

SOME NEW CULICINE MOSQUITOS FOUND IN INDIA, AND A NOTE  
ON *FINLAYA ASSAMENSIS* (THEO.).

By P. J. BARRAUD, F.E.S., F.Z.S.

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In this paper short descriptions of several new species of the genus *Finlaya*, Theo., are given, together with a note on *Finlaya assamensis* (Theo.). These will be dealt with more fully in another paper which is now in preparation, and which will include synoptic tables, photographs, and drawings of the male hypopygia, as far as possible, of all the species of this genus found in India up to the present; this paper will be published in the Indian Journal of Medical Research as soon as possible. Through the kindness of Dr. N. Annandale I have been able to examine a number of type specimens in the Indian Museum collection, and to obtain the loan of a few, of which photographs have been prepared.

***Finlaya shortti*, sp. n.**

This does not appear to be very closely related to any other Oriental species that I have seen, with the exception of *F. elsiae*, sp. n., described below.

Head mainly dark, with a median triangular area of whitish narrow scales on the vertex reaching to the eye-margins. Proboscis, in the male, with a narrow pale ring beyond the middle, in the female a wider pale area in the same position beneath and at the sides, not forming a complete ring. Palpi in the male about three-quarters the length of the proboscis, the last two segments turning downwards and bearing conspicuous hair tufts. Female palpi quite short, dark, except at the extreme tip, where there are a few whitish scales. Mesonotum in both sexes dark blackish brown marked with lines of whitish yellow scales as follows:—A double median line dividing posteriorly either side of the ante-scutellar space; a pair of sub-lateral lines joining the fork of the median before the scutellum; a pair of curved lateral lines over the wing-roots. Scutellum with whitish and rather narrow lanceolate scales on all the lobes. Pro-epimera dark in the middle, with whitish lanceolate scales along the upper and lower borders; prothoracic lobes with a row of similar scales. Legs: front and mid femora with anterior surface black speckled with pale scales tending to form lines, dorsal edge dark from base to knee-joint; front pair posteriorly lined with whitish; mid pair entirely pale for more than the basal half, scattered pale scaling to the tip. Front and mid tibiae with dorsal edge dark except for extreme base and tip, a pale line anteriorly along the basal quarter; posteriorly front pair lined with white, mid pair pale only at the base. Front and mid tarsi dark, with small white markings at the base of the first, second and third segments, which do not form very definite rings except on the first segment; a few pale scales dorsally at the base of the fourth segment. Hind legs with anterior surface of femora dark, with an irregular line of pale scaling along the middle half and a sub-apical mark of similar colour; dorsal edge entirely dark except just before the knee-joint, where the anterior sub-apical pale mark is produced dorsally; posterior surface white for rather more than the basal half, scattered pale scaling to the apex (the latter is absent in some of the paratypes); tibiae dark with basal pale ring, narrow dorsally; tarsi dark with narrow but complete white rings at the bases of the first four segments, all about the same width. Abdomen dorsally blackish brown with narrow basal white bands, and small lateral silvery spots to tergites. Sternites with basal white

bands, narrow in the middle and produced diagonally at the sides. (In some of the paratypes the basal bands do not show on the dorsum, probably owing to shrinkage of the abdomen.)

*Type* male and female, one other male and three other females, Shillong, Assam, June 1922; larvae from rock-pools (*Barraud*).

***Finlaya elsiae*, sp. n.**

This resembles *F. shortii*, sp. n., described above, in the markings of the mesonotum and in some other details, but differs in the scaling of the legs and proboscis as follows: Proboscis in both sexes entirely white for the whole length beneath, except for a basal black ring and a small dark interruption rather more than three-quarters of the length from the base; in the female, dark above but for the sides, which are narrowly pale from near the base for three-quarters of the length; in the male only very narrowly pale at the sides beyond the middle. Legs: anterior aspect of all the femora with a whitish line running the whole length (on the fore pair this line is along the ventral edge towards the base). Fore and mid tibiae with a similar line anteriorly, hind tibiae only white anteriorly and ventrally for the basal one-third, dorsal edge dark except for a narrow basal white ring. Fore and mid tarsi dark, with dorsal white markings over the joints between the tibia and first tarsal, first and second, second and third, a few pale scales in some specimens on either side of the joint between the third and fourth; hind tarsi with similar markings, rather broader than on the other legs, except that the apex of the tibia has only a few pale scales.

*Type* male and female, and a long series of other specimens, from Shillong, Assam; larvae in rock-pools, June 1922 (*Barraud*).

***Finlaya cacharana*, sp. n.**

Differs from *Finlaya gubernatoris* (Giles) in both sexes in having moderately developed projecting tufts of scales on the venter of the abdomen; the tarsi of the fore legs entirely dark; pro-epimera bare except for a small collection of flat white scales on the posterior border, and in the male in having the mesonotum almost completely covered with white scales. Differs from *Finlaya assamensis* (Theo.) (*vide* notes below under this species) in having the scutellum pale-scaled in both sexes, and in the scaling of the pro-epimera, which in *F. assamensis* bear a fairly large patch of flat white scales in the middle. Distinguished from *F. lophoventralis* (Theo.) in having the scutellum much less densely clothed with pale scales, the inter-lobular spaces being bare, and in having the ventral surface of the front tibiae entirely pale except at the extreme tip. Differs from *F. cogilli*, Edw., as follows:—Head with a narrow median white line; scutellum with flat creamy scales on all the lobes; abdomen with moderately developed ventral tufts of outstanding scales. I have not seen any specimens, or a description of *F. melanoptera*, Giles, but understand that the ventral abdominal tufts in that species are extremely long, which is not the case in the species described above.

*Type* male and female from Haflong, Assam, July 1922; larvae from tree-holes; nine other specimens from the same place, and ten from Nongpoh, Assam, July 1922 (*Barraud*).

***Finlaya greigi*, sp. n.**

Differs from *Finlaya chrysolineata (trilineata)* (Theo.) and allied species in having the proboscis entirely dark in both sexes. The female differs from Theobald's description of the female of *Finlaya japonica*, Theo. (*Culex japonicus*, Mon. Cul. i, p. 385) in having much narrower white rings on the hind tarsi, in the absence of white knee-spots on the fore and mid legs, and in having white scaling at the tips of the palpi. Distinguished from *F. jugraensis* (Leic.), and *F. koreicus*, Edw., in having

white-tipped palpi in the female, and in the leg markings of both sexes as follows :— Front femur dark anteriorly without a creamy patch, and without a pale area at the apex ; mid tarsi with two very narrow basal pale rings, a few white scales at the base of the third segment, none at the base of the fourth ; hind tarsi with three white rings, that on the third segment being the widest, none on the fourth or fifth.

The mesonotum is marked with a well-defined median golden line, which posteriorly divides into two thin branches on either side of the ante-scutellar space, and two sub-lateral straight lines running from the front, back to the lateral lobes of the scutellum. These lateral lines are less defined than the median and are interrupted by a small dark space at the suture. In the markings of the mesonotum this species appears to be distinct from *F. saxicola*, Edw. (*Hulecoeteomyia fluviatilis*, Leic.), which is described as having seven golden lines, though it appears to be closely related to that species in other respects.

*Type* male and female, four other males and one female, Haflong, Assam, larvae from rock-pools ; one female from Kurseong, Darjiling Hills, larva from tree-hole ; all August and September 1922 (*Barraud*).

#### **Finlaya khasiana**, sp. n.

This species is evidently closely related to *Aedes formosensis*, Yam., from Japan (of which, so far as I am aware, only the female has been described) and *F. chrysolineata* (*trilineata*) (Theo.). The female differs from the former in having pale scaling on the lower surface of the proboscis for the basal three-quarters, and in the marking of the hind femora, which, except for a narrow basal black ring, are pale on the basal half of the anterior surface. It differs from the female *F. chrysolineata* in having the proboscis entirely dark on the upper surface (or with a few pale scales showing at the sides in the middle), in the scaling of the pro-epimera, which have narrow curved yellow scales on the upper part, and in the marking of the hind femora, which have a narrow, instead of a broad, basal black ring. The mid femora have a few white scales dorsally at the knee-joint (in some specimens these appear to be wanting). The male is distinguished from that sex of *F. chrysolineata* as follows :—Pro-epimera with narrow curved yellow scales on the upper part, proboscis with a narrow pale ring beyond the middle, no other pale scaling beneath ; basal black ring on hind femora and third white ring on hind tarsi, narrower.

*Type* male and female, and five other specimens, from Shillong, Khasi Hills, Assam, June 1922, larvae from bamboo stumps ; one female from Sureil, Darjiling Hills, October 1922, caught in house (*Barraud*).

#### **Finlaya harveyi**, sp. n.

This rather closely resembles *F. khasiana*, sp. n., *F. chrysolineata*, and *Aedes formosensis*, but differs from all in having the fore and mid femora entirely dark anteriorly, without any pale scaling or lines ; from *F. chrysolineata* and *F. khasiana* (described above), in having the proboscis pale beneath only on the middle half ; from the former in having the proboscis entirely dark on the upper surface, yellow narrow scales on the upper part of the pro-epimera, and in the white area on the anterior surface of the hind femora being nearer to the base. In the last mentioned character *F. harveyi* also differs from the description of *Aedes formosensis*. The male differs from *F. chrysolineata* and *F. khasiana* in the characters of the front and mid femora mentioned above, and from *F. chrysolineata* in having a narrow pale ring on the proboscis, without any other pale scaling beneath.

*Type* male and female, and a further long series from Kurseong, and other places in the Darjiling Hills, September and October 1922 ; larvae chiefly from tree-holes (*Barraud*).

***Finlaya assamensis*** (Theo.).

*Stegomyia assamensis*, Theobald, Rec. Ind. Mus. ii, pt. 3, Oct. 1908, p. 290.

I have examined Theobald's type female of this species, and although it is now in poor condition, I find that it possesses several characters which show that it is distinct from *Finlaya gubernatoris* (Giles), under which it was sunk by Edwards. I have recently collected about 100 fresh specimens of this species from various places in Assam and Eastern Bengal, and have compared many of the females with the type. The chief points of difference were mentioned in Theobald's original description, and are as follows:—Tarsi of fore legs entirely dark (in *F. gubernatoris* the first tarsal segment is usually whitish on the ventral surface, and in the female there is white scaling over the joint between the first and second segments; these characters are much less marked in the male). Scutellum, in the female, clothed with flat blackish-brown scales on the mid lobe and sparse lanceolate scales of the same colour on the lateral; at the base of the mid lobe there may appear to be a few lighter scales, possibly due to the angle of light. In the male the scutellar scales are whitish (as in several other species in this group, in which the female has dark scales in this position, viz., *F. khazani*, Edw., and others). Abdomen with small but evident tufts of outstanding scales on the venter, and rather long scales in the mid dorsal line which tend to stand away from the terminal tergites. The following further points may be mentioned:—Mesonotum, in the male, entirely covered with whitish scales, except for a few very small dark areas between the level of the wing-roots and the scutellum; in the female, with a rather small anterior white patch, usually smaller than in *F. gubernatoris*. Both species show variation in the width of the white rings on the mid legs, but in *F. assamensis* these are generally narrower. The Central Malaria Bureau, Kasauli, collection contains specimens from:—Dibrugarh, Nongpoh, and Haflong, Assam; Rangamati and Sukna, Bengal; all July, August and September 1922 (*Barraud*).

The types and other specimens of all the new species described in this paper are at present in the collection of the Central Malaria Bureau, Central Research Institute, Kasauli, Punjab, India, but it is intended to forward these to the British Museum (Natural History), London, at the termination of my enquiry. Where possible, co-types and paratypes will be retained in the Kasauli collection, and others deposited in the Indian Museum collection, Calcutta.

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