

PARC NATIONAL DE L'UPEMBA
I. MISSION G. F. DE WITTE
en collaboration avec
W. ADAM, A. JANSSENS, L. VAN MEEL
et **R. VERHEYEN (1946-1949)**.
Fascicule 32 (3)

NATIONAAL UPEMBA PARK
I. ZENDING G. F. DE WITTE
met medewerking van
W. ADAM, A. JANSSENS, L. VAN MEEL
en **R. VERHEYEN (1946-1949)**.
Aflevering 32 (3)

CULICIDÆ

(DIPTERA NEMATOCERA)

BY

PETER F. MATTINGLY (London)

The receipt of this collection, which was kindly sent to me by the « Institut des Parcs Nationaux du Congo Belge », was particularly welcome owing to the fact that a joint study of the culicine mosquitoes of the Katanga has recently been undertaken by the present author and M. MARCEL LIPS of the « Section d'études et de recherches antimalariennes » at Elisabethville. The territories of Bukama and Mitwaba, where the collection was made, have hitherto been among the least known in the Katanga in so far as their mosquito fauna is concerned. The Upemba National Park is of particular interest because it lies wholly or largely in an isolated area of relatively low rainfall representing a westward and southward extension (now apparently discontinuous) of the great dry area of Tanganyika. It also lies at the junction of two major vegetational zones, the Southern Congo Savanna (Guinean Savanna of some phytogeographers but not of zoogeographers who restrict this term to the western portion of the northern savannas) and the dry forest (Rhodesian Forest = forêts de savane) of the High Katanga and is the site of pronounced changes in altitude from about 1.900 ft. (585 m, the level of the lake) to about 6.000 ft. (1.810 m), the highest point at which collections were made. These factors, together with the existence of large areas of swamp grass round the lake itself, are very clearly reflected in the distribution of the mosquito fauna as may be seen by comparing the species collected in the Mabwe area below 1.000 m with those collected in the Lusinga area higher up.

All the localities between [] are outside the Park's boundaries.

Genus **ANOPHELES** MEIGEN.

It is a remarkable fact that only two specimens of Anopheline mosquitoes should have been taken, one of them apparently of a species new to Science.

Subgenus ANOPHELES s. str.

Anopheles coustani LAVERAN.

Anopheles coustani LAVERAN, 1900, C. R. Soc. Biol., 52, p. 109.
Anopheles mauritanus DE GRANDPRÉ et DE CHARMOY, 1901, Les Moustiques, p. 8.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 1 ♀.

All the legs are missing but from the wing markings, this would appear to belong to the type form. The species is very widely distributed in Africa, from the Sudan to Cape Province and from Senegal to Abyssinia. It occurs also in Madagascar, the Mascarenes, South-west Arabia, Egypt and Palestine.

Subgenus MYZOMYIA BLANCHARD.

Anopheles sp. indet.

Locality. — Lusinga, 1,760 m, 22.III.1947, 1 ♀.

This is almost certainly a new species but I am unwilling to describe it as such from the single incomplete female specimen which is all the material available to me. The front legs and the last two hind tarsal segments are missing so that it cannot be run down on existing keys. On the assumption that the last two hind tarsi have dark bands it would run down on the key given by DE MEILLON (1947) to *Anopheles hargreavesi* EVANS. It differs from this species, however, in having the scutal integument much darker. In *A. hargreavesi*, as in other members of the *Anopheles marshalli* THEOBALD group, the central portion of the scutum is a pale greyish colour and contrasts sharply with the darker lateral areas. In the present species the central portion is so dark that the contrast with the lateral areas is barely noticeable. Most of the scutal scales are also smaller than in *A. hargreavesi* or any other member of the group and those on the posterior two-thirds of the median area are a rather dark golden brown in colour. Finally the sub-apical band on the palps is longer than in other members of the *A. marshalli* group, being about twice the length of the apical band, which occupies the whole of the fifth segment, and separated from it only by a narrow, rather indefinite dark band occupying rather less than the apical half of the fourth segment. It is very much to be hoped that attempts will be made to obtain further specimens of this most interesting species.

Genus **URANOTÆNIA** LYNCH-ARRIBALZAGA.

Uranotænia pallidocephala THEOBALD.

Uranotænia pallidocephala THEOBALD, 1908, Rep. Wellcome trop. Res. Lab., **3**, p. 266.

Uranotænia similis THEOBALD, 1908, loc. cit., p. 257 (Figure of wing only).

Uranotænia abnormalis THEOBALD, 1910, Monograph of the *Culicidæ* of the World, **5**, p. 512.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 1 ♀.

The only available specimen is rubbed and incomplete but shows the characteristic pleural scaling. The species is mainly West African but has recently been found in the High Katanga (MATTINGLY, 1953 *b*).

Uranotænia mayeri EDWARDS.

Uranotænia mayeri EDWARDS, 1912, Bull. ent. Res., **3**, p. 40.

Localities. — Lusinga, 1.760 m, 25.V.1945, 1 ♀; 8.III.1947, 1 ♂; 26.III.1947, 1 ♀; 9.IV.1947, 5 ♀♀; 10.IV.1947, 1 ♀; 11-18.VII.1947, 1 ♂; riv. Mubale, 1.480 m, 9.V.1947, 3 ♀♀; 10.V.1947, 1 ♀; 14.V.1947, 5 ♀♀; 18.V.1947, 4 ♀♀; riv. Munte, 1.480 m, 16.V.1947, 3 ♀♀; riv. Kamitunu, 1.760-1.800 m, 10.VII.1945, 1 ♀; [Kenia, 1.700 m, 28.III.1947, 3 ♀♀]; Mukana, 1.810 m, 14.IV.1947, 1 ♀; 15.III.1948, 1 ♀; gorges de la Pelenge, 1.150 m, 10-14.VI.1947, 2 ♀♀; Kalumengongo, 1.780 m, 18.IV.1947, 1 ♀; riv. Karibwe, 1.700 m, 8-10.III.1947, 1 ♀; riv. Mitoto, 1.760 m, 9.VII.1945, 1 ♀; rég. confl. Mubale-Munte, 1.480 m, 1-6.V.1947, 1 ♀.

Until recently this species was known only from British West Africa. A good series of both sexes has, however, now been received from the Central Kavirondo region of Kenya and I have a single specimen from the Kundelungu Plateau (MATTINGLY, 1953 *b*). Males from Lusinga and Kalumengongo show the typical modification of the tibia and first hind tarsal segment, and one female from Lusinga is in good condition and shows distal pale bands on all abdominal tergites. Specimens from other localities are all very badly rubbed and might possibly include one or two *Uranotænia alboabdominalis* THEOBALD although there are no specimens which can be assigned with confidence to this species.

Uranotænia sp. indet.

Locality. — Riv. Lukawe, 700 m, 30.IX.1947, 1 ♀.

The specimen has the abdomen and greater part of the legs missing and the remainder almost completely denuded.

Genus **AËDOMYIA** THEOBALD.**Aëdomyia africana** NEVEU-LEMAIRE.

Aëdomyia africana NEVEU-LEMAIRE, 1906, Arch. Parasit., **10**, p. 273.

Aëdomyia catastica EDWARDS (nec KNAB), 1912, Bull. ent. Res., **3**, p. 25.

Locality. — Mabwe, 585 m, 15.VIII.1947, 1 ♀.

Mainly West African but has been recorded from Nyasaland (Fort Johnston) and from the coastal region of Tanganyika (EDWARDS, 1941). This is the first record from the Katanga. The larvæ are adapted to life among floating vegetation, especially *Pistia* or, occasionally, *Lemma*.

Genus **FIGALBIA** THEOBALD.

Subgenus MIMOMYIA THEOBALD.

Ficalbia hispida THEOBALD.

Hispidimyia hispida THEOBALD, 1910, Monograph of the *Culicidæ* of the World, **5**, p. 245.

Megaculex palustris THEOBALD, 1911, *Novæ Culicidæ*, **1**, p. 13.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 2 ♀♀, 3 ♂♂; 1-14.VIII.1947, 1 ♀; 20.VIII.1947, 1 ♂; 4.IX.1947, 2 ♀♀; 4-8.IX.1947, 1 ♀; 17-22.II.1949, 1 ♀.

This is a widely distributed species occurring from West Africa to the Transvaal. I have recently received a number of specimens from the Elisabethville area. The larvæ are found mainly in swamp pools and other collections of water containing abundant aquatic vegetation.

Ficalbia lacustris EDWARDS.

Ficalbia lacustris EDWARDS, 1935, Bull. ent. Res., **26**, p. 134.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 1 ♀.

The only available specimen is incomplete and badly rubbed though showing median pale patches on the abdominal tergites. This is the first record from the Katanga and it requires confirmation. The species has previously been recorded from the Sudanese and Uganda-Unyoro savannas and the Stanleyville area. The larvæ have been found among standing végétation at the edges of swamps.

[**Ficalbia plumosa** THEOBALD.]

Culex plumosus THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **1**, p. 373.

Culex albitarsis THEOBALD, 1901, idem, **2**, p. 25.

Locality. — [Riv. Lufwa, 1.700 m, 16.III.1948, 1 ♀].

This is a widespread species occurring over most of the West African Subregion and as far south as Salisbury. It has not, however, been previously recorded from the Katanga.

Subgenus FICALBIA s. str.

Ficalbia uniformis THEOBALD.

Mimomyia uniformis THEOBALD, 1904, Rept. Wellcome trop. Res. Lab., **1**, p. 80.

Mimomyia malfeyti NEWSTEAD, 1907, Ann. trop. Med. Parasit., **1**, p. 29.

Locality. — Mabwe, 585 m, 15.VIII.1947, 1 ♂.

A widely distributed species in the West African Subregion, known also from the Katanga and as far south as Salisbury.

Genus **TÆNIORHYNCHUS** LYNCH-ARRIBALZAGA.

Subgenus COQUILLETIDIA DYAR.

Tæniorhynchus metallicus THEOBALD.

Culex metallicus THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **2**, p. 63.

Tæniorhynchus violaceus THEOBALD, 1908, Rept. Wellcome trop. Res. Lab., **3**, p. 262.

Chrysoconops nigra THEOBALD, Monograph of the *Culicidæ* of the World, **5**, p. 434.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 1 ♀, 2 ♂♂; Kaswabilenga, 700 m, 3-4.XI.1947, 1 ♀; riv. Lupiala, 700 m, 6-9.X.1947, 1 ♂.

This is a widely distributed species in the West African Subregion and as far south as Bechuanaland. The larvæ, like those of all other species of this genus, are found attached to the stems and roots of aquatic plants, from the air spaces in which they derive their oxygen.

Tæniorhynchus maculipennis THEOBALD.

Chrysoconops maculipennis THEOBALD, *Novæ Culicidæ*, **1**, p. 27.

Locality. — Lusinga, 1.760 m, 1-8.XII.1947, 1 ♀; 12-17.XII.1947, 1 ♀.

Both specimens are badly rubbed and incomplete. The record requires confirmation. *T. maculipennis* is widely distributed in the West African Subregion and as far south as the Transvaal.

Tæniorhynchus flavocinctus EDWARDS.

Tæniorhynchus flavocinctus EDWARDS, 1936, Proc. R. ent. Soc. Lond., B, **5**, p. 54.

Locality. — Kanonga, 700 m, 17-22.II.1949, 1 ♂.

The specimen in question has the hind legs missing and is much denuded but the base of the penultimate segment of the palpi is yellow and the terminalia appear typical. LIPS (1953) has a record of the related *Tæniorhynchus nigrithorax* from the Mitwaba area. *T. flavocinctus* is known only from the Katanga, Northern Rhodesia and southern Tanganyika.

Tæniorhynchus aurites THEOBALD.

Tæniorhynchus aurites THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **2**, p. 209.

Locality. — Mabwe, 585 m, 4.IX.1947, 1 ♂.

The specimen is very incomplete and the abdomen is missing. The record requires confirmation. *T. aurites* is widely distributed in the West African Subregion and is not uncommon in the Katanga.

Tæniorhynchus microannulatus THEOBALD.

Chrysoconops microannulata THEOBALD, 1911, *Novæ Culicidæ*, **1**, p. 26.

Tæniorhynchus chubbi EDWARDS, 1915, Bull. ent. Res., **5**, p. 280.

Localities. — Mabwe, 585 m, 1-12.VIII.1947, 3 ♀♀; 1-15.VIII.1947, 1 ♂; 26.VIII.1947, 2 ♀♀; 9.IX.1947, 3 ♀♀; Kanonga, 700 m, 17-22.II.1949, 1 ♀.

This species is known from the Sudan, Uganda, Tanganyika, the Katanga, Northern Rhodesia and Natal.

Subgenus MANSONIOIDES THEOBALD.

Tæniorhynchus africanus THEOBALD.

Panoplites africana THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **2**, p. 187.

Mansonia major THEOBALD, 1903, idem, **3**, p. 270.

Mansonia nigerrima THEOBALD, 1910, idem, **5**, p. 450.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 6 ♀♀; 15.VIII.1947, 1 ♂; 20.VIII.1947, 1 ♀; 26.VIII.1947, 3 ♀♀; 4.IX.1947, 1 ♀.

This species and the one which follows are major pests over most of tropical Africa.

Tæniorhynchus uniformis THEOBALD.

Panoplites uniformis THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **2**, p. 180.

Panoplites africanus var. *reversus* THEOBALD, loc. cit, p. 189.

Mansonia marquesensis DYAR, 1925, Insec. Inscit. menstr., **13**, p. 43.

Localities. — Mabwe, 585 m, 1-12.VIII.1947, 80 ♀♀, 2 ♂♂; 1-15.VIII.1947, 35 ♀♀; 15.VIII.1947, 6 ♀♀; 20.VIII.1947, 3 ♀♀; 21-28.VIII.1947, 6 ♀♀; 26.VIII.1947, 15 ♀♀; 4.IX.1947, 20 ♀♀; 4-8.IX.1947, 4 ♀♀; Kaswabilenga, 700 m, 3-4.XI.1947, 1 ♀; 3-8.XI.1947, 2 ♀♀; Kanonga, 700 m, 17-22.II.1949, 2 ♀♀; riv. Kande, 700 m, 25.IX.1947, 1 ♀; Lukawe, 700 m, 30.IX.1947, 1 ♀; Lusinga, 1.760 m, 6.VIII.1947, 2 ♀♀.

Besides being very widely distributed over tropical Africa this species is known from Madagascar, much of the Oriental Region, the Solomons, Northern Australia, New Guinea, China and Japan.

Genus **ÆDES** MEIGEN.

Subgenus STEGOMYIA THEOBALD.

Aëdes schwetzi EDWARDS.

Aëdes schwetzi EDWARDS, 1926, Bull. ent. Res., **17**, p. 127.

Locality. — Lusinga, 1.760 m, 7.IV.1947, 1 ♀.

This species is known only from the Katanga and adjacent areas of Northern Rhodesia except for some unconfirmed records from the Costermansville area (MATTINGLY, 1953 a).

Aedes africanus THEOBALD.

Stegomyia africana THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **1**, p. 304.

Stegomyia dubia THEOBALD, 1910, idem, **5**, p. 170.

Locality. — Gorges de la Pelenge, 1.150 m, 10-14.VI.1947, 1 ♀.

This is the principal African vector of forest yellow fever from monkey to monkey. It is found throughout the West African Subregion and in the Rhodesian Highland district as far south as Ndola. Isolated populations occur in Abyssinia and at Taveta and are suspected to occur in the Zomba area and northern Mozambique.

Subgenus AEDIMORPHUS THEOBALD.

Aedes argenteopunctatus THEOBALD.

Stegomyia argenteopunctata THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **1**, p. 316.

Aedimorphus quinquepunctata THEOBALD, 1913, Ann. trop. Med. Parasit., **7**, p. 598.

Localities. — Piste Lupiala, 900-1.200 m, 23.X.1947, 1 ♀; Lusinga, 1.760 m, 26.III.1947, 1 ♀.

This species is widely distributed in the West African Subregion and is known also from the Sudan, Kenya (Nairobi), the Katanga, Nyasaland (Zomba) and S. Rhodesia.

Aedes leptolabis EDWARDS.

Aedes leptolabis EDWARDS, 1936, Proc. R. ent. Soc. Lond., B, **5**, p. 51.

Localities. — Rég. confl. Mubale-Munte, 1.480 m, 1-6.V.1947, 4 ♀♀, 1 ♂; 13-18.V.1947, 22 ♀♀; riv. Mubale, 1.480 m, 6.V.1947, 4 ♀♀; 9.V.1947, 15 ♀♀, 3 ♂♂; 10.V.1947, 1 ♀; 14.V.1947, 10 ♀♀, 2 ♂♂; 18.V.1947, 24 ♀♀, 1 ♂; riv. Munte, 1.480 m, 16.V.1947, 18 ♀♀, 2 ♂♂; Lusinga, 1.760 m, 24.V.1945, 2 ♀♀; 28.V.1945, 1 ♀; 12.VI.1945, 1 ♀; 13.VI.1945, 1 ♀; 26.III.1947, 1 ♀; 10.IV.1947, 2 ♀♀; 11-18.VII.1947, 1 ♀; 1-8.XII.1947, 1 ♂; 9-17.XII.1947, 2 ♀♀; 12-17.XII.1947, 3 ♀♀; riv. Kamitunu, 1.760-1.800 m, 10.VII.1945, 4 ♀♀; 11.VII.1945, 2 ♀♀; [riv. Kenia, 1.700 m, 28.III.1947, 3 ♀♀]; Mukana, 1.810 m, 18.III.1948, 2 ♀♀; riv. Dipidi, 1.700 m, 22.IV.1947, 2 ♀♀; Kabwe-sur-Muye, 1.320 m, 12-14.V.1948, 1 ♀; 16-25.V.1948, 1 ♀; 20-25.V.1948, 2 ♀♀; gorges de la Pelenge, 1.150 m, 10-14.VI.1947, 3 ♀♀; 21-23.VI.1947, 1 ♀; riv. Lukawe, 700 m, 28.X.1947, 1 ♀; Kankunda, 1.300 m, 13-19.XI.1947, 1 ♀.

This species occurs very abundantly on the Kundelungu Plateau and has been found near Sampwe in the territory of Mitwaba (LIPS, 1953). It has also been found in Uganda and the Leopoldville area.

Aedes tarsalis NEWSTEAD.

Duttonia tarsalis NEWSTEAD, 1907, Ann. trop. Med. Parasit., **1**, p. 18.

Reedomyia biannulata THEOBALD, 1907, Monograph of the *Culicidæ* of the World, **4**, p. 263.

Reedomyia bipunctata, THEOBALD, 1910, idem, **5**, p. 256.

Locality. — Kalumengongo, 1.800 m, 18.IV.1947, 1 ♀, 1 ♂.

This is a common species throughout the savannas of the western subregion and in the High Katanga. In the latter it has probably been misnamed *Aedes filicis* DE MEILLON and INGRAM owing to unsuspected variability of the larva. It has also been found in the Nairobi area and the Central Kavirondo.

Aedes quasiunivittatus THEOBALD.

Culex quasiunivittatus THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **2**, p. 32.

Locality. — Lusinga, 1.760 m, 1-8.XII.1947, 1 ♂.

The identification was confirmed by dissection of the terminalia. The distributional area of this species extends from the Sudan through Abyssinia, Uganda, the Kivu Highlands and the Katanga southwards to Natal.

Aedes dentatus THEOBALD.

Culex dentatus THEOBALD, 1905, Rept. Wellcome trop. Res. Lab., **1**, p. 75.

Culex pallidopunctata THEOBALD, 1911, Rep. vet. Res. S. Afr., **1**, p. 267.

Locality. — Lusinga, 1.760 m, 15.III.1947, 1 ♀; 1-8.XII.1947, 1 ♀; 9-17.XII.1947, 1 ♂; 12-17.XII.1947, 1 ♂.

This species is related to the last one. It extends southwards from Abyssinia into the Kenya Highlands and through Uganda, Ruanda-Urundi and the Katanga to the Transvaal and the Orange Free State.

Aedes dentatus THEOBALD group.

Localities. — Lusinga, 1.760 m, 1-8.XII.1947, 2 ♀ ♀; Ganza, 860 m, 27.VI-2.VII.1949, 1 ♀.

These specimens are too incomplete and badly rubbed for positive identification. They may include either or both of the last two species and/or the next. In addition there is reason to suspect the presence of another species, as yet undescribed in the same general area as the last two.

Aedes cumminsi THEOBALD.

Culex cumminsi THEOBALD, 1903, Monograph of the *Culicidae* of the World, **3**, p. 214.

Culicada mediopunctata THEOBALD, 1910, idem, **5**, p. 304.

Culicada fuscopalpalis THEOBALD, 1910, loc. cit., p. 307.

Localities. — Lusinga, 1.760 m, 1-8.XII.1947, 1 ♀; 9-17.XII.1947, 1 ♀; Ganza, 860 m, 12-18.VI.1949, 1 ♀; Kaswabilenga, 700 m, 3-4.XI.1947, 1 ♀.

This is a common, widely distributed species in the West African savannas, occurring also in Ruanda-Urundi, the Katanga, N. Rhodesia and the Kenya lowlands.

Aedes sp. indet.

Localities. — Kaswabilenga, 700 m, 3-4.XII.1947, 1 ♀; riv. Lukawe, 700 m, 6-9.X.1947, 1 ♀.

These specimens are too rubbed and incomplete for certain identification. They have the general appearance of a small *Aedes leptolabis* but I have no certainly identifiable specimens of that species from such low altitudes. They might perhaps belong to the *Aedes argenteopunctatus* group.

Subgenus **BANKSINELLA** THEOBALD.**Aedes circumluteolus** THEOBALD.

Banksinella luteolateralis var. *circumluteola* THEOBALD, 1908, Entomologist, **41**, p. 107.

Localities. — Riv. Karibwe, 1.700 m, 8-10.III.1947, 22 ♀♀, 2 ♂♂; 11.III.1947, 4 ♀♀; 16.IV.1947, 2 ♀♀; Kalumengongo, 1.800 m, 18.IV.1947, 14 ♀♀; Kalumengongo, 1.780 m, 18.IV.1947, 1 ♀; [riv. Dipidi, 1.700 m, 22.IV.1947, 3 ♀♀]; riv. Kafwe, 1.780 m, 5.III.1948, 1 ♀, 1 ♂; Mukana, 1.810 m, 15.III.1947, 1 ♀; 1.IV.1947, 1 ♀; 14.IV.1947, 1 ♂; 15.III.1948, 1 ♀; Kabwe-sur-Muye, 1.320 m, 6-12.V.1948, 1 ♀; 16-25.V.1948, 1 ♀; Buye-Bala, 1.750 m, 1-7.IV.1948, 1 ♀; riv. Mubale, 1.480 m, 6.V.1947, 1 ♀; 9.V.1947, 6 ♀♀; 10.V.1947, 1 ♀; 14.V.1947, 3 ♀♀; 18.V.1947, 1 ♀; gorges de la Pelenge, 1.150 m, 10-14.VI.1947, 2 ♀♀; 21-23.VI.1947, 1 ♀; [riv. Kenia, 1.700 m, 28.III.1947, 2 ♀♀, 1 ♂]; [riv. Kenia, 1.585 m, 19.XII.1947, 1 ♀]; Lukawe, 700 m, 6-9.X.1947, 1 ♀; 22.X.1947, 1 ♂; 30.IX.1947, 1 ♂; Kaziba, 1.140 m, 8-14.II.1948, 1 ♂; 15-27.II.1948, 1 ♀; Kanonga, 700 m, 16-23.II.1949, 1 ♀; 17-22.II.1949, 22 ♀♀, 3 ♂♂; riv. Kamitungulu, 1.700 m, 4-7.III.1947, 19 ♀♀, 1 ♂; 2.IV.1947, 1 ♀; 3.IV.1947, 7 ♀♀; 16.IV.1947, 3 ♀♀; Lusinga, 1.760 m, 8.III.1947, 5 ♀♀, 1 ♂; 12.III.1947, 5 ♀♀; 13.III.1947, 33 ♀♀,

18 ♂♂; 15.III.1947, 45 ♀♀, 21 ♂♂; 17.III.1947, 5 ♀♀; 18.III.1947, 5 ♀♀, 9 ♂♂; 19.III.1947, 8 ♀♀, 5 ♂♂; 22.III.1947, 1 ♀, 1 ♂; 26.III.1947, 1 ♀; 7.IV.1947, 17 ♀♀, 2 ♂♂; 8.IV.1947, 4 ♀♀; 9.IV.1947, 7 ♀♀; 10.IV.1947, 6 ♀♀; 16.IV.1947, 1 ♀; 21.IV.1947, 1 ♀; 25.IV.1947, 1 ♀; 28.XI-6.XII.1947, 1 ♀; 1-8.XII.1947, 6 ♀♀; 9-17.XII.1947, 7 ♀♀; 12-17.XII.1947, 8 ♀♀.

This is apparently the dominant species of *Aedes* in the higher parts of the area. It occurs widely in the savannas of the western subregion and southwards through Nyasaland to Natal. It is rare in the High Katanga and is apparently largely replaced there by a close relative, *Aedes lineatopennis* LUDLOW. The same is true in Tanganyika but I have recently had specimens of *Aedes circumluteolus* from the Pare Mountains (MATTINGLY, 1954).

***Aedes* sp. indet.**

Localities. — Kaswabilenga, 700 m, 16-24.X.1947, 1 ♀; Kabwekanono, 1.815 m, 25.IV.1949, 1 ♀. Both specimens are very incomplete and badly rubbed. They may be *Aedes circumluteolus* but I have no other specimens of this species from either locality.

Subgenus DUNNIUS EDWARDS.

***Aedes michaelikati* ssp. *gurneri* E. C. C. VAN SOMEREN.**

Aedes michaelikati ssp. *gurneri* E.C.C. VAN SOMEREN, 1946, Proc. R. ent. Soc. Lond., B, 15, p. 5.

Locality. — Ganza, 1.800 m, 12-18.VI.1949, 1 ♂; 4-6.VII.1949, 1 ♀.

This is the first *Dunnius* to be recorded from the Katanga. The type form is known only from the Kenya coast. The subspecies was previously known only from Nairobi.

Genus **ERETMAPODITES** THEOBALD.

sp. indet. (***Eretmapodites leucopus*** GRAHAM group).

Localities. — Riv. Kambi, 1.750 m, 25-27.VI.1945, 1 ♀; gorges de la Pelenge, 1.150 m, 10-14.VI.1947, 1 ♀.

Both specimens have the hind tarsi missing and are somewhat denuded but they show traces of narrow yellow scales on the anterior pronotum. The specimen from gorges de la Pelenge has the middle femur narrowly white at the tip. The riv. Kambi specimen has the tip of the middle femur denuded. These are the first records of the *E. leucopus* group from the Katanga.

Genus **CULEX** LINNAEUS.

Subgenus LUTZIA THEOBALD.

Culex tigripes DE GRANDPRÉ et DE CHARMOY.

Culex tigripes DE GRANDPRÉ et DE CHARMOY, 1900, Les Moustiques, p. 6.

Culex maculicrura THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **1**, p. 34.

Localities. — Lusinga, 1.760 m, 15.III.1947, 1 ♀; Ganza, 860 m, 12-18.VI.1949, 1 ♂; rég. confl. Mubale-Munte, 1.480 m, 13-18.V.1947, 1 ♀.

This is a very common species, widespread throughout the region, including Madagascar and the Mascarenes. The larvæ are predatory on those of other species of mosquitoes.

Subgenus NEOCULEX DYAR.

Culex rubinotus THEOBALD.

Culex rubinotus THEOBALD, 1906, Rept. Wellcome trop. Res. Lab., **2**, p. 76.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 2 ♀ ♀; 15.VIII.1947, 1 ♀.

This species is widely distributed in eastern Africa from the Sudan through Abyssinia into the Kenya and Tanganyika highlands and through Uganda and the Kivu highlands into the Southern Congo Savanna and the High Katanga.

sp. indet. (**Culex rima** THEOBALD group).

Locality. — Riv. Mubale, 1.480 m, 6.V.1947, 1 ♂.

The only available specimen is badly rubbed and has the abdomen missing. It cannot therefore be identified with certainty.

Subgenus CULEX s. str.

Culex poicilipes THEOBALD.

Lasioconops poicilipes THEOBALD, 1903, Mem. Lpool. Sch. trop. Med., **10**, App., p. IX.

Culex quasigelidus THEOBALD, 1903, Monograph of the *Culicidæ* of the World, **3**, p. 181.

Tæniorynchus tenax var. *maculipes* THEOBALD, 1905, Rept. Wellcome trop. Res. Lab., **1**, p. 79.

Pseudoheptaphlebotomyia madagascariensis VENTRILLON, 1905, Bull. Mus. Hist. nat. Paris, **11**, p. 427.

Culex par NEWSTEAD, 1907, Ann. trop. Med. Parasit., **1**, p. 25.

Aporoculex punctipes THEOBALD, 1907, Monograph of the *Culicidæ* of the World, **4**, p. 316.

Culex auritænia ENDERLEIN, 1921, Wien ent. Ztg., **38**, p. 49.

Locality. — Mabwe, 585 m, 1-12.VIII.1947, 2 ♀♀, 1 ♂; 15.VIII.1947, 2 ♀♀.

This is a common species widely distributed over most of tropical Africa, with the exception of heavily forested areas. It occurs also in the Mascarenes and in Egypt.

***Culex univittatus* THEOBALD.**

Culex univittatus THEOBALD, 1901, Monograph of the *Culicidæ* of the World, **1**, p. 29.

Culex perexiguus THEOBALD, 1903, idem, **3**, p. 199.

Heptaphlebomyia simplex THEOBALD, 1903, loc. cit., p. 307 (partim).

Heptaphlebomyia montforti VENTRILLON, 1905, Arch. Parasit., **9**, p. 448.

Culex goughi THEOBALD, 1911, Rep. vet. Res. S. Afr., **1**, p. 268 (partim).

Culex pallidocephalus THEOBALD, 1905, Rep. Wellcome trop. Res. Lab., **1**, p. 73 (partim).

Culex neavei THEOBALD, 1906, idem, **2**, p. 76.

Localities. — Mabwe, 585 m, 1-12.VIII.1947, 20 ♀♀, 5 ♂♂; 1-15.VIII.1947, 1 ♀, 2 ♂♂; 15.VIII.1947, 1 ♀; 4.IX.1947, 3 ♀♀; 4-8.IX.1947, 2 ♀♀; Lusinga, 1.760 m, 6.VI.1945, 1 ♀; 12-18.III.1947, 1 ♀; 13.III.1947, 12 ♀♀, 5 ♂♂; 15.III.1947, 4 ♀♀, 3 ♂♂; 17.III.1947, 2 ♀♀; 18.III.1947, 1 ♂; 22.III.1947, 1 ♀; 7.IV.1947, 1 ♀; 9.IV.1947, 1 ♂; 16.IV.1947, 1 ♀; 23.IV.1947, 1 ♀; 3.VII.1947, 1 ♀; 6.VIII.1947, 1 ♂; Kanonga, 675 m, 17-22.II.1947, 1 ♀; Kanonga, 700 m, 17-22.II.1949, 4 ♀♀, 2 ♂♂; Lukawe, 700 m, 30.IX.1947, 1 ♀; 6-9.X.1947, 1 ♀; Karibwe, 1.700 m, 8-10.III.1947, 4 ♀♀; 11.III.1947, 1 ♀; Mukana, 1.810 m, 18.III.1947, 1 ♀; 14.IV.1947, 2 ♀♀; gorges de la Pelenge, 1.150 m, 10-14.VI.1947, 5 ♀♀; Ganza, 860 m, 12-18.VI.1949, 1 ♀; 20-25.VI.1949, 1 ♀; 27.VI-2.VII.1949, 5 ♀♀; 4-6.VII.1949, 2 ♀♀; riv. Munte, 1.480 m, 16.V.1947, 3 ♀♀; riv. Mubale, 1.480 m, 9.V.1947, 1 ♀; 14.V.1947, 1 ♀; riv. Kamitunu, 1.760-1.800 m, 10.VII.1945, 1 ♀; riv. Mitoto, 1.760 m, 9.VII.1947, 2 ♀♀; Kamitungulu, 1.700 m, 4-7.III.1947, 1 ♀; riv. Kipangaribwe, 1.600 m, 2.VII.1947, 1 ♀; riv. Lufwa, 1.600 m, 16.III.1946, 1 ♀; Kaswabilenga, 700 m, 3-4.XI.1947, 2 ♀♀.

The records from Mabwe, Lusinga, Kanonga, gorges de la Pelenge, Ganza, Kamitungulu and Kaswabilenga are based on dissected males or well preserved females. Those from other localities are based on badly mutilated females and require confirmation. This is a very common and widespread species over most of tropical Africa, except in heavily forested areas, extending as far south as Cape Province. It is also found in Madagascar. A form corresponding to *C. perexiguus* THEOBALD occurs in N.W. India and the Near East and very widely in North Africa, including the central Sahara and the Sudanese Savanna.

Intermediates between this and the type form are found in some of the drier parts of tropical Africa. Specimens from Lusinga and Mabwe are of the type form. Those from Kanonga are intermediate. This geographical variation is discussed in more detail by MATTINGLY (1954 *b*).

Culex umbripes EDWARDS.

Culex umbripes EDWARDS, 1941, Mosquitoes of the Ethiopian Region, **3**,

Locality. — Lusinga, 1.760 m, 30.V.1945, 1 ♀, 12-17.XII.1947, 1 ♀, 1 ♂.

This species has previously been found only on the Kundelungu Plateau where it occurs very abundantly in forest associated with the headwaters of certain streams (LIPS, 1953).

Culex chorleyi EDWARDS.

Culex chorleyi EDWARDS, 1941, Mosquitoes of the Ethiopian Region, **3**, p. 330.

Culex pallidocephalus HOPKINS (nec THEOBALD), 1936, Mosquitoes of the Ethiopian Region, **1**, p. 208.

Locality. — Lusinga, 1.760 m, 1-8.XII.1947, 1 ♂.

This species appears to be restricted to Uganda, the eastern border of the Belgian Congo and Ruanda-Urundi. It has recently been found, for the first time in the Katanga, in the Elisabethville area (LIPS, 1953; MATTINGLY, 1953 *b*).

Culex perfidiosus EDWARDS.

Culex perfidiosus EDWARDS, 1914, Bull. ent. Res., **5**, p. 72.

Locality. — Lusinga, 1.760 m, 13.III.1947, 2 ♀ ♀; 26.III.1947, 1 ♀.

This remarkable, perhaps rather ancient species is known from the Guinean Savanna of the Gold Coast and Nigeria, the Tchad Territory, the French Cameroons, Gaboon, the lower Congo (Irebu, Léopoldville), the Stanleyville and Costermansville areas and the Katanga. In the Katanga it has recently been found, for the first time, in the Elisabethville area (LIPS, 1953).

Culex guiarti BLANCHARD.

Culex guiarti BLANCHARD, 1905, Les Moustiques, p. 629.

Culex viridis THEOBALD (nec ROBINEAU-DESVOIDY), 1903, Monograph of the *Culicidæ* of the World, **3**, p. 212.

Localities. — Mukana, 1.810 m, 14.IV.1947, 2 ♀ ♀, Lusinga, 1.760 m, 19.III.1947, 1 ♀; 10.IV.1947, 1 ♀; 16.IV.1947, 1 ♂; [riv. Dipidi, 1.700 m,

22.IV.1947, 1 ♂]; [riv. Kenia, 1.700 m, 28.III.1947, 1 ♀]; riv. Mubale, 1.480 m, 9.V.1947, 1 ♀; 18.V.1947, 2 ♀ ♀, 1 ♂; Kalumengongo, 1.780 m, 18.IV.1947, 2 ♀ ♀.

The specimens are all in poor condition and very incomplete. The records from Dipidi and Lusinga were confirmed by dissection of male terminalia. This species occurs widely in the Guinean, Sudanese, Uganda-Unyoro and Southern Congo savannas and has been found in the Nairobi area. It has recently been found, for the first time in the Katanga, in the Elisabethville area.

Culex grahami THEOBALD.

Culex grahami THEOBALD, 1910, Monograph of the *Culicidæ* of the World, 5, p. 265.

Culex pullatus GRAHAM (nec COQUILLET), 1910, Ann. Mag. nat. Hist., (8), 5, p. 265.

Locality. — Lusinga, 1.760 m, 12-17.XII.1947, 1 ♀.

The only available specimen has most of the legs and the abdomen missing and is badly denuded but shows the typical pale knob of the halteres in combination with 2 lower mesepimeral bristles. The species is known from the Guinean, Sudanese and Southern Congo savannas and has recently been provisionally recorded, for the first time from the Katanga, from the Kundelungu Plateau (LIPS, 1953; MATTINGLY, 1953 *b*). This record is based on larvæ only.

Culex sp. indet.

Localities. — [Riv. Dipidi, 1.700 m, 22.IV.1947, 1 ♀]; Mabwe, 585 m, 1-12.VIII.1947, 1 ♀; 15.VIII.1947, 1 ♀; 4.IX.1947, 2 ♀ ♀; [Kenia, 1.700 m, 28.III.1947, 1 ♀]; piste de la Lupiala, 900-1.200 m, 23.X.1947, 1 ♂; Kalumengongo, 1.780 m, 18.IV.1947, 2 ♀ ♀; rég. confl. Mubale-Munte, 1.480 m, 13-18.V.1947, 1 ♀; Lukawe, 700 m, 25.IX.1947, 1 ♀.

The specimens are too rubbed and incomplete to allocate with any confidence.

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INDEX ARRANGED ALPHABETICALLY.

A. — GENERA.

	Pages.		Pages.
<i>Aedes</i> MEIGEN	55	<i>Ficalbia</i> THÉOBALD	52
<i>Aëdimorphus</i> THÉOBALD	56	<i>Lutzia</i> THÉOBALD	60
<i>Aëdomyia</i> THÉOBALD	52	<i>Mansonioides</i> THÉOBALD	55
<i>Anopheles</i> MEIGEN	50	<i>Mimomyia</i> THÉOBALD	52
<i>Banksinella</i> THÉOBALD	58	<i>Myzomyia</i> BLANCHARD	50
<i>Coquillettidia</i> DYAR	53	<i>Neoculex</i> DYAR	60
<i>Culex</i> LINNÆUS	60	<i>Stegomyia</i> THÉOBALD	55
<i>Dunnius</i> EDWARDS	59	<i>Tæniorhynchus</i> LYNCH-ARRIBALZAGA	53
<i>Eretmapodites</i> THÉOBALD	59	<i>Uranotænia</i> LYNCH-ARRIBALZAGA ...	51

B. — SPECIES.

	Pages.		Pages.
<i>abnormalis</i> (<i>Uranotænia</i>)	51	<i>filicis</i> (<i>Aedes</i>)	57
<i>africana</i> (<i>Aëdomyia</i>)	52	<i>flavocinctus</i> (<i>Tæniorhynchus</i>)	54
<i>africana</i> (<i>Panoplites</i>)	55	<i>fuscopalpalis</i> (<i>Culicada</i>)	58
<i>africana</i> (<i>Stegomyia</i>)	56	<i>goughi</i> (<i>Culex</i>)	61
<i>africanus</i> (<i>Aedes</i>)	56	<i>grahami</i> (<i>Culex</i>)	63
<i>africanus</i> (<i>Tæniorhynchus</i>)	55	<i>guiarti</i> (<i>Culex</i>)	62
<i>africanus</i> var. <i>reversus</i> (<i>Panoplites</i>) ...	55	<i>gurneri</i> (<i>Aedes michælikati</i> ssp.) ...	59
<i>albitarsis</i> (<i>Culex</i>)	53	<i>hargreavesi</i> (<i>Anopheles</i>)	50
<i>alboabdominalis</i> (<i>Uranotænia</i>)	51	<i>hispida</i> (<i>Ficalbia</i>)	52
<i>argenteopunctata</i> (<i>Stegomyia</i>)	56	<i>hispida</i> (<i>Hispidimyia</i>)	52
<i>argenteopunctatus</i> (<i>Aedes</i>)	56	<i>lacustris</i> (<i>Ficalbia</i>)	52
<i>auritænia</i> (<i>Culex</i>)	61	<i>leptolabis</i> (<i>Aedes</i>)	56
<i>aurites</i> (<i>Tæniorhynchus</i>)	54	<i>leucopus</i> (<i>Eretmapodites</i>) group. ...	59
<i>biannulata</i> (<i>Reedomyia</i>)	57	<i>lineatopennis</i> (<i>Aedes</i>)	59
<i>bipunctata</i> (<i>Reedomyia</i>)	57	<i>luteolateralis</i> var. <i>circumluteola</i> (<i>Bank-</i>	
<i>catastica</i> (<i>Aëdomyia</i>)	52	<i>sinella</i>)	58
<i>chorleyi</i> (<i>Culex</i>)	62	<i>maculicrura</i> (<i>Culex</i>)	60
<i>chubbi</i> (<i>Tæniorhynchus</i>)	54	<i>maculipennis</i> (<i>Chrysoconops</i>)	54
<i>circumluteola</i> (<i>Banksinella luteolate-</i>		<i>maculipennis</i> (<i>Tæniorhynchus</i>)	54
<i>ralis</i> var.)	58	<i>maculipes</i> (<i>Tæniorhynchus tenax</i> var.)	60
<i>circumluteolus</i> (<i>Aedes</i>)	58	<i>madagascariensis</i> (<i>Pseudoheptaphlebo-</i>	
<i>coustani</i> (<i>Anopheles</i>)	50	<i>myia</i>)	60
<i>cumminsi</i> (<i>Aedes</i>)	58	<i>major</i> (<i>Mansonia</i>)	55
<i>cumminsi</i> (<i>Culex</i>)	58	<i>malfeyti</i> (<i>Mimomyia</i>)	53
<i>dentatus</i> (<i>Aedes</i>)	57	<i>marquesensis</i> (<i>Mansonia</i>)	55
<i>dentatus</i> (<i>Culex</i>)	57	<i>marshalli</i> (<i>Anopheles</i>)	50
<i>dubia</i> (<i>Stegomyia</i>)	56		

	Pages.		Pages.
<i>mauritanus</i> (<i>Anopheles</i>)	50	<i>quasigelidus</i> (<i>Culex</i>)	60
<i>mayeri</i> (<i>Uranotænia</i>)	51	<i>quasiunivittatus</i> (<i>Aedes</i>)	57
<i>mediopunctata</i> (<i>Culicada</i>)	58	<i>quasiunivittatus</i> (<i>Culex</i>)	57
<i>metallicus</i> (<i>Culex</i>)	53	<i>quinquepunctata</i> (<i>Aëdimorphus</i>)	56
<i>metallicus</i> (<i>Tæniorhynchus</i>)	53		
<i>michælikati</i> ssp. <i>gurneri</i> (<i>Aedes</i>)	59	<i>reversus</i> (<i>Panoplitès africanus</i> var.) ..	55
<i>microannulata</i> (<i>Chrysoconops</i>)	54	<i>rima</i> (<i>Culex</i>) group.	60
<i>microannulatus</i> (<i>Tæniorhynchus</i>)	54	<i>rubinotus</i> (<i>Culex</i>)	60
<i>montforti</i> (<i>Heptaphlebomyia</i>)	61		
		<i>schwetzi</i> (<i>Aedes</i>)	55
<i>neavei</i> (<i>Culex</i>)	61	<i>similis</i> (<i>Uranotænia</i>)	51
<i>nigerrima</i> (<i>Mansonia</i>)	55	<i>simplex</i> (<i>Heptaphlebomyia</i>)	61
<i>nigra</i> (<i>Chrysoconops</i>)	53		
<i>nigrithorax</i> (<i>Tæniorhynchus</i>)	54	<i>tarsalis</i> (<i>Aedes</i>)	57
		<i>tarsalis</i> (<i>Duttonia</i>)	57
<i>pallidocephala</i> (<i>Uranotænia</i>)	51	<i>tenax</i> var. <i>maculipes</i> (<i>Tæniorhynchus</i>)	60
<i>pallidocephalus</i> (<i>Culex</i>)	61	<i>tigripes</i> (<i>Culex</i>)	60
<i>pallidopunctata</i> (<i>Culex</i>)	57		
<i>palustris</i> (<i>Megaculex</i>)	52	<i>umbripes</i> (<i>Culex</i>)	62
<i>par</i> (<i>Culex</i>)	60	<i>uniformis</i> (<i>Ficalbia</i>)	53
<i>perexiguus</i> (<i>Culex</i>)	61	<i>uniformis</i> (<i>Mimomyia</i>)	53
<i>perfidiosus</i> (<i>Culex</i>)	62	<i>uniformis</i> (<i>Panoplitès</i>)	55
<i>plumosa</i> (<i>Ficalbia</i>)	53	<i>uniformis</i> (<i>Tæniorhynchus</i>)	55
<i>plumosus</i> (<i>Culex</i>)	53	<i>univittatus</i> (<i>Culex</i>)	61
<i>poicilipes</i> (<i>Culex</i>)	60		
<i>poicilipes</i> (<i>Lasioconops</i>)	60	<i>violaceus</i> (<i>Tæniorhynchus</i>)	53
<i>pullatus</i> (<i>Culex</i>)	63	<i>viridis</i> (<i>Culex</i>)	62
<i>punctipes</i> (<i>Aporoculex</i>)	61		