♀; 1078, 1 ♀; 1082, 1 ♂, 1 ♀; 1101, 2 ♂, 1 ♀; 1125, 6 ♂, 3 ♀; 1136, 4 ♂, 1 ♀; 1137, 1 ♂, 1 ♀; 1138, 5 ♂, 6 ♀; 1157, 1 ♂; 1163, 3 ♂; 1165, 4 ♂; 1167, 13 ♂, 2 ♀; 1176, 18 ♂, 9 ♀; 1191, 1 ♂, 1 ♀; 1205, 8 ♂, 1 ♀; 1214, 5 ♂, 5 ♀; 1215, 34 ♂, 17 ♀; 1223, 1 ♀; 1240, 1 ♂, 1260, 10 ♂, 6 ♀; 1271, 18 ♂, 13 ♀; 1273, 1 ♂; 1276, 1 ♂, 1 ♀; 1285, 1 ♂, 1 ♀; 1320, 9 ♂, 2 ♀; 1328, 2 ♂; 1334, 1 ♀; 1346, 1 ♀; 1361, 1 ♂; 1416, 1 ♀; 1458, 2 ♀; 1474, 2 ♂; 1537, 1 ♂; 1576, 1 ♂, 1 ♀; 1633, 1 ♀; 1645, 1 ♂; 1724, 2 ♂, 2 ♀; 1734, 2 ♀; 1824, 8 ♂, 6 ♀; 1867, 9 ♂; 1872, 1 ♂; 1886, 6 ♀; 1887, 1 ♂; 1890, 1 ♂; 1915, 1 ♂; 1943, 1 ♂; 1981, 1 ♂; 1988, 2 ♂, 1 ♀; 2015, 12 ♂, 1 ♀; 2016, 1 ♀; 2024, 2 ♂, 6 ♀; 2056, 8 ♂, 3 ♀; 2059, 2 ♂; 2061, 2 ♂, 1 ♀; 2102, 1 ♂; 2181, 4 ♂; 2171, 2 ♂; 2223, 1 ♂, 1 ♀; 2243, 1 ♀; 2299, 1 ♂, 3215, 1 ♂; 2341, 1 ♂, 2 ♀; 2345, 1 ♂; 2448, 1 ♂; 2699, 4 ♂; 2780, 1 ♂; 2805, 5 ♂, 1 ♀. 2861, 2 ♂; 2901, 2 ♂, 1 ♀; 2910, 3 ♂; 2916, 1 ♂; 2917, 4 ♂, 1 ♀; 2928, 1 ♂; 2935, 3 ♂, 3 ♀; 2939, 1 ♀; 2941, 12 ♂, 9 ♀; 2944,

3 ♂; 2945, 1 ♀; 3030, 3 ♂, 2 ♀; 3071, 1 ♂, 1 ♀; 3080, 1 ♂; 3100, 1 ♂; 3123, 1 ♀; 3134, 1 ♀; 3140, 3 ♂, 4 ♀; 3158, 2 ♀; 3150, 3 ♂, 6 ♀; 3158, 3 ♂, 2 ♀; 3161, 2 ♂; 3167, 2 ♂, 4 ♀; 3188, 4 ♂, 2 ♀; 3196, 5 ♂, 1 ♀; 3202, 1 ♂; 3229, 1 ♂; 3234, 2 ♂; 3277, 2 ♂; 3287, 1 ♀; 3290, 6 ♂, 1 ♀; 3399, 6 ♂, 3 ♀; 3410, 1 ♀; 3424, 6 ♂; 3429, 6 ♂, 1 ♀; 3431, 1 ♂; 3449, 5 ♂, 11 ♀; 3567, 8 ♂, 11 ♀; 3642, 5 ♂, 3 ♀; 3656, 1 ♂, 3 ♀; 3694, 7 ♂, 9 ♀; 3700, 1 ♂; 3701, 1 ♂, 1 ♀; 3706, 4 ♂; 3708, 3 ♂, 1 ♀. 3729, 5 ♂, 1 ♀; 3811, 1 ♂, 1 ♀; 3844, 1 ♂, 1 ♀; 3876, 1 ♂; 3884, 1 ♀; 3923, 2 ♂; 3940, 4 ♂, 2 ♀; 3952, 3 ♂, 1 ♀; 3964, 3 ♂; 3982, 5 ♂, 1 ♀; 3983, 2 ♂; 3988, 2 ♂; 4008, 5 ♂, 1 ♀; 4038, 1 ♂, 1 ♀; 4054, 1 ♀; 4078, 2 ♂, 2 ♀; 4083, 1 ♂; 4085, 1 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♀. Throughout the whole of the year.

This is one of the most abundant species in Garamba Park. It was collected in such a variety of ecological conditions that it is not possible to connect it with any particular kind.

Coryphosima producta is widely distributed all over Africa south of the Sahara.

Chirista compta (WALKER, 1870).

Nos. 109, 1 ♀; 199, 1 ♂; 304, 1 ♂, 1 ♀; 528, 3 ♂, 1 ♀; 1223, 2 ♂; 2910, 1 ♂; 2916, 1 ♂. December-May.

Gallery-forest; herbaceous savanna.

This species was described from Sierra Leone. It was recorded also from the Ivory Coast, Togo, Ghana, Spanish Guinea, Fernando Po, Cameroons and the former French and Belgian Congo.

Gymnobothrus temporalis (STÅL, 1876).

Nos. 63, 1 ♂; 67, 2 ♂, 2 ♀; 74, 1 ♀; 75, 1 ♂; 79, 4 ♂, 1 ♀; 81, 1 ♀; 109, 1 ♀; 188, 2 ♂, 2 ♀; 195, 1 ♂; 199, 2 ♂, 1 ♀; 205, 5 ♂, 5 ♀; 208, 4 ♂, 3 ♀; 210, 6 ♂, 2 ♀; 213, 1 ♀; 214, 8 ♂, 12 ♀; 217, 8 ♂, 5 ♀; 456, 1 ♀; 991, 1 ♂; 995, 2 ♂, 2 ♀; 997, 10 ♂, 2 ♀; 999, 8 ♂, 8 ♀; 1000, 3 ♂, 2 ♀; 1001, 23 ♂, 25 ♀; 1002, 24 ♂, 19 ♀; 1003, 2 ♂; 1022, 9 ♂, 11 ♀; 1026, 16 ♂, 12 ♀; 1027, 10 ♂. 11 ♀; 1033, 17 ♂, 9 ♀; 1040, 10 ♂, 11 ♀; 1041, 1 ♀; 049, 4 ♀; 1055, 13 ♂, 8 ♀; 1066, 4 ♀; 1031, 1 ♂; 1125, 24 ♂, 10 ♀; 1126, 2 ♂, 2 ♀; 1127, 17 ♂, 10 ♀; 1137, 14 ♂, 7 ♀; 1138, 3 ♂; 1157, 2 ♀; 1164, 1 ♂, 3 ♀; 1165, 4 ♀; 1167, 18 ♂, 12 ♀; 1176, 52 ♂, 34 ♀; 1191, 21 ♂, 21 ♀; 1205, 1 ♂; 1214, 2 ♂, 2 ♀; 1215, 1 ♀; 1223, 69 ♂, 65 ♀; 1227, 1 ♂, 3 ♀; 1228, 3 ♂, 1 ♀; 1232, 1 ♂; 1240, 5 ♂, 5 ♀; 1250, 1 ♂; 1251, 11 ♂, 13 ♀; 1259, 1 ♂, 1 ♀; 1260, 9 ♂, 8 ♀; 1271, 35 ♂, 33 ♀; 1275, 1 ♂, 4 ♀; 1303, 4 ♂, 14 ♀; 1309, 3 ♂, 6 ♀; 1320, 3 ♂, 1 ♀; 1328, 1 ♂, 1 ♀; 1412, 1 ♀; 1444, 4 ♀; 1458, 1 ♀; 1566, 1 ♂; 1576, 1 ♂, 2 ♀; 2780, 1 ♂; 2831, 1 ♂, 1 ♀; 2861, 1 ♂; 2910, 1 ♂, 2 ♀; 2928, 1 ♀, 2935, 1 ♀; 2939, 2 ♂, 2 ♀; 2944, 1 ♀; 2945, 2 ♂, 1 ♀; 2954, 3 ♂, 5 ♀; 2991, 1 ♀; 2994, 1 ♂, 1 ♀; 3011, 2 ♂, 1 ♀; 3096, 1 ♂; 3030, 1 ♂, 1 ♀; 3083, 5 ♂, 1 ♀; 3091, 1 ♀; 3036, 1 ♂; 3116, 1 ♀; 3123, 3 ♀; 3125, 6 ♂, 8 ♀; 3129, 1 ♂, 2 ♀; 3140, 2 ♂, 2 ♀; 3142, 1 ♂, 2 ♀; 3150, 3 ♂, 4 ♀; 3167, 4 ♂; 3179, 1 ♀; 3188, 3 ♂; 3328, 1 ♀; 3449, 1 ♀; 3583, 1 ♂; 3656, 1 ♀; 3694, 1 ♀; 3958, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 6 ♂, 1 ♀. Throughout the whole of the year.

This species was collected in a variety of ecological conditions. It is widely distributed in Garamba Park and is one of the most widely distributed species throughout Africa south of the Sahara.

Gymnobothrus subparallelus (REHN, 1914).

Nos. 516, 2 ♂; 467, 1 ♀; 809, 1 ♂; 812, 1 ♂; 873, 1 ♂; 991, 1 ♂, 4 ♀; 995, 5 ♂, 3 ♀; 997, 1 ♀; 999, 1 ♂, 1 ♀; 1000, 17 ♂, 5 ♀; 1001, 5 ♂, 5 ♀; 1002, 1 ♂; 1018, 1 ♀; 1022, 1 ♂; 1034, 1 ♀; 1040, 1 ♂; 1041, 1 ♂, 1 ♀; 1081, 1 ♂, 1 ♀; 1085, 1 ♂; 1091, 1 ♀; 1126, 1 ♀; 1228, 2 ♂, 1 ♀; 1251, 1 ♀; 1259, 1 ♂; 1271, 1 ♂; 1275, 1 ♂; 1328, 1 ♂; 1458, 1 ♀; 1576, 1 ♀; 1610, 1 ♂; 1919, 1 ♂; 2102, 1 ♂; 2107, 1 ♂; 2171, 2 ♂; 2181, 3 ♂; 2223, 2 ♂; 2243, 2 ♀; 2615, 1 ♂; 2780, 1 ♀; 2831, 2 ♂; 2928, 1 ♂; 2935, 4 ♂, 2 ♀; 2940, 5 ♂, 2 ♀; 2941, 1 ♂, 1 ♀; 2944, 2 ♂, 2 ♀; 2945, 4 ♂, 4 ♀; 3011, 2 ♂; 3078, 1 ♂; 3290, 3 ♂, 1 ♀; 3399, 2 ♂, 2 ♀; 3410, 2 ♀; 3449, 9 ♂, 6 ♀; 3547, 1 ♂; 3567, 4 ♂; 3583, 1 ♀; 3656, 1 ♂, 1 ♀; 3694, 7 ♂, 10 ♀; 3706, 4 ♂, 2 ♀; 3743, 1 ♀; 3923, 1 ♀; 3939, 1 ♂; 3940, 1 ♀; 3952, 1 ♂; 3964, 2 ♀; 3982, 1 ♂, 1 ♀; 3988, 2 ♂, 2 ♀; 3992, 1 ♂, 4021, 2 ♀; 4023, 1 ♂, 1 ♀; 4070, 1 ♂; 4078, 4 ♂, 2 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 1 ♂, 1 ♀. Throughout the whole of the year.

The specimens were collected in various ecological conditions.

This species was described from the former Belgian Congo and was recorded also from the former French Guinea, Cameroons and Tanganyika.

Gymnobothrus longicornis (RAMME, 1931).

Nos. 3678, 2 ♂, 3 ♀; 3811, 1 ♂; 3850, 2 ♂; 3952, 1 ♂. June-August.

Herbaceous and arboraceous savannas.

This species was described from Cameroons and recorded also from Nigeria.

Zacompsa bivittata UVAROV, 1926.

No. 3488, 1 ♂.

The specimen was collected in May, in savanna with *Lophira*.

This species was described from N. Nigeria. It was recorded also from Senegal, Sudan, Cameroons.

Orthochtha nigricornis (KARSCH, 1893).

Nos. 467, 1 ♂; 2812, 1 ♀; 3461, 2 ♂, 4 ♀; 3480, 1 ♀; 3952, 2 ♂. April, May, August, November.

Arboraceous savannas of various types; herbaceous savanna.

This species was described from Togo. It was recorded from various other countries of tropical Africa, but, since the synonymy of the species of the genus is rather confused, all the records need checking.

Pamacris diversipennis RAMME, 1929.

Nos. 67, 1 ♂; 83, 1 ♀; 409, 1 ♂; 422, 4 ♂, 1 ♀; 456, 1 ♀; 467, 1 ♂; 469, 3 ♂; 483, 2 ♂, 1 ♀; 531, 4 ♂; 536, 7 ♂; 2831, 2 ♂; 2861, 1 ♂; 3449, 1 ♂; 3488, 1 ♂; 3678, 1 ♀. April-June, November, December.

Herbaceous and graminaceous savannas.

This species was described from Cameroons. It was also found in S. Sudan.

Aiolopus thalassinus (FABRICIUS, 1781).

Nos. 214, 1 ♂; 1001, 3 ♀; 1040, 1 ♂; 1055, 1 ♂, 1 ♀; 1101, 1 ♂; 1125, 2 ♀; 1138, 1 ♂; 1167, 3 ♂, 3 ♀; 1251, 2 ♂, 1 ♀; 1260, 1 ♂, 3 ♀; 1271, 4 ♂, 4 ♀; 1328, 2 ♂, 1 ♀; 1346, 1 ♂; 1755, 2 ♂; 2941, 3 ♂, 2 ♀; 3158, 1 ♂. Throughout the whole of the year.

The specimens were found in various ecological conditions.

This species is distributed throughout Africa and in the Palaearctic region.

Paracinema tricolor (THUNBERG, 1815).

Nos. 261, 1 ♀; 585, 1 ♂, 1 ♀; 999, 1 ♂; 1040, 2 ♂; 1055, 2 ♂; 1066, 1 ♂; 1101, 1 ♂, 4 ♀; 1157, 3 ♂; 1167, 3 ♂; 1205, 2 ♂; 1214, 1 ♂; 1251, 1 ♂; 1260, 3 ♂; 1271, 8 ♂; 1275, 1 ♀; 1328, 1 ♂; 1576, 1 ♂; 1703, 1 ♀; 1734, 1 ♂; 1981, 1 ♂; 2024, 1 ♂; 2408, 8 ♂, 1 ♀; 2774, 1 ♂; 3424, 1 ♂; 3429, 1 ♂, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 2 ♂. September-June.

Low herbaceous savanna; swamps; fringes of swamps; flooded vegetation; sometimes in graminaceous vegetation and gallery-forest.

This species is distributed throughout Africa, S. Europe, S.W. Asia and Madagascar.

Heteropternis thoracica (WALKER, 1870).

Nos. 377, 1 ♂; 467, 2 ♂; 469, 1 ♂, 1 ♀; 483, 1 ♂; 531, 1 ♂, 2 ♀; 536, 1 ♂; 585, 1 ♀; 627, 2 ♂; 729, 1 ♀; 766, 1 ♂; 802, 1 ♂, 1 ♀; 804, 1 ♀; 812, 4 ♂, 2 ♀; 995, 1 ♂; 997, 1 ♀; 999, 1 ♀; 1000, 1 ♂, 1 ♀; 1003, 1 ♀; 1081, 1 ♂, 1 ♀; 1041, 1 ♂; 1228, 1 ♀; 1259, 1 ♂; 1618, 1 ♂; 2024, 1 ♂; 2040, 1 ♀; 2057, 1 ♂; 2102, 2 ♀; 2171, 1 ♂; 2172, 1 ♂; 2243, 1 ♂; 2831, 1 ♂; 2945, 1 ♂, 1 ♀; 3290, 2 ♂; 3399, 2 ♂, 2 ♀; 3449, 1 ♂; 3480, 1 ♂, 1 ♀; 3488, 1 ♂; 3612, 1 ♂, 2 ♀; 3656, 2 ♂, 1 ♀, 3678, 1 ♂; 3694, 1 ♂, 1 ♀; 3706, 3 ♀; 3743, 2 ♂, 1 ♀; 3923, 5 ♂, 6 ♀; 3939, 2 ♂; 3940, 2 ♂; 3964, 1 ♂; 3978, 1 ♂, 4 ♀; 3982, 1 ♂; 3988, 1 ♀; 4023, 1 ♀. Throughout the whole of the year.

The specimens were collected in various ecological conditions.

This species is distributed throughout Africa south of the Sahara.

Gastrimargus brevipes SJÖSTEDT, 1928.

Nos. 1176, 1 ♂; 3410, 1 ♂. February, May.

The specimens were collected in graminaceous vegetation and in herbaceous savanna.

This species was described from Mt. Kilimanjaro. It was recorded also from Ethiopia, Uganda, Kenya, Tanganyika, the former Belgian Congo and the Cape.

Gastrimargus africanus (SAUSSURE, 1888).

Nos. 422, 1 ♂; 531, 1 ♂; 733, 1 ♂; 1334, 1 ♀; 2861, 1 ♂; 3194, 1 ♀; 3328, 1 ♂; 3461, 1 ♀; 3476, 1 ♀; 3480, 1 ♂; 3583, 1 ♀. March-July, December.

The majority of the specimens were collected in arboraceous savanna, and a few specimens in herbaceous savanna.

This species is distributed through the whole of Africa except North Africa and the Sahara. It is recorded also from Madagascar and Seychelles.

Gastrimargus procerus (GERSTAECKER, 1889).

Nos. 1127, 1 ♀; 3328, 1 ♀. May, April.

The specimens were collected in arboraceous savanna.

This species was described from Ghana. It was recorded also from Sierra Leone, Nigeria and Cameroons.

Humbe tenuicornis (SCHAUM, 1853).

No. 3708, 1 ♀.

The specimen was collected in June on pasture land.

This species was described from Mozambique. It is one of the most widely distributed species in Africa south of the Sahara.

Trilophidia conturbata (WALKER, 1870).

Nos. 627, 1 ♀; 1055, 1 ♀; 1101, 1 ♂, 1 ♀; 1260, 1 ♂; 1271, 3 ♀; 1320, 1 ♂; 1633, 1 ♂; 1755, 4 ♂; 1757, 1 ♂, 2 ♀; 2941, 2 ♀; 3158, 1 ♂. December-June.

The specimens were collected in arboraceous savanna, short herbaceous and graminaceous vegetation; small gallery forest; fringes of swamp and pasture land.

This species was described from the Cape. It is distributed throughout tropical Africa and was recorded even from Algeria.

Pternoscirtus gracilis (MILLER, 1929).

No. 1320, 1 ♀.

The specimen was collected in March in a small gallery-forest.

This species was described from Tanganyika. It was also recorded from Ethiopia, Kenya, N. and S. Rhodesia and Nigeria.

Morphacris fasciata (THUNBERG, 1815).

No. 205, 1 ♂.

The specimen was collected in February in burnt savanna with new sprouting vegetation.

This species is one of the most widely distributed throughout the whole of Africa and in S. Asia.

Acrotylus patruelis (HERRICH-SCHÄFFER, 1838).

Nos. 214, 1 ♂; 469, 1 ♂; 999, 2 ♂; 1018, 1 ♂; 1167, 1 ♀; 1176, 1 ♀; 1260, 1 ♂; 1271, 2 ♂; 1273, 2 ♂, 2 ♀; 1334, 1 ♂; 1412, 1 ♀; 1494, 1 ♂; 2780, 1 ♂, 1 ♀; 2831, 1 ♂, 3 ♀; 2861, 6 ♂, 1 ♀; 2941, 1 ♀; 2945, 2 ♂; 3656, 1 ♀. October-June.

The specimens were collected in herbaceous and arboraceous savanna; in herbaceous and graminaceous vegetation generally and in gallery-forest.

This species is distributed thoughout the whole of the African continent, in S. Europe, S.W. Asia and Madagascar.

Acrotylus blondeli SAUSSURE, 1884.

Nos. 1027, 1 ♀; 1077, 1 ♀; 1273, 1 ♀. January, October.

The specimens were collected in graminaceous vegetation.

This species was described from Senegal. It is distributed throughout the whole of tropical Africa and the Algerian Sahara.

Calephorus venustus (WALKER, 1870).

No. 2056, 1 ♀.

The specimen was collected in July, in herbaceous vegetation.

This species is distributed through North and the whole of tropical Africa.

Subfamily TRUXALINAE

Azarea lloydi UVAROV, 1926.

Nos. 991, 1 ♀; 1334, 1 ♂; 1494, 1 ♀. March, April, December.

The specimens were collected in herbaceous savanna and in gallery-forest.

This species was described and previously known only from N. Nigeria.

Goniocara brevipes UVAROV, 1953.

Nos. 205, 2 ♂; 1214, 1 ♂; 1215, 1 ♀; 1328, 1 ♂; 1919, 1 ♀; 3142, 1 ♂. February, March, June.

The specimens were collected in short graminaceous vegetation, in burnt savanna and swamps.

This species was described and previously known only from Angola.

Amesotropis desaegeri n. sp.

(Fig. 1.)

♂ type. Small. Integument finely rugose, ventral surface covered with sparse whitish hairs. Antenna longer than head and pronotum together, flattened and widened in basal, and narrowing towards filiform apical part. Head acutely conical; fastigium of vertex acutangular, slightly longer than its width, above depressed, with deep, crescent-like, transverse furrow; frons strongly inclined backwards; frontal ridge narrow, deeply sulcate, with sharp parallel lateral carinulae converging at apex; compound eyes large, oval; ocelli small. Pronotum subcylindrical; dorsum slightly flattened, crossed by three sulci, median carina linear, crossed by posterior sulcus only; lateral carinae weak, almost obliterated, slightly incurved; metazona much shorter than prozona, its posterior margin widely obtusangular; lateral lobe longer than its width, with lower margin slightly excurved. Prosternum with slight, transverse convexity; mesosternal interspace small, longer than its width, with sides incurved; furcal suture deep, with foveola in middle; mesosternal lobes short and wide; metasternal interspace narrow, long, almost closed, with two apical foveolae. Elytra and wings fully developed, reaching or slightly exceeding end of abdomen; elytron thin, transparent membrane with sparse reticulation, slightly excurved at anterior margin, narrowing at apical part, with apex obtuse; costal and cubital area slightly expanded; hind wing narrow, with strongly protruding remigium. Tympanum large, half shell covered. Hind femur slender, exceeds end

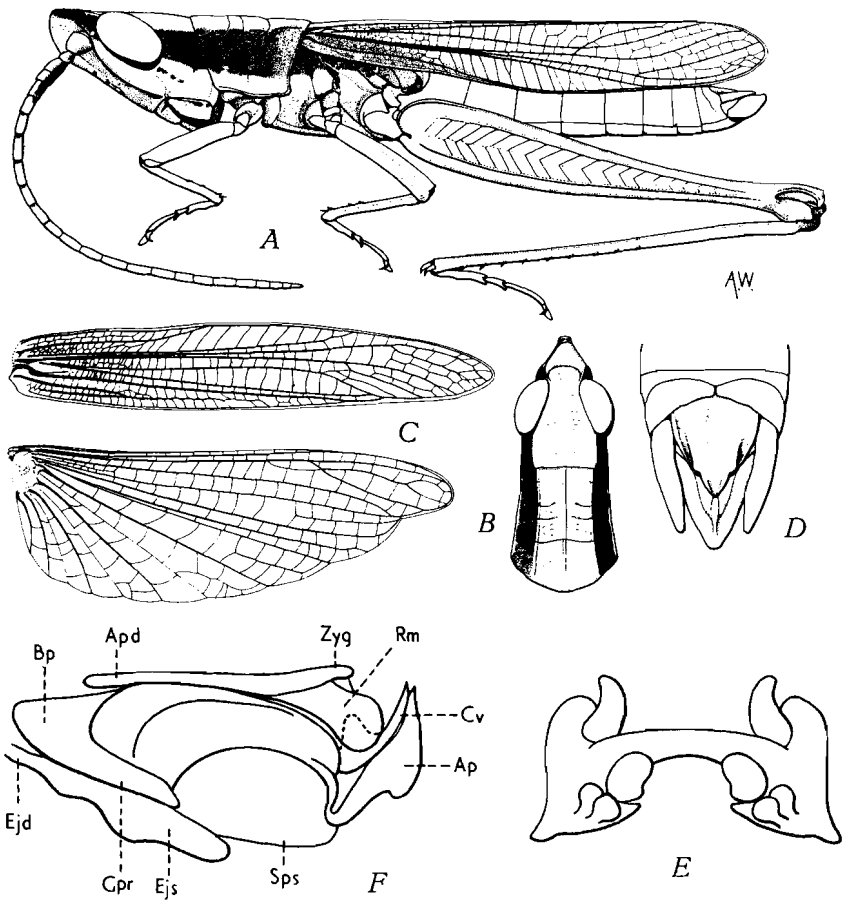

FIG. 1. — *Amesotropis desaegeri* n. sp.
A : male; *B* : head and pronotum from above; *C* : elytron and wing; *D* : end of abdomen from above; *E* : epiphallus; *F* : phallic complex, epiphallus and ectophallic membrane removed. Lettering as in Fig. 2.

of abdomen; lower lobes of hind knee on both sides with rounded apex; internal pair of spurs of hind tibia slightly longer than external; arolium large. Supra-anal plate angular, with slightly attenuate, acutangular apex and a pair small lateral projections at apical part of lateral margins; cercus comparatively long, narrow conical, with obtuse apex; subgenital plate conical with obtuse apex.

Phallic complex. — Apodemus of cingulum of moderate length; zygoma narrow; ramus small; valve of cingulum narrow, as long as apical

valve of penis, with acute apex; basal valve of penis large, robust, gonopore process large; apical valve of penis wide, with basal posterior part protruding, apex acute; flexure slender. Epiphallus with narrow bridge; ancorae large, articulated; lophi trilobate.

General colouration light greenish; there is a brown stripe, running from side of apex of fastigium of vertex, through postocular side of head, along lateral lobe of pronotum, to tympanum; anterior part of base of elytron red, the rest of elytron transparently greenish; hind wing colourless; preapical part of hind femur and hind knee light red; base of hind tibia blackish, rest of tibia light blue; spines with blackish apices.

Female unknown.

Length of body 17·0-20·0; pronotum 3·5-3·8; elytron 12·0-13·6; hind femur 11·5-12:5 mm.

The new species is named after Mr. H. De Saeger as a tribute to his excellent work on the National Parks of the Former Belgian Congo.

Park National Garamba (formerly Belgian Congo). Ndelele/4. Miss. H. De Saeger, 18.VI.1952, 15 ♂, including type, locality No. 3678. Iso/III, 11.VI.1952, 3 ♂, locality No. 3612. PFSK/5/3, 20.VI.1952, 1 ♂, locality No. 3656.

Type and paratypes in the Institut des Parcs Nationaux, République du Congo. Three paratypes in the British Museum (Natural History).

The specimens were collected in the herbaceous savanna and in herbaceous undergrowth under trees.

Two known species of the genus were known hitherto: *Amesotropis valga* Karsch, 1893 described from Togo and *A. basilewskyi* Dirsh, 1961 from South-East Congo and Northern Rhodesia. The species of the genus can be distinguished by the key below.

1 (2) Fastigium of vertex wider than its length and less acutangular. Lateral carinae of pronotum parallel ..... *valga* Karsch.

2 (1) Fastigium of vertex longer than its width and more acutangular. Lateral carinae of pronotum slightly incurved.

3 (4) Elytron wider and less narrowing at the apical part. Ratio of length to width of hind wing 2·4; remigium slightly protruding ..... *basilewskyi* Dirsh.

4 (3) Elytron narrower and narrowing at the apical part. Ratio of length to width of hind wing 3·0; remigium strongly protruding ..... *desaegeri* n. sp.

Eleutherotheca fungosa (I. BOLIVAR, 1889).

Nos. 71, 1 ♀; 109, 1 ♂, 1 ♀; 214, 4 ♂, 1 ♀; 217, 1 ♀; 467, 1 ♂; 991, 5 ♂, 1 ♀; 995, 1 ♀; 997, 2 ♂, 1 ♀; 1001, 1 ♂, 1 ♀; 1002, 2 ♂, 2 ♀; 1003, 2 ♂; 1018, 2 ♂; 1026, 1 ♂; 1041, 1 ♂, 3 ♀; 1091, 1 ♂; 1092, 2 ♀; 1138, 1 ♀; 1167, 1 ♂; 1176, 2 ♂; 1191, 3 ♀; 1205, 1 ♀; 1223, 1 ♀; 1228, 2 ♀; 1240, 2 ♂, 1 ♀; 1259, 1 ♂, 1 ♀; 1260, 1 ♀; 1271, 2 ♂; 1320, 1 ♂, 1 ♀; 1334, 1 ♂; 1361, 1 ♀; 1412, 2 ♂, 2 ♀; 1443, 1 ♀; 1576, 1 ♂; 1610, 1 ♂; 1618, 1 ♂; 2928, 1 ♂; 2940, 2 ♂; 2944, 4 ♂, 11 ♀; 3030, 1 ♀; 3100, 1 ♂; 3125, 1 ♀; 3129, 2 ♂, 1 ♀; 3140, 2 ♂, 1 ♀; 3150, 10 ♂, 6 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 2 ♀. December-April.

Herbaceous, graminaceous, arboraceous and burnt savanna; herbaceous and graminaceous vegetation generally; fringes of swamps; pastures.

This species was described from Angola and recorded from Nigeria and N. and S. Rhodesia also.

Anablepia granulata (RAMME, 1929).

Nos. 7, 1 ♀; 67, 1 ♂, 1 ♀; 409, 1 ♀, 469, 1 ♀; 824, 1 ♂; 995, 1 ♀; 1001, 1 ♀; 1003, 1 ♀; 1034, 1 ♂; 1458, 1 ♂; 1704, 1 ♀; 1705, 1 ♀; 2014, 1 ♂; 2161, 1 ♂; 2171, 1 ♂; 2780, 1 ♂, 1 ♀; 2831, 1 ♀; 2861, 2 ♂; 2928, 1 ♀; 2940, 1 ♂, 1 ♀; 2944, 1 ♂; 3449, 2 ♀; 3923, 1 ♀. Throughout the whole year.

Herbaceous, graminaceous, arboraceous and burnt savanna; herbaceous and graminaceous vegetation generally.

This species was described from Cameroons. It was recorded also from Uganda, the former Belgian Congo and Angola.

Mesopsis laticornis (KRAUSS, 1877).

Nos. 185, 1 ♂; 210, 1 ♀; 427, 1 ♀; 995, 1 ♂; 997, 1 ♂; 1000, 1 ♂, 1 ♀; 1018, 1 ♀; 1191, 1 ♂; 1259, 1 ♀; 1412, 1 ♂, 1 ♀; 2928, 1 ♀; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952; réc. H. DE SAEGER, 1 ♂. November-March.

Herbaceous, arboraceous and burnt savanna; graminaceous vegetation.

This species was described from Senegal. It is distributed throughout Africa south of the Sahara.

Mesopsis gracilicornis (KRAUSS, 1877).

Nos. 422, 2 ♀; 427, 1 ♀; 531, 1 ♀; 536, 1 ♀; 884, 1 ♀; 903, 1 ♀; 995, 1 ♀; 2699, 1 ♂. April, May, October-December.

Herbaceous and arboraceous savanna.

This species is distributed throughout tropical Africa.

Brachycrotaphus buttneri KARSCH, 1896.

Nos. 97, 1 ♀; 531, 2 ♀; 536, 2 ♀; 560, 1 ♀; 1610, 1 ♀; 1704, 1 ♀; 3410, 2 ♀. January, April, May.

Herbaceous and arboraceous savanna.

This species was described from Togo and recorded also from the Cameroons.

Brachycrotaphus lloydi UVAROV, 1926.

Nos. 536, 2 ♂; 1612, 1 ♂; 3410, 1 ♂; 3461, 1 ♀; 3678, 5 ♂, 3 ♀. April-June.

Herbaceous and arboraceous savannas.

This species was described from N. Nigeria. It was recorded from the Cameroons also.

Pnorisa squalus STÅL, 1861.

No. 1077, 1 ♀.

The specimen was collected in January in graminaceous vegetation.

This species is distributed throughout Africa south of the Sahara.

Phorenula punctata (UVAROV, 1926).

Nos. 71, 1 ♂; 185, 3 ♂, 2 ♀; 205, 1 ♀; 210, 1 ♂; 217, 3 ♂, 3 ♀; 467, 1 ♂, 1 ♀; 469, 1 ♀; 995, 2 ♂; 997, 1 ♂; 1002, 1 ♂; 1022, 1 ♀; 1034, 1 ♀; 1077, 1 ♂, 1 ♀; 1091, 1 ♂; 1092, 1 ♂; 1125, 1 ♀; 1127, 1 ♀; 1223, 1 ♀; 1227, 2 ♂, 2 ♀; 1228, 6 ♂, 1 ♀; 1240, 1 ♂, 1 ♀; 1259, 2 ♀; 1320, 2 ♀; 1334, 1 ♀; 1412, 1 ♂, 4 ♀; 1458, 1 ♂; 1464, 1 ♀; 1494, 1 ♂, 2 ♀; 2940, 1 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 1 ♀. December-May.

Herbaceous, arboraceous, graminaceous and burnt savanna; graminaceous vegetation; gallery-forest; fringes of swamps.

This species was described and previously known only from N. Nigeria.

Phorenula bifoveolata (KARSCH, 1893).

Nos. 1000, 1 ♂; 2944, 1 ♀.

The specimens were collected in December, in savanna.

This species was described from Togo. It was recorded also from Nigeria and Sudan.

Phorenula werneriana (KARNY, 1907).

Nos. 205, 1 ♂; 210, 1 ♂; 214, 1 ♂; 991, 1 ♂; 1001, 1 ♂; 1002, 1 ♂; 1003, 1 ♂; 1018, 1 ♂, 2 ♀; 1228, 1 ♂; 1361, 1 ♀; 2928, 1 ♂; 2940, 2 ♂; Congo, P.N.G., Miss. H. DE SAEGER, 1949-1952, 1 ♀. December-March.

Herbaceous, graminaceous and burnt savannas; herbaceous and graminaceous vegetation; prairie.

This species was described from Sudan. It was recorded also from the former French West Africa, French Sudan, Nigeria and Tanganyika.

Faureia coerulescens MILLER, 1929.

Nos. 205, 8 ♂, 9 ♀; 208, 1 ♂, 3 ♀; 997, 2 ♂; 1000, 1 ♂; 1003, 1 ♀; 1026, 1 ♂; 1047, 2 ♂; 1055, 1 ♀; 1125, 2 ♂, 1 ♀; 1138, 1 ♂; 1165, 2 ♂, 2 ♀; 1176, 2 ♂, 1 ♀; 1214, 2 ♂, 2 ♀; 1228, 1 ♂; 1240, 3 ♂; 1271, 1 ♂; 1275, 2 ♂, 1 ♀; 1328, 2 ♂; 1361, 2 ♀; 1412, 4 ♂, 3 ♀; 1474, 1 ♀; 1612, 1 ♂; 2831, 2 ♂; 2944, 1 ♂, 2 ♀; 3142, 2 ♂, 2 ♀. December-April.

Herbaceous, graminaceous, arboraceous and burnt savanna; graminaceous and herbaceous vegetation generally; fringe of swamps.

This species was described from Tanganyika. It was recorded also from Ethiopia and N. Rhodesia.

Ramburiella garambana n. sp.

(Fig. 2.)

♂ type. Of medium size. Integument rugose. Antenna filiform (broken). Fastigium of vertex widely angular, above concave, with crescent-like furrow across middle and with well developed, obtuse marginal carinulae; fastigial foveolae large, shallow, with strongly rugose surface and obtuse, almost obliterated edges; frontal ridge wide, flat, without lateral carinulae and with parallel margins, surface roughly dotted. Compound eye small, ocelli relatively large. Pronotum subcylindrical with weak median carina; lateral carinae absent; dorsum crossed by three fine sulci, they are widened and deepened on lateral lobes, posterior sulcus cross median carina; metazona as long as prozona, its posterior margin widely angular; lateral lobe higher than its length, with lower margin sinuate; prosternum with slight transverse convexity; mesosternal interspace short, narrowing towards apex; furcal suture deep and wide, with deep foveola in middle; metasternal interspace narrow, forming pair deep foveolae. Elytra and wings fully developed far exceed end of abdomen and hind knee; elytron wide, with thin, transparent membrane and sparse reticulation; base of anterior margin slightly protruding; costal and radial area slightly widened; cubital area slightly wides than median; hind wing relatively

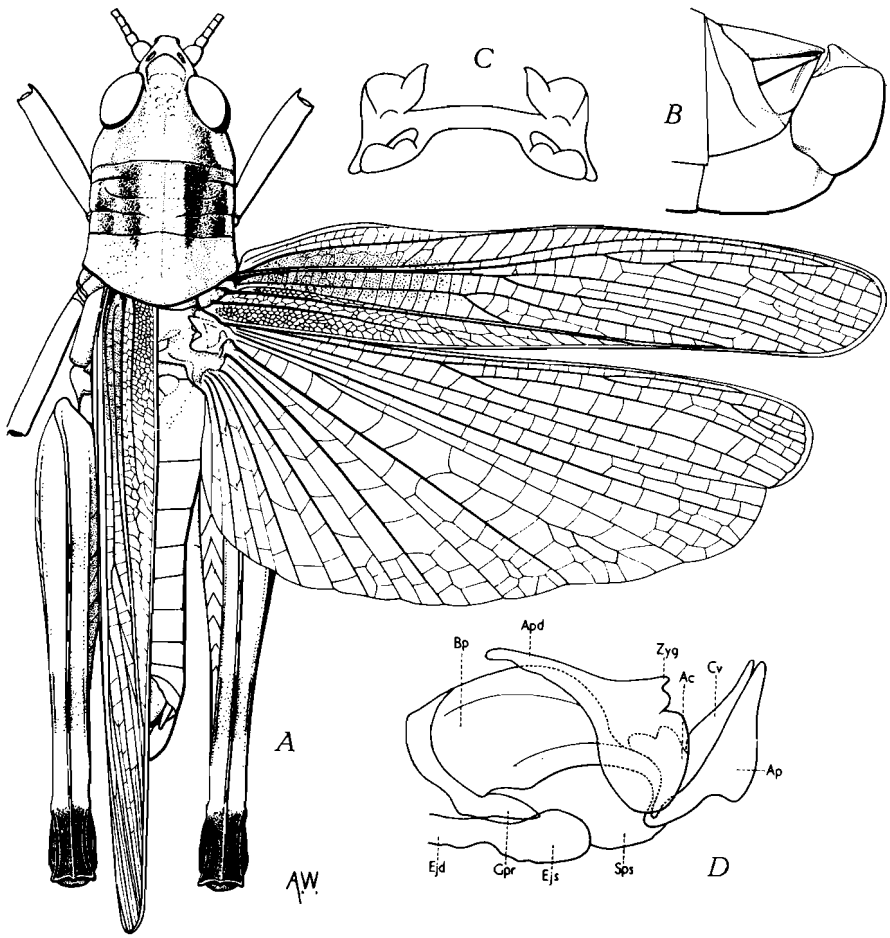

FIG. 2. — *Ramburiella garambana* n. sp.

A : male type; *B* : end of abdomen; *C* : epiphallus; *D* : phallic complex, with epiphallus and ectophallic membrane removed; Ac : arch of cingulum; Ap : apical valve of penis; Apd : apodemus of cingulum; Bp : basal valve of penis; Cv : valve of cingulum; Ejd : ejaculatory duct; Ejs : ejaculatory sac; Gpr : gonopore process; Sps : spermatophore sac; Zyg : zygoma of cingulum.

narrow, with very thin membrane. Tympanum large, open, with small lobe and narrow rim. Hind femur moderately slender; lower lobes of hind knee widely rounded; spurs of hind tibia robust, internal pair about twice as long as external; arolium large. Supra-anal plate angular, with apex slightly attenuate and obtuse; cercus simple, acutely conical; subgenital plate short, obtusely conical.

Phallic complex. — Apodemus of cingulum comparatively short; zygoma wide; valve of cingulum large, as long as apical valve of penis, with subacute apex; basal valve of penis large and wide; gonopore process short, robust; apical valve of penis widened and protruding in basal, posterior part, apex subacute; flexure moderately thin. Epiphallus wide bridged, with articulated ancorae and shallowly bilobate lophi.

General colouration olive-green; dorsum of pronotum on side with pair of darker olive green patches; membrane of elytron very light olive green; venation slightly darker; hind wing colourless; hind knee black, with lower lobes, on both sides, light olive green; hind tibia bluish.

Female unknown.

Length of body 21·5; pronotum 4·6; elytron 21·0; hind femur 25·2 mm.

National Garamba Park (formerly in Belgian Congo); Iso/III, 11.VI.1952, 2 ♂ (type and paratype). Miss. H. DE SAEGER, locality No. 3612 (H. DE SAEGER).

Type in the Institut des Parcs Nationaux, République du Congo. Paratype in the British Museum (Natural History).

The specimens were found in *Isoberlinia* forest, in the herbaceous undergrowth.

This new species represents a peculiar mixture of the characters of the two near genera *Ramburiella* I. BOLIVAR, 1906, and *Kraussella* I. BOLIVAR, 1909. The venation of the elytra and the widened transverse sulci on the lateral lobes of the pronotum connect *R. garambana* with the genus *Kraussella*, while the frontal ridge being without a sulcus, the shape of the mesosternal interspace, the structure of the foveolae of the fastigium of the vertex and the shape of the male cercus connect it with *Ramburiella*. The phallic complex differs very little from either genus; in this respect there is very little difference between these two genera. As more characters link the new species with *Ramburiella* than with *Kraussella*, it is placed in the former.

Chromotruxalis liberta (BURR, 1904).

Nos. 997, 2 ♀; 1018, 1 ♀; 1412, 1 ♀. March, December.

Herbaceous and arboraceous savanna; graminaceous vegetation.

This species was described from « Slave Coast ». It was recorded from the Sudan, Uganda, Tanganyika and the former Belgian Congo.

Truxaloides tessmanni (RAMME, 1929).

Nos. 332, 1 ♀; 432, 1 ♀.

The specimens were collected in March and April, in xerophilous localities.

This species was described and previously known only from the Cameroons.

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1027 : II/e confluent Garamba-Nambirima, sur Graminées courtes, 2.I.1951 (J. VERSCHUREN).
1033 : II/e confluent Garamba-Nambirima, en savane à Graminées, 3.I.1951 (J. VERSCHUREN).
1034 : II/d, sur hautes Graminées, 3.I.1951 (J. VERSCHUREN).
1040 : II/e, en savane basse, 4.I.1951 (J. VERSCHUREN).
1041 : II/e, en savane basse, 4.I.1951 (J. VERSCHUREN).
1048 : II/d, sur Graminées diverses, 5.I.1951 (J. VERSCHUREN).
1049 : II/i, sur végétation poussant dans l'eau, 5.I.1951 (J. VERSCHUREN).
1055 : II/e, sur Graminées courtes, 6.I.1951 (J. VERSCHUREN).
1062 : II/e, sable en dessous des *Irvingia*, 8.I.1951 (J. VERSCHUREN).
1066 : II/e, sur hautes Graminées, 8.I.1951 (J. VERSCHUREN).
1067 : II/f/1, sur hautes Graminées, 9.I.1951 (J. VERSCHUREN).
1077 : II/f/1, sur Graminées subsistantes, 11.I.1951 (J. VERSCHUREN).
1078 : II/g/3, parmi les détritus végétaux, 12.I.1951 (J. VERSCHUREN).
1081 : II/i/4, 2 nids de rongeurs en surface, 15.I.1951 (J. VERSCHUREN).
1082 : II/g/11, sur tiges et « feuilles » de Papyrus, 12.I.1951 (J. VERSCHUREN).
1085 : II/g/11, sur les feuilles de *Kigelia aethiopica*, 12.I.1951 (J. VERSCHUREN).
1089 : II/g/3, sous écorces de Mitragynes, 12.I.1951 (J. VERSCHUREN).
1090 : II/g/11, sur végétation marécageuse, 12.I.1951 (J. VERSCHUREN).
1091 : II/g/11, en terre et détritus, 12.I.1951 (J. VERSCHUREN).
1092 : II/i/4, sur hautes Graminées, 15.I.1951 (J. VERSCHUREN).
1101 : II/e, enfouis dans le sable, 18.I.1951 (H. DE SAEGER).
1125 : Kassi-Garamba, 18.I.1951 (J. VERSCHUREN).
1126 : Mont Bagunda, en haute savane brûlée, 17.I.1951 (J. VERSCHUREN).
1127 : Kassi-Garamba, en savane non brûlée, 20.I.1951 (J. VERSCHUREN).
1136 : II/d, sur herbes courtes, 24.I.1951 (J. VERSCHUREN).
1137 : II/d/4, sur hautes Graminées non brûlées, 24.I.1951 (J. VERSCHUREN).
1138 : II/e, sur berges exondées depuis deux mois, 19.I.1951 (H. DE SAEGER).
1143 : II/e/17, en savane herbeuse, 20.I.1951 (H. DE SAEGER).
1144 : II/f/17, sur berges herbeuses et buissonnantes, 20.I.1951 (H. DE SAEGER).

1157 : II/g/10, sur Graminées hautes, 25.I.1951 (J. VERSCHUREN).
1163 : Nakobo/dc/8, sur feuilles de *Canthium* en galerie, 26.I.1951 (J. VERSCHUREN).
1164 : Nakobo/dc/8, sur végétaux poussant dans l'eau à 100 m, 26.I.1951 (J. VERSCHUREN).
1165 : II/fc/Garamba, sur hautes Graminées, 26.I.1951 (J. VERSCHUREN).
1167 : II/fc/5, en savane herbeuse de vallée, 31.I.1951 (H. DE SAEGER).
1176 : II/fc/5 Garamba, sur Graminées non brûlées, 1.II.1951 (H. DE SAEGER).
1191 : Source Wilibadi, sur hautes Graminées non brûlées, 31.I.1951 (J. VERSCHUREN).
1205 : Confluent Aka-Garamba, sur hautes Graminées non brûlées, 2.II.1951 (J. VERSCHUREN).
1214 : Garamba/4, sur Graminées courtes non brûlées, 3.II.1951 (J. VERSCHUREN).
1215 : Confluent Aka-Garamba, sur Graminées courtes, 1.II.1951 (J. VERSCHUREN).
1223 : ed/17, 6.II.1951 (P. SCHOEMAKER).
1227 : II/fd/4, en savane herbeuse, 7.II.1951 (H. DE SAEGER).
1228 : II/fd/4, en savane herbeuse, 7.II.1951 (H. DE SAEGER).
1240 : II/me/15, sur Graminées courtes, 9.II.1951 (J. VERSCHUREN).
1250 : II/id/4, en savane herbeuse, 14.II.1951 (H. DE SAEGER).
1251 : II/ke/4, en savane herbeuse, 15.II.1951 (H. DE SAEGER).
1259 : II/ke/4, en savane herbeuse brûlée, 15.II.1951 (H. DE SAEGER).
1260 : II/fc/Garamba, en galerie forestière, 16.II.1951 (H. DE SAEGER).
1271 : II/fc/7", en strate herbeuse courte, 17.II.1951 (H. DE SAEGER).
1273 : Gangala-na-Bodio, X.1950 (H. DE SAEGER).
1275 : II/ed/15, en strate herbeuse courte, 20.II.1951 (H. DE SAEGER).
1276 : II/gd/11, sur végétation paludicole, 19.II.1951 (H. DE SAEGER).
1280 : II/gd/4, 22.II.1951 (H. DE SAEGER).
1283 : II/gc/8, tête de source, 22.II.1951 (H. DE SAEGER).
1285 : II/gd/11, végétation paludicole, 23.II.1951 (H. DE SAEGER).
1308 : Makpe, sur hautes et courtes Graminées, 20.II.1951 (J. VERSCHUREN).
1309 : Biadimbi, sur Graminées sous des arbres, 22.II.1951 (J. VERSCHUREN).
1320 : II/fb/9, dans petite galerie forestière, 5.III.1951 (H. DE SAEGER).
1324 : II/gd/camp, 6.III.1951 (H. DE SAEGER).
1328 : II/fd/4, en savane brûlée deux mois auparavant, 3 III.1951 (J. VERSCHUREN).
1334 : II/gd/4, en savane herbeuse, 6.III.1951 (H. DE SAEGER).
1346 : II/fb/4, sur courtes Graminées, 6.III.1951 (J. VERSCHUREN).
1361 : II/gd/11, dans prairie à Cypéracées, 12.III.1951 (H. DE SAEGER).
1385 : II/fc/3, en savane arborescente, 14.III.1951 (H. DE SAEGER).
1412 : II/gd/4, en savane arborescente, 17.III.1951 (H. DE SAEGER).
1416 : II/gd/4, en savane arborescente à ligneux rares, 19.III.1951 (H. DE SAEGER).
1443 : II/hd/4, en savane herbeuse non brûlée, 23.III.1951 (H. DE SAEGER).
1444 : II/hd/4, en savane herbeuse brûlée, 23 III.1951 (H. DE SAEGER).
1458 : II/fc/5, en savane herbeuse brûlée, 27.III.1951 (H. DE SAEGER).
1464 : II/fd/11, dans marécage, 28.III.1951 (H. DE SAEGER).
1474 : II/gc/11, dans marécage, 30.III.1951 (H. DE SAEGER).
1494 : II/fd/17, en galerie forestière, 4.IV.1951 (H. DE SAEGER).
1506 : II/gf/10, Cyperaie, 6.IV.1951 (H. DE SAEGER).
1537 : II/gc/7, en prairie, 14.IV.1951 (H. DE SAEGER).
1561 : II/fb/18, volant au-dessus de la Garamba, 18.IV.1951 (J. VERSCHUREN).
1566 : II/gd/4, en parcelle d'observation 1, Graminées, 17 IV.1951 (J. VERSCHUREN).
1576 : II/fb/4, à côté de la parcelle 2, 18.IV.1951 (J. VERSCHUREN).
1588 : II/hc/4, sur hautes Graminées, 20.IV.1951 (J. VERSCHUREN).
1589 : II/hc/4, fuyant le front du feu de brousse, 20.IV.1951 (J. VERSCHUREN).
1590 : II/hc/8, sur courte végétation, 23.IV.1951 (J. VERSCHUREN).
1610 : II/gd/4, en parcelles 7 et 8, 25.IV.1951 (J. VERSCHUREN).
1612 : II/ee/14, sous écorce, 26.IV.1951 (J. VERSCHUREN).

1618 : II/gd/4, sur Graminées, parcelles 7 et 8, 25.IV.1951 (J. VERSCHUREN).
1632 : II/gd/11, en prairie paludicole, 26 IV.1951 (H. DE SAEGER).
1633 : II/ee/7, sur Graminées de différentes tailles, 27.IV.1951 (J. VERSCHUREN).
1641 : II/gd/4, en savane herbeuse dans la partie superficielle du sol, 28.IV.1951 (H. DE SAEGER).
1638 : II/ee/6, au sol, 27.IV.1951 (J. VERSCHUREN).
1645 : II/gc/11, sur végétation paludicole, 4.V.1951 (H. DE SAEGER).
1661 : II/gc/11, dans fond marécageux, 4.V.1951 (H. DE SAEGER).
1704 : II/gd/4, sur le sol, en savane brûlée en décembre, 11.V.1951 (J. VERSCHUREN).
1724 : II/fd/17, en galerie forestière, 14.V.1951 (H. DE SAEGER).
1734 : II/gd/4, au sol, 11.V.1951 (J. VERSCHUREN).
1735 : II/fb/4, au sol, 12.V.1951 (J. VERSCHUREN).
1766 : II/de/11*b*, sur Graminées en terrain marécageux, 21.V.1951 (J. VERSCHUREN).
1824 : II/fd/17, sur strate de Graminées ripicoles, 28.V.1951 (H. DE SAEGER).
1852 : II/gc/4, en savane herbeuse à ligneux rares, 1.VI 1951 (H. DE SAEGER).
1867 : II/gc/6, en savane de fond de vallée, 4.VI.1951 (H. DE SAEGER).
1872 : II/hc/8, à tête de source à boisement dégradé, 5.VI.1951 (H. DE SAEGER).
1886 : II/gc/6, en savane paludicole, 8.VI.1951 (H. DE SAEGER).
1887 : II/gd/7‴, sur frange de Graminées paludicoles, 8 VI.1951 (H. DE SAEGER).
1890 : II/fd/17, sur strate herbacée sur berges sablonneuses, 11.VI.1951 (H. DE SAEGER).
1903 : II/gd/11, sur végétation herbacée, 12.VI.1951 (H. DE SAEGER).
1907 : II/hd/4, en savane herbeuse brûlée, 14.VI.1951 (H. DE SAEGER).
1915 : II/fd/18, dans bas-fond à sec, 15.VI.1951 (H. DE SAEGER).
1916 : II/fd/17, dans galerie forestière dense, 15.VI.1951 (H. DE SAEGER).
1943 : II/fd/14, dans petite mare temporaire, 18.VI.1951 (H. DE SAEGER).
1949 : II/gd/6, en savane herbeuse sur sable gris, 20.VI.1951 (H. DE SAEGER).
1981 : II/fd/18, sur strate herbeuse, 26.VI.1951 (H. DE SAEGER).
1988 : II/gd/10, dans terrain marécageux, 27.VI.1951 (J. VERSCHUREN).
2015 : II/gc/6, sur hautes Graminées non brûlées, *Urelytrum giganteum*, 29.VI.1951 (J. VERSCHUREN).
2016 : II/gc/6, sur petits buissons divers, 29.VI.1951 (J. VERSCHUREN).
2024 : II/gd/14[8], dans mare temporaire en savane herbeuse, 30 VI 1951 (H. DE SAEGER).
2041 : II/hb/10, sur Graminées en terrain marécageux, 3.VII.1951 (J. VERSCHUREN).
2056 : II/fd/17, sur strate herbeuse, 9.VII.1951 (H DE SAEGER).
2057 : II/ge/6, sur fond partiellement marécageux, 10.VII.1951 (H. DE SAEGER).
2059 : II/ge/13[8], dans mare aux abords marécageux, 12 VII.1951 (H. DE SAEGER).
2061 : II/gd/8, dans tête de source faiblement arborée, 12.VII.1951 (H. DE SAEGER).
2080 : Haute-Makpe/9, en galerie forestière, 13.VII.1951 (J. VERSCHUREN).
2102 : II/fc/3, en savane herbeuse à ligneux rares, 16.VII.1951 (H. DE SAEGER).
2107 : II/hd/4, en savane herbeuse non brûlée, 7.VII.1951 (H. DE SAEGER).
2171 : II/fd/4, en savane brûlée, 1.VIII.1951 (J. VERSCHUREN).
2172 : II/ec/4, en savane herbeuse brûlée, 30.VII.1951 (H. DE SAEGER).
2174 : II/hc/4, en haute savane non brûlée, 1.VIII.1951 (J. VERSCHUREN).
2181 : II/gd/4, en savane brûlée, 31.VII.1951 (J. VERSCHUREN).
2236 : II/gd/14[8], en savane herbeuse brûlée, 9.VIII.1951 (H. DE SAEGER).
2243 : II/gc/6, en savane herbeuse brûlée, 9.VIII.1951 (H. DE SAEGER).
2280 : II/gc/7″, en savane, 20.VIII.1951 (H. DE SAEGER).
2293 : II/gd/4, en savane herbeuse brûlée, 23.VIII.1951 (H. DE SAEGER).
2299 : II/lf/9, en galerie à boisement très dégradé, 21.VIII.1951 (H. DE SAEGER).
2315 : II/gd/4, en savane à Graminées, 25.VIII.1951 (J VERSCHUREN).
2341 : II/fd/17, en galerie forestière claire, 31.VIII.1951 (H. DE SAEGER).
2345 : II/gd/10, dans rivière à cours dénudé, 1.IX.1951 (H. DE SAEGER).
2408 : II/fc/14, sur végétation paludicole, 14.IX.1951 (H. DE SAEGER).

2448 : II/gd/7″, sur frange de Graminées ripicoles, 20.IX.1951 (H. De Saeger).
2597 : II/gd/4, en savane herbeuse à ligneux rares, 15.X.1951 (H. De Saeger).
2654 : II/fd/5, en savane herbeuse de vallée, 23.X.1951 (H. De Saeger).
2668 : II/fd/4, en savane herbeuse non brûlée, 24.X.1951 (H. De Saeger).
2669 : II/gd/4, 27.X.1951 (H. De Saeger).
2708 : II/id/8, tête de source à boisement dégradé, 31.X.1951 (H. De Saeger).
2739 : II/gd/4, en savane herbeuse, 8 XI.1951 (H. De Saeger).
2744 : II/me/10, en cours d'eau à découvert, 12.XI.1951 (H. De Saeger).
2765 : II/id/8, dans tête de source, 17.XI.1951 (H. De Saeger).
2768 : PpK/55/d/8, dans tête de source à découvert, 19.XI.1951 (H. De Saeger).
2774 : II/gc/13ª, dans mare permanente, 21.XI.1951 (H. De Saeger).
2780 : II/gd/4, en savane herbeuse, 23.XI.1951 (H. De Saeger).
2806 : II/fc/18, sur Graminées, 24.XI.1951 (H. De Saeger).
2831 : II/gd/4, en savane herbeuse non brûlée à la saison sèche, 30.XI.1951 (H. De Saeger).
2861 : II/hd/4, en savane herbeuse, 6 XII.1951 (H. De Saeger).
2862 : II/gd/4, en savane herbeuse, 5.XII.1951 (H. De Saeger).
2863 : II/gd/4, en savane herbeuse, 5.XII.1951 (H. De Saeger).
2881 : II/fc/14, dans mare temporaire en cours de dessiccation, 10.XII.1951 (H. De Saeger).
2882 : II/gc/10, dans ruisseau sans couvert, 11.XII.1951 (H. De Saeger).
2901 : II/gd/8, dans tête de source dénudée, 13.XII.1951 (H. De Saeger).
2910 : II/fd/17, en galerie forestière très claire, 14.XII.1951 (H. De Saeger).
2916 : II/gc/15, dans partie marécageuse récemment asséchée, 17.XII.1951 (H. De Saeger).
2917 : II/gc/15, en partie herbeuse dans une plaine marécageuse, 17.XII.1951 (H. De Saeger).
2928 : II/gd/4, en savane herbeuse, 19.XII.1951 (H. De Saeger).
2935 : II/fd/10, sur petit vallon dénudé, 20.XII.1951 (H. De Saeger).
2939 : II/fd/18, sur berge, boisement relique de galerie, 21.XII.1951 (H. De Saeger).
2940 : II/gd/4, en savane herbeuse, 22.XII.1951 (H. De Saeger).
2941 : II/fc/6, en savane de vallée, 26.XII.1951 (J. Verschuren).
2943 : II/fc/14, dans mare temporaire, 26.XII.1951 (J. Verschuren).
2944 : II/gd/4, en savane, 27 XII.1951 (H. De Saeger).
2945 : PpK/15, en savane herbeuse, 24.XII.1951 (H. De Saeger).
2954 : II/gd/10, dans petit ruisseau à cours dénudé, 28.XII.1951 (H. De Saeger).
2967 : II/gd/10, dans petit ruisseau à cours dénudé, 28.XII.1951 (H. De Saeger).
2998 : Mabanga/8″, dans petite tête de source légèrement boisée, 8.I.1952 (H. De Saeger).
3011 : II/fd/6, en savane sans ligneux, 15.I.1952 (J. Verschuren).
3012 : II/fe/6, en savane herbeuse, 16.I.1952 (J. Verschuren).
3024 : II/gd/11, dans petit marécage découvert, 18.I.1952 (H. De Saeger).
3030 : II/fd/17, en galerie forestière, 19 I.1952 (H. De Saeger).
3033 : II/gd/10 Nambirima, sur plantes aquatiques, 24.I.1952 (J. Verschuren).
3034 : II/gd/10, sur plantes aquatiques, 24.I.1952 (J. Verschuren).
3080 : II/id/9, dans vallon encaissé, 31.I.1952 (H. De Saeger).
3083 : II/dd/9, en galerie forestière, 1.II 1952 (H. De Saeger).
3096 : II/cc/9, en galerie forestière très éclaircie, 5.II.1952 (H. De Saeger).
3100 : II/fd/18, sur berges sablonneuses, 7.II.1952 (H. De Saeger).
3116 : II/hc/8, à tête de source à boisement dégradé, 9.II.1952 (H. De Saeger).
3123 : II/fd/17, en galerie forestière dense (massif), 13 II.1952 (H. De Saeger).
3124 : II/gd/4, en savane herbeuse, 11.II.1952 (H. De Saeger).
3125 : II/fd/17, en galerie forestière dense (massif), 13.II.1952 (H. De Saeger).
3129 : II/fd/15, en marécage partiellement asséché, 15.II.1952 (H. De Saeger).
3134 : Mabanga/9″, dans rivière marécageuse à cours dénudé, 19.II.1952 (H. De Saeger).
3140 : II/me/9, sur vestiges dégradés de galerie forestière, 26.II.1952 (H. De Saeger).

3142 : Ndelele/11, sur fond marécageux (à sec), 21.II.1952 (H. De Saeger).
3144 : Utukuru/8, en galerie forestière dense, 22.II.1952 (H. De Saeger).
3149 : PpK/56/d/8, en galerie forestière, 27.II.1952 (H. De Saeger).
3150 : II/gd/4, en savane herbeuse, 25.II.1952 (H. De Saeger).
3158 : II/fd/18, sur berge sablonneuse en voie de recolonisation, 3.III.1952 (H. De Saeger).
3161 : II/je/9, en galerie forestière, 4.III.1952 (H. De Saeger).
3167 : PpK/10/d/10, dans rivière à cours dénudé, 5 III.1952 (H. De Saeger).
3178 : II/fd/12, sur végétation paludicole, 10.III.1952 (H. De Saeger).
3188 : Morubia/9, en galerie forestière très éclairée, 12.III.1952 (H. De Saeger).
3197 : Anie/9, en galerie forestière, 18.III.1952 (H. De Saeger).
3201 : Tori/9-Soudan, lambeau de la galerie forestière, 20.III.1952 (H. De Saeger).
3202 : Tori/10-Soudan, en vallon marécageux sans couvert, 20.III.1952 (H. De Saeger).
3215 : Pali/9, dans ruisseau à courant très faible, 22.III.1952 (H. De Saeger).
3224 : PFSK/17/d/10, dans rivière à cours dénudé, 26.III.1952 (H. De Saeger).
3229 : PFSK/8/d/9, en galerie forestière claire, 25.III.1952 (H. De Saeger).
3234 : II/eb/9, en galerie forestière dégradée, 13.III.1952 (H. De Saeger).
3277 : PpK/51/g/9, en galerie forestière, 2.IV.1952 (H. De Saeger).
3287 : II/gc/6, en savane herbeuse, 5.IV.1952 (H. De Saeger).
3290 : PpK/14/g/14^{s}, dans petite mare temporaire, 4 IV.1952 (H. De Saeger).
3311 : II/PpK/73/d/9, en lisière d'un ravin fortement boisé, 8.IV.1952 (H. De Saeger).
3328 : Pidigala, en savane arborescente, 23.IV.1952 (H. De Saeger).
3347 : Mt Embe, dans rivière Mapanga, 20.IV.1952 (H. De Saeger).
3377 : Keroma/9, dans rivière Keroma (J. Verschuren).
3387 : Mt Embe, 20.IV.1952 (H. De Saeger).
3399 : II/gc/11, dans ruisseau dans un vallon dénudé, 29.IV.1952 (H. De Saeger).
3410 : II/gd/4, en savane herbeuse, 2.V.1952 (H. De Saeger).
3416 : II/le/8, à tête de source boisée, 3.V.1952 (H. De Saeger).
3424 : II/fd/7″, sur abords marécageux, 5.V.1952 (H. De Saeger).
3429 : II/fd/18, sur berges sablonneuses, 6.V.1952 (H. De Saeger).
3431 : II/fd/17, en galerie forestière (massif), 7.V.1952 (H. De Saeger).
3449 : II/gd/4, en savane herbeuse, 8.V.1952 (H. De Saeger).
3461 : Inimvua, en savane arborescente claire (sommet 1.090 m), 16.V.1952 (H. De Saeger).
3468 : Dedegwa, en galerie forestière dense (type guinéen), 17.V.1952 (H. De Saeger).
3476 : Aka, en savane arborescente, 19.V.1952 (H. De Saeger).
3480 : Inimvua, en savane arborescente claire (sommet 1.090 m), 16.V.1952 (H. De Saeger).
3488 : Inimvua, en savane boisée à *Lophira*, 20.V.1952 (H. De Saeger).
3501 : PpK/14/2, en savane boisée à *Crossopteryx*, 9.V.1952 (H. De Saeger).
3567 : II/hd/6, en savane herbeuse de fond de vallée, 30.V.1952 (H. De Saeger).
3642 : Iso II/11, à vallon à Herbacées paludicoles, 16.VI.1952 (H. De Saeger).
3643 : Iso II, en forêt d'*Isoberlinia* très claire, 16.VI.1952 (H. De Saeger).
3653 : PFSK/20/9, en prairie à Herbacées paludicoles, 14.VI.1952 (H. De Saeger).
3656 : PFSK/5/3, en savane arborescente à *Combretum*, 20.VI.1952 (H. De Saeger).
3678 : Ndelele/4, en savane herbeuse, 18.VI.1952 (H. De Saeger).
3694 : II/fd/4, en savane herbeuse, 3.VI.1952 (H. De Saeger).
3700 : II/fc/11, en plaine marécageuse, 25.VI.1952 (H. De Saeger).
3701 : II/gd/11, en vallon marécageux, 24.VI.1952 (H. De Saeger).
3706 : II/gd/4, en savane herbeuse, 26.VI.1952 (H. De Saeger).
3708 : II/fd/18, sur berges de terre, 28.VI.1952 (H. De Saeger).
3719 : II/gd/17, en petite galerie forestière, 30.VI.1952 (H. De Saeger).
3729 : II/fe/7, dans prairie à paludicoles, 4.VII.1952 (H. De Saeger).
3778 : II/gc/8, à tête de source à boisement dégradé, 17.VII.1952 (H. De Saeger).
3811 : Utukuru/4, en savane herbeuse sur dalle latéritique, 22.VII.1952 (H. De Saeger).
3820 : PFNK/12/9, en galerie forestière, 24.VII.1952 (H. De Saeger).

3844 : Mt Moyo, sur dôme granitique à Graminées basses, 29.VII.1952 (H. De Saeger).
3862 : II/gd/11, dans prairie marécageuse à Cypéracées, 24.VII.1952 (H. De Saeger).
3876 : Mabanga, sur plateau herbeux sur dalle latéritique, 15.VII.1952 (H. De Saeger).
3884 : II/fd/12, dans chenal dépendant de la Garamba, 5.VIII.1952 (H. De Saeger).
3923 : II/gd/4, en savane herbeuse à *Loudetia*, 8.VIII.1952 (H. De Saeger).
3940 : II/gc/17, en savane herbeuse paludicole, 14.VIII.1952 (H. De Saeger).
3964 : II/gd/4. en savane herbeuse à *Loudetia* sur plateau, 22.VIII.1952 (H. De Saeger).
3952 : II/gd/6, en savane herbeuse, 19.VIII.1952 (H. De Saeger).
3958 : II/hd/4, en savane herbeuse de crête, 20.VIII.1952 (H. De Saeger).
3982 : II/fc/5, en savane herbeuse de vallée, 26.VIII.1952 (H. De Saeger).
3983 : II/fd/17, sur talus de berge boisée, 27.VIII.1952 (H. De Saeger).
3988 : II/nf/4, en savane herbeuse de crête, 28.VIII.1952 (H. De Saeger).
4008 : II/jd/11, sur vallon marécageux sans ombrage, 1.IX.1952 (H. De Saeger).
4038 : II/nf/18, dans prairie à Graminées, 6.IX.1952 (H. De Saeger).
4054 : II/gd/4, en savane herbeuse à *Nephrolepis* et *Ophioglossum*, 12.IX.1952 (H. De Saeger).
4078 : II/fd/4, en savane herbeuse, 22.IX.1952 (H. De Saeger).
4083 : II/fd/17, en galerie forestière claire, 25.IX.1952 (H. De Saeger).
4085 : II/gd/8, à tête de source marécageuse, 24.IX.1952 (H. De Saeger).

INDEX
ARRANGED ALPHABETICALLY

FAMILIES AND SUBFAMILIES.

GENUS.

SPECIES.

Published December 31, 1964.

PARC NATIONAL DE LA GARAMBA. — MISSION H. DE SAEGER

en collaboration avec

P. BAERT, G. DEMOULIN, I. DENISOFF, J. MARTIN, M. MICHA, A. NOIRFALISE, P. SCHOEMAKER, G. TROUPIN et J. VERSCHUREN (1949-1952)

Fascicule 44 (4)

SCATOPSIDAE [1]
(DIPTERA NEMATOCERA)

BY

EDWIN F. COOK (St. Paul, U. S. A.)

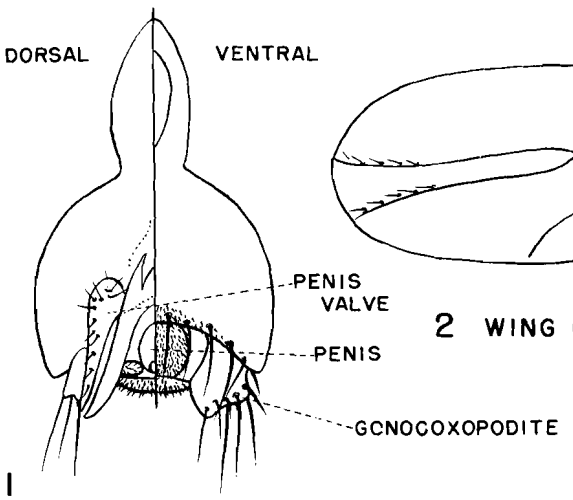
A number of specimens of *Scatopsidae* (32) have recently been examined that were collected in the Congo in 1951 and 1952 in Garamba National Park mostly by H. DE SAEGER. These specimens were collected in a number of localities and in all months of the year except January, May, June and October. All of these specimens represent a single therefore undescribed species.

Rhegmoclema garambiensis n. sp.

M a l e s : Total length 1,27-1,63 mm. Color generally dark-brown, subshining; head jet black, shining; tibiae and halteres concolorous with body; pulvilli bright yellow; wings clear, shining.

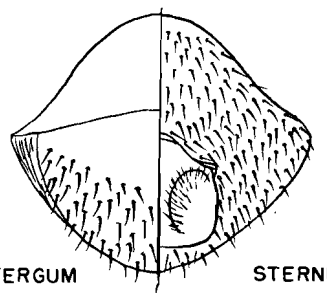
Head, thorax and abdomen covered with numerous, fairly long setae, except anterior four abdominal terga sparsely covered with much smaller setae than on the remainder of the body. Supraalar setae 5, in a regular row; subspiraculars 2. Antennae 12-segmented, each segment with 8 to 9 larger setae in addition to microtrichia; maxillary palpi short (0,063 to 0,075 mm in length), ovoid; all tibiae with short, comb-like rows of stout setae at apex; all metatarsi with stout, blunt spines on inner face of apical one half; claws stout.

[1] Paper. No. *5313*, Scientific Journal Series, Minnesota Agricultural Experiment Station, S. Paul, Minnesota.

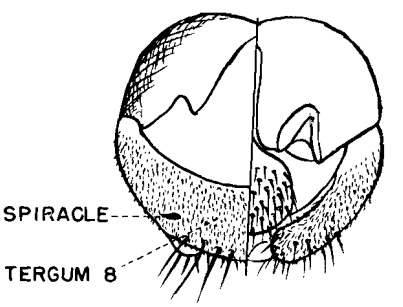


1 TERMINALIA OF MALE

2 WING OF MALE



3 SEGMENT 7 OF MALE



4 TERMINALIA OF FEMALE

RHEGMOCLEMA GARAMBIENSIS

Wing (fig. 2) 1,13-1,27 mm long; third section of costal margin 3,3 times as long as second; M_1 interrupted at base; all veins with macrosetae, except basal $R+M$ and Cu_{1a}; a few setae on membrane behind Cu_{1b}.

Abdominal tergum one largely covered with minute sclerotized rings, each bearing a number of minute conical projection, as in *R. basilewskyi* Cook from Tanganyika. No such structures appear on any other terga however. Posterior margin of sternum 6 with from 22 to 30 stout, blunt,

spiniform setae; occasionally 2 such spiniforms on sternum 5; sternum 1 unsclerotized; 3rd, 4th, and 5th terga very sparsely setaceous; sterna of these segments with more numerous, larger setae, sixth and seventh segments equally setaceous and with subequal setae; posterior margin of sternum six emarginate; segment 7 (fig. 3) as in other *Rhegmoclema*; genital vesica and apodemes 0,39 to 0,44 mm; male genitalia illustrated in figure 1.

Females: Total length somewhat smaller than the male, 1,14 to 1,50 mm; colored as in male; wing length as in the males, 1,13-1,27 mm; chaetotaxy very like that of males; supraalars 5-7; subspiraculars 1-2; head, antennae and mouth parts as in male; chaetotaxy of legs as in male, except metatarsal setae not notably enlarged; wing as in male. Abdominal terga are covered with microspines but no sclerotized rings; abdominal chaetotaxy like that of male; sternum 6 with 20-32 stout, spiniform setae at posterior margin; sternum 7 somewhat emarginate posteriorly. A single ovoid spermatheca present, 0,15-0,16 mm, female genitalia as in figure 4.

On the evidence provided by the male genitalia and the structure of abdominal tergum 1 of the male, this species seems to be most nearly related to *Rhegmoclema basilewskyi* COOK from Tanganyika.

All of the specimens in the list below were collected either by sweeping, beating or picking up individuals. They were taken in savannah, forest galleries, swampy areas with marshy vegetation or on vegetation near river banks. One collection (1625) was made from elephant dung. The majority of specimens came from wet areas. This agrees with the limited amount of information available already on species of this genus.

Holotype: ♂, Congo. Parc National de la Garamba, Mission H. DE SAEGER. II/fd/6, 15.I.1952 (J. VERSCHUREN, 3011).

Paratypes: 2 ♀♀, data as above except II/ee/4, 27.IV.1951 (J. VERSCHUREN, 1625); 1 ♀, 3 ♂♂, II/fd/12, 5.VIII.1952 (H. DE SAEGER, 3884); 1 ♀, II/fd/17, 27.VIII.1952 (H. DE SAEGER, 3983); 1 ♀, 4 ♂♂, II/fd/17, 3.I.1952 (H. DE SAEGER, 2991); 1 ♀, II/fd/18, 8.IX.1951 (H. DE SAEGER, 2395); 1 ♀, II/he/4, 26.VII.1951 (J. VERSCHUREN, 2161); 1 ♂, II/fc/11, 25.VI.1952 (H. DE SAEGER, 3700); 2 ♂♂, II/ce/9, 5.II.1952 (H. DE SAEGER, 3096); 1 ♂, II/gd/8, 10.IV.1952 (H. DE SAEGER, 3313); 2 ♂♂, I/b/3, 21.XII.1949 (H. DE SAEGER, 63); 2 ♂♂, II/fd/17, 31.VII.1951 (J. VERSCHUREN, 2182); 1 ♂, II/fd/18, 21.V.1951 (H. DE SAEGER, 1796); 1 ♂, II/gd/9, 8.XI.1951 (H. DE SAEGER, 2740); 2 ♂♂, II/fd/12, 10.III.1952 (H. DE SAEGER, 3178); 3 ♂♂, II/fc/14, 10.XII.1951 (H. DE SAEGER, 2881).

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Fascicule 44 (5)

Genus PLEROCHILA
(HEMIPTERA HETEROPTERA, Fam. TINGIDAE)

BY

CARL J. DRAKE and FLORENCE A. RUHOFF (1)

The lacebug genus *Plerochila* DRAKE (1954) was erected to hold *Teleonemia australis* DISTANT from South Africa and *Cysteochila horvathi* SCHOUTEDEN from Mauritius. Since then, two other species *Plerochila zululandana* DRAKE from South Africa, and *P. rutshurica* SCHOUTEDEN from the Congo, have been described.

The present paper transfers *Cysteochila tzitikamana* DRAKE (*n. comb.*) to *Plerochila* and describes two new species in the latter genus from the Congo and a third from Kenya. The Congo specimens were netted during the « Exploration du Parc National de la Garamba Mission H. DE SAEGER (1949-1952) ». The holotypes, allotypes, and most of the paratypes plus other specimens collected by Mr. H. DE SAEGER and collegues are deposited in the « Institut des Parcs Nationaux du Congo et du Rwanda », Brussels.

The authors are greatly indebted to Mr. H. DE SAEGER of the above institution for the privilege of studying several thousand specimens of lacebugs taken during the stay of the expedition in the Congo. Further reports on the Congo tingids are now being prepared for publication. The illustrations were made by Miss LISA BIGANZOLI, Washington, D. C. In the descriptions, 80 microunits equal one millimeter.

(1) Both of the Smithsonian Institution, Washington, D.C.

Genus **PLEROCHILA** DRAKE.

Plerochila DRAKE, 1954*a*, p. 69. — DRAKE and RUHOFF, 1960, p. 78.

Moderately large, nearly parallel-sided. Head very short, armed with four or five spines, the occipital pair long, stout, and appressed; frontal spines porrect and slender; bucculae wide, areolate, closed in front. Rostrum moderately long, usually with its apex reposing on mesosternum, rarely longer with apex on metasternum; sternal laminae of rostral sulcus ridgelike and non-areolate on prosternum, raised and uniseriate on mesosternum, highly elevated and mostly biseriate on metasternum, open behind. Antenna long, slender, third segment long, very slender; fourth segment moderately long, not very swollen.

Pronotum slightly to strongly convex, punctate, customarily triseriate, rarely uniseriate; lateral carinae at most not clearly perceptible on pronotal disc, generally present and well developed on backward projection of pronotum (one species without lateral carinae); paranota narrow to very wide, completely reflexed, always resting flatly on discal surface of pronotum. Ostiole and ostiolar canal present on each metapleuron; scutellum large, triangular. Legs moderately long, unarmed, the femora moderately swollen. Elytra divided into the ordinary divisions; discoidal and sutural areas on same horizontal level; costal area narrow, uni- or biseriate; discoidal area large, extending backwards beyond middle of hemelytron. Hind wings long, functional. Brachypterous form unknown. Hypocostal laminae uniseriate.

Type species, *Teleonemia australis* DISTANT (fig. 1).

Allied to *Cysteochila* STÅL, but readily separated from it and related genera by the following features : 1) greatly elevated rostral laminae on metasternum (each lamina wide, largely biseriate, and concave on inner side; 2) completely reflexed paranota, each resting flatly on discal surface of pronotum; and 3) incomplete development or lack of lateral carinae on pronotal disc, but usually present and plainly visible on backward projection of hind margin of pronotum.

Most of the species of *Plerochila* have been recorded as feeding and breeding on the underside of the leaves of cultivated and wild olives in central and southern Africa. Two of the African species found on olive trees also occur on islands of the Indian Ocean.

The lacebugs which are known to breed on the cultivated olive trees and other oleaceous plants in Australia belong to the genus *Froggattia* FROGGATT. *F. olivinia* is an important pest of the cultivated olive (*Olea europaea*) in Queensland. The African member of this genus, *F. hargreavesi* DRAKE, of Uganda, breeds on *Jasminum dichotomum.* The genus

Froggattia can be separated from *Plerochila* by the tricarinate pronotum, paranota very narrow, ridgelike and non-areolate; the rostral laminae are low and uniseriate on metasternum.

KEY TO SPECIES OF GENUS *PLEROCHILA*.

1. Paranota large, each covering nearly all of pronotal disc on its respective side of median carina; uncovered space scarcely wider than areolae in outer row of reflexed paranotum (fig. 3) 2

— Paranota smaller, each covering not more than half of discal space on its respective side of median carina; uncovered space much wider, equal to or less than the width of paranotum (figs. 1, 2) 5

2. Costal areas of elytra narrow, each composed of a single row of small areolae (fig. 3) ..... *P. nimia* n. sp.

— Costal areas wider, each composed of two rows of areolae 3

3. Costal and subcostal areas subequal in width; lateral carinae present behind pronotal disc on triangular projection 4

— Costal areas narrower, each about half as wide as subcostal area; lateral carinae obsolescent on pronotal disc, poorly developed on backward projection of pronotum ..... *P. eumepes* n. sp.

4. Pronotum clearly tricarinate; median carina slightly thicker and more elevated than lateral pair; lateral carinae very distinct behind pronotal disc, divergent posteriorly; costal and subcostal areas subequal, both in width and size of areolae; hood small ..... *P. tzitikamana* (DRAKE).

— Pronotum with median carina distinct on pronotal disc, then becoming obsolescent posteriorly; lateral carinae absent on pronotal disc, largely imperceptible on backward process; costal area slightly narrower than subcostal area; hood slightly larger and a little more inflated ..... *P. zululandana* DRAKE.

5. Paranota moderately large, each covering approximately one-half of discal space of pronotum on its respective side of median carina 6

— Paranota much narrower, each covering about one-third of pronotal disc on its respective side of median carina (figs. 1, 2) 7

6. Hood small, pyriform, extending backwards between calli; lateral carinae not or scarcely discernible on pronotal disc, distinct on backward, triangular projection ..... *P. horvathi* (SCHOUTEDEN).

— Hood smaller; lateral carinae present and fairly distinct on pronotal disc, more elevated and plainly visible on triangular prolongation of hind margin ..... *P. rutshurica* SCHOUTEDEN.

7. Rather broad, grayish testaceous, occasionally with a few dark spots; lateral carinae absent on pronotal disc, very distinct and parallel on hind triangular projection; pronotal disc little swollen; paranotum with two or three rows of areolae (fig. 1) ..... *P. australis* (DISTANT).

— Much slenderer, brownish testaceous, usually with dark fuscous markings on pronotal disc and median longitudinal part of elytra, occasionally with markings much reduced and largely absent; pronotal disc moderately swollen; lateral carinae absent; paranota mostly two areolae wide (fig. 2) ..... *P. chara* n. sp.

Plerochila australis (DISTANT).

(Fig. 1.)

Teleonemia australis DISTANT, 1904, p. 432, pl. 8, fig. 13.
Cysteochila (Parada) australis : HORVÁTH, 1925, p. 3.
Plerochila australis : DRAKE, 1954*a*, p. 69; 1954*b*, p. 663. — ORIAN, 1956, p. 647.

Oblong, moderately wide, grayish stramineous, sometimes with a few veinlets brownish or fuscous; body beneath brown to dark fuscous; buccal and sternal laminae of rostral sulcus brownish testaceous. Antenna pale brown with distal two-thirds of fourth segment blackish. Legs pale brown. Length 3,50-4,00 mm, width (elytra) 1,45 mm.

Head very short, with two basal spines thick, pale, and appressed; frontal spines short and porrect. Antennae smooth, measurements: segment I, 22; II, 14; III, 85; IV, 35. Rostrum brownish, extending to the meso-metasternal suture.

Pronotum not much swollen, less convex than in other members of genus, distinctly punctate; median carina prominent, long; lateral carinae absent on pronotal disc, distinct and parallel on triangular prolongation of hind margin of pronotum; hood very small, not extending forward in front of anterior margin of collar; extending backwards between calli, paranota narrow, either bi- or triseriate, reflexed, each covering about one-third of its respective side of pronotal disc. Elytra rather broad, divisions as depicted in illustration.

Distribution. — South Africa (Natal, Pretoria, Cape Province, Transvaal); Kenya (Turi, Limuru); Mozambique; Ethiopia; Madagascar; Mascarene Islands (Mauritius, Mauri).

According to DISTANT (1904), *australis* occurs in large numbers on the under side of the leaves of the cultivated olive (*Olea europaea*) in South Africa during the latter part of the summer. We also have specimens taken on olive trees in Central and South Africa.

The broad form, pale color, less convexly raised pronotal disc, narrow paranota (wider than in *P. chara*) and pale color separate this species from its congeners. A female paratype from South Africa is illustrated.

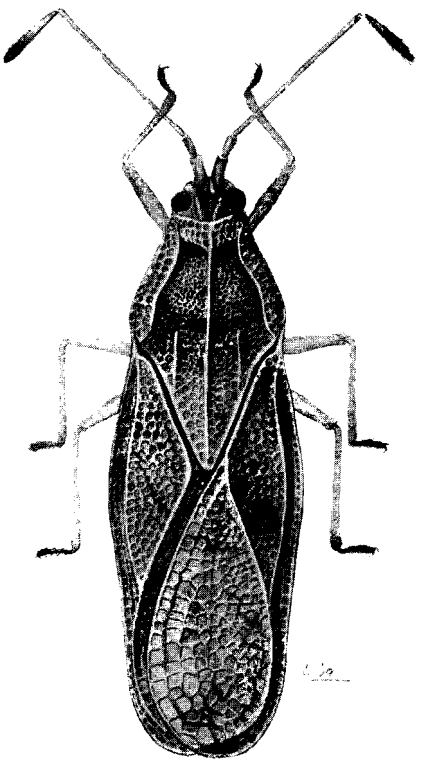

FIG. 1. — *Plerochila australis* (DISTANT).

Plerochila chara n. sp.

(Fig. 2.)

Moderately large, slender, oblong, testaceous or brownish testaceous with the blackish fuscous markings varying from one another in extent and density of color; deep blackish fuscous markings as depicted in illustration; body beneath fuscous with buccal and sternal laminae of rostral sulcus testaceous, and collar and paranota pale testaceous. Antennae pale brown with fourth segment mostly black. Legs pale brown with tip of second tarsal segment blackish. Length 3,15-3,25 mm, width 0,90 mm.

Head very short, armed with two short frontal spines and two, thick, basal ones, the latter pair appressed. Rostrum extending to middle of mesosternum; laminae very wide and biseriate on metasternum, narrower and uniseriate on mesosternum. Antenna long, slender, smooth, measurements : segment I, 24; II, 10; III, 90; IV, 38.

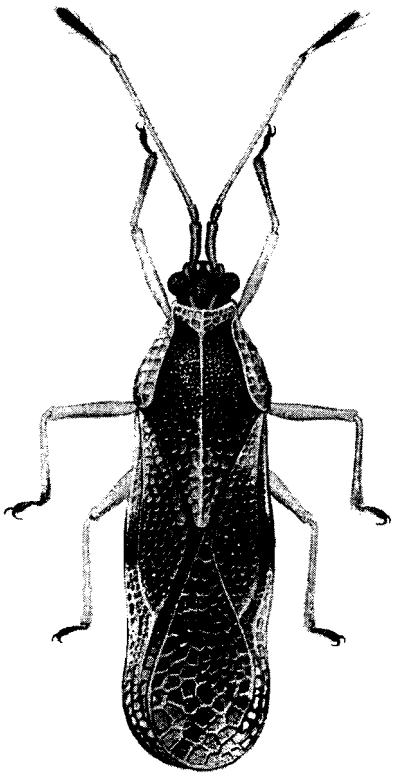

FIG. 2. — *Plerochila chara* n. sp.

Pronotum rather strongly convex, punctate, all carinae obsolescent; collar raised, truncate in front, produced backwards at middle behind so as to form a tiny hood between calli; paranota narrow, reflexed, mostly biseriate, triseriate in front, each covering about one-third of discal space on its respective side of pronotum. Ostiole and ostiolar canal present on each metapleuron, the sulcus narrow and vertical. Legs moderately long, femora slightly thickened.

Elytra slightly longer than abdomen, with discoidal areas overlapping each other in repose; costal area narrow, uniseriate; subcostal area wider, almost vertical, biseriate; discoidal area large, acutely angulate at base and apex, six or seven areolae deep at middle, on same horizontal level as sutural area. Hind wings long, densely clouded with dark fuscous.

Holotype male and allotype female: both macropterous, source of Tori River, east of Mt. Ndelele, Sudan territory (ex Garamba National Park), 20.III.1952.

Paratypes : 5 specimens collected with types : 1 specimen near permanent pond, 19.III.1952; 4 specimens in dense forest gallery along Pali River, 22.III.1952; and 2 in clearing at source of Pali River, 29.IX.1952.

Distinguished from other members of the genus by its slender, oblong form, very narrow paranota, and blackish markings in fully colored specimens.

Plerochila horvathi (SCHOUTEDEN).

Cysteochila horvathi SCHOUTEDEN, 1907, p. 286.
Cysteochila (*Parada*) *horvathi* : HORVÁTH, 1925, p. 3.
Plerochila horvathi : DRAKE, 1954*a*, p. 69; 1957, p. 401. — ORIAN, 1956, p. 647. — MAMET, 1957, p. 57.
Pleurochila (*sic*) *horvathi* : DRAKE and MAMET, 1956, p. 301.

Oblong, brown or reddish brown, sometimes with a few small marks without fixed limits; body beneath reddish brown to fuscous. Antenna brownish with terminal segment largely dark fuscous. Legs dark brown. Length 4,20 mm, width 1,20 mm.

Head very short, armed with five slender spines, frontal three porrect and occipital pair appressed. Bucculae areolate, closed in front. Rostrum reaching to middle of mesosternum; sulcus with laminae parallel and composed of one row of areolae on mesosternum; distinctly more elevated and biseriate on metasternum, open behind. Antennal measurements : segment I, 25; II, 11; III, 100; IV, 45.

Pronotum moderately convex, punctate, tricarinate; median carina distinct, long; lateral carinae absent on pronotal disc, present and slightly divergent on triangular projection; hood small, inflated; paranota moderately wide, each covering about one-half of its side of pronotal disc, not extending inwardly as far as lateral carina. Ostiole and ostiolar canal present on each metapleuron, sulcus narrow and vertical. Elytra with costal area very narrow, uniseriate, the areolae narrow, smaller than bordering row of cells in subcostal area; subcostal area biseriate, vertical, with moderately large areolae; discoidal area large, about four-sevenths as long as elytron; sutural and discoidal areas on same horizontal level.

Distribution. — Mascarene Islands (Reunion; Mauritius); Africa (Kenya; Congo; Southwest Africa). Originally described from specimens collected on olive in Mauritius. Other examples have been seen from Mauritius. Breeds on cultivated olive (*Olea europaea*), *Olea* sp., and *Jasminum* sp.

Closely related to *P. nimia* n. sp. but easily separated from it by its longer body, longer third antennal segment (100 : 80); narrower paranota, and the wider uncovered surface on paranotal disc between reflexed paranotum and median carina.

Plerochila rutshurica SCHOUTEDEN.

Plerochila rutshurica SCHOUTEDEN, 1954, p. 140.

Oblong, brown with paranota and costal areas brownish testaceous, head reddish fuscous, and body beneath blackish fuscous. Antennae brown with fourth segment largely black. Legs brown with tips of tarsi dusky. Length 3,40-4,00 mm, width (elytra) 1,00-1,20 mm.

Head very short, hind pair of spines appressed, anterior three porrect; bucculae closed in front. Antennae long, measurements : segment I, 20; II, 11; III, 110; IV, 35. Rostrum moderately long, almost reaching meso-metasternal suture; laminae of rostral channel, uniseriate on mesosternum, biseriate on metasternum, open at base. Orifice and channel of meta-thoracic scent glands present on each metapleuron. Legs with femora only slightly swollen.

Pronotum moderately swollen, pitted, tricarinate; median carinae long and well-developed, more raised than lateral pair; lateral carinae present on pronotal disc, poorly developed, divergent and disappearing anteriorly, distinct and nearly parallel on backward process of pronotum; hood small, projecting backwards between calli; paranotum covering scarcely more than one-half of pronotal disc on its side of median carina. Elytra a little longer than abdomen, sutural areas overlapping each other at rest; costal area composed of one row of areolae; subcostal area wider, nearly vertical, biseriate; discoidal area large, acutely angulate at base and apex, extending backwards beyond middle of elytron. Hind wings long, functional.

Holotype and paratypes : Rutshuru, Congo, in Musée Royal de l'Afrique Centrale, Tervuren, Belgium; paratypes also from Astrida (Ruanda) on *Olea* spp. Specimens are at hand from Limura, Uganda, and Chyulu Hills, Kenya, altitude 5.600 feet.

Allied to *P. horvathi* but longer with lateral carinae usually discernible on pronotal disc and well-developed on triangular process.

Plerochila nimia n. sp.

(Figs. 3 a, b, c.)

Oblong, testaceous-brown with pronotum brown, head dark brown to deep fuscous, and body beneath dark fuscous; buccal and sternal laminae of rostral sulcus testaceous. Legs brown, femora slightly darker. Antennae with most of last segment fuscous. Rostrum brown with apex blackish, extending on mesosternum. Length 3,25 mm, width (elytra) 1,00-1,12 mm.

Head very short, armed with four or five spines; frontal two or three spines short, porrect; hind pair long, thick, and appressed; bucculae closed in front. Antennae moderately long, indistinctly pubescent, measurements :

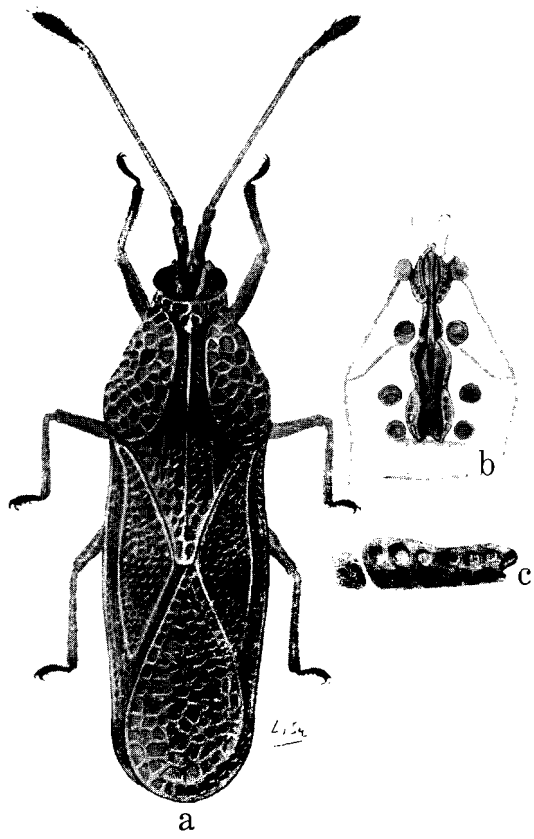

FIG. 3. — *Pterochila nimia* n. sp.
a : dorsal aspect; b : ventral view of sternum showing rostrum and sulcal laminae; c : biseriate laminae on metasternum.

segment I, 22; II, 10; III, 88; IV, 32. Pronotum convex, coarsely punctate, tricarinate; median carina long, distinct; lateral carinae obsolescent on pronotal disc, present and divergent posteriorly on backward extension of hind margin of pronotum; collar small, extended backward between calli. Paranota wide, each covering nearly all space between its outer margin and median carina, uncovered area scarcely more than width of paranotal areola.

Elytra covering and extending a little beyond apex of abdomen; costal area narrow, uniseriate; subcostal area wider, biseriate, almost vertical; discoidal area large, extending backwards beyond middle of elytron. Hind wings fully developed. Brachypterous form unknown.

Holotype male and allotype female : both macropterous, Garamba National Park (3214), taken in forest margin along Pali River.

Paratypes : about 1.250 specimens, collected in various localities, Garamba National Park. Host plant unknown.

The much wider paranota, broader form, and color marks separate this species from *P. chara* n. sp. A paratype, taken with holotype, is illustrated; note the wide rostral laminae on metasternum (fig. 3, c).

Plerochila eumepes n. sp.

Elongate, brownish testaceous, with pronotal disc, paranota, and the discoidal, subcostal and sutural areas of elytra brownish fuscous; costal areas each with median crossband fuscous; body beneath reddish brown. Antennae reddish brown with fourth segment mostly black. Legs reddish brown with tibiae yellowish brown. Length 4,80 mm, width 1,20 mm.

Head very short, armed with long, testaceous spines, the frontal spines porrect and the hind pair appressed; bucculae testaceous, closed in front. Rostrum extending to middle of mesosternum. Antennae long, measurements : segment I, 28; II, 14; III, 140; IV, 50. Pronotum moderately convex, punctate, tricarinate; median carina distinct from hood to base of pronotal disc, thence not clearly visible on triangular process; lateral carinae not clearly represented on triangular process, if present on pronotal disc covered on each side by wide paranotum. Ostiole and ostiolar sulcus present on each metapleuron. Paranota very wide, each covering almost all of its respective side of pronotal disc, the uncovered space between outer margin of paranotum and median carina scarcely as wide as outer row of areolae of paranotum. Hood moderately large, inflated, projected backwards between calli.

Elytra long, extending considerably beyond apex of abdomen; costal area rather narrow, less than half as wide as subcostal area, biseriate, the areolae small; subcostal area wide, vertical biseriate; discoidal area extending beyond middle of elytron; sutural area large, overlapping each other, with apices jointly rounded. Hind wings slightly shorter than elytra. Legs with femora slightly enlarged.

Holotype : macropterous male, Nairobi, Kenya, 8.I.1955, D. C. THOMAS, DRAKE Coll. (U.S.N.M.).

This species can be distinguished from other members of the genus with biseriate costal area by the slenderer and longer form and much narrower and biseriate costal area.

Plerochila zululandana DRAKE.

Plerochila (nom. nud.) *zululandana* DRAKE, 1953, p. 213.

Elongate, brownish with collar, cephalic spines testaceous; body beneath dark reddish brown. Length 4,00 mm, width (elytra) 1,12 mm.

Head very short, occipital spines appressed and frontal three porrect. Antennae indistinctly pubescent, segmental measurements: segment I, 27; II, 13; III, 124; IV, 35. Rostrum with apex reposing between intermediate coxae; laminae of sulcus low and non-areolate on prosternum, higher and uniseriate on metasternum, much more elvated and biseriate on metasternum, ends not meeting behind. Ostiole and ostiolar sulcus present on each metapleuron, the sulcus narrow and nearly vertical.

Pronotum moderately convex, coarsely punctate; median carina long, very distinct, without perceptible areolae; lateral carinae low, divergent posteriorly present on backward projection of pronotum, feebly indicated on rear part of pronotal disc; collar raised, with small hood projecting backward between calli, truncate in front; paranota very large, completely reflexed, with uncovered space between outer edge of paranotum narrow, scarcely wider than outer row of pronotal areolae. Elytra with costal area not as wide as subcostal area, almost entirely biseriate, slightly reflexed on basal half; subcostal area mostly biseriate, nearly vertical; discoidal area extending behind middle of elytron.

Known only from the type series of three specimens, Eshowe, Zululand.

Two other species of *Plerochila* (*tzitikamana* and *eumepes*) possess biseriate costal areas. These may be distinguished by the structures used in the key to separate the species.

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en collaboration avec

P. BAERT, G. DEMOULIN, I. DENISOFF, J. MARTIN, M. MICHA, A. NOIRFALISE, P. SCHOEMAKER, G. TROUPIN et J. VERSCHUREN (1949-1952).

Fascicule 44 (6)

PHAEOCHROUS-Arten
(COLEOPTERA POLYPHAGA, Fam. SCARABAEIDAE)

VON

SEBÖ ENDRÖDI (Budapest)

Im Jahre 1959 (Rev. Zool. Bot. Afr., 59, 3-4, pp. 287-300) befasste ich mich mit dieser Gattung und versuchte auf Grund der Literatur, der Typen der meisten Formen und auf Grund einer grossen Serie aus dem « Musée Royal de l'Afrique Centrale » in Tervuren die Zusammenhänge der vielen, bis dahin beschriebenen Formen zu klären. Es konnte schon damals festgestellt werden, dass die Formen, welche SCHOUTEDEN (1918) und BURGEON (1928) mitgeteilt haben, sehr wohl als verschiedene Formen aufzufassen sind. Diese Formen entsprachen aber nicht vollständig der Kriterien, welche heute für Arten gestellt werden, da die Weibchen nicht zu unterscheiden sind. Darum wählte ich für die taxonomische Bewertung dieser nur teilweise konspeziefische Formen eine der höchsten Unterkategorien der Art, die Semispecies.

Nun erhielt ich zwei weitere grosse Serien, die eine vom « Institut des Parcs Nationaux du Congo », in Bruxelles, welche durch Herrn H. DE SAEGER in den Jahren 1950-1952 im « Parc National de la Garamba » gesammelt wurde (1.594 Ex.), die andere vom « Musée Royal de l'Afrique Centrale », in Tervuren, welche durch Herrn F. G. OVERLAET in der Gegend von Lulua-Kapanga in den Jahren 1932-1934 gesammelt wurde (1.431 Ex.). Da diese beiden grossen Serien sehr gut geeignet sind, die vorgefundenen Formen zu vergleichen, preparierte ich die Kopulationsaparate sämmtlicher Männchen. Die ermittelten Resultate, welche das Vergleichen der beiden Populationen ermöglicht haben, sollen untenstehend mitgeteilt werden.

Ich möchte auch an dieser Stelle nicht versämen, Herrn P. BASILEWSKY, in Tervuren, und Herrn H. DE SAEGER, in Bruxelles, meinen herzlichen Dank auszusprechen, die mir dieses Material zur Bearbeitung überlassen haben.

Was die Weibchen anbelangt, muss ich auch jetzt bestätigen, dass ich bei diesen auch diesmal keine konstante und fassbare äusserlich-morphologische Merkmale vorgefunden habe, welche geeignet wären die Formen von einander speziefisch zu trennen. Ich muss auch diesmal die Weibchen, welche zum Formenkreis *Ph. madagascariensis* WESTW. gehören, nur mit dem Artnamen bezeichnen. Es könnte allerdings angenommen werden, dass die Mehrzahl der Weibchen zur selben Semispecies gehört, mit welchem sie zusammen gesammelt wurde, eine morphologisch unterbaute Trennung ist aber heute noch nicht zu erzielen. Eines ist aber auf Grund der beiden Serien deutlich zu erkennen. Die Weibchen der beiden « Gesammtpopulationen » weichen habituel von einander ab. Jene von Kapanga sind im Durchschnitt etwas (etwa 2 mm) grösser und sind fast durchwegs rotbraun. Jene vom « Parc National de la Garamba » dagegen etwas kleiner und fast alle braunschwarz. Es kommen aber unter beiden Populationen vereinzelte Exemplare vor, welche habituel eher zu der anderen Sippe gehörend erscheinen. Die Sache wäre einfach, wenn ich in den beiden Arealen nur je eine dominante Form vorgefunden hätte. Es sind aber in beiden je zwei solche vorhanden (in Kapanga semisp. *lujai* und *tumbanus*, in « Parc National de la Garamba » semisp. *schoutedeni* und *colmanti*). Die Weibchen, welche zu den je zwei Semispecies gehören, konnte ich aber nicht auseinanderhalten.

Unter den Männchen fand ich keine weitere neue Formen, und auch bei den vorhandenen scheinen die Charaktere an den Parameren ziemlich konstant zu sein. Dieser Umstand weist darauf hin, dass die Formen keineswegs chaotisch in einander zusammenfliessen, sondern dass sie als konstante Varianten anzusehen sind. Aus den Ergebnissen der Kapanga- und der « Parc National de la Garamba »-Populationen ist es offenbar, dass die unterscheidenden Eigenschaften von Generation auf Generation übertragen werden und damit wird die Möglichkeit, dass diese Formen als Aberrationen angesehen werden könnten, ausgeschlossen. In Kapanga hat nähmlich OVERLAET drei Jahre hindurch (1932-1934) stets in den Monaten September und Oktober gesammelt und fand stets dieselben dominanten Formen, in erster Reihe semisp. *lujai* und bedeutend weniger semisp. *tumbanus* vor. Dasselbe ist der Fall bei der Garamba-Population, wo DE SAEGER ebenfalls drei Jahre hindurch (1950-1952) tätig war und wo jedes Jahr dieselben Formen, u.zw. semisp. *schoutedeni* und semisp. *colmanti* dominierten.

Es muss bemerkt werden, dass die Parameren des semisp. *schoutedeni* anscheinend stark wariieren. Wie ich mich jetzt überzeugen konnte, kommen oft Exemplare vor, bei welchen die Parameren genau wie von BURGEON abgebildet (Rev. Zool. Bot. Afr., 16, 2, 1928, p. 187, Fig. 10) sind, andere entsprechen wieder meiner Abbildung (l.c., 59, 3-4, 1959, p. 291, Fig. 5). Zwischen den beiden Formen sind Übergänge vorzufinden, die meisten des Garamba-Materials stehen aber näher zur BURGEON'S Abbildung und nur wenige entsprechen genau meiner Form. In den Details sind die beiden Parameren mehr oder weniger veränderlich, ohne dass der Charakter beträchtlich beeinflusst wäre. Die in meiner erwähnten Arbeit abgebildete

Form steht zwischen semisp. *usambarae* BURG. und semisp. *schoutedeni* BURG. und dadurch wird die Annahme, dass die beiden nicht stärker abgesondert werden sollen, unterstützt.

Zwischen der Form der Parameren von semisp. *gigas* SCHOUT. und semisp. *kapiriensis* SCHOUT. sind ebenfalls deutliche Spuren von Übergängen vorgefunden worden, welche aber in jedem Falle die Zugehörigkeit zu der einen oder der anderen Form ohne Zweifel erkenen liessen. Darum glaube ich richtig zu verfahren, wenn man die beiden Formen auch weiterhin gelten lässt, obwohl die beiden auch äusserlich, besonders durch ihre gewaltige Grösse einander sehr nahe stehen.

Diese minder bedeutungsvolle Unterschiede und Übergänge sind dazu sehr gut geeignet es zu unterstützen, dass man die Formen, welche ich als Semispecies einer und derselben Art bezeichnet habe, nicht als eigene Arten betrachten soll.

Schon damals, als ich zum ersten mal eine grosse Serie untersuchen konnte, versuchte ich vergebens nachzuweisen, dass diese Formen sich geographisch ausschliessen. Auch die beiden jetzt besprochenen Serien beweisen es, dass an einer Ort und Stelle, in selber Zeitperiode mehrere Formen gemeinsam anwesend sind, dass also von einem geographisch separierten Rassenkreis nicht die Rede sein kann. Untenstehend (Tabelle 1) stelle ich die in den beiden Materialen vorgefundenen Formen zusammen. Die Fundorte werden in drei Spalten angeführt. Die beiden ersten enthalten nur die Populationen der bezeichneten Gegenden, die dritte, von anderen Fundorten des tropischen Afrika, wurde nur vollständigkeitshalber, zur Orientierung aufgenommen.

TABELLE 1.

	P.N.G.	Kapanga	Sonstige
Ph. madagascariensis WESTW.	657	808	141
Semisp. *schoutedeni* BURG.	704	—	2
Semisp. *colmanti* SCHOUT.	210	—	—
Semisp. *gigas* SCHOUT.	12	2	1
Semisp. *lujai* SCHOUT.	11	508	43
Semisp. *tumbanus* BURG.	—	113	14
Semisp. *camerunensis* ARR.	—	—	4
Semisp. *kapiriensis* SCHOUT.	—	—	17

Aus der Tabelle 1. ist es zu entnehmen, dass die Zusammensetzung der Rassen in den beiden besprochenen Arealen in grossen Ganzen verschieden ist. In Kapanga fehlen die semisp. *schoutedeni* und *colmanti*, obwohl die

letztere Form mir aus einer früheren Sendung des « Musée Royal de l'Afrique Centrale » aus Lualaba (Kakanda) bekannt ist. Dieser Umstand und das vereinzelte Vorkommen des semisp. *lujai* im « Parc National de la Garamba », welche wieder in Kapanga dominiert, sprechen dafür, dass diese Formen sich territorial nicht streng ausschliessen. Die Exemplare von semisp. *lujai* aus dem « Parc National de la Garamba » können keinesfalls als extreme Varianten einer anderen, dort dominierenden Rasse betrachtet werden, da die Parameren auch von den einigermassen ähnlichen semisp. *colmanti* konstant abweichen. (Solche extreme Varianten kommen bei den benachbarten geographischen Rassen vor, bei welchen aber die Übergänge meist sehr deutlich nachzuweisen sind.)

Andererseits, fand ich semisp. *schoutedeni* bis jetzt nur in den nordöstlichen Regionen des Congo vor (Uele, Kibali-Ituri, Kivu, alle diese vom « Musée Royal de l'Afrique Centrale » und jetzt « Parc National de la Garamba »). Dieser Umstand würde für eine geographische Absonderung sprechen, wenn man nicht in Betracht ziehen will, dass die übrigen Regionen des Congo nicht ausreichend erforscht sind. Gleich das nächste, semisp. *tumbanus* mahnt aber auf Vorsicht. Diese Form hat bis jetzt nur aus den südöstlichen Regionen, namentlich aus Lulua (M.R.A.C.) vorgelegen und in der letzten Sendung erscheinen 6 Exemplare aus Kibali-Ituri (Epulu, M.R.A.C.). Diese wiedersprechen ohne Zweifel der Annahme, dass die Form nur im Südosten einheimisch sein sollte.

Semisp. *gigas* scheint eine seltene Rasse zu sein, welche aber weit verbreitet ist und kommt auch in den beiden besprochenen Arealen vor.

Zusammenfassend können also von der Tabelle 1. folgende Folgerungen entnommen werden :

1. Unter den Populationen der beiden Arealen wurden je zwei dominante Rassen vorgefunden, welche aber in den beiden Arealen verschieden sind.

2. Es sind auch Rassen vorhanden, welche in beiden Arealen gleichfalls, wenn auch in viel kleinerer Anzahl vorzufinden sind (wie semisp. *lujai* und *gigas*).

3. Von diesen Tatsachen ist es zu schliessen, dass die Formen dieser Art einen höheren taxonomischen Wert besitzen als eine geographische Rasse, sie stehen entschieden näher zum Begriff der Art als zum Subspecies, sie entsprechen dem Artbegriff aber doch nicht vollständig. Diese Annahme wird auch durch taxonomisch-morphologische Feststellungen ausdrücklich unterstützt.

In der Tabelle 2. stellte ich das jetzt bearbeitete Material zusammen, welche mir Herr P. BASILEWSKY aus dem « Musée Royal de l'Afrique Centrale », zugesandt hat. In dieser Zusammenstellung sind viele neue Fundortsdaten enthalten, welche zur Kenntnis der Verbreitung der vorgefundenen Formen wertvoll beitragen.

TABELLE 2.

Fundort	Datum	Sammler	Name der Form	Anzahl
Lulua, Kapanga	IX.1932	F. G. OVERLAET	*madagascariensis*	33
			semisp. *lujai*	14
			semisp. *tumbanus*	1
Lulua ,Kapanga	X.1932	F. G. OVERLAET	*madagascariensis*	160
			semisp. *lujai*	128
			semisp. *tumbanus*	20
			semisp. *gigas*	2
Lulua, Kapanga	IX.1933	F. G. OVERLAET	*madagascariensis*	232
			semisp. *lujai*	116
			semisp. *tumbanus*	55
Lulua, Kapanga	X.1933	F. G. OVERLAET	*madagascariensis*	345
			semisp. *lujai*	218
			semisp. *tumbanus*	31
Lulua, Kapanga	X.1934	F. G. OVERLAET	*madagascariensis*	38
			semisp. *lujai*	32
			semisp. *tumbanus*	6
Kafakumba	I.1934	F. G. OVERLAET	*madagascaiensis*	98
			semisp. *lujai*	29
			semisp. *tumbanus*	7
Lualaba, Kolwezi	VIII.1951	V. ALLARD	*madagascariensis*	1
			semisp. *lujai*	1
			semisp. *kapiriensis*	1
Lualaba, Kakanda (Mutaka)	1955	R.P. TH. DE CATERS	semisp. *kapiriensis*	1
Lualaba, Kapolowe	1958	J. P. HERREMANS	semisp. *kapiriensis*	1
Katanga, Jadotville	1946	P. BASILEWSKY	*madagascariensis*	1
			semisp. *gigas*	1
Jadotville, Mwera	XII.1956-V.1957	R.P. TH. DE CATERS	*madagascariensis*	1
			semisp. *kapiriensis*	1
Élisabethville	XII.1948	CH. SEYDEL	*madagascariensis*	1

Fundort	Datum	Sammler	Name der Form	Anzahl
Élisabethville	XI.1950-VI.1951	CH. SEYDEL	*madagascariensis*	1
	1953-1955	CH. SEYDEL	semisp. *kapiriensis*	2
	I.1956-I.1957	CH. SEYDEL	*madagascariensis*	4
			semisp. *kapiriensis*	5
			semisp. *lujai*	1
	1957-1958	CH. SEYDEL	*madagascariensis*	1
Tanganika, Fwatuma (Albertville)	I.1954	M. LIPS	*madagascariensis*	8
			semisp. *kapiriensis*	4
			semisp. *kapiriensis gigas*	1
Kivu, Mulungu	IV.1956	J. HECQ	*madagascariensis*	1
			semisp. *schoutedeni*	1
Kivu, Terr. d'Uvira, riv. Kawezi	I.1951	N. LELEUP	*madagascariensis*	1
Kivu, Uvira	XI.1949	N. LELEUP	semisp. *lujai*	1
Kivu, Rwindi	V.1958	J. HECQ	semisp. *lujai*	3
Kibali-Ituri, Epulu	IX.1956	M. POLL	*madagascariensis*	17
			semisp. *lujai*	5
			semisp. *tumbanus*	6
			semisp. *camerunensis*	4
Kibali-Ituri, Nioka	VII-VIII.1954	J. HECQ	semisp. *schoutedeni*	1
Ituri, Terr. Bunia, mont Hoyo, 1.200 m	III.1952	N. LELEUP	*madagascariensis*	4
Ruanda, c. Est Muhavura	I.1953	P. BASILEWSKY	*madagascariensis*	1
Urundi, Kigwena, 780 m	XII.1949	R. LAURENT	semisp. *lujai*	1
Kasai, Lula, Terr. Luisa	VIII.1956	M. POLL	semisp. *lujai*	1
Bas-Congo, Mayidi	1942	R.P. VAN EYEN	*madagascariensis*	2
			dispar QUEDENFELDT	1
Cameroun, N'Kongsamba	—	J. CANTALOUBE	*amplus* ARROW	130
Madagascar, forêt de Fito	—	—	*laeviceps* FAIRMAIN	1
			madagascariensis	—
			semisp. *madagascariensis*	2

In der Tabelle 3. werden die Formen und Exemplare zusammengestellt, welche durch die Expedition von Herrn H. DE SAEGER in dem « Parc National de la Garamba » gesammelt wurden. Die Bezeichnung der Daten ist jenen der in « Exploration du Parc National de la Garamba, Mission H. DE SAEGER, Fasc. 5, Ent., 1956 » angeführten angepasst. Demnach figurieren in der ersten Spalte die bezüglichen Sammeln-Nummern, in der zweiten die Fundorte und Biotop-Angaben (siehe l. c., pp. 9 und folg.), in der dritten das Datum des Sammelns, in der vierten der Sammler, in der fünften die Bezeichnung der Form und in der sechsten die Anzahl der gesammelten Exemplare.

TABELLE 3.

N°	Fundort, Biotop	Datum	Sammler	Form	Anzahl
300	I/a/2	13.III.1950	H. DE SAEGER	*madagascariensis*	6
				semisp. *colmanti*	1
				semisp. *schoutedeni*	10
				semisp. *lujai*	3
313	I/a/M	17.III.1950	H. DE SAEGER	semisp. *schoutedeni*	1
316	I/a/1	20.III.1950	H. DE SAEGER	*madagascariensis*	1
329	Aka aval	27.III.1950	H. DE SAEGER	*madagascariensis*	285
				semisp. *lujai*	2
				semisp. *schoutedeni*	375
				semisp. *colmanti*	85
				semisp. *gigas*	8
331	I/o/1	27.III.1950	H. DE SAEGER	*madagascariensis*	10
				semisp. *lujai*	3
				semisp. *schoutedeni*	5
				semisp. *colmanti*	2
332	I/o/3	27.III.1950	H. DE SAEGER	*madagascariensis*	1
347	I/b/1	29.III.1950	H. DE SAEGER	*madagascariensis*	2
				semisp. *schoutedeni*	2
350	I/o/1	31.III.1950	H. DE SAEGER	semisp. *colmanti*	1
361	I/a/4	27.III.1950	G. DEMOULIN	*madagascariensis*	47
				semisp. *schoutedeni*	40
				semisp. *colmanti*	8
				semisp. *gigas*	1

N°	Fundort, Biotop	Datum	Sammler	Form	Anzahl
380	I/o/1	6.IV.1950	H. De Saeger	semisp. *colmanti*	1
437	I/o/1	22.IV.1950	H. De Saeger	semisp. *colmanti*	1
515	I/o/1	15.IV.1950	H. De Saeger	*madagascariensis*	100
				semisp. *schoutedeni*	98
				semisp. *colmanti*	38
				semisp. *lujai*	3
1106	Kasai-Garamba	20.I.1951	J. Verschuren	semisp. *colmanti*	1
1441	II/cb/4	23.III.1951	H. De Saeger	*madagascariensis*	1
1442	II/cb/4	23.III.1951	H. De Saeger	*madagascariensis*	1
1475	II/gd/4	24.III.1951	H. De Saeger	*madagascariensis*	9
				semisp. *colmanti*	6
				semisp. *schoutedeni*	3
1498	II/gd/4	28.II.1951	H. De Saeger	semisp. *schoutedeni*	1
1555	II/gd/4	16.IV.1951	H. De Saeger	semisp. *schoutedeni*	1
1651	II/gc/4	11.IV.1951	H. De Saeger	*madagascariensis*	164
				semisp. *schoutedeni*	95
				semisp. *colmanti*	59
2101	II/gd/4	27.V.1951	H. De Saeger	*madagascariensis*	7
				semisp. *colmanti*	4
2108	II/fb/4	18.IV.1951	J. Verschuren	semisp. *schoutedeni*	10
				semisp. *colmanti*	3
				madagascariensis	14
3210	Mabanga	24.III.1952	H. De Saeger	semisp. *schoutedeni*	2
3220	Mabanga	25.III.1952	H. De Saeger	*madagascariensis*	1
3223	PFSK, 8/d/9	25.III.1952	H. De Saeger	*madagascariensis*	6
				semisp. *schoutedeni*	57
3238	II/gd/11	11.III.1952	H. De Saeger	*madagascariensis*	3
				semisp. *schoutedeni*	2
3350	Pidigala	16.IV.1952	H. De Saeger	*madagascariensis*	1
				semisp. *schoutedeni*	2
3387	Mont Embe	20.IV.1952	H. De Saeger	*madagascariensis*	1

In der Tabelle 4. wird ein zusammenfassender Überblick über die Verbreitung der Rassen von *Ph. madagascariensis* gegeben, soweit sie mir bekannt ist. Die Nummern 1-17 in der Kopfleiste bedeuten die Landschaften des Congostaates, wie es auf die letzte officielle Landkarte angeführt erscheint, diese Landschaften sind auf der Skizze des Congo (Fig. 1) angegeben. Wegen Platzmangel liess ich die Nummern der Landschaften, in welchen bis jetzt keine Rassen gesammelt wurden, aus.

TABELLE 4.

Semisp.	5	6	8	9	10	11	12	14	17	Sonstige Länder
lujai	.	×	×	.	×	×	×	×	.	Cameroun, Gabon, Congo fr.
colmanti	×	×	×	×	.	.	×	.	.	Senegal, Cameroun
tumbanus	×	×	.	.	.	.	×	.	.	—
camerunensis	×	×	.	.	.	.	.	.	×	Cameroun, O. Afrika, Nyassa
stercorarius	.	×	.	.	.	.	.	.	.	Ostafrika
arrowi	.	.	.	.	.	.	.	.	.	Ostafrika
schoutedeni	×	×	×	.	.	.	.	.	.	—
kapiriensis	.	.	.	.	×	×	×	.	.	—
rhodesianus	.	.	.	.	.	.	.	.	.	Rhodesia
gigas	×	.	.	.	.	.	×	.	.	Rhodesia
madagascariensis ...	.	.	.	.	.	.	.	.	.	Madagascar
thomensis	.	.	.	.	.	.	.	.	.	St-Thomé

Aus den Tabellen 2-4 und aus meinen früheren Fundortsangaben scheint es, dass die meisten Rassen auf die östliche Hälfte von Afrika beschränkt sind. Es sind mir nur zwei Rassen bekannt, welche fast in der ganzen tropischen Region nachgewiesen wurden : semisp. *lujai* von Gabon bis Tanganika und semisp. *colmanti* von Senegal bis zur Ostgrenze des Congo.

Es wäre erwünscht, dass solche grosse Serien auch von anderen Gegenden untersucht werden, damit man das Verbreitungsspektrum der einzelnen Rassen weiter ausbauen kann.

Das Garamba-Material hat es ermöglicht, dass ich manches auch über die Lebensweise dieser Art mitteilen kann. Herr DE SAEGER hat nähmlich derart nützliche und reichliche Daten aufgezeichnet und in seiner Exploration auch mitgeteilt, welche bei der überwiegenden Mehrzahl der Sammelausbeuten leider vermiesst werden muss.

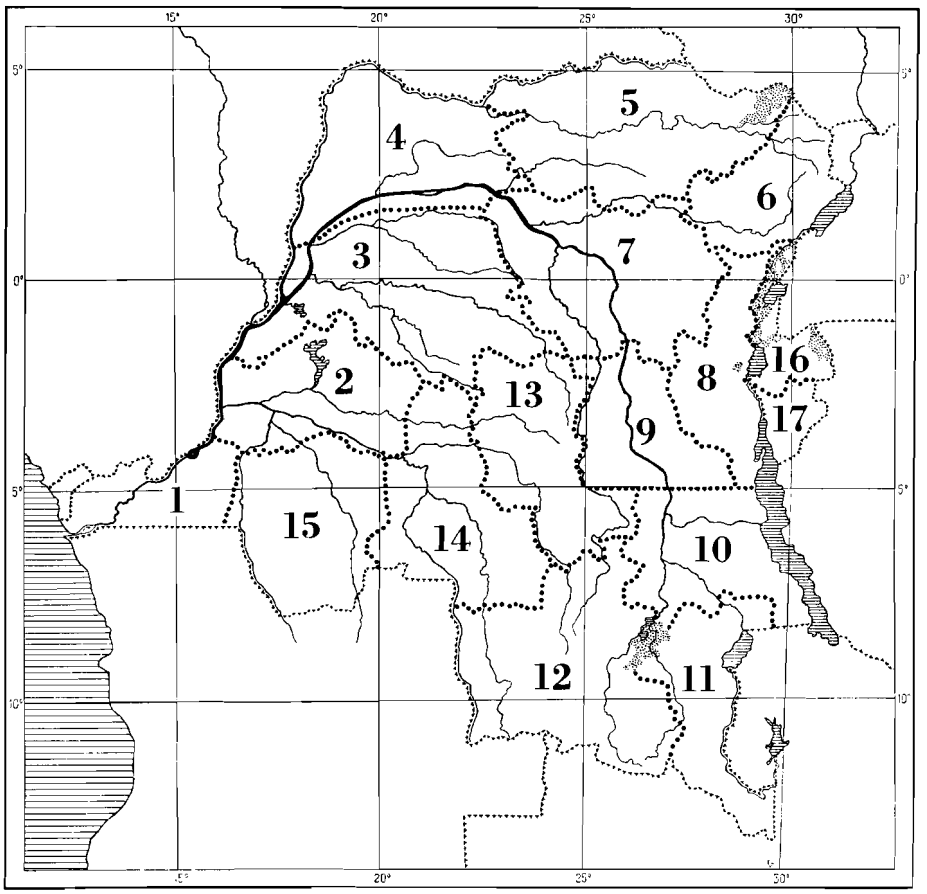

FIG. 1. — Landkarte des Congostaates.

Ich suchte in erster Reihe aus den Angaben DE SAEGER jene Daten heraus, welche auf die Nahrung und Brutstätte hinweisen. In der Tabelle 5. stellte ich dann alle Mikrobiotope zusammen, an welchen Exemplare dieser Art gesammelt wurden. Die meisten dieser Mikrobiotope lassen es annehmen, dass diese Tiere hier ihre Nahrungs- und Brutstätte haben.

Aus der Tabelle 5. geht es hervor, dass die Imagines an Kadavern von grossen Säugetieren und in Exkrementen von ebensolchen Tieren gleichfalls in Mengen vorgefunden wurden. Sie scheinen also gleichzeitg als Aasfresser und als Coprophagen zu leben. Die Sumpfgruben und die Kulturpflanzen bedeuten fast mit Sicherheit nur einen vorübergehenden

TABELLE 5.

Mikrobiotop	Sammel N°	*madagascariensis*	*schoutedeni*	*colmanti*	*gigas*	*lujai*
Rinoceros-Kadaver	329	284	375	85	8	2
Antilop-Kadaver	361	47	40	8	1	—
Büffel Exkremente	1106	—	—	1	—	—
	2108	14	10	3	—	—
Elephanten Exkremente	347	2	2	—	—	—
Fallen mit Exkrementen	515	96	98	38	—	—
	1498	—	1	—	—	—
	1651	161	95	59	—	—
	2101	7	—	4	—	—
In Sumpfgruben	300	6	10	1	—	—
Unter Baumrinde und an faulenden Bäumen.	313	—	1	—	—	—
	3223	6	57	—	—	—
Am Licht	331	9	5	2	—	3
	350	—	—	1	—	—
	380	—	—	1	—	—
	437	—	—	1	—	—
	1555	—	1	—	—	—
	3210	—	2	—	—	—
	3220	1	2	—	—	—
	3350	1	—	—	—	—
	3387	1	—	—	—	—
Kulturpflanzen	1441	1	—	—	—	—
	1442	1	—	—	—	—
Ohne Näheres	316	1	—	—	—	—
	332	1	—	—	—	—

Aufenthaltsort der Exemplare. Es wurden dann Exemplare auch unter Baumrinde und an faulenden Bäumen gesammelt. Bei Sammel-No. 3223 ist auffallend, dass hier nebst 57 Männchen nur 6 Weibchen anwesend waren. Man könnte eventuel aus diesem Umstand folgern, dass Pflanzenstoffe vielleicht nur im Notfalle als Nahrung angewendet werden, dass solche als Brutstätte möglichst vermieden werden, oder, dass solche Stellen nur als Schutzorte aufgesucht werden.

Die Sammeldaten des Materials beweisen es, dass diese Tiere bei Tag sehr eifrig tätig sind. Es stehen mir aber auch ausser diesen Daten sichere Angaben zur Verfügung, nach welchen diese Tiere nach Sonnenuntergang oft massenhaft aufs Licht fliegen. Das Schwärmen scheint also ähnlich vorzugehen, wie bei vielen Coprophagen, bei welchen am Abend beide Geschlechter herumfliegen. Es ist mir unklar, warum eigentlich im Material des « Parc National de la Garamba » nur vereinzelte Exemplare am Licht gesammelt wurden? Mein Sohn, der zur Zeit (X.1963-I.1964) im Französisch-Congo sammelt, teilt mir eben brieflich mit, dass die meisten Käfer, welche in XI.1963 in der Gegend von Brazzaville aufs Licht geflogen sind, waren Mitglieder dieser Gattung. Vielleicht hängt dieser Unterschied mit der Jahreszeit zusammen.

Es kann auf Grund der Angaben von DE SAEGER festgestellt werden, dass die starke und sicherlich sehr junge Differenzierung des *Ph. madagascariensis* WESTW. nicht auf Nahrungsbiologische Ursachen zurückzuführen ist.

Aus den mir zur Verfügung stehenden Sammeldaten, ist nicht möglich im Generationswechsel klar zu sehen. Ich sah zwar mehr als 6.000 Exemplare, aber die grossen Zahlen beschränken sich auf bestimmte kleinere Gegenden und auf mehr oder weniger kurze Zeitperioden. Nur ein Bruchteil stammt aus den verschiedensten Gegenden des Congostaates und wurde von vielen Sammlern in den verschiedensten Monaten des Jahres gesammelt. Es konnte aber festgestellt werden, dass in jedem Monat des Jahres Exemplare gesammelt wurden, die meisten Sammelfälle fallen auf März bis Mai und von August bis Dezember. In den Monaten Januar-Februar, sowie Juni-Juli fand ich nur ganz wenige Fälle vor. Es ist dabei auffallend. dass in « Parc National de la Garamba », wo von X.1949 bis IX.1952 fortlaufend gesammelt wurde, Formen dieser Art ausschliesslich aus den Monaten Januar bis Mai vorliegen, und zwar in allen drei Jahren. Daraus könnte man schliessen, dass die Art — mindestens im nordöstlichen Gegenden des Congo — jährlich nur eine Generation hat und dass die Imagines vorwiegend in den Monaten März und April schwärmen.

Dagegen im Material des « Musée royal de l'Afrique centrale » sind Exemplare von jedem Monate des Jahres vorhanden, die überwiegende Mehrzahl aber von September bis Oktober (ebenfalls drei Jahre hindurch in Kapanga, leg. F. G. OVERLAET). Es ist klar, dass in dieser Gegend in den geannten Monaten eine starke Flugperiode der Art vorliegt. In den Monaten

März und April hat aber OVERLAET in Kapanga offenbar nicht gesammelt. Wenn es sich herausstellen sollte, dass im « Parc National de la Garamba » etwa in September-Oktober und in Kapanga etwa in März-April doch eine zweite Flugperiode vorliegt, nur dann könnte man auf jährlich zwei Generationen schliessen, welche aber auch dann ziemlich stark zusammenfliessen. Die Frage muss also durch späteren Beobachtungen gelöst werden.

Ausgegeben den 31. Dezember 1964.

TABLE GÉNÉRALE DES MATIÈRES