

NEW CULICIDAE FROM INDIA, AFRICA, BRITISH GUIANA,
AND AUSTRALIA.

By

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WITH PLATES III. AND IV.

WHILST recently examining some of the collections of mosquitoes constantly being received from abroad I have found at least a hundred new species and some dozen new genera. Several from India (exclusive of Ceylon), Africa, British Guiana, and Australia are described here.

The number of species of *Culicidae* is rapidly increasing, some one hundred odd species have been described since the publication of my last volume of the Monograph of *Culicidae* of the World, and I have probably between one hundred and fifty to two hundred waiting to be described amongst the material I now have on hand. Dr. Leicester is describing a number of new genera and species from the Federated Malay States in addition to those of his I have described in the *Entomologist* for 1904 and 1905. By far the greatest number of new forms I have come from South America and Africa. The former I am waiting to describe in conjunction with Dr. Lutz, of São Paulo, who has already added new species to the Brazilian fauna and much valuable information concerning them, as a separate work, as the indigenous *Culicidae* of South America are so peculiar and so very different from those of the rest of the world.

Three new genera and thirteen new species, and the previously unknown male of *Culex similis*, Theob., are described in this paper.

A species in Felt's genus *Culicada* is described, and I have added some generic peculiarities by which the genus can be identified by more general characters than those given by Felt.

Genus **Pyretophorus**, Blanchard.

= *Howardina*, Theobald: Mono. Culicid., 1902, iii, p. 66.

Pyretophorus ardensis, n. sp.

Pl. III, fig. 3.

Head deep brown with grey scales; palpi in female brown with white apex and three other narrow white bands; proboscis brown. Thorax grey in the middle, dark brown laterally. Abdomen dark

brown with golden hairs. Legs brown with femora, tibiae and metatarsi spotted, tarsi with narrow apical pale bands, with yellow and deep brown scales, costa with six black spots, the two apical spreading evenly on to the first long vein, the third large having a large and small dark area beneath it, the fourth smaller, the two basal ones very small and only on the costa; fringe spotted.

Female.—Head deep brown, clothed a few white narrow-curved scales in the middle, numerous large white upright forked scales at the sides of them, and then upright black forked scales, two tufts of small white scales project forwards between the eyes, and some longer grey median scales between them. Palpi brown with deep brown scales, apex broadly white and with three other narrow white bands, one close to the broad apical fascia; proboscis deep brown, a little longer than the palpi. Antennae deep brown, basal lobe nude, second segment with a few grey scales. Thorax slaty grey in the middle, with a median dark line and traces of lateral dark lines on it, at the sides it is deep rich brown, clothed with long narrow-curved golden hairs and a tuft of white scales in front projecting over the head; at the sides of these appear dusky outstanding spatulate scales, which may be attached to the prothoracic lobes; scutellum slaty grey (ochreous in some lights) with a few long golden curved hairs and long brown posterior border-bristles; metanotum deep brown. Abdomen deep blackish-brown, shiny, with long golden-brown hairs.

Legs deep brown, banded and spotted with pale creamy white as follows:—A narrow apical band at the apex of the first and second fore tarsals, also at the apex of the metatarsal, which has also two broad and two narrow bands upon it, tibiae and femora with white spots, the two apical tarsi are pure brown; in the mid legs the tarsi are the same, but the metatarsus is more spotted and the femora less so, having only five instead of six spots; in the hind legs the metatarsus has seven equi-distant and prominent spots, whilst the first three tarsi have the apex with a pale band, claws equal and simple; coxae pallid. Wings with yellow and black scales; on the costa are six black areas, the apical one smaller than the second, the second than the third, the fourth about equal to the apical one in size; the two basal ones over small, the first and second extend evenly on to the first long vein, the third is broken on the first long vein near the base (as in *P. costalis*), the fourth extends evenly on to the subcostal and first, the two basal ones do not extend below, the branches of the second vein are dark scaled except at their apices and at the commencement of the fork, two dusky spots on the stem, one beneath the large costal spot (3rd). The third long vein has three black areas, one apical, a large and small one near the base; two black spots on each branch of the fourth, stem all black but for two small yellow spots; the fifth is all

yellow except a black spot at the base and apex and three black spots on the upper branch; the sixth has three black spots; fringe brown, with a yellow spot where each vein joins the costa except the sixth. Halteres pallid with slightly fuscous knob with small grey scales.

Length, 5 to 5.5 millim.

Male.—Palpi with the two apical segments swollen, of about equal size, clothed with white scales at their apices, brown elsewhere, the antepenultimate segment has also a small white apex and a small white spot on one side towards the base, two apical segments and apex of the antepenultimate with long golden-brown hair-tufts; antennae yellowish-grey, with deep brown verticillate hair, giving a banded appearance; legs and wings much as in the female, but one less spot on the hind metatarsi; fore ungues very unequal, the larger curved and uniserrate; mid apparently small and simple; hind small, equal and simple.

Length, 5.5 millim.

Hab.—Natal (Dr. Power).

Described from a perfect male and female. The ornamentation of the legs is very marked. The specimens were taken in Durban, where malaria was prevalent at the time, and the female had fed from a patient suffering from that disease (malignant tertian).

It will probably prove to be a malaria carrier with *P. costalis*, Loew.

Genus *Stegomyia*, Theobald.

Mono. Culicid., 1901, i, p. 283.

Stegomyia poweri, n. sp.

Pl. III, fig. 2.

Head velvety black with median and lateral white patches; palpi black with snowy white apices; proboscis black. Thorax blackish brown with a median yellowish-white line, a silvery patch on each side in front of the wings extending as a fine yellowish line towards the scutellum, and a silvery patch on each side of the wings. Abdomen blackish-brown with basal white bands and large white basal lateral spots. Legs black and banded with white, base of hind femora white; fore legs with basal white bands to metatarsus and first tarsus, mid legs the same, but the first tarsus nearly all white, hind legs with the third tarsus all white, the fourth black.

Female.—Head clothed with flat violet black scales, with a double row of median silvery white ones and a small patch on each side and a few white scales around the border of the eyes, bristles jet black; palpi black, scaled with snowy white scales apically, and a few forming a narrow band towards their middle; antennae deep brown with

narrow white pale bands and deep brown verticillate hairs, basal segment black basally; with grey tomentum apically and a few white scales on the inner side; proboscis jet black.

Thorax deep brownish-black with reddish-brown narrow-curved scales, ornamented as follows:—A median yellow line of narrow curved scales extending from a small white spot near the head to the bare space in front of the scutellum, a patch of silvery white broader scales on each side towards the front, from which proceeds a whitish-yellow line running parallel to the median one on each side passing down to the scutellum and composed of broader curved scales than the rest, there is also a smaller silvery white spot just before the base of each wing, bristles deep brown; all the scales slope uniformly backwards; scutellum deep blackish-brown with flat silvery white scales and deep brown border-bristles; metanotum deep brown; pleurae deep brown with silvery white puncta, three forming a line anteriorly. Abdomen deep blackish-brown, the first and second segments unbanded, the former with long pale golden-brown bristles, the third to sixth segments with basal white bands somewhat indented in the middle and not extending completely across the abdomen, the seventh segment with a few plain scales in the middle basally placed, all the segments with large basal snowy-white patches, border-bristles short, bright brown to golden. Legs black, with the base of the fore tibiae, metatarsi and first tarsus white; in the mid legs there is a white spot at the apex of the femora, and a prominent round white spot on the middle of the segment, a white basal band to the metatarsus, and the greater part of the first tarsus white, and traces of a few white scales at the base of the second tarsus; in the hind legs the femora are white at the base, and have a small white apical spot, white basal bands to the metatarsus and first two tarsi, the third is pure white, the fourth black; unguis of fore and hind legs uniserrated, of hind equal and simple. Wings with dense brown scales; first sub-marginal cell considerably longer and narrower than the second posterior cell, its base considerably nearer the base of the wing than that of the second posterior cell, its stem less than one-half the length of the cell; stem of the second posterior cell as long as the cell; posterior cross-vein nearly three times its own length distant from the mid. Halteres thick, with ochreous stem and fuscous knob.

Length, 5 millim.

Hab.—Natal (Dr. Power).

Described from a perfect female. It is a very distinct species, easily told by the single median yellow thoracic line and legs from *S. scutellaris* (Walker), and by the single, not double line, seen in *S. simpsoni*, as well as by the legs. It is a very handsome species, and so far nothing like it has occurred outside Natal. Probably it will be

found in the Transvaal and other neighbouring regions. Apparently closely related to *Stegomyia gardnerii* (Ludlow), from the Phillippine Islands, but easily separated by the large anterior silvery white thoracic spot and by the ornamentation of the hind tarsi.

Genus **Gnophodeomyia**, nov. gen.

Head clothed with flat scales, rounded apically, with a band of a few narrow-curved scales behind and numerous upright forked scales. Palpi of female rather short, the penultimate segment longer than the basal ones, apical segment minute, mamilliform. Thorax with very narrow curved scales, also the scutellum; metanotum nude. Wings with normal venation, the scales on the apical area dense and large. Male unknown.

This genus comes near *Danielsia*, Theob. (*The Entomologist*, 1904, p. 78), but differs in the head scales being more uniform in arrangement, rounded apically, not truncated, and also in the scales of the wing.

Gnophodeomyia inornata, n. sp.

Pl. IV, fig. 8.

Head brown in some lights, greyish in others, palpi and proboscis brown. 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. Ungues 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. Ungues 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 no narrower than the second posterior cell, its base nearer the base of the wing than that of 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 supernumerary; 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 millim.

Hab.—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.

Genus **Reedomyia**, Ludlow.

Canad. Ento., 1905, vol. xxxvii, p. 94.

Reedomyia niveoscutella, n. sp.

Pl. III, fig. 5.

Head ochreous brown; proboscis fawn coloured, dusky at the tip. Thorax with dull golden scales with two dull brown median bare lines; scutellum with flat silvery white scales looking like three silvery spots; plurae pallid with three patches of white scales. Abdomen deep brown with indistinct basal grey bands. Legs unbanded.

Female.—Head ochreous brown, clothed with pale creamy narrow curved scales, paler around the eyes, with narrow ochreous upright forked scales in front and broader dusky ones behind, the sides with ochreous flat scales.

Proboscis fawn coloured, slightly dusky at the tip. Palpi thin, testaceous with irregular dusky scales. Clypeus fawn coloured. Antennae brown, testaceous at the base, with a few small flat dusky scales on the last two segments. Thorax brown, clothed with narrow-curved rather dull pale golden scales and with golden brown and brown bristles; scutellum pale ochreous, clothed with small flat silvery white scales (in some lights they appear dull grey), border-bristles brown, six large and four small ones posteriorly to the mid lobe; metanotum brown, with grey tomentum; pleurae very pale ochreous with three irregular patches of grey scales.

Abdomen deep brown with dull violet reflections, the segments with narrow basal creamy bands and traces of pale scales apically and pallid border-bristles; lobes of female genitalia dark, prominent and acuminate.

Legs unbanded, brown, with coppery reflections; coxae and base and venter of femora pallid; fore and mid ungues equal and uni-serrated.

Wings with rather short, fork-cells; the first sub-marginal much longer and slightly narrower than the second posterior cell, its stem nearly equal to the length of the cell; stem of the second posterior as long as the cell, posterior cross-vein rather more than its own length distant from the mid cross-vein. Halteres pallid.

Length, 4.5 millim.

Hab.—India (Capt. James, I.M.S.).

Described from a perfect female. In general appearance it resembles a typical *Culex* of the *pipiens* group. It is closely allied to *Reedomyia pampangensis* (Ludlow), found at Angeles, Pampanga, Luzon, Phillippine Islands, but can at once be told by the uniform coloured thorax, which in *pampangensis* is ornamented with pale yellow and dark bronzy brown scales and slightly different venation. The flat white scales of the scutellum in both species are very marked.

Genus *Pecomymia*, nov. gen.

Head clothed with narrow-curved scales, upright forked scales and flat lateral ones; palpi in female short. Thorax with narrow curved scales; scutellum with narrow-curved and small flat scales mixed together on the mid lobe; narrow, rather long flat scales and a few narrow-curved ones to the lateral lobes; metanotum nude. Wings with mottled scales; the median vein-scales large, bluntly Taeniarhynchus-shape, black and grey in patches, the lateral vein-scales linear, but straight and stiff, arising in definite order on each side of most of the veins, like the teeth of a comb.

This genus resembles in general appearance *Grabhamia*, but can at once be told by the scutellar ornamentation and the straight stiff lateral vein-scales.

It is a Culicine, and comes between *Reedomyia* and *Grabhamia*.

Pecomymia maculata, n. sp.

Pl. IV, fig. 7.

Head brown, with dull greyish and ochreous scales; proboscis ochreous, mottled with black scales, black at the apex; palpi ochreous, mottled with black scales.

Thorax brown, clothed with dull grey and dull golden-brown scales, paler behind and with traces of linear ornamentation ; scutellum with grey scales.

Abdomen deep brown, with basal white bands. Wings mottled with brown and grey scales ; halteres very pale ochreous. Legs ochreous, mottled with deep brown scales, tarsi dark brown, some of the segments with basal pale bands.

Female.—Head brown, densely clothed with dull grey narrow curved scales, with some similar shaped ochreous ones in front, dark brown upright forked scales, flat dark brown, then white lateral ones, and with deep brown bristles projecting forward over the eyes. Palpi deep ochreous, with blackish scales, tips of the apical segment grey ; proboscis ochreous, with scattered deep brown scales, so dense at the apex that it is quite black ; antennae brown, with narrow pale bands at the junction of the segments. Thorax deep brown, clothed with grey and dull golden brown narrow-curved scales, becoming almost white in front of the scutellum, traces of linear ornamentation seen in some lights, bristles deep brown ; scutellum deep brown, the mid lobe with grey, almost white, narrow-curved scales, and a few small flat ones mixed with them ; lateral lobes with rather narrow flat white scales, and a few narrow-curved ones at the edges ; border-bristles rich brown ; metanotum deep brown.

Abdomen deep brown with dull violet reflections and white basal bands, basal segment with grey scales and very pallid bristles ; border-bristles pallid.

Legs ochreous with scattered black, grey and ochreous scales, apex of femora, tibiae and tarsi mostly dark scaled, the metatarsi with white basal bands, also the first two tarsals of fore and mid legs and all those of the hind pair ; fore and mid unguis uniserrated ; hind simple, all equal.

Wings with mottled brown and grey scales ; most of the vein scales broad and truncated, all the median ones are so ; the first, third, apical portions of fourth and fifth with thin straight lateral scales uniformly disposed ; fork-cells short, first sub-marginal longer and narrower than the second posterior, their bases about level, stem of the first sub-marginal nearly two-thirds 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. Halteres very pale ochreous.

Length, 4.8 millim.

Hab.—India (James).

A very obscure species until examined microscopically, when the squamose characters of the scutellum and wings at once show that it is not a *Grabhamia*, which it superficially resembles.

Genus **Grabhamia**, Theobald.

Mono. Culicid., 1903, iii, p. 243.

Grabhamia ochracea, n. sp.

Head tawny, with yellowish-grey scales; proboscis with an ochreous band in the middle, black apically, brown basally. Thorax ornamented with bright ochreous brown and silvery grey scales, the ochreous area forming two more or less distinct dusky spots in front, and others close to them, also two spots in front of the wings. Abdomen bright golden ochreous, with traces of a dark band on the fourth segment and two dark spots on the apical segment. Legs pale ochreous, the tarsi darkened except at their bases and apices. Wings with brown scales and some scattered ochreous ones, especially along the base of the costa, where they form a more or less distinct pale line.

Female.—Head clothed with pale yellowish-grey narrow-curved scales, ochreous upright forked scales in the middle, brown ones at the sides, with numerous pale golden and brownish bristles projecting forwards; palpi with mottled brown and ochreous scales, the latter most prominent on their upper surface; clypeus tawny; proboscis clothed with black scales apically, rich ochreous ones in the middle, and mixed ochreous and dusky ones basally, thus giving a distinctly banded appearance. Antennae brown, ochreous basally. Thorax ochreous brown, clothed with narrow-curved rich ochreous brown and silvery grey scales, arranged as follows:—Two spot-like areas of rich ochreous brown scales in front, others behind in conjunction with a patch of dusky ones just in front of the root of the wings, the silvery grey ones fitting in between; bristles brown and golden; scutellum pale, with pale narrow-curved scales and a few dusky ones at the base of the mid lobe, border-bristles golden brown, eight to the mid lobe; metanotum pale brown; pleurae ochreous-grey and pale brown, with patches of small flat grey scales. Abdomen completely clothed with bright golden-ochreous scales, except for a median patch of dusky ones on the fourth and two spots on the apical segment, with traces of pale scales at the base of the latter and sides of the preceding, hairs bright golden yellow.

Legs pale ochreous, femora with scattered dusky scales at the apex, also at the base and apex of the tibiae, first and second tarsals dusky in the middle, pale at each end, third tarsal pale at the base, dusky apically, fourth tarsal deep brown; ungues equal and simple.

Wings with brown scales, the costa and first long vein mottled with pale ochreous; third and fifth long veins very dark scaled; first sub-marginal cell longer and narrower than the second posterior, their bases nearly level, stem of the former a little more than half the length of the cell, stem of the latter about two-thirds the length of the cell;

posterior cross-vein nearly three times its own length distant from the mid; scales on the base of the costa pale ochreous, and many along its upper part, also many pale scales on the first long vein, and a few seen in certain lights on the other veins. Halteres pale ochreous.

Length, 5.5 millim.

Hab.—India (Dr. Christopher).

Distinct from all other Grabhamias by its very marked golden ochreous abdomen. Described from two perfect females.

Genus *Culicida*, Felt.

Mosquitoes or Culicidae, N.Y. State, App., 1904, p. 391^b.

Head, thorax and abdomen with similar scales to *Culex*. Wings with short fork-cells and clothed with denser and larger vein scales than *Culex*, the median vein scales especially so. The palpi of the female longer than in *Culex*. The stem of the first sub-marginal cell is usually short, but may be a little longer or a little shorter than the cell.

The genus can at once be separated from *Culex* by the short fork-cells and the scale structure of the wings.

The characters given by Felt will not all hold even in the same species. For instance, "the posterior cross-vein about its own length from the mid cross-vein" is given as a generic character in the female; in *C. cantans*, Meigen, it varies to as much as its whole length; and in the male, again Felt says "the petiole of the first fork-cell is equal in length to that of the cell"; it in reality will vary not only in the same species but in specimens from the same batch of eggs. The type of this genus should be Meigen's *cantans*, certainly not my *Culex canadensis*, which was founded long after the former species.

The larvae in this genus have short thick syphons.

A number of other species come in it as *cantator*, Coq., *nigripes*, Zett., *nemorosus*, Meigen, *morsitans*, Theob., *diversus*, Theob., *annulipes*, Meigen, *vexans*, Meigen, and *flavescens*, Fabricius.

Felt gives the following American species, which, judging from the wings, fit in here, namely, *fitchii*, Felt, *cinereoborealis*, Felt, *onondagensis*, Felt, *abserratus*, Felt, and *lagarensis*, Felt. Others he refers to that certainly do not belong here are *squamiger*, Coq., *triseriatus*, Say, *trivittatus*, Coq., *atropalpus*, Coq., and *sollicitans*, Walker.

Culicada bupengaryensis, n. sp.

Pl. III, fig. 4; Pl. IV, figs. 1-3.

Head deep brown with dull golden scales, palpi and proboscis deep brown, basal segments of antennae bright ferruginous. Thorax deep brownish black, clothed with bright golden scales, with two median parallel bare lines. Abdomen deep brown with violet reflec-

tions, unbanded, but with basal lateral creamy-white spots. Legs deep brown, unbanded, base and venter of femora pale reddish-brown. Wings with short fork-cells.

Female.—Head deep brown, clothed with long narrow-curved pale golden scales and flat yellowish ones laterally, upright forked scales ochreous; palpi and proboscis brown; clypeus bright brown, with a median sulcus and a blunt process on each side towards the base; the palpi are clothed with almost black scales and bristles, the apical segment minute, the penultimate long. Antennae brown, basal segments bright testaceous. Eyes black and silvery. Thorax deep brownish black, clothed with irregularly disposed golden narrow curved scales except on two median parallel lines, which show as two dark lines on the golden scaled mesonotum, and which are ornamented with narrow-curved bronzy-black scales, a few of these also occur over the roots of the wings; bristles partly black, partly golden. Scutellum ochreous brown, with pale golden narrow-curved scales, the mid lobe with deep brown and golden border-bristles, the lateral with deep brown ones only; metanotum brown and testaceous; pleurae testaceous and brown, with flat creamy scales.

Abdomen deep brown in some lights, with violet reflections in others, the segments with basal lateral creamy patches, the basal segment testaceous, with two patches of dark scales; posterior border-bristles bright reddish-brown. Venter with yellowish basal bands. Legs brown, with metallic violet and coppery hues, bases and venter of the femora ochreous; fore and mid ungues equal, uniserrated, thick, hind equal and simple, straighter than the others.

Wings with short fork-cells, first sub-marginal a little longer and narrower than the second posterior, their bases nearly level, its stem not quite so long as the cell, stem of the second posterior as long as the cell, posterior cross-vein about its own length distant from the mid, which is longer than the posterior; scales brown.

Halteres with pale stem, fuscous knob with creamy scales.

Length, 5.2 to 5.5 millim.

Male.—Palpi deep brown, hair-tufts deep brown; antennae with deep brown plume-hairs. Head and thorax as in the female; prothoracic lobes prominent. Abdomen as in the female, but the basal parts of the segments are unscaled and testaceous, giving a broadly banded appearance. The first sub-marginal cell is only about half the width of the second posterior cell and about the same length, its stem the same length as the cell, whilst that of the second posterior is shorter.

Ungues of fore legs curved unequal, the larger uniserrated, the smaller simple; in the mid more unequal than the fore, the smaller curved and uniserrated, the larger simple, bent close to the base, then

nearly straight; hind pair equal, simple, small and nearly straight, acuminate. Male genitalia with prominent claspers (*vide* figure 3, Pl. iv).

Length, 5. to 5.5 millim.

Hab.—Bupengary, South Queensland (Dr. Bancroft).

Time of capture, November.

Described from a series of males and females collected by Dr. Bancroft. It is the only known Australian species with similar abdomen, and cannot be confused with any other species. The male unguis are very marked. It clearly comes in Felt's new genus *Culicada*.

Genus **Culex**, Linn.

Culex simpsoni, n. sp.

Pl. IV, figs. 10, 10a.

Head pale ochreous in the middle, a dark area on each side and pale laterally. Proboscis brown; dark brown and swollen apically.

Thorax clothed with dull pale ochreous and reddish-brown scales, giving a mottled appearance, with two bare median parallel lines. The ornamentation consists of two reddish-brown spots in front, two long lateral and one long median one behind. Abdomen blackish, with basal white bands. Legs deep brown, with pale apical femoral and tibial spots. Ungues of female equal and simple, the fore and mid of the male unequal and unserrated.

Female.—Head deep brown, clothed with narrow-curved pale scales and with small flat white ones laterally, in the middle are ochreous upright forked scales, at the sides numerous black upright forked scales, giving the appearance of two black patches when viewed with a hand lens. Clypeus brown. Proboscis brown and swollen apically, where it is darkened. Palpi deep brown. Antennae brown, basal segment pale fawn coloured, slightly darker on the inner side.

Thorax deep brown, clothed with narrow-curved pale ochreous scales, with two roundish patches of a rusty red hue in front, and three longer patches behind, often somewhat indistinct in outline, and giving a somewhat mottled appearance. When distinct the lateral hind patches are elongate and curved on the inner border, and the median one is broad and long. In front arise two nearly parallel dark median bare lines, broadest anteriorly, and which disappear about the middle of the mesonotum; chaetae pale brown; scutellum with narrow-curved pale scales and six dark border-bristles to the mid lobe; pleurae pale greyish-brown, with some patches of flat white scales. Abdomen deep brown, with basal white curved bands not extending quite across the segments; posterior border-bristles brown; apex rather hirsute.

Legs deep brown except the bases and venter of femora, which are pale ochreous, apices of femora and tibiae with a pale spot, most

prominent on the hind tibiae, bristles of tibiae bright brown, of metatarsi black; unguis small, equal and simple.

Wings with the first sub-marginal cell considerably longer and narrower than the second posterior cell, its base nearer the base of the wing, its stem rather more than one-half the length of the cell, stem of the second posterior cell as long as the cell; posterior cross-vein about twice its own length distant from the mid cross-vein. Halteres with pale stem and dusky knob.

Length, 3.5 to 4.5 millim.

Male.—Palpi black, with a narrow pale band towards the base, rather acuminate; last two segments and apex of the antepenultimate segment with scanty black hairs. Antennae with brown hairs, nodes black, internodes grey. Legs and abdomen as in the female. Fore and mid unguis unequal, the larger with a large outstanding tooth, the smaller with a short acute basal tooth; the hind claws small, curved, equal and simple.

Genitalia with long curved claspers, with small dark terminal segment, and a prominent bunch of long flat sword-like bristles, four in number, arising from a prominence on the basal lobe, three much longer than the fourth; the three long ones are curved at their apices, near this tuft is a single leaf-like plate, pointed apically, the three long spines are not as long as the claspers.

Length, 3.5 to 4.5 millim.

Hab.—Transvaal.

Apparently very common. Very variable in size. Its chief gross characters are the thoracic ornamentation and the pale apical femoral and tibial spots. The thoracic ornamentation is not always distinct. In some the markings of rust red are very clear, two roundish ones in front, and two prominent lateral elongated ones behind, and a median long broad one. The female palpi are composed of three segments, the apical one very large, longer than the two basal ones, the basal the smallest.

The male genitalia are very characteristic, the bunch of flat bristles on the basal lobe being most marked, three being long and one short.

***Culex bostocki*, n. sp.**

Head deep brown, with scattered golden scales; proboscis and palpi black, the former longer than the body. Thorax rich brown with brown scales, and some scattered dull golden ones forming two indistinct lateral lines; scutellum with pale scales. Abdomen black, the basal segments with narrow pale apical bands, and all the segments with pale lateral apical spots. Legs deep brown, except base and venter of femora and knee spots, which are pale.

Female.—Head deep brown, with pale narrow-curved scales and

long black upright forked scales, sides with small flat pale ochreous scales, and a narrow border of curved grey scales around the eyes. Proboscis long and thin, black. Palpi black. Clypeus black.

Thorax deep brown, clothed with narrow-curved brown scales and some scattered dull golden ones, which form two more or less distinct lines, which pass down to the front of the roots of the wing, and which spread across between the wings and around the bare space in front of the scutellum; on the denuded surface are seen two dark median parallel lines, which shine through the scales (when held in some lights the dark lines become pale silvery grey). Scutellum with narrow curved pale yellowish scales and black border-bristles, seven of the latter to the mid lobe. Metanotum brown. Pleurae brown, with some small flat white scales. Abdomen black, the second and third segments with traces of pale scaled apical borders, and all the segments with grey apical lateral spots; venter with grey apical bands, the basal segments with many scattered white scales; border-bristles pale ochreous, the two last segments with many pale hairs over their whole surface.

Legs deep brown except the base and most of the venter of the femora; knee spots yellowish, and a trace of a pale spot on the apex of the tibiae; hairs on femora, tibiae and metatarsi pallid; hind metatarsi about one-fifth longer than the hind tibiae. Ungues all equal and simple, very small.

Wings with the first sub-marginal cell longer and just a little narrower than the second posterior cell, its base nearer the base of the wing than that of the second posterior cell, its stem rather more than one-half its length; stem of the second posterior cell not quite as long as the cell; posterior cross-vein long, about its own length distant from the mid cross-vein.

Halteres with pale stem and dusky knob, clothed with dull grey scales.

Length, 4 millim.

Hab.—Transvaal (Simpson).

Described from a single male. Easily told by the apical abdominal banding and lateral apical white spots.

***Culex minutus*, n. sp.**

Pl. IV, figs. 9, 9a.

Thorax with golden scales, looking deeper reddish-brown at the sides, with three parallel dark lines, metanotum pallid. Abdomen blackish-brown, with dull grey irregular basal bands and white lateral spots extending along nearly the whole length of the segments. Legs deep brown, with traces of small dull apical spots on femora and tibiae. Five spines on prominence of male genitalia, three being as long as the claspers.

Female.—Head clothed with narrow-curved pale creamy scales and numerous black upright forked scales, and small flat grey lateral ones.

Proboscis, palpi and antennae deep brown. Clypeus black, elongated. Thorax deep brown, clothed with pale dull golden narrow curved scales, in some lights appearing dark (reddish-brown) at the sides, and with three parallel dark bare lines, scales paler before the scutellum; scutellum greyish-brown, with narrow-curved pale golden scales; metanotum pale greyish; pleurae grey.

Abdomen deep brown, with irregular indistinct grey basal bands and large white lateral spots, which seem to extend the greater length of some of the segments; posterior border-bristles long and pallid.

Legs deep brown, venter of femora pale, traces of pale spots at the apices of femora and tibiae; ungues small, equal and simple.

Wings with the first sub-marginal cell considerably longer and a little narrower than the second posterior cell, its base nearer the base of the wing, its stem less than one-fourth the length of the cell, stem of the second posterior cell about two-thirds the length of the cell; *posterior cross-vein much* longer than the mid cross-vein, about one and a half times its own length distant from the mid.

Halteres with pale stems, and large rather dusky knob.

Length, 2.8 to 3 millim.

Male.—Similar to female. Palpi brown; acuminate; last two segments deeper brown with brown plume hairs; the two apical segments nearly equal. Fore ungues unequal but not so much so as is usual in *Culex*, the larger with a large tooth, the smaller with a small acute tooth near the base, mid ungues more curved than the fore, both uniserrated, hind equal and simple. Genitalia with the claspers curved, with a membranous expansion at one side and a small terminal segment, on the basal lobe is a prominence with a tuft of three large broad acute spines and two small ones, and at the side of the prominence a blade-like plate, rounded apically, and two small spines arising from a common base.

Length, 2.5 to 3 millim.

Hab.—Transvaal (Simpson).

Closely related to *Culex simpsoni*, but differs in the male genitalia, in which the foliate plate is rounded apically, not acute, and in the three long flat spines being acute, not curved at their apices, and in their being as long as, not shorter than, the claspers.

***Culex bifoliata*, n. sp.**

Pl. IV, fig. 11.

Head brown, with dull yellowish scales in the middle, a black patch on each side, and grey laterally. Male palpi deep brown, with

a narrow pale band at the base of each of the two apical segments, and a broader pale one on the antepenultimate segment. Proboscis unbanded. Thorax deep brown, with paler scales at the sides in front. Abdomen brown, with traces of pale grey basal banding. Legs brown, with very narrow pale bands, involving both sides of the joints. Fore and mid ungues unequal, uniserrate, hind equal and simple. Male genitalia with two leaf-like plates (Pl. iv, fig. 2).

This species closely resembles *Culex hirsutipalpis*, but is smaller and the male genitalia differs, there being two leaf-like plates to each side, as shown in the figure. The male only so far is known.

Length, 3 millim.

Hab.—Transvaal (Simpson).

Very marked, and separated easily by the genitalia.

***Culex pallidothorax*, n. sp.**

Head and thorax uniformly pale fawn coloured, the latter with two indistinct median darker lines in front; proboscis dark brown apically, paler basally; pleurae very pale. Abdomen deep brown, with basal pale creamy bands. Legs uniformly brown, paler at their bases. Male palpi dark brown, unbanded.

Female.—Head deep brown, clothed with pale narrow-curved scales, brown and dull ochreous upright forked scales and small flat grey lateral scales. Palpi narrow, deep brown; proboscis deep brown apically, paler towards the base; clypeus deep brown; antennae brown, with narrow grey bands.

Thorax brown, densely clothed with narrow-curved dull pale scales, giving it a general uniform pale fawn coloured appearance, bristles apparently absent on the dorsum, brown ones laterally, traces of two dusky median lines seen in some lights; scutellum of similar colour to mesothorax, with eight long brown posterior border-bristles spread out fan-like, and with long pale narrow-curved scales projecting between; metanotum brown; pleurae very pale grey.

Abdomen deep brown, with narrow basal pale bands and many pale scales on the last segment and on the apical border of the penultimate, border-bristles pale brown.

Legs uniformly brown, base and venter of femora pale, a pale spot on the apex of the hind femora; ungues equal and simple.

Wings with the fork-cells of nearly equal length, the base of the second posterior, if anything, slightly nearer the base of the wing; stem of the first sub-marginal slightly more than half the length of the cell, stem of the second posterior more than half the length of the cell; posterior cross-vein about one and a half times its own length distant from the mid cross-vein, the sixth vein very close to the fifth; halteres ochreous.

Length, 5.5 to 5.8 millim.

Male.—Resembles female in general appearance, but the flat scales at the sides of the head spread rather further on to the crown; palpi deep brown, acuminate, apical segment a little longer than the penultimate, both deep brown, with deep brown hair-tufts, traces of a very narrow pale band towards the base of each palp. Fore and mid unguis unequal, the larger uniserrate, the smaller simple, mid equal and simple.

Apical segment of abdomen with all pale ochreous scales.

Length, 5.8 millim.

Hab.—India (James).

Somewhat resembling *Culex fatigans*, Wied., but easily told by the more uniform fawn coloured thorax, and the longer, thinner female palpi, and by the long narrow-curved scales on the border of the scutellum.

Culex similis, Theobald.

Mono. Culicid., 1903, iii, p. 207. (Female.)

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 the antepenultimate 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. Antennae banded brown and grey, with rich brown plume-hairs. Thorax as in the 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 unguis unequal, uniserrated, hind equal, small, simple.

Length, 5.5 millim.

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

Time of capture, July.

Described from a specimen bred with females from larvae taken in the trunk of a hollow tree at the side of a pond in Stanley Town. The female's are quite normal.

Genus **Pseudouranotaenia**, nov. gen.

Head clothed with flat scales and with a few upright forked ones; proboscis long, nearly as long as the whole body, swollen apically, and hairy in the female, not so long in the male. Antennae pilose in the female, plumose in the male; palpi very small in both sexes.

Thorax clothed with narrow-curved scales and a series of flat outwardly projecting scales at the sides of the dorsum; scutellum with very small flat scales on the mid lobe; metanotum nude; pleurae with some flat scales. Abdomen and legs normal. Wings ornamented; venation much as in the *Mimomyia*, for-cells in female both small, the first sub-marginal smaller than the second posterior, but not so much so as in *Uranotaenia*; wing scales of *Uranotaenia* type except that there are patches of flat scales on the wing field similar to those at the base of the wing seen in *Uranotaenia*. Fork-cells in male very similar to the female, but the upper branch of the first sub-marginal has a few very large scales only. Prothoracic lobes with flat scales. Fore unguis of male nearly equal and simple; the mid unequal.

This genus is allied on the one hand to *Uranotaenia*, and on the other to *Mimomyia*. The thoracic curved scales resemble those of *Mimomyia*, and also the fork-cells, but the wing scales differ considerably.

***Pseudouranotaenia rowlandii*, n. sp.**

Pl. IV, figs. 4 and 6.

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 bronzy 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 flat pale 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; unguis 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 on 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 fork-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-vein longer than the mid, nearly twice its own length distant from it. Halteres with pale stem and fuscous knob.

Length, 3 millim.

Male.—Head much as in the female, but with a few short black upright forked scales, forming a triangular patch with the base 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 the female; prothoracic lobes, with flat grey and pale blue scales.

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

Scales on the wings somewhat 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 millim.

Time of capture, July.

Hab.—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.

EXPLANATION OF PLATES III. AND IV.

Illustrating Mr. Fred V. Theobald's paper on "New *Culicidae*."

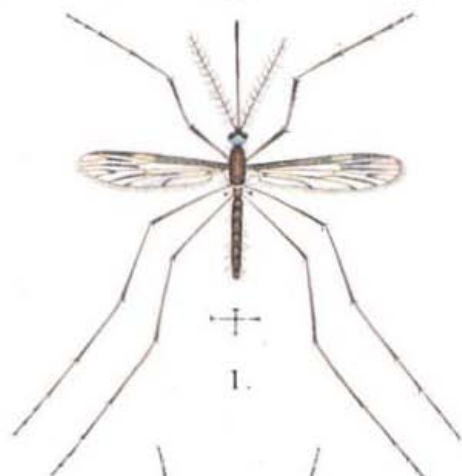
PLATE III.

- Fig. 1.—*Pseudouranotaenia rowlandi*, n.sp. Female.
 Fig. 2.—*Stegomyia poweri*, n.sp. Female.
 Fig. 3.—*Pyretophorus ardensis*, n.sp. Female.
 Fig. 4.—*Culicada bupengaryensis*, n.sp. Female.
 Fig. 5.—*Reedomyia niveoscutella*, n.sp. Female.

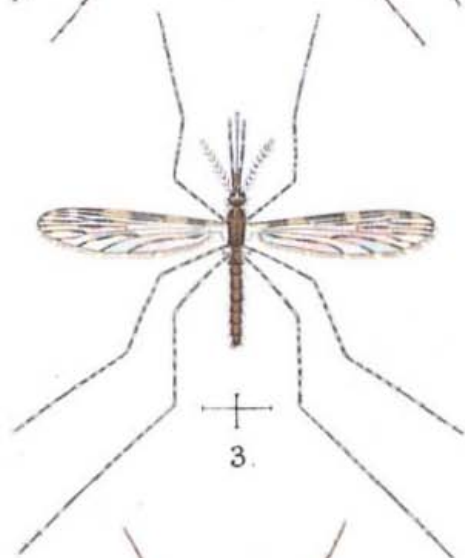
PLATE IV.

- Fig. 1.—*Culicada bupengaryensis*, n.sp. Male ungues. *a* fore, *b* mid and *c* hind claws.
 Fig. 2.—*Culicada bupengaryensis*, n.sp. Female ungues.
 Fig. 3.—*Culicada bupengaryensis*, n.sp. Male genitalia.
 Fig. 4.—*Pseudourantaenia rowlandi*, n.sp. Mid ungues and tarsal segment.
 Fig. 5.—*Culicada bupengaryensis*. Female (palp of).
 Fig. 6.—*Pseudouranotaenia rowlandi*, n.sp. Wing of male.*
 Fig. 7.—*Pecomomyia maculata*, n.sp. Wing of female.
 Fig. 8.—*Gnophodeomyia inornata*, n.sp. Wing of female.
 Fig. 9.—*Culex minutus*, n.sp. Male genital prominence.
 Fig. 9a.—*Culex minutus*, n.sp. Clasper.
 Fig. 10.—*Culex simpsoni*, n.sp. Male genital prominence.
 Fig. 10a.—*Culex simpsoni*, n.sp. Clasper.
 Fig. 11.—*Culex bifoliata*. Male genital prominence.
 Fig. 12.—*Culex hirsutipalpis*, Theobald. Male genital prominence.
 Fig. 12a.—*Culex hirsutipalpis*. Terminal segment of clasper.

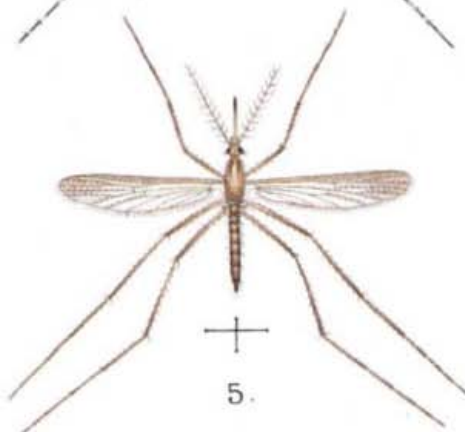
* The first fork-cell is drawn too wide and long.



1.



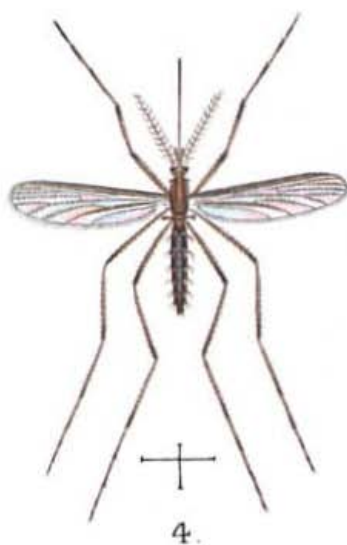
3.



5.



2.

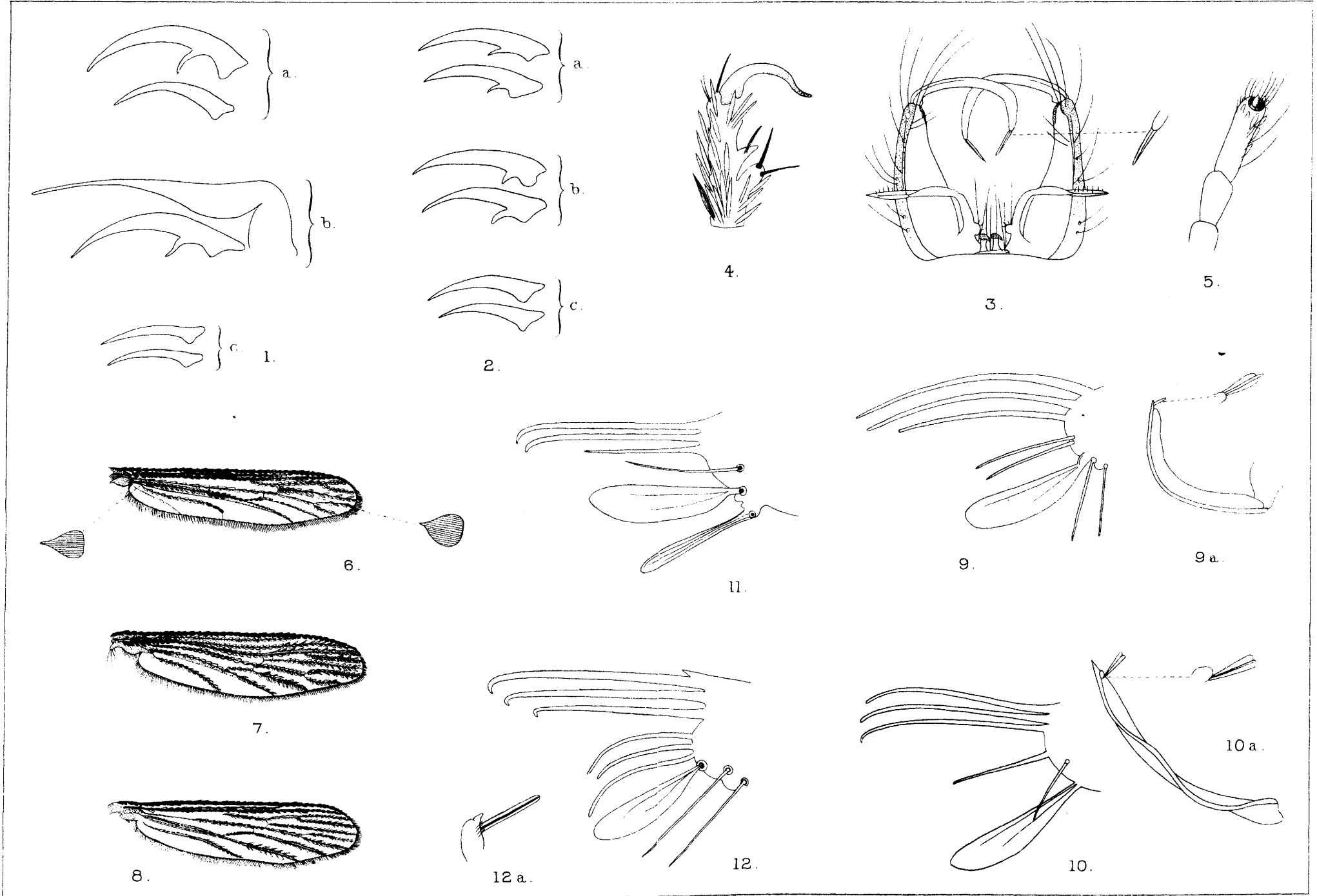


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NEW CULICIDAE.



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