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NOTES ON THE MOSQUITOES OF BRITISH
GUIANA:

BY

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The descriptions below in the case of *Cyc. mediopunctatus* and *C. similis* (female) are from Theobald (Monograph Vol. III), *P. rowlandii* and *G. aikenii* and *C. similis* (male) are also by Theobald and were published in the Journal of Economic Biology, Vol. I, No. 1, November, 1905. Several mosquitoes sent home by us still await description, and I believe it is the intention of Mr. Theobald to work in conjunction with Dr. Lutz of Brazil in dealing with these South American species. I had hoped to be able to give the names of five or six new species, one or two of the new genus *pseudo-uranoetaniae* and some culices but still await communication from Mr. Theobald.

Cyclolepteron mediopunctatus.—Thorax reddish brown, with a grey sheen with two black eye-like spots and a large dark spot in front of, and extending on to, the scutellum, the mesothorax spotted with reddish brown scales; abdomen deep brown with golden hairs and lateral scale tufts; palpi banded with black and gold; legs deep brown, spotted and banded with golden yellow, the last tarsal segments of all the legs yellow; wings with black and white scales, the black forming three prominent costal spots on tinged ground, several small white costal spots.

Note.—The original description by Professor Theobald is from a perfect male and one female wing sent by Dr. Lutz from Brazil. Subsequently Dr. Lutz sent some females which presented totally different characters and Professor Theobald surmised that the original female wing sent was probably the true female of the male fly described. Our observations confirm this surmise as the single specimen secured by Dr. Rowland at Schepmoed in May, 1905, presents all the characters described by Professor Theobald with the exception

that in the lateral tufts there are black scales only. The brilliant golden scales are elsewhere in evidence and the wings have the racquet-shaped scales and darkened areas similar to those of the type.

Gnophodeomyia aikenii (Theobald).—Head brown in some lights, greyish in others; thorax light brown unadorned pleurae reddish to dull brown; abdomen deep blackish brown with small basal lateral white spots; legs deep brown; coxae, base and venter of femora, reddish brown; wings with brown scales, not quite reaching to the apex of the body; unguis small, equal and simple in the female.

Female.—Head deep brown, clothed with flat scales with rounded apices, which are dull brownish grey in some lights, violet brown in others; behind, forming a band partly across the nape, are narrow curved pale golden scales, and there are also numerous black upright forked scales and a few black bristles in front; palpi brown with deep brown scales, short, apical segment minute, penultimate large; proboscis rather thin, clothed with almost black scales and with scattered short pale hairs; antennae deep brown; clypeus reddish brown.

Thorax brown, rich brown in some lights, brighter in certain lights than in others, clothed with bronzy brown narrow curved scales and with long black lateral chaetae; scutellum paler than the mesonotum, with narrow curved bronzy brown scales and six posterior border bristles to the mid lobe in two groups, a bare space between; metanotum deep brown; pleurae bright reddish brown; abdomen clothed with violet-black scales and with small basal lateral white patches; posterior border bristles pale, of two sizes; legs unbanded, deep brown; coxae, base and venter of femora reddish-brown; unguis all small, equal and simple.

Wings not quite reaching the apex of the abdomen, with brown scales, costa darker; fork cells of moderate length, the first sub-marginal longer, but not narrower than the second posterior cell; its stem from one-third to one-half the length of the cell; stem of the second posterior not quite as long as the cell; posterior cross

vein about one and a half times its own length distant from the mid cross vein which unites with the super-numerary; scales on the first longitudinal, and on the branches of the second and fourth, and on the third rather broad and dense, some long lateral narrow ones on the base of the second, fourth and upper branch of the fifth; halteres with pale stems and black knobs.

Length.—4 m.m.

Habitat.—New Amsterdam (Dr. Rowland).

Time of capture.—July.

Described from three females. One taken in a house in the morning, the others bred from larvae found in a hollow tree trunk at the side of a pond in Stanley Town, New Amsterdam.

Two specimens show the head scales darker than in the type.

Note.—In most specimens in our possession the stem of the first sub-marginal is about one-third the length of cell, and the posterior cross vein nearly twice its own length internal.

Pseudo-uranotaenia rowlandii n. sp.—Head very pale blue; proboscis as long as the whole body in the female, shorter in the male, brownish black; palpi and antennae brown; thorax brown with curved scales and a blue line of flat scales on each side scutellum brown, with bronzy flat scales; abdomen deep brown, unbanded and unspotted; legs deep bronzy brown; wings ornamented with black and white.

Female.—Head with occiput large, covered with pale flat blue scales and some black bristles; proboscis deep brown, testaceous at the tip, swelling apically, slightly hairy nearly as long as the whole body; palpi very small, deep brown, antennae pilose, brown.

Thorax brown, with bronzy narrow curved scales which have a narrow golden border; on each side, before, and running up to the base of the wings is a line of pale blue flat scales pointing outwards (in some lights they appear almost white); bristles black; scutellum deep ochreous brown, the mid-lobe with small flat

violet brown scales, the lateral lobes with them more pointed and larger; posterior border bristles of mid-lobe four in number; metanotum deep brown; pleurae brown and ochreous, with some patches of flat white scales.

Abdomen clothed with deep blackish brown scales, slightly paler below; posterior border bristles pale golden.

Legs deep brown except the coxae and venter of femora, which are paler brown to ochreous; the femora especially those of the mid legs swollen basally, the apex of femora, and to some extent the tibiae with the scales outstanding giving the appearance of apical tufts which are most prominent on the hind legs; ungues small, equal and simple.

Wings ornamented with black, creamy and white, the silvery white forming a large spot on the dark costal border at the regions of the cross veins and at the base of the fifth long vein, the silvery white scales are large and spatulate, and form a mass at the base of the third long vein, and from thence up to the costa to form the costal spot; there are also a few white scales on the branches of the second long vein, the apex of the third and the apex of the lower branch of the fourth, another patch at the base of each branch of the fifth, its base with a long line of large flat white to mauve scales, and also the basal part of the sixth; there are also large flat white or mauve scales forming a smaller patch at the base of the fourth vein.

The lateral scales of the second, third, and fourth veins large and spindle-shaped, the dark median scales spatulate and narrow; the smallest of the series of fringe scales clavate; first forked cell not quite as long and much narrower than the second posterior cell; its base nearer the apex of the wing; its stem about two and a half times the length of the cell, stem of the second posterior cell about one and a fourth times the length of the cell; posterior cross veins longer than the mid, nearly twice its own length distant from it; halteres with pale stem and fuscous knob.

Length.—3 m.m.

Male.—Head much as in the female, but with a few short black upright forked scales forming a triangular patch, the base of which is along the nape; antennae plumose plume hairs deep brown, internodes grey, palpi very minute, brown with grey sheen at the apices; proboscis deep brown, much swollen apically, and with numerous dark bristles and hairs. Thorax as in female, prothoracic lobes with flat grey and pale blue scales.

Legs as in female but the mid pair have denser scales^t at the apices; ungues of forelegs small, nearly equal and simple, rather broad, and those of the hind legs equal; those of the mid unequal, simple, one large, curved irregularly, the last segment of the hind legs with distinct broad spines.

Scales on the wings similar in arrangement to female, but there is a distinct double row of large white scales along the base of the fifth long vein, and a few large ones only along the upper branch of the second long vein; the remainder very similar.

Length.—3 m.m.

Time of capture.—July.

Habitat.—Stanley Town, New Amsterdam, British Guiana (Dr. Rowland).

Described from a perfect male and female. It forms a very marked species the ornamented wings and marked head and thoracic adornment at once separating it from any other mosquito that I know of. The colour of the head and thoracic markings varies according to the light, especially under the microscope; in some lights the scales show blue in others almost silvery white. The same applies to the pale scales on the wings. The large scales forming the larger patch of white, become so transparent in a balsam preparation that it is difficult to detect them at all.

I cannot be certain of the mid ungues of the male, the large curved one is very marked, but I cannot make out clearly a second claw.

Uranotaenia geometrica.—Thorax bright testaceous brown, with two more or less distinct parallel paler

scales, with a light blue line before the roots of the wings; a spot in the middle near the bare space in front of the scutellum, and another blue spot in the mid scutellar lobe, and pale blue prothoracic lobes, and also two blue spots on the head; abdomen black, with apical median triangular white patches; legs blackish, with apical white bands, the *last two hind tarsi being all white*.

Specimens sent home were identified by Professor Theobald. Bred from larvae caught in a pool at Stanleytown, New Amsterdam, with *U. pulcherrima*, *P. rowlandii*, &c., &c.

Culex similis. *Female*.—Thorax reddish brown, with very minute golden brown and a few black scales, and three double rows of black bristles; pleurae pale ochraceous; metanotum pale; abdomen deep brown, with narrow pale basal bands, which on the last three segments spread out laterally; legs deep brown, unbanded, coxae and venter of femora pale; ungues small, equal and simple; wings with *Culex* scales; stem of the first sub-marginal nearly half the length of the cell.

Male.—Head as in the female, but narrower; palpi brown, the two apical segments very dark, about equal in length, apical segment acuminate, both with long black hair tufts, a trace of narrow pale basal banding on the penultimate, and another narrow pale band towards the base, apex of penultimate segment hairy on one side; palpi longer than the proboscis by nearly the whole of the two apical segments. Proboscis dark brown, contracted towards the base.

Thorax as in female, but the pale scutellum has nine median posterior border bristles, and the scales are pale golden; metanotum pale ochreous.

Abdomen very hairy, hairs pale golden brown, banded as in the female; legs as in the female; fore and mid ungues unequal, uniserrated, hind, equal and simple.

Length.—5 m.m.

Habitat.—New Amsterdam, British Guiana (Dr. Rowland).

Time of capture.—July.

Described from a specimen bred with females from larvæ taken in the trunk of a hollow tree at the side of a pond in Stanleytown. The females are quite normal.

Culex palus.—Thorax reddish brown, with traces of dusky lines; pleuræ ochraceous; abdomen dusky brown, with narrow basal grey bands, last segment unbanded; venter grey. Legs brown, unbanded, venter and base of femora grey; knee spot and apex of hind tibiae grey. Wings of female with similar venation to *fatigans*. Male palpi black, traces of one pale basal band only.

Megarrhinina, *Psorophoro* and *Myedomia*.—Specimens of *M. separatus* and of *Psorophoro scintillaus* were taken by Dr. K. S. Wise on a creek of the Demerara River, 25 miles from the coast in January, 1907. I have also identified a n. sp. of *Sabethorde* allied to *Confusus*.

DISTRIBUTION, HIBERNATION, AND SEASONAL OCCURRENCE OF MOSQUITOES.

ANOPHELINA.—*Cellia albipes*.—This mosquito is found everywhere along the coast of Guiana from the Essequibo to the Corentyne and as was noted in last year's Annual, there is no season of the year in which they do not occur. Like all others of the family certain combinations of circumstances favour their rapid multiplication and when these conditions appear they are always ready to take advantage of them. During very dry weather they are not much in evidence and seem to shelter in cracks and corners well hidden from sight. At Auchlyne, on the Corentyne Coast, where I have been living since April of 1906, so long as the sea breeze is strong, they are not to be seen night or day, but in calm weather with a land breeze numbers invariably appear. On June 1st and again on 20th these conditions prevailed, and I caught numbers in the gallery of my house, and from time to time so long as showery weather continued down to the end of August. From that time till the end of November none were seen, but on the 6th December as the *C. Taeniorhynchus* had become somewhat troublesome in some low shrubs close to the house I had a smoke made to drive them out. It was a calm day with appearance of threatening rain and the smoke drifted under the house in thick wreaths. The result

appeared in a perfect invasion of *C. albipes*. I caught twenty and killed many more in the gallery during the evening. I had frequently noted between June and August when under the house during the day, I was attacked by this mosquito, at almost any hour; my notes of these occurrences show various times between 7.30 a.m. and noon.

Places of Capture.—New Amsterdam, Mara, Berbice; Baracara, Canje creek (80 miles from its mouth); Auchlyne; No. 63; Skeldon, Corentyne Coast.

It is to be noted that on the Canje creek further up than Baracara I found no *Anophelina*, the same remark applies to the Berbice River above Mara, and in a collection made by Mr. Beckett at Sandhills none appeared. On a visit to the Supenaam creek I was also unsuccessful in finding this mosquito. All these districts are very sparsely populated, and so far as our observations go they are only to be found near human dwellings.

C. albitarsis.—The occurrence of this mosquito is quite infrequent. I have not found a single specimen on the Coast, and during two years collecting in New Amsterdam, only now and again came upon one. It is, however, commoner on the West Bank of Berbice river at Blairmont, and in May of this year in the house in which I lived in Queenstown I captured a considerable number. The very wet season with fresh water abundant in pools and in trenches which in dry weather are more or less brackish, doubtless accounts for the increase in numbers of this mosquito. May and June are the months in which a distinct increase in activity of *Cellia albipes* and *Argyrotarsis* is observable.

Places of Capture.—New Amsterdam, Rockstone and elsewhere on Essequibo; Barima; Weldaad.

CULICINA.—*Janthinosomae*, *lutzii* and *musica*.—These mosquitoes seem to be confined to the rivers, they have been taken at points between seven and one hundred and fifty miles up the Berbice river and Canje creek and high up the Demerara and Pomeroun. They do not appear on the coast, even three miles aback I have frequently searched in vain in likely looking spots on Port Mourant and neighbouring estates.

Places of Capture.—New Amsterdam, Mara, Tapacooma, Pomeroun, Demerara river.

Stegomyia.—These mosquitoes infest the houses in Georgetown, New Amsterdam, on the East and West Coast, Demerara, and indeed, wherever cisterns and other suitable breeding places are found. It is infrequent in isolated houses. I lived at Auchlyne from April till 10th October before I found a single specimen. Since then I have now and then caught a *S. luciensis*; so far I have not seen *S. fasciata* there.

Places of Capture.—Skeldon, Auchlyne, New Amsterdam, Georgetown, Uitvlugt.

Culex taeniorhynchus.—Plentiful everywhere along the coast. During the long dry season may be found in the courida bush and in the samphire which grows on the salt lands along the coast. In October when very few were to be found, I stooped to tie a shoe-lace near some crab holes in a dry silted up trench. I was immediately attacked by a few *Taeniorhynchus*, one or two of which seemed to issue from the holes alluded to, and one has only to stand still for a little on ground which has dried and cracked, to find numbers of them. Immediately favourable conditions for breeding come they swarm from their hiding places. On 12th November I walked through the couridas on Auchlyne front and saw scarcely any mosquitoes. On the 16th November very high spring tides occurred, and between that date and 20th November showers occurred. On the 20th I was gunning in the couridas, and in a pool filled by the high tides observed countless millions of larvae blackening the water; in places so crowded that a needle's point could not have been inserted amongst them without transfixing some. The flies were also plentiful and vicious that morning. On the 23rd I was again on the front in the afternoon about 5.30 p.m. I heard a hum beginning and clouds of mosquitoes began to rise. The appearance was soon like a mist hanging over the low samphire bush, while over the tops of the courida trees cones were formed which waved like smoke wreaths in the wind, a stronger puff occasionally blowing the cone completely over, only to form again in a few seconds. It was some days after this that this mosquito became troublesome in the garden of my house, which is within

300 yards of the nearest point of the swampy ground. On 5th December I searched the pool above mentioned for larvae but found none. On 20th November I observed no small fish in the water, but there were traces of spawn here and there. About 10 days after there were plenty of small fish, mullet, &c., in all the tidal pools.

Places of Capture.—Everywhere along the coast from Skeldon to Wakenaam.

Culex confirmatus and *serratus*, like *taeniorhynchus* are conditioned as to prevalence simply by opportunities for breeding. At a small pool to the north of All Saints' manse we invariably found these mosquitoes active so long as water remained; and on one or two occasions when we found the pool dry, on turning over decaying leaves lying in the bottom, we disturbed numbers of these flies, when not one was to be seen ranging in the surrounding bush.

Places of Capture.—New Amsterdam, Weldaad, Pomeroon.

Mansonia tittilans may be met with almost throughout the year, but there is a distinct prevalence from April to September. I have taken specimens in December on the dams aback of Auchlyne where they are the most common mosquito.

Places of Capture.—New Amsterdam, Weldaad, Corentyne Coast.

Taeniorhynchus fasciolatus has only been found beyond the salt water region of Guiana. At Mara about 30 miles from the mouth of Berbice river I found them in great numbers and about 40 miles up Canje creek they were similarly abundant. I have never found them further down these streams or on the coast. Specimens have been taken 100 miles up the abovenamed rivers.

Note.—Since writing above notes I took one of these mosquitoes in New Amsterdam. The season, it may be admitted, was a very wet one and fresh water everywhere in trenches and in the creeks much further down than usual, so that their presence of miles from the

Coast need not be considered contradictory of the previous observations.

Places of Capture.—Mara and Sandhills, Berbice river, Canje creek, New Amsterdam *vide* Note.

Gnophodeomyia aikenii.—The first specimens were taken on the back dam, New Amsterdam, and I have recently taken some at Auchlyne on the Corentyne coast.

AEDIOMYIA.—*Aedeomyia squamipenna.*—Is pretty well distributed over the country.

Places of capture.—New Amsterdam ; Georgetown ; No. 63, Corentyne Coast.

Uranotaenia n.sp.—I have lately taken specimens at Auchlyne, of one of the new species sent home for description by Mr. Theobald. Specimens of *Uranotaenia geometrica*, *Culex palus* and *Dendromyia quasi-luteo-ventralis* were taken by us in New Amsterdam and sent home to Professor Theobald in 1906.

NOTES ON LARVÆ.

C. taeniorhynchus.—Found in a pretty large pool in a swampy field on Auchlyne about 500 yards from road. General colour : dark testaceous to brown. Head much darker, blackish brown, except a crescentic patch in middle of head which is ochreous and in which a pair of peculiar ramified structures appear. The eyes are small and set far back on head ; antennae have apparently two processes and two bristles.

The whorls appear a reddish-orange in strong relief against general black appearance of head. Four hook-like processes emerge in front placed two and two above and below the frontal prominence. Thorax wider than head by half with three large bunches of compound hairs and several single bristles on each side.

The first, second, third, fourth and fifth segments furnished with bunches of compound hairs three or four in a bunch ; the sixth with one long bristle. The syphon is short not quite twice the length of last segment, blackish brown like head, furnished with two rows, each of 14 or 15 hooks, the one nearest apex long, the others gradually decreasing to the base of syphon.

A bunch of hairs emerges from the apical third of syphon a little more apically than the posterior hook. The caudal segment is furnished with four very short pear-shaped fans and two bunches of compound hairs while close to its junction with the seventh segment is a bunch of hairs similar to that on syphon. Two bunches of compound hairs, one dorsal, the other ventral; emerge from the area between the junction of the syphon and caudal segment with the seventh segment and near the point of emergence of dorsal bunch are a few small hooks. In resting at the surface of the water the caudal segment with its final hairs and fans are in a line with body while the syphon makes an angle of about 60° with that line.

In the note on *C. taeniorhynchus* in section on "Distribution, &c.," I have noted the occurrence of these larvae in brackish—nearly salt-pools. For three years we have observed the remarkable increase of these mosquitoes in November. In 1905 we found the larvae in shoals in the trenches in New Amsterdam, and each year there has been a positive plague of *taeniorhynchus* during this month, in the town and along the whole coast from Georgetown to Skeldon. This may be due to the fact that in the latter end of October many of the trenches and pools in the salt water swamps dry up, small fish may be seen lying dead in thousands, and a strong fishy stench assails one frequently on the road. With the high springs at perigee, trenches and pools are filled up with tidal water and frequently rains fall thus providing choice conditions for breeding, while a fortnight or more elapses before fish restock the trenches and pools. *Taeniorhynchus* seizes the opportunity and multiplies exceedingly. As noted in last year's Annual this larva can flourish in any sort of water. I found them in December in large numbers in fresh water pools on the savannah. During the dry season they use any available water. In a hole made by cattle hoofs when the savannah was soft but containing at the time little more than a pint of water I have seen six or seven larvae and pupae.

The larvae are tenacious of life and resourceful. I collected some in a bottle which had contained paraffin oil, a trace of the oil remained in the water even when the survivors were decanted to a clean bottle. On

coming to the surface to breathe the larvae wriggled vigorously apparently with the aim of breaking the slight film to gain a clear space for air to enter, or force the syphon through. The relative position of the syphon and caudal segment is quite different from *C. fatigans*; in the latter when resting at the surface the syphon and caudal segment are in a straight line at right angles to the body, whereas in *taeniorhynchus* the syphon is in a line with the last few abdominal segments, the caudal segment as noted above being at an angle of about 60° and the anterior segments curving towards the horizontal.

Gnophodeomyia aikenii.—The larva is brownish in colour. The head is as large as the thorax; in the early stages much larger. The antennae are long and stout ending in two or three stout bristles while two more emerge from near the end. At a point one-third distant from the end a shoulder is formed from which springs a group of strong hairs about fifteen in number. Over the posterior two-thirds minute spines are scattered. The whorls are large and bunched in appearance. The thorax has six groups of strong hairs on each side, three emerging dorsally, and two or three single bristles. The first two segments have two groups of bristles, three or four in one group, two in the other, the remaining segments two long bristles and some smaller hairs. The syphon is large and stout, about one-third of the length of the body. It has three groups of small hairs about midway. Near its junction with the abdomen a group of longish bristles, about six or seven in number, emerges and three or four smaller single bristles. The caudal segment is large, has four long rather acuminate fans and a fringe consisting of seven or eight bunches of bristles. At the base of the segment is a group of three longish hairs.

The habitat of this larva was described in last year's Annual.

Stegomyia luciensis.—The head is club-shaped, the antennae rather long, and simple, with four short bristles and two small processes emerging from the end. At the base of each of the large group of hairs on the thorax is a strong hook. The hairs in these groups are compound, as are also the long hairs on the first three

segments. The caudal parts are similar to those of *S. fasciata* larva, the hooks bidentate and seem to vary in number. The larvae are light grey; when young they are almost transparent. Their habitat is domestic water.

Janthinosoma lutzii.—I am informed by Rev. C. R. S. Pike that he had found this larva in a small collection of water in the yard of his house in Queenstown, New Amsterdam. In colour it is a lightish green with a darker mid dorsal streak; he succeeded in breeding out the imago which was a male *J. lutzii*.

REMARKS ON IDENTIFICATION.

It is impossible to give popular directions for identification, even of the genus of mosquitoes, which will not require the use of at least a lens; but it has been pointed out to me that it is very desirable that, if at all possible, some plain descriptions should be put in the hands of hospital nurses, and so forth, to enable them to recognize at least the common fever and filaria bearing flies. In last year's Annual, we inserted some Notes on Identification intended to assist beginners, and these remarks may supplement what is there attempted.

There are only five mosquitoes that are very common in the populous parts of the colony and the proportions in which they are met with may be stated thus: commonly of one hundred mosquitoes seen indoors seventy will be *Stegomyias* of two species, *fasciata* and *luciensis*, identical in appearance to the naked eye, twenty will be *Culex taeniorhynchus*, fifteen will be *Mansonia tittilans*, ten will be *Anopheles*, or, as it is now named, *Cellia albipes*, five *Culex fatigans*, while an occasional *Aediomyia squamipenna* or *Gnophodeomyia aikenii* will be seen. Outdoors the proportion changes. *Stegomyia* will very rarely be seen, as it is entirely domestic in its habits. *Culex taeniorhynchus* will constitute ninety per cent. and in certain seasons of prevalence ninety-nine per cent. of the mosquitoes seen, while *Culex confirmatus* and *serratus* with *Mansonia tittilans* will make up the balance of one hundred; but when we leave the towns and villages and public roads the proportion of *tittilans* will increase as we go aback and *Janthinosoma* will appear, while *Culex taeniorhynchus* will gradually become scarcer.

To the naked eye it is a little difficult to distinguish *Stegomyia* from *C. taeniorhynchus*, but it is possible. *Stegomyia* is blacker in the dark parts and whiter in the white parts, and has white markings on the thorax—that is the part of the back just behind the head—in shape exactly like a lyre with two strings, the strings however not easily perceptible with the naked eye—otherwise both have bars of white on the body and on the hind legs very distinct but *C. taeniorhynchus* has also a bar of white on the proboscis. *C. fatigans* and *similis* are identical to the naked eye, but both differ in general colour from those mentioned they are a pale brownish colour to the eye, while the body is barred with white like those above.

The important malaria carrying criminals—*Cellia albipes* and *argyrotarsis*—are identical in appearance, and differ totally from those named above, the hovering flight in the air, the grey appearance when they alight, the long white stockings on the hind legs, which generally wave conspicuously above their bodies, the curious awl-shaped general outline when seen from above and the attitude almost perpendicular to the surface on which they rest, serve to differentiate these mosquitoes very plainly from all others common here.

Mansonia tittilans is bulkier than any of those mentioned above, has a general very dark brown colour and a slightly brindled appearance when closely looked at. This brindled appearance is much more marked in *Aediomyia squammipenna*, which looks more golden brown and is much smaller than *tittilans*. Both have a crouching attitude in resting, by which at a glance a moderately close observer will distinguish them from all the foregoing. At present we know of no particular wickedness on account of which the two last named mosquitoes should be severely dealt with, but we have our suspicions about *tittilans*.

If a very small mosquito is met with indoors it is very probably *Gnophodeomyia* or *Melanoconion*, but if pale blue markings are visible it is *Uranotaenia* or *Pseudo-uranotaenia*. If a very large handsome mosquito appears indoors which will only happen near bush in which bamboos occur, it is likely to be *Janthinosoma*.

In the present state of knowledge of human ailments *Anopheles*, *Stegomyia* and *Culex fatigans*, are the three mosquitoes of well ascertained agency in disease, and to be able to recognize them is important for every one connected with the public health.

I may refer to the B.G. Medical Annual, 1905, "Preliminary Notes on the Mosquitoes of British Guiana" for drawings of the hind legs and wing of the *Anopheles* fig. 19, 20 and 21, and of the back of *Stegomyia* fig. 24, to assist the descriptive remarks above given in placing the power of recognition in the hands of those interested.

TABLE OF GENERA (FROM THEOBALD)
With names of British Guiana Species.

FAMILY.	SUB-FAMILY.	GENUS.	NO. OF S.	NAMES OF BRITISH GUIANA SPECIES.
Culicidae	...Anophelina ...	1. Anopheles	...	
		2. Myzomyia	...	Myzomyia lutzii.
		3. Cyclolepidopteron	...	Cyclolepton mediopunctatus.
		4. Stethomyia	...	Stethomyia nimba.
		5. Pyretophorus	...	
		6. Arribaizagia	...	
		7. Myzorhynchus	...	
		8. Nyssorhynchus	...	
		9. Cellia	...	
		10. Aldrichia	...	
	Megarhinina			
	Culicina	1. Megarhinus	6	...Megarhinus haemorrhoidalis, ...Megarhinus separatus.
2. Toxorhynchus		4	...	
		1. Janthinosoma	5	...Janthinosoma musica, ...Janthinosoma lutzii.
		2. Psorophora	4	...Psorophora scintillans.
		3. Nucidus	...	
		4. Desvoides or Armigeres	18...	Stegomyia fasciata, Stegomyia luctensis.
		5. Stegomyia	5	...
		6. Theobaldia	...	...large numbers ...Culex taeniorhynchus, ...Culex serratus.
		7. Lutzia	...	Culex confirmatus.
		8. Culex	...	Culex nubiliis.

TABLE OF GENERA (FROM THEOBALD)
With names of British Guiana Species

FAMILY.	SUB-FAMILY.	GENUS.	NO. OF S.	NAMES OF BRITISH GUIANA SPECIES.
		9. Gilesia	1	...
		10. Lasiocoops	1	...
		11. Melanoconion	6	......Melanoconion atratus vel Culex atratus. ...Melanoconion luteopleura.
		12. Grabhamia	10	...
		13. Acartomyia	1	...
Culicidæ	...Culicina	14. Taeniorhynchus	16	......Taeniorhynchus fulvus or culex fulvus. ...Taeniorhynchus confinis. ...Taeniorhynchus fasciolatus. ...Mansonia titillans.
		15. Mansonia or Panoplitæ	8	...
		16. Finlaya	2	...
		17. Howardia	2	...
		18. Skusea	3	...
		19. Katageomyia	...	...
		20. Macleaya	...	...
		21. Hodgesia	...	...
		22. Sautomyia	...	...
		23. Danielsa	...	...
		24. Eretmapodites	...	...
		25. Hulecoetomyia	...	...
		26. Leicesteria	...	...
		27. Gnophodeomyia	1	Gnophodeomyia alkenii.
	Johlotina vel	Johlotina	1	...
	Trichoprosopina	...	+	...

TABLE OF GENERA (FROM THEOBALD)
 With names of *British Guiana Species*.

FAMILY.	SUB-FAMILY.	GENUS.	No. OF S.	NAMES OF BRITISH GUIANA SPECIES.
Culicidae	Heptaphlebotomyia Aedeomyia ...	Heptaphlebotomyia ...	+	
		1. Deinocerites or Erachtiomyia ...	2	... Dinocerites cancer.
		2. Aedes	2	
		3. Aedimorphus	1	
		4. Verrillina	3	
		5. Ficalbia ...	2	
		6. Uranotaenia	14	... Uranotaenia pulcherrima. Uranotaenia geometryca.
		7. Mimomyia	2	
		8. Aedeomyia	3	... Aedeomyia squampipenna. Haemagogus cyaneus. Haemagogus albomaculatus.
		9. Haemagogus		
		10. Wyeomyia		
		11. Phomiomyia		
	12. Dendromyia	5	... Dendromyia ulocoma. Dendromyia asullepta. Dendromyia quasi luteoventralis. Dendromyia luteoventralis.	
	13. Runchomyia	1	... Runchomyia frontosa.	
	14. Sabethes	4	... Sabethes remipes	
	15. Sabethoides	1	... Sabethoides confusus.	
	16. Goeldia	1	... Goeldia fluviatilis.	
	17. Limatus	1		
18. Pseudouranotaenia	1	... Pseudouranotaenia rowlandii.		
Corethrina ...	Corethrina ...	1. Corethra		
		2. Mochlonyx		

RAINFALL TABLE

To illustrate notes on seasonal occurrence, &c.

Dates.	Amount.	August.
1-9	1.75"	
10-14	.0"	
15-19	2.05"	
20-31	.67"	... Total ... 4.47"
		September.
1-13	.0"	
14	.07"	
15-20	.0"	
21	.02"	
22-30	.0"	... Total ... .09"
		October.
1-3	.0"	
4	.12"	
5-10	.0"	
11	2.48"	
12-14	.0"	
15	.08"	
16-31	.0"	... Total ... 2.68"
		November.
1-3	.0"	
4-10	.21"	
12-19	4.32"	
20-23	.0"	
24	.05"	
25	.0"	
26	.10"	... Total ... 4.68"
		December.
1-5	.0"	
6-31	9.17"	... Total ... 9.17"

Note.—The figures are from rain gauge on Port Mourant Estate, about three miles from Auchlyne and approximate in the main sufficiently closely to the rainfall for whole district, though the dates of light showers vary from those on other parts of the neighbouring coast. The very dry season may be taken as beginning on August 20 and lasting till November 10.

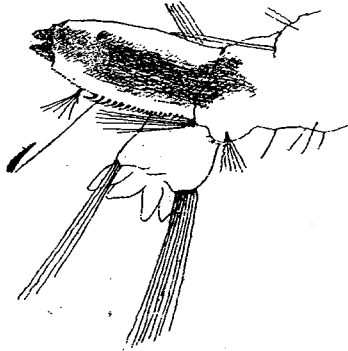


Fig. 1.



Fig. 2.

Fig. 1. Caudal parts of *C. taeniorhynchus* with one hook much magnified (*vide* p. 70).

Fig. 2. Head of same with apex of antenna much magnified (*vide* p. 69).



Fig. 3.



Fig. 5.

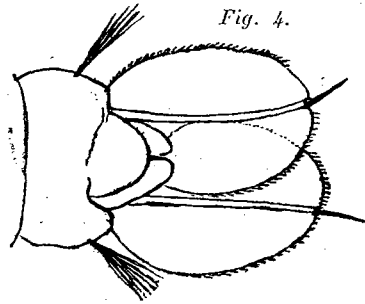


Fig. 4.



Fig. 6.

Fig. 3. Roots of compound hairs on thorax of *C. taeniorhynchus* much magnified.

Fig. 4. Tail fan of pupa of *C. taeniorhynchus*.

Fig. 5. Syphon of pupa of same.

Fig. 6. Head of larva of *Gnopodeomyia aikenii* (vide p. 71).

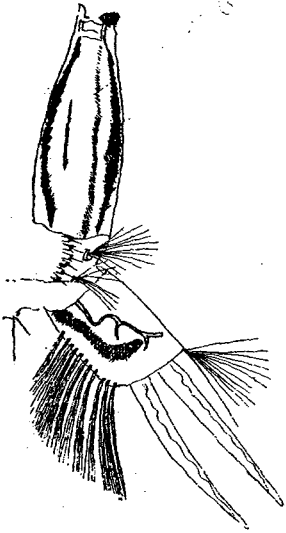


Fig. 7.

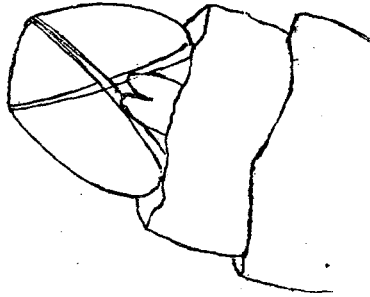


Fig. 8.

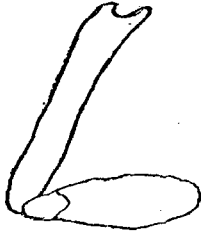


Fig. 9.



Fig. 10.

Fig. 7. Caudal parts of larva of *Gynophodeomyia aikenii* showing hooks on last segment of abdomen, tail fan, bristles, etc.

Fig. 8. Pupa of *Janthinosoma musica* caudal parts.

Fig. 9. Syphon of pupa *Janthinosoma musica* with chitinous plate from which it springs.

Fig. 10. Apex of same showing indented form.

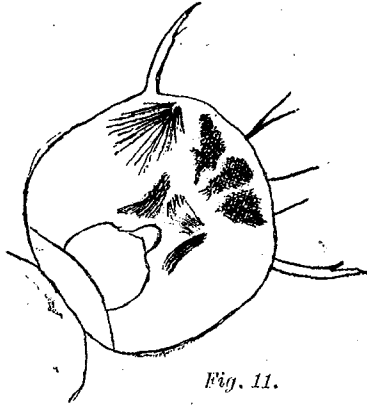


Fig. 11.

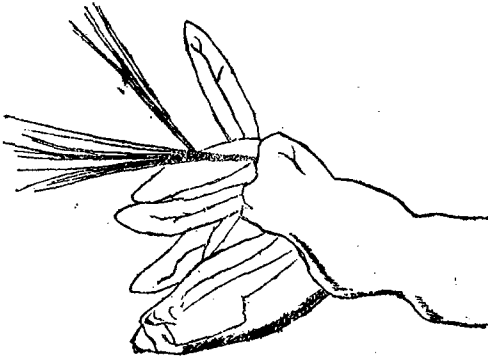


Fig. 12.

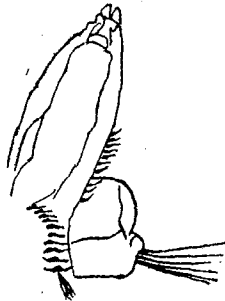


Fig. 13.

- Fig. 11. Head of larva of *Stegomyia luciensis* (*vide* p. 71).
Fig. 12. Caudal parts of same (*vide* p. 72).
Fig. 13. Caudal parts of same showing arrangement of hooks.