

REPORT
OF THE
MALARIA EXPEDITION TO THE
GAMBIA

1902

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BY
J. EVERETT DUTTON, M.B., B.Ch., Vict.

AND AN
APPENDIX BY F. V. THEOBALD, M.A.

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REPORT ON A COLLECTION OF MOSQUITOES OR CULICIDAE, ETC., FROM GAMBIA, AND DESCRIPTIONS OF NEW SPECIES

By F. V. THEOBALD, M.A.

THE collection of Culicidae and other blood-sucking Diptera, made by Dr. DUTTON during his visit to Gambia, contains some three hundred Culicidae, included in the following genera :

Anopheles,^{*} *Stegomyia*, *Culex*, *Mansonia*, *Uranotaenia*, and *Corethra*. Altogether there are seventeen species of Culicidae as follows : three *Anopheles*, three *Stegomyia*, seven *Culex*, one *Mansonia*, and a single *Uranotaenia* and *Corethra*. There is also a distinct variety of *Anopheles costalis* and *Anopheles funestus*. Besides Culicidae, there are some specimens of Psychodidae, or Owl Midges, of the genus *Phlebotomus*, probably a new species, and several specimens of the common West African gadfly (*Tabanus dorsovitta* WALKER). A number of one of the Tsetse flies, *Glossina longipalpis* WIEDMANN var., *tachinoides*, WESTWOOD, were also taken.

This insect, closely related to the Tsetse fly (*Glossina morsitans*), is called by Dr. DUTTON the small Mangrove fly. It is very prevalent up the Gambia river, and comes on board the launches and bites viciously. It is of particular interest, as the case of Trypanosoma Dr. DUTTON found in Bathurst was in an Englishman, who was master of the Government launch, living on board, and was frequently bitten by this species of *Glossina*. It is quite possible that this species of *Glossina* acts in the same way as *G. morsitans* in the animal Tsetse disease.

The collection contains no new *Anopheles* but three distinct varieties, three new species of *Culex*, and a distinct variety of a previously known one, also a new *Stegomyia* and a *Corethra*. The series of *Anopheles funestus* is most interesting, as it shows very great variation, particularly in the colour of the vein-scales and the position of the cross-veins, which I had found constant before in this species, and which I took to be of some specific value. Great variation is also to be noticed in a large series of *Culex Duttoni* (THEO) This species is of particular interest, as it serves as one of the intermediate hosts of *Filaria nocturna*. *Culex fatigans* (WIED.) was also found to act as an intermediate host of this Haematozoon. In a new banded proboscis species (*Culex anarmostus*) a filaria (sp. incert.) was found in the thoracic muscles. A list of the species, with notes and the descriptions of the *Stegomyia*, *Culex*, and *Corethra*, are here appended, and also a description of the varieties of previously known species.

LIST OF CULICIDAE AND OTHER DIPTERA TAKEN AND BRED BY DR. DUTTON

A. CULICIDAE.

1. *Anopheles costalis*. LOEW.
- 1A. *Anopheles costalis*. Var. *melas* n.v.
2. *Anopheles pharoensis*. THEOBALD.
3. *Anopheles funestus*. GILES.
- 3A. *Anopheles funestus*. Var. *umbrosus* n.v.
- 3A. *Anopheles funestus*. Var. *subumbrosus* n.v.
4. *Stegomyia fasciata*. FABRICIUS.
5. *Stegomyia sugens*. WIEDMANN.

* The old genus *Anopheles* is now subdivided into several genera ; *costalis* comes in *Pyrethophorus*, *pharoensis* in *Cellia*, and *funestus* in *Myzomyia*.

6. *Stegomyia albocephala*. N. sp.
7. *Culex hirsutipalpis*. THEOBALD.
8. *Culex annulioris*. THEOBALD. Var. *gambiensis*. n.v.
9. *Culex duttoni*. THEOBALD.
10. *Culex anarmostus*. N. sp.
11. *Culex thalassius*. N. sp.
12. *Culex tigrives*. GRANDPRE.
13. *Culex fatigans*. WIEDEM.
14. *Culex euclastus*. N. sp.
15. *Lasioconops poicilipes*. N. sp.
16. *Mansonia uniformis*. THEOBALD.
17. *Uranotaenia albocephala*. THEOBALD.
18. *Corethra ceratopogones*. N. sp.

B. PSYCHODIDÆ.

Phlebotomus sp. ?

C. TABANIDÆ

Tabanus dorsovitta. WALKER.

D. GLOSSINIDÆ

Glossina longipalpis. (WIED.)—var. *tachinoides*. WESTWOOD.

CULICIDÆ

I. *Anopheles costalis*. LOEW

A. gambiensis. GILES

(Ent. Zeit. Berlin, 55 (1866) LOEW ; Mono. Culicid. I. 157 (1901) THEO. Hand Bk. Gnats, 2nd Edit. GILES, 1902. (= *A. gambiensis*.)

A number of this species from Bathurst, many of them caught in the barracks, prison, and police quarters, Government House ; some bred from larvae obtained from a large pool sixteen to eighteen feet in diameter.

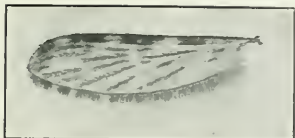
The specimens show some variation in regard to the intensity of the costal spots and leg ornamentation. One very marked melanic variety occurs, which is described below. The specimens were taken in October, November, and December. None were found at Baia or McCarthy Island. At Bathurst, Dr. Dutton only obtained *A. costalis* and a few *A. pharoensis*. THEO. This species also occurs at Cape St. Mary, seven miles from Bathurst, where there are a few artificial breeding-places. Colonel GILES has described as a distinct species a specimen of *A. costalis* sent me from Gambia by Dr. BUDGETT.

IA. *Anopheles costalis*. LOEW

Variety *melas*

Thorax dark brown to almost black, with narrow-curved pale golden scales as in the type ; palpi, with four pale bands, very narrow ; the fourth on the apex of the palpi, very scaly at their base ; the two apical bands are close together, but quite distinct. Abdomen deep black, with pale hairs, golden at the apex. Legs prominently black, spotted and banded ; forelegs with a trace of pale spots on the femora as in the type, pale spots on tibiae, and a narrow band-like spot on the metatarsi, a yellow band involving both sides of the joints at the metatarsus and first tarsal, and at the first tarsal and second tarsal ; in the mid-legs the tibiae are spotted, but the tarsal banding is not distinct, nor are the tarsi banded in the hind legs, and the tibiae and femora spots are not so well defined.

WINGS OF GAMBIAN *CULICIDAE*



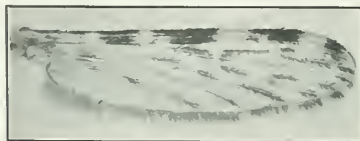
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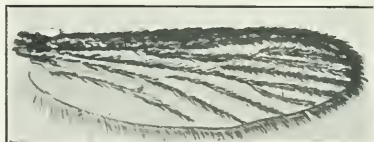
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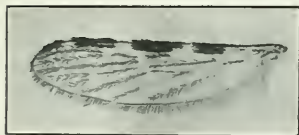
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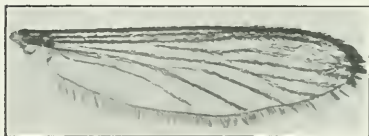
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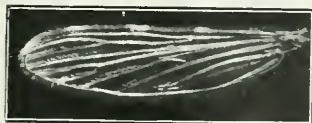
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4



9



5



10

1. *Anopheles funestus*. GILES. ♀ var.
2. *Anopheles funestus*. ♀ Typical.
3. *Anopheles funestus*. ♂
4. *Anopheles funestus*. Var. *anisochlorus*.
5. *Anopheles rhodesiensis*. THEO. ♀
6. *Anopheles pharoensis*. THEO. ♀

7. *Anopheles costalis*. LOEW. ♀
8. *Culex thalasson*. N. sp.
9. *Culex euclaston*. N. sp.
10. *Anopheles rhodesiensis*. THEO. ♂

(All × nine times except No. 10 which is × twelve).



FIG. 1

Anopheles funestus. GILES

a. Head of ♂ ; b. Head of ♀

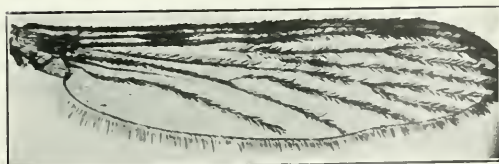


FIG. 2

Wing of ♀ *A. costalis* to show venation, not markings.
x 18

Wings with black- and yellow-scaled areas, the former predominating; the costa is deep black, the second spot only appearing on the costa as a small, almost white, spot; there are also two small pale spots on the costa towards the base of the wing; on the first long vein are six pale spots, one under the white costal spot, the other arranged much as in the type, but the black areas are pronounced; the greater part of the third long vein is pale and the second mostly dark scaled, except for the pale patch at the base of the fork and a pale patch towards the apex of its lower branch; most of the fourth dark scaled, the lower branch of the fork having two pale patches. The fifth mostly pale scaled, but with three dark patches on the upper branch and a small one at the apex and another at the base of the lower and its stem; sixth with three black spots; fringe spots very indistinct. Fork-cells and cross-veins as in the type.

Length—5 mm. *Habitat*—Gambia (DUTTON). *Time of capture*—December.

Observations—Described from a single female in perfect condition. It forms a very distinct melanic variety. The chief difference from a typical *A. costalis* is the absence of pale costal spots, one only reaching the actual costa, except at the base; the whole wing field is darker, and the legs with more pronounced spotting. The markings in the first long vein are, however, typical of the species.

II. *Anopheles pharoensis*. THEOBALD
(*Mono. Culicid.* 1, 169 (1901). THEOBALD)

Nine specimens (seven ♀'s and two ♂'s) of this beautiful *Anopheles* from the following localities: the barracks and prison, Bathurst, and on a marsh at the back of the town, McCarthy Island. A specimen was also hatched from a larva taken in a pool, fifteen yards across, at Box Bar. The specimens show considerable variation in size, one only measuring 5 mm.; there is also marked variation in colour, due evidently to some containing blood. One large pool alone, some way from the town of Bathurst, acted as a breeding ground of this species. This large *Anopheles* also occurs at Cairo, Central Africa, and in Palestine, and probably occurs all over Africa and in other parts of Asia.

III. *Anopheles funestus*. GILES
(*Mem. II, Liv. School of Trop. Med.* p. 50 (1900), GILES; *Mono. Culicid.* I, p. 182 (1901), THEOBALD)

A large series of ♂'s and ♀'s of this species were taken in the following places:—Baia, the Cape, and McCarthy Island. The species occurs in native huts, and many were taken on the walls in the prison and in Government House at McCarthy Island. They were mostly taken in December. Both at Baia and McCarthy Island there were no ordinary or artificial breeding-grounds about, except here and there a large marsh. At Baia the marsh was about two miles away from the town. At Cape St. Mary, seven miles from Bathurst, this small *Anopheles* occurs in numbers, and the larvae are here found in rice swamps. This species, to some extent, resembles *A. rhodesiensis*, but can at once be told from it by the pale fringe spots and by the pale scaled areas to the wings, and the more pronounced dark patches. The white palpal bands are also, it seems, wider apart in *A. rhodesiensis*. Several of the specimens of *A. funestus* in this collection present well-marked deviations from the type. Speaking generally, the pale and dark scaled areas on the veins are not so pronounced, and the base of the fork-cells have not quite the same relative positions. In my monograph (Vol. I, p. 186) I pointed out that one of the characters separating *Funestus* from the larger *Rhodesiensis*, was the position of the cross-veins, this does not hold good, for in the *Funestus* from Gambia I find the cross-veins in some like *Funestus* as I described, in others like *Rhodesiensis*. The supernumerary and mid may be either in one line as the mid may be in advance of the supernumerary and posterior. *Rhodesiensis* has, however, all the vein scales dark, and the fringe unspotted, and the third long vein always dark. The wings are always black at the base of the costa, whereas, in most *Funestus* there is a pale costal spot near the base. *Funestus* is also smaller than *Rhodesiensis*; the latter has so far only been sent from Mashonaland.

IIIa. *A. funestus*. GILESVar. *Umbratus*. THEO.

Costa black at the base, unbroken by the typical small pale spot. Veins with the dusky scales predominating; the pale scaled areas restricted to the region of the cross-veins and base of the fork-cells and on the fifth long vein; and the *third long vein dark as in Rhodensiensis*. Wing fringe spotted as in the type, but not so prominently.

IIIb. *A. funestus*. GILESVar. *Subumbratus*. THEO.

Costa black at the base, unbroken by any pale spot. Dusky scales predominating, but not contrasted as in the type with the pale scaled areas. *Third long vein pale-scaled in the middle*, and pale scaled areas also on the fourth, fifth, and sixth.

IV. *Stegomyia fasciata*

(Syst. Antl. 36, 13, 1895. Mono. Culic. I, 289, 1901. THEO.)

This species is evidently common in Gambia, specimens showing great variation in size were taken in Bathurst in numbers: some in native huts, and also in European dwellings. Many seem to have been hatched out from larvae taken in a tub of well water, and others from a canoe. This species was taken in October, November, and December, and was observed feeding, as recorded elsewhere,* during the daytime (4 p.m.)

V. *Stegomyia sugsus*. (WIED.)

Auss. Zweiflung Insec. 545 (1828) WIED.; Mono. Culic. 300 (1901) THEO.

Three ♂'s and two ♀'s taken near Bathurst. This *Stegomyia* can easily be told by the spots on the mesonotum and the pale band on the femora near the apex. Hatched out from larvae taken in ground-nut gutters during November.

VI. *Stegomyia albocephala*. N. sp.

Head covered with flat dull white scales, a small dusky patch on each side and a posterior semicircular area of dark upright forked scales.

Thorax deep rich brown covered with scattered golden scales, showing more or less two dark eyes like spots; scutellum with small flat white scales. Abdomen black with narrow basal white bands. Legs black, the hind tibiae with a marked apical white band.

♀. Head brown, covered with dull white flat scales, with a silvery sheen, a small patch of black scales on the border about the middle of the eyes, and dull black scales at the sides, posteriorly are black upright forked scales, giving the head a dark appearance of semicircular form, in front the upright forked scales are yellow. Proboscis, palpi, and antennae deep blackish-brown; palpi with a trace of a pale band on its basal half, two apical joints nearly equal, with black hair-tufts and also black hairs at the apex of the antepenultimate joint.

Thorax rich deep-brown with scattered golden narrow-curved scales, and showing in certain lights two dark eye-like patches on the ground surface; scutellum covered with small flat shiny creamy-white scales; pleurae brown with patches of grey scales; metanotum deep clear brown.

Abdomen black with basal white bands which spread out laterally; venter black with broad basal white bands; densely clothed with long brown hairs.

Legs black, unbanded, except for a clear, rather broad, white apical band to the hind tibiae. Coxae brown, bases and venter of the femora grey, ungues of the fore and mid legs unequal, the larger uniserrated, the smaller (?) hind ungues rather long, curved, equal, and simple. Wings with the first submarginal

* Mono. Culicidae, Vol. i, p. 60. THEOBALD. (1901).

cell longer and narrower than the second posterior cell, its base nearer the base of the wing than that of the latter, its stem not quite so long as the cell; stem of the second posterior as long as the cell; posterior cross-vein about half its own length distant from the mid cross-vein; halteres with yellow stem and slightly fuscous knob.

Length—4.5 mm. *Habitat*.—Gambia. *Time of appearance*.—November.

Observations.—Described from a single perfect male, bred by Dr. DUTTON from a larva found in a canoe. This *Stegomyia* very closely resembles *Culex univittatus* mihi, and might readily be mistaken for it, on account of the conspicuous hind tibial banding, but an examination of the head and scutellum reveals flat scales only. The pale head and white shiny scutellum with the brown thorax form also striking characters.

VII. *Culex hirsutipalpis*. THEOBALD
(*Mono. Culicid.*, Vol. i, p. 378 (1901). THEOBALD)

A series of this species, which I described from some specimens from Mashonaland, were hatched out by Dr. DUTTON from larvae taken in the water of ground-nut insect traps, *i.e.*, gutters full of water around the ground-nuts. Other specimens were hatched from a small dug-out pool in a rice swamp. The specimens hatched out in November and December.

The abdomen in the ♂ is much better marked than in the original type. A fresh description of the male is therefore appended.

♂. Palpi black, with four white bands, the two apical ones on the base of the last two joints narrow; last two joints with dense tufts of hair, hairs black, except at the apex, where they are pallid; the antepenultimate joint is also hairy down to near the first white band; antennae banded black and grey, with deep-brown plume-hairs; proboscis with a narrow white band.

Thorax as in ♀. Abdomen black, the second to the fifth segments with basal white bands, the sixth and seventh have the basal band spreading down each side, the last segment with a basal median white spot; apical hairs golden; there are also white lateral linear prolongations of the basal bands to each segment; venter covered with pale creamy yellow scales; legs much as in the ♀; fore and mid ungues unequal, both unserrated.

Wings paler than in the ♀; first submarginal cell longer and narrower than the second posterior cell, the bases of the fork-cells nearly level; stem of the first submarginal rather more than half the length of the cell; stem of the second posterior as long as the cell; posterior cross-vein about its own length distant from the mid cross-vein. Halteres pale, but the knob slightly tinged.

Note.—Fresh specimens are much darker than old ones. The proboscis band is narrower in the male than in the female.

VIII. *Culex annulitoris*. THEOBALD
Var. *Gambiensis*, *n. sp.*
(*Mono. Culicid.*, Vol. i, p. 371)

Proboscis with white band. Thorax brown with narrow-curved pale brown and grey scales on the front two-thirds; narrow-curved black ones on the hinder third of the mesonotum; the pale brown scales in front form more or less a distinct median line, with a narrow pale scaled line on each side and an indistinct darker broad line on each side of the narrow pale line, bounded laterally by mostly pale scales; the scutellum, as in the type, with small black scales at the base of the mid-lobe and grey ones on the apical portion; metanotum bright amber brown. The abdomen is like the type, but the triangular basal white spots are very indistinct, but can be detected on each segment by a few white scales when examined under the microscope.

The band on the proboscis is not quite so broad as in the type, and the stem of the first submarginal cell is very nearly half the length of the cell.

Length—5.5 mm. *Habitat*—Gambia (Dutton). *Time of capture*—January.

Observations—Described from a single female hatched from a larva taken in water in a rice field.

It resembles the type except in regard to the colour of the thoracic scales, the thorax is characteristically ornamented, under a lens the first part (two-thirds) looks ashy grey, but more or less ornamentation, as described, may be seen on careful examination, the paler anterior area is clearly marked off from the dark scaled posterior third. It is undoubtedly only a variety of the species I described as *C. annulioris*, from Salisbury, Mashonaland.

In the structural figure of this species in the *Monograph of Culicidae*, fig. 127, p. 372, vol. I, I figured the palpi as three-jointed, the apical joint being characteristically swollen and truncated, this is really the penultimate joint, the apical joint was missing, I find the apical joint is long and thick.

IX. *Culex duttoni*. THEOBALD

Mos. Culicid. II, p. 318 (1901). THEOB.

A large series of this mosquito were taken at McCarthy Island and Bathurst. Some were hatched out from larvae taken in a canoe on the foreshore, others from a tub of well water during October, November, December, and January. This is evidently a common West African insect along the coast; I have not at present seen any from inland. It was found to be one of the hosts of *Filaria nocturna* by Dr. DUTTON.

This species is subject to considerable variation, both in size and in thoracic ornamentation. In some specimens brought back by Dr. DUTTON the thorax shows no ornamentation at all, others have the thorax adorned as I described in the *Monograph of the Culicidae*.

X. *Culex anarmostus*. N. sp.

Thorax dark brown to brown, with two darker median parallel lines on the denuded surface, covered with pale, dull golden, narrow-curved scales, showing faint longitudinal arrangement. Proboscis with a pale creamy band. Abdomen brown, with curved basal white bands. Legs brown, with faint apical and basal pale banding. Ungues equal and simple.

♀. Head brown, with narrow-curved, pale, creamy-grey scales, brown upright forked ones and small flat white ones at the sides, and whitish curved ones round the eyes. Proboscis brown, with a median pale band very distinct beneath; palpi black, with a few white scales; clypeus black; antennae dark brown, basal joint testaceous. Thorax brown to almost black, covered with narrow golden curved scales somewhat paler behind, to some extent arranged longitudinally; scutellum pale brown, with pale narrow-curved scales; metanotum deep brown; pleurae pale brown and cinerous, with a few patches of grey scales.

Abdomen deep brown, with curved white to creamy basal bands; first segment nude, save for two median patches of black scales; border-bristles pale; venter white, with narrow apical border of brown scales.

Legs brown; femora pale ventrally, apex of tibiae white, base and apex of metatarsi and first two tarsals pale banded, also a white knee spot on the hind legs; femora and tibiae bristly; ungues equal and simple; hind tibiae about the same length as the hind metatarsi. Wings with brown scales, those on the third and fifth being the darkest; first submarginal cell longer and a little narrower than the second posterior cell, its base a little nearer the base of the wing than that of the latter, its stem half the length of the cell; stem of the second posterior about two-third the length of the cell; posterior cross-vein about its own length distant from the mid cross-vein. *The medium vein scales of the third, fifth, and to some extent the lower branch of the second fork-cell, rather larger than in most Culex, and very dark.* Halteres pale.

Length—4.5 mm.

Habitat—Freetown, Sierra Leone (AUSTEN), Gambia (DUTTON).

Time of capture—September (Freetown), AUSTEN; Gambia (in November), DUTTON.

Observations—Described from a single female from Freetown; bred from water in a drain by Mr. AUSTEN.

A specimen sent me by Dr. DUTTON, from Gambia, is evidently this species, but it is rather too damaged to say definitely. Dr. DUTTON found a filarial embryo in the thoracic muscles.

XI. *Culex thalassius*. N. sp.

Proboscis with a narrow median white band. Thorax dark-brown, with narrow deep golden-brown curved scales. Abdomen dark brownish-black, with narrow basal grey bands, often absent; penultimate segment with lateral white spots only; pleurae very pale grey. Legs deep brown, with faint pale bands to some of the mid and fore tarsi; apices of tibiae pale, hind legs unbanded. Bases of the fork-cells nearly level.

♀. Head deep brown, with narrow-curved, pale greyish scales and black upright forked ones; palpi black; proboscis black, with a narrow distinct pale band; antennae brown; clypeus black.

Thorax deep brown, with narrow rich brown curved scales; scutellum brown, with narrow golden-brown curved scales, and deep brown border-bristles; pleurae very pale and shiny grey; metanotum deep brown. Abdomen black, with narrow basal white bands, or unbanded with traces of basal white lateral spots, venter dark, with broad basal grey bands.

Legs black, bases pallid, also venter of femora, apex of femora, and to some extent the tibia, pale; tarsi and metatarsi with narrow pale basal bands, indistinct on the last two tarsi; hind metatarsi and tibiae of about equal length.

Wings with the veins with brown scales; fork-cells rather short, their bases about level; the first submarginal a little longer and narrower than the second posterior, its stem a little more than half the length of the cell; stem of the second posterior about two-thirds the length of the cell; posterior cross-vein nearly twice its own length distant from the mid.

Length—4.5 mm. Habitat—Gambia. Time of capture—October and November.

Observations—Described from a series taken and bred by Dr. DUTTON. The larvae were mostly taken in a drain of tidal water, and others from a pool in a mangrove swamp; others from a canoe on the foreshore, and some from a pool of tidal water that had soaked through sand into a drain.

The species is very variable; some show distinct abdominal banding, others none at all. It somewhat resembles *C. dattoni*, but is smaller, more fragile, and the legs have only faint basal banding, and the fork-cells are slightly different.

This species and *C. dattoni* come very close together, but they are certainly distinct.

XII. *Culex tigripes*. GRANDPRE

(Les Moustiques. (1901.) GRANDPRE. *Mém. Culicid.* II, p. 34. (1901.) THEOBALD)

A series of ten ♂'s and ♀'s taken at Bathurst and McCarthy Island during October. Some specimens were taken on the sides of a discarded well; the majority were hatched from larvae taken in canoes, and also from a pool.

This large spotted-legged *Culex*, with its apical pale abdominal bands, seems to be generally distributed over Africa, but so far has not been recorded further south than Natal, as well as occurring in Mauritius and Australia. It is the species that Dr. BANCROFT calls the 'long-lived mosquito.' Some of the specimens are very small, not more than 5.5 to 6 mm., others are as much as 7 mm.

XIII. *Culex fatigans*. WIED.

This common household *Culex* occurs in abundance in Bathurst, and was taken in numbers as usual indoors. Some were hatched from larvae 'from an old tin,' others 'from a well,' 'from a rain tub,' 'from water in rice field at Cape St. Mary,' 'from well in Government House with heaps of green slime.' This species seems abundant in the prison at Bathurst, and has been shown by Dr. DUTTON to be the intermediate host of *Filaria nocturna*, as well as *Culex duttoni*.

They were taken in October, November, December, and January.

XIV. *Culex euclastus*. N. sp.

Head brown with grey scales, most distinct around the eyes. Thorax brown with tawny-brown scales. Abdomen brown, unbanded, with basal white lateral spots, which show dorsally on the last few segments; legs brown, unbanded, basally grey. Sixth long vein rather close to the fifth.

♀. Head dark brown with narrow-curved dull-grey scales, rather wider and paler around the eyes, and with dark upright forked-scales; proboscis and palpi dark brown; antennae dark brown, basal joint paler. Thorax brown with very small narrow-curved scales of a fawny-brown to dull brownish-grey hue, and with dark-brown bristles; scutellum paler brown with narrow-curved grey scales; metanotum brown; pleurae pallid.

Abdomen brown, unbanded, with basal white lateral spots, which are pronounced, and which show dorsally on the last few segments. Venter, brown with dull grey basal bands; border-bristles and hairs brown, except at the apex, where they are pallid; the denuded surface of the abdomen has a shiny and somewhat pale steel colour.

Legs brown, unbanded, a faint pale knee spot on the hind legs and traces of a pale apical tibial spot; bases of the legs and centre of the femora pallid; hind metatarsi about the same length as the hind tibiae; legs with a few bristles. Ungues small, equal and simple. Wings with deep-brown scales, costa very dark; first submarginal cell longer and narrower than the second posterior cell, its base very slightly nearer the base of the wing than that of the second posterior cell; its stem rather less than half the length of the cell; stem of the second posterior rather more than two-thirds the length of the cell; posterior cross-vein longer than the mid, rather more than its own length distant from it; the sixth long vein runs parallel with the fifth at its base, and is rather closer than usual to it. Halteres brown, with dense white scales.

Length—4 mm. Habitat—Gambia. Time of capture—October.

Observations—Described from two perfect ♀'s bred by Dr. DUTTON from larvae taken from pools at Box Bar.

It is a very small fragile-looking species, unlike any other I have seen from Africa, and to some extent approaches *Culex nigrifolius* ZETT, but is very distinct in regard to thoracic scale structure and venation. The type is deposited in the British Museum (Nat. Hist.) Collection.

GENUS *Lasioonops*. New. gen.

Head clothed with similar scales to *Culex*; antennae with the basal joint with a few scales; palpi short in both sexes. Thorax clothed with narrow-curved scales. Abdomen clothed with flat scales and with large projecting flat lateral scales, with deeply dentate apices, in more or less tufts. Wings with typical *Culex* scales and venation.

This genus is separated from *Culex* on account of the peculiar and characteristic lateral scales on the abdomen, which give the insect a ragged appearance.

A single species only at present occurs, *L. poecilipes* from West Africa. The ♂ is unknown.

XV. *Lasioconops poecilipes*. N. sp.

Anterior half of thorax with ashy grey scales and chestnut brown ones, the former towards the edge of the pale area, posterior part of the thorax dark brown with brown scales. Abdomen black, with basal white bands. Proboscis brown, with a pale median band. Legs deep brown, the femora mottled with creamy scales, the tibiae with a row of pale spots, metatarsi and tarsi with narrow basal pale bands, which to some extent involve the apices of the preceding segments.

♀. Head dark brown, with narrow-curved pale grey scales, brown and ochraceous forked scales and small flat grey ones at the sides; antennae brown, basal joint black on the inside, with small white scales, and with a grey sheen on the outside, second joint bright testaceous; palpi black scaled, with apical grey scales; proboscis black scaled, with a pale median band; clypeus deep brown, with frosty sheen.

Thorax black, the anterior two-thirds clothed with narrow-curved grey scales, palest at the posterior edge of this pale scaled area, where they form a wavy line; posterior portion of the mesonotum with narrow-curved black and brown scales and numerous black bristles. Scutellum brown, with narrow curved dull creamy scales, and with eight black border-bristles to the mid lobe; pleurae black, with patches of white scales and pale creamy hairs.

Abdomen black, with narrow basal bands of white scales and very large and peculiar white and ochraceous lateral projecting scales; posterior border-bristles golden, short; venter black, with white scales. Legs dark brown, the femora spotted and mottled with pale scales, the tibiae with small creamy spots; metatarsi and tarsi dark brown, with narrow pale ochraceous bands involving both sides of the joints.

Wings with typical brown *Culex* scales; surface of the wing with minute bristles; first submarginal cell longer and narrower than the second posterior cell, its base nearer the base of the wing than that of the latter, its stem about one-fourth the length of the cell; stem of the second posterior not quite one-third the length of the cell.

Supernumerary cross-vein not level with the mid cross-vein, a little nearer the base of the wing; posterior cross-vein about two-and-a-half times its own length from the mid cross-vein; sixth vein rather densely scaled. Halteres dusky ochre.

Length—6 mm. *Habitat*—Bonny, West Africa (ANNETT), and Gambia (DUTTON). *Time of capture*—July (ANNETT), December (DUTTON).

Observations—Described from a single ♀, somewhat denuded but easily told from all other Culicidae by the curious abdominal lateral scales, which are certainly of generic importance. The spotted legs give it some resemblance to *Culex nigripes*, but the banded tarsi and proboscis and general ornamentation will at once separate it.

XVI. *Mansonia uniformis*. THEOBALD*Mansonia africanus*. THEOBALD

(*Mono. Culicid.* II, p. 180 (*Uniformis*) and p. 187 (*Africanus*) (1901) THEO.)

The collection contains ten specimens of this abundant African *Mansonia*. They were taken at McCarthy Island, in the marsh at the back of the town, and were noticed to bite very viciously. A single specimen was also taken in the prison at Bathurst, in October, the others were taken in December. Dr. DANIELS has shown this *Mansonia* to be an intermediate host of the *Filaria*.

After carefully comparing a fresh series of South Indian and Ceylon *Mansonia* with the ones I described as *M. africanus* (*Mono. Culicid.* II, p. 187), I am convinced they are the same as the Indian *M. uniformis*. *M. africanus* must, therefore, sink as a synonym of *M. uniformis*. The thoracic ornamentation very soon becomes destroyed, and the thorax has then a non-ornamented or uniform appearance.

XVII. *Uranotaenia caerulecephala*. THEOBALD

(Memo. Culicid. II., p. 256, 1901)

I have described the ♀ of this species but not the ♂, a description of which is here given:—

♂. Thorax like the female, but the metallic patches in front and the lines in front of the wings very pale blue in certain lights. The head is brown and deep violet in the middle, with pale blue scales on each side; palpi brown, proboscis brown, swollen at the apex; antennae banded brown and deep brown, densely brown plumed. Abdomen showing a pale apical ventral spot on the fifth segment; paler ventrally than dorsally; fore unguis unequal, the larger sickle-shaped simple; mid and hind apparently equal and simple, irregularly curved. Wings with brown veins, a line of metallic flat pale blue and violet scales at the base of the costa and another at the base of the fifth long vein, posterior cross-vein twice its own length distant from the mid cross-vein; halteres with pale stem and brown knob.

Length—3 to 3.5 mm. Habitat—Gambia (BURDETT ♀) and (DUTTON ♂). Time of capture—December.

Observations—The ♂ is described from two fairly perfect specimens caught in a marsh behind the town on McCarthy Island. I feel certain from the thoracic ornamentation it is the male of *U. caerulecephala* (mihi) described from Bonny. The chief difference from the female lies in the head being deep violet in the middle, instead of pale blue all over. The markedly bright brown thorax with the metallic white and pale blue ornamentation should at once separate it. I had to mount some of the legs of the ♂ type in balsam to make anything of the unguis. In doing so I misplaced them, so am not sure if the anterior or mid unguis are unequal.

XVIII. *Corethra ceratopogones*. N. sp.

♀. Thorax pale brown to fawn with darker brown markings; metanotum pale chestnut-brown; pleurae pale fawn and cinerous; head brown, proboscis and palpi brown, with numerous rather long brown hairs; antennae banded brown and grey. Abdomen very pale fawn to cinerous, with narrow dark brown apical borders to the segments, and dark brown at the sides, only partly, however, on the last two apical segments; abdomen hairy; apex dark brown; lamellae brown.

Legs multibanded, with brown and frosty grey on the femora and tibiae; fore femora with six dark bands and also the fore tibiae, apex and the basal band of both, pale; metatarsus and first three tarsi banded with dark brown in the middle, apical joint pale, unguis very small, simple, and equal; mid femora with eight dark bands, tibiae with six, the tarsal are broadest, base and apex of both joints pale; metatarsi and tarsi with very broad dark median bands; unguis small, equal, and simple; hind femora with eight, and hind tibiae with seven dark bands, base and apex of each pale, metatarsus with two median dark bands, tarsi with a single median dark band. Unguis small, equal, and simple. Wings densely clothed with long brown hair-like scales, with three dusky patches on the costa, the median one where the sub-costal joins the costa spreading on to it, the apical one spreading on to the first long vein, the basal one rather indistinct, the median spread across the wing-field as a faint dusky band; the third long vein is faintly darker than the rest. Wing fringe long and dense; first submarginal cell considerably longer and narrower than the second posterior cell, its base very slightly nearer the base of the wing than that of the second posterior cell; its stem about one-fourth the length of the cell, not quite so long as the stem of the second posterior cell; stem of the latter less than half of the cell; the second long vein carried a long way past the marginal cross-vein; supernumerary and mid cross-veins sloping towards the apex of the wing; posterior and mid cross-veins in one line. Halteres pale.

Length—2.5 mm. Habitat—Gambia (Dr. DUTTON). Time of capture—December.

Observations—Described from a single ♀ taken by Dr. DUTTON on the side of a tub on McCarthy Island. It is the only African *Corethra* known, and can easily be told by the wing ornamentation and

leg banding. The specimen is described partly from a xylol-balsam preparation. The mouth is provided with very distinct piercing lancets. It comes most near *Corethra brasiliensis*, but can at once be separated by the leg banding, wing venation, and spotting.

The great extension of the second long vein past the marginal transverse vein is a very marked character.

OTHER DIPTERA

Phlebotomus. Sp. ?

Several specimens of a large 'owl-midge' hatched out from pupae, taken in November and December from a duck pond. The species is probably new. It seems to be common in West Africa.

Tabanus dorsocitta. WALKER

Two specimens of this common West African gadfly, which bites severely, taken in mangrove swamps and called by Dr. DUTTON the large Mangrove fly.

Glossina longipalpis. WILDEMANNVar. *tachinoides*. WESTWOOD

Eight of this Tsetse fly were taken by Dr. DUTTON in November. It bites viciously along the river. It is closely related to the *Glossina longipalpis*, WIED., but constitutes a distinct variety. It was described by WESTWOOD as a distinct species. Mr. AUSTEN treats it as a variety of the type. Its possible connexion with the *Typanosoma* in man has been referred to before.