

SOUTH EAST ASIA MOSQUITO PROJECT
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DESCRIPTIONS OF EIGHT NEW SPECIES OF INDIAN
CULICINE MOSQUITOES.

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***Uranotaenia hebes* sp. n.**

DESCRIPTION of ♀ : *head* covered with broad flat dark-brown scales, those along eye margins appear pale when viewed in certain positions, a moderate number of upright scales scattered over the dorsal surface extending forward nearly to the eye margins, the apices of these scales only very slightly expanded. Antenna about the length of the proboscis, torus pale-brown, darker on inner side; clypeus brown, palpi quite short, projecting only slightly in front of clypeus, proboscis dark-brown, about the length of the abdomen. *Thorax* : integument of mesonotum rather dark-brown covered with narrow brown scales and dark bristles, some lanceolate pale-brown scales over wing root and a small collection of white or creamy lanceolate scales along margin in front of wing root, some of which are fairly broad, but no line of flat scales in this position; scutellar scales small, flat, and dark-brown, as in many other species; anterior pronotal lobes covered with white lanceolate scales with silvery sheen, some broader pale or silvery scales on posterior pronotal lobes, sterno-pleura, and mesepimeron; about 4 upper and one lower mesepimeral bristles, one posterior pronotal, no spiracular; integument of pleurae pale-brown, a small dark area behind the anterior spiracle; postnotum dark-brown. *Wings* unornamented, scales dark-brown, fork cells of about equal length, the anterior longer than in some other species, wing length about 3 mm., stem of halter pale, knob dark-brown. *Legs* dark-brown unbanded, undersides of femora paler, segment I of fore tarsi a little longer than the last four together, segment I of hind tarsi very little shorter than tibia. *Abdomen* : dorsum very dark-brown without markings, venter pale-brown.

Two co-type females, Nos. 2557 and 2558, are in the M. S. I. collection, Kasauli, from Nongpoh, Assam, caught in jungle on the same day and in the same spot, March 1927 (*Barraud*).

Remarks: this species appears to be nearest to *U. maculipleura* Leic. but differs in possessing only one small dark area on the pleurae, some pale scales in front of the wing root, shorter palpi, and much less expanded upright scales on the head.

***Aedes (Christophersiomyia ?) ibis* sp. n.**

Description of ♀: *head* flat scaled, dorsal surface mainly covered with black scales, a patch of white ones on the nape extending forwards nearly to the eye margins in the middle line, a border of white scales to the eyes continued round to under surface, a patch of white scales on each side of the head visible in dorsal view, below this patches of black and white scales alternate, no upright scales can be seen on the nape, the head being retracted against the thorax, ocular bristles black; antenna about the same length as the proboscis, torus brown with some white scales on the inner side, first flagellar segment with dark scales dorsally, white scales beneath, shaft of flagellum dark-brown, hairs black, clypeus dark-brown without scales, palpi black, about one-quarter the length of the proboscis, latter mainly black with a very distinct white marking, nearer the tip than the base, on the underside and sides, dorsally it is much narrowed and does not form a very definite ring being interrupted with dark scales. *Thorax*: mesonotum with white lanceolate scales the broadest of which are chiefly in front of the wing roots and on the sides towards the front margin, no dark area in front of wing root, posterior part of disc denuded, a few yellowish or brownish scales remain in front of the ante-scutellar space, dense bristles over wing roots which appear yellowish or brownish; scutellar scales broad and flat, dark and pale intermixed, those on lateral lobes chiefly dark, on mid lobe mainly light; postnotum dark-brown. Anterior and posterior pronotal lobes covered with white lanceolate scales, those on lower part of latter broad and flat, patches of similar broad scales below the anterior spiracle, on prosternum, larger part of sterno-pleura, upper half of mesepimeron, and small patches on coxae. *Wings* white at extreme base, otherwise dark scaled, outstanding plume scales numerous and long and fairly narrow, wing length 2.5 mm., halteres with pale stems and dark knobs. *Legs*: anterior surface of fore femur black with a white streak on either side near the base and a large white spot in the middle of the apical half (continuous with a diagonal white marking on posterior surface), posteriorly dark at base, then a broad white area followed by a broad dark area of nearly equal width, on the apical half there is a broad white diagonal marking from the outer side to the inner, continued nearly to the knee, outer side dark at apex; mid femur black except for a broad white marking anteriorly very near the apex; outer side of hind femur white except for a black ring at base, inner side white on basal half and ventrally to the tip, apical half mainly black; tibiae brownish-black, the fore and hind pair pale at base beneath, most marked on the hind pair; tarsi dark-brown with small pale markings at the bases of the first three segments, most pronounced

on the hind legs. The tibiae and tarsi have, when viewed in certain positions, a pale-yellowish sheen. *Abdomen*: tergites black with basal white bands on segments 4 to 7 not continued to the sides, segments 1 to 7 with lateral white patches commencing basally, those on segment 2 the largest and visible in dorsal view, those on segments 3 to 7 continued diagonally nearly to the hind margin of each tergite but not produced on to the dorsum, sternites hidden.

Type female, No. 2556 (unique), in the M. S. I. collection, Kasauli, from Sukna, North Bengal, 24-29. viii. 28, caught in jungle (*Sobha Ram* collector).

Remarks: in general appearance and character of scaling this species resembles *Aedes* (*Christophersiomyia*) *annulirostris* (Theo.) but differs in the ornamentation of the legs and mesonotum. Until the male has been discovered it is not possible to say whether it should be placed in this subgenus or in *Finlaya*.

***Aedes* (*Finlaya*) *simulatus* sp. n.**

This species resembles *Aedes* (*F.*) *macdougalli* Edw. closely, but differs as follows:—proboscis pale beneath from near the base to the tip except for a dark interruption some little distance from the apex, base dark for a little less than a quarter of the total length, palpi with white scaling at the tips only, hind femur with a dark interruption in the longitudinal pale line on the inner side. In *Aedes macdougalli* the proboscis is pale beneath on the basal two-thirds, the palpi have white scaling in the middle as well as at the tip, and the pale longitudinal line on the inner surface of the hind femur is continuous from base to apex.

Description of ♀: *head* covered with narrow and upright scales for the most part very dark, but there are white scales medianly forming a line from the nape to the front of the vertex, a narrow white border to the eyes, and a patch of white scales laterally at each side, ocular bristles long, appearing very pale when viewed in certain positions; clypeus dark-brown; shaft of antenna dark-brown, hairs pale, torus brownish-black with some white scales on the inner side; proboscis dark-brown on upper surface, white beneath from near the base to the tip except for a dark interruption some little distance from the apex; palpi between one-quarter and one-third the length of the proboscis with white scaling at the tips, otherwise dark-brown. *Thorax*: integument of thorax almost black covered with dark-brown and pale-yellow scales, the latter arranged in lines, a median line and a pair of sublateral, the latter continued from the front to the scutellum, a pair of lateral lines commencing at the posterior pronotal lobes, curving over the wing roots and terminating at the lateral lobes of the scutellum, in addition there are some pale-yellow scales immediately in front of each wing root; scutellar scales pale-yellow, broad on the mid lobe, narrow on the lateral lobes. Integument of pleurae nearly black, anterior and posterior pronotal lobes mainly covered with broad flat white scales, some narrow ones on upper border of latter, patches of broad white or creamy scales on coxae, upper part of mesepimeron, on sterno-pleura, prosternum, behind

and below anterior spiracle, 5 posterior pronotal bristles, apparently no lower mesepimeral, all pleural bristles very pale. *Wings* dark scaled, outstanding plume scales narrowly lanceolate, wing length 3 mm. *Legs* : fore femur dark anteriorly except along the inner side where there is pale scaling running for nearly the whole length, on the posterior surface, as well as on both surfaces of the mid and hind pair, there is a distinct pale longitudinal line from base to apex, except that on the inner surface of the hind pair there is a dark interruption some little distance from the knee ; fore and mid tibiae dark-brown with a pale line running the whole length of the anterior surface, hind pair dark-brown with a broad white marking on the underside at the base ; tarsi dark-brown with a basal white ring to segment 1, apical and basal white rings over the joint between 1 and 2, and 2 and 3, on the hind leg there is also a white ring over the joint between 3 and 4. *Abdomen* brownish-black with narrow silvery white basal bands on segments 2 to 6, widening out into lateral silvery patches, segments 1 and 7 with lateral silvery patches only, sternites brown with yellowish basal bands.

Type female, No. 2560 (unique), is in the M. S. I. collection, Kasauli, from Assam, Haflong, Cachar Hills, viii. 1922, larva from tree-hole (*Barraud*).

***Aedes (Aedes) yusafi* sp. n.**

This species differs in the female from all others of the subgenus known in India in having the anterior pronotal lobes completely covered with silvery white scales. It has, up to now, been confused with *Aedes (Aedes) indicus* (Theo.) with which it is found in association, and the two species resemble one another in size and general appearance. There are, however, constant differences in markings and in the structure of the genitalia. Both tarsal claws on all the legs are toothed as in *Aedes (Aedes) uniformis* (Theo.).

Description of ♀ : *head* mainly covered with flat brownish-black scales, a patch of white scales in the middle of the vertex in front extending forwards between the eyes, a patch of similar scales at each side of the head just visible in dorsal view, apparently no upright scales ; antenna about the length of the proboscis, torus, shaft, and hairs dark-brown, clypeus, palpi, and proboscis brownish-black, palpi about one-fifth the length of the proboscis. *Thorax* : integument of mesonotum and scutellum brownish-black, scales rather lighter in colour especially at the sides and on front margin, scutellar scales narrow and golden-brown ; integument of pleurae black, anterior pronotal lobes covered with silvery white scales, patches of similar scales behind anterior spiracle, on upper and lower parts of sterno-pleura, upper part of mesepimeron, and on prosternum and coxae, posterior pronotal lobes apparently unscaled, postnotum and knobs of halteres nearly black, stems of latter pale-brown ; 6 posterior pronotal bristles, about 15 upper mesepimeral but none on the lower part of this sclerite. *Wings* dark scaled, outstanding plume scales narrow, wing length 2.7 to 3 mm. *Legs* : femora mainly yellowish-brown, tibiae and tarsi

brown. *Abdomen* : tergites almost black with rather large basal lateral white patches extending on to the dorsum but not forming complete bands, 1st tergite entirely dark, sternites with basal white bands and apical dark bands of about equal width. *Hypopygium* : (Plate XXXVI, fig. 3) atrium and associated chitinizations comparatively small compared with the size of the cerci, post-genital plate a single lobe, not usually emarginate at the apex (in one specimen out of five examined it is slightly emarginate), cowl with a lobe on each side and a marked median depression.

Type female, No. 2555, is in the M. S. I. collection, Kasauli, from Delhi, Roshanara Gardens, iv. 1914 (*S. R. Christophers*), also 15 other females taken at the same time and place ; one female from Amritsar, Punjab, viii. 1910 (*S. R. Christophers*) ; one female from Karnal, Punjab, viii. 1928 (*Barraud*).

I have named this species after Mohamed Yusaf, Laboratory Assistant, who drew my attention to the structure of the genitalia when making a large number of preparations for me.

***Aedes (Aedes) agrestis* sp. n.**

This species resembles *Aedes (Aedes) hirsutipleura* Barraud, both in markings and in the presence of numerous bristles and hairs on the mesepimeron, but the two species are distinct in the structure of the genitalia.

Description of ♀ : *head* mainly covered with almost black flat scales, a very narrow pale border to the eyes and a patch of white scales at each side just visible in dorsal view, a few upright scales on the nape ; antenna about the length of the proboscis, torus brown, darker on inner side, shaft of antenna black, clypeus dark-brown, palpi black, proboscis brownish-black, palpi only about one-seventh the length of the proboscis. *Thorax* : mesonotum deep reddish-brown (in *Aedes hirsutipleura* Barr. this part is almost black), covered with narrow scales of the same colour, a few lighter scales around the front margin ; scutellum dark-brown with a few reddish-brown narrow scales, postnotum rather lighter-brown, halteres with pale stems and dark knobs as in many other species ; pleurae dark-brown with patches of pale flat scales on upper part of sterno-pleura and in middle of mesepimeron, anterior and posterior pronotal lobes apparently without scales ; 5 large posterior pronotal bristles and some smaller, very numerous bristles and hairs covering the larger part of the mesepimeron as in *Aedes hirsutipleura* Barr. (Barraud, 1928), on the sterno-pleura there are a number of bristles and scales at a point opposite the lower corner of the mesepimeron. *Wings* dark scaled, outstanding plume scales lanceolate, wing length 3.6 mm. *Legs* dark-brown, femora pale beneath. *Abdomen* : tergites black with small lateral white patches commencing basally and not produced on to the dorsum, sternites pale-brown. *Hypopygium* : (Plate XXXVI, fig. 1) comparatively large, cowl only slightly curved, post-genital plate large and not markedly emarginate on the apical border.

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Type female, No. 2553, is in the M. S. I. collection, Kasauli, from the Nilgiri Hills, ix. 1915 (*Khazan Chand*), one other female from Nagargali, Bombay, Deccan, viii. 1921 (*Barraud*).

***Aedes (Aedes) clavatus* sp. n.**

This species is very distinct in the structure of the genitalia from any other known Indian species.

Description of ♂ : head mainly covered with dark-brown flat scales those along the eye margins and at the sides light-brown (not white as in many other species), fairly numerous upright scales on the nape ; antennal hairs dark-brown or black, shaft very pale between verticils, torus brown, darker on inner side, clypeus brown, palpi and proboscis dark-brown, palpi exceeding the clypeus by a little more than its length and about one-sixth the length of the proboscis. *Thorax* : mesonotum chestnut-brown with a slight reddish tinge, fairly numerous black bristles, scutellar scales sparse, narrow and dark-brown, postnotum rather lighter-brown than the scutellum ; integument of pleurae lighter-brown than the mesonotum, anterior and posterior pronotal lobes apparently devoid of scales, some patches of broad, flat, pale scales on the upper and lower parts of the sterno-pleura and on upper part of mesepimeron, 6 posterior pronotal bristles, 10 strong upper mesepimeral, 6 smaller arranged in a row extending downwards and within the patch of scales. *Wings* dark scaled, outstanding plume scales fairly broad but few in number, wing length about 2·8 mm. *Legs* dark-brown, femora paler ventrally. *Abdomen* dorsally brownish-black with small basal lateral pale patches not produced on to the dorsum, venter pale-brown. *Hypopygium* : (Plate, XXXVI, figs. 5 to 8) the coxite (side-piece) terminates in a short finger-like process on the dorsal side and there is a pointed process below the apex ventrally, style (clasper) arising from the inner side of the coxite some distance below the apex, chitinizations of proctiger (anal segment) represented by two arm-like processes, one longer than the other, both slightly clubbed and truncated at the tip.

Type male, No. 2197, and two other males, are in the M. S. I. collection, Kasauli, all from Sukna, North Bengal, 24–29. viii. 1928 (*Sobha Ram* collector).

***Aedes (Aedes) abditus* sp. n.**

A small blackish species which can only be identified with certainty by examination of the genitalia. In the structure of these parts, and in the presence of toothed hind claws, it most nearly resembles *Aedes (Aedes) uniformis* (Theo.).

Description of ♀ : head mainly covered with dark-brown, flat scales, a narrow border of pale scales to the eye margins and a patch of similar scales at each side, a few upright scales on the nape ; tori and clypeus brown, flagellum of antenna

black, the tip reaching some little distance beyond the end of the proboscis; palpi and proboscis dark-brown, the former about one-fifth the length of the latter. *Thorax*: mesonotum and scutellum brownish-black, denuded, postnotum black, stems of halteres pale, knobs black; pleurae dark-brown with some pale, flat scales on upper part of sterno-pleura, a patch of similar scales in the middle of the mesepimeron, the lower part of this sclerite without bristles or scales, 4 long posterior pronotal bristles. *Wings* with brown scales, outstanding plume scales rather narrow, wing length 2.6 mm. *Legs* dark-brown, femora pale ventrally, claws of hind tarsi toothed. *Abdomen*: tergites almost black, lighter at extreme lateral edges, but there are no distinct pale patches, venter brown. *Hypopygium*: the appearance of this is shown in Plate XXXVI, fig. 4. This may be compared with the drawing of similar parts of *Aedes (Aedes) uniformis* (Theo.) previously published in this Journal (Barraud, 1928).

Type female, No. 2192 (unique), is in the M. S. I. collection, Kasauli, from Sukna, North Bengal, 24-29. viii. 1928 (*Sobha Ram* collector).

***Aedes (Aedes) comatus* sp. n.**

This species resembles *Aedes (Aedes) hirsutipleura* Barraud closely in markings and in the presence of a fair number of bristles on the lower part of the mesepimeron, but these are less numerous, and there are differences in the structure of the hypopygium.

Description of ♀: head mainly covered with brownish-black, flat scales but there is a narrow border of pale scales to the eyes widening out into a fairly large patch at each side just visible in dorsal view, fairly numerous upright scales on the nape, no pale scales in the middle of the vertex; antenna a little shorter than the proboscis, torus brown, darker on inner side, flagellum black; clypeus, palpi, and proboscis dark brownish-black, palpi about one-fifth the length of the proboscis. *Thorax*: integument of mesonotum and scales deep chestnut-brown, a few lighter scales round the anterior margin, scutellum dark-brown with a few golden-brown narrow scales, postnotum lighter-brown than the scutellum, knobs of halteres very dark, stems pale; pleurae lighter-brown than the mesonotum, patches of flat white scales on upper and lower parts of sterno-pleura, in the middle of the mesepimeron and on coxae, very few, if any, scales on anterior and posterior pronotal lobes, 5 posterior pronotal bristles, about 10 bristles just below the patch of scales on the mesepimeron but not continued to the lower border of the sclerite. *Wings* dark scaled, outstanding plume scales rather narrow, wing length 3.4 mm. *Legs* dark-brown, femora pale ventrally. *Abdomen*: tergites brownish-black with lateral white patches commencing basally and not produced on to the dorsum, sternites almost completely hidden, but apparently with basal pale bands. *Hypopygium*: (Plate XXXVI, fig. 2) post-genital plate with pronounced lobes, cowl tri-lobed

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(differing from that of any other known Indian species), atrial plates fairly large and rounded.

Type female, No. 2191 (unique), is in the M. S. I. collection, Kasauli, from Sukna, North Bengal, 24-29. viii. 1928 (*Sobha Ram* collector).

REFERENCE.

- BARRAUD, P. J. (1928) The Indian species of the subgenera *Skusea* and *Aedes*, with descriptions of eight new species, and remarks on a new method for identifying the females of the subgenus *Aedes*. *Ind. Jour. Med. Res.*, **16**, pp. 357-375 (eight plates).

EXPLANATION OF PLATE XXXVI.

Camera lucida drawings of the genitalia of new species of *Aedes* (*Aedes*). Figures 1 to 4 drawn to the scale shown under Fig. 3. Figures 5 to 8 drawn to the scale shown under Fig. 5.

- Fig. 1. *Aedes* (*Aedes*) *agrestis* sp. n. female. Appearance of the genitalia from beneath.
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|---|----|---|---|---|--------|
| „ | 2. | „ | „ | <i>comatus</i> sp. n. type female. | ditto. |
| „ | 3. | „ | „ | <i>yusafi</i> sp. n. female. | ditto. |
| „ | 4. | „ | „ | <i>abditus</i> sp. n. type female. | ditto. |
| „ | 5. | „ | „ | <i>clavatus</i> sp. n. type male. Dorsal view of the genitalia. | |
| „ | 6. | „ | „ | Phallosome and associated chitinizations; flat preparation. | |
| „ | 7. | „ | „ | Chitinizations of proctiger (anal segment); flat preparation. | |
| „ | 8. | „ | „ | Coxite (side-piece) and style (clasper); flat preparation. | |

PLATE XXXVI.



