A REVISION OF THE CULICINE MOSQUITOES OF INDIA.

BY

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(*In Charge Enquiry upon Indian Culicidae, under the Indian Research Fund Association*).

Part V.

Further notes on the genera Stegomyia, *Theo. and* Finlaya, *Theo. with descriptions of new species.*

[Received for publication, January 9, 1923.]

SINCE writing my first paper on the Indian species of *Stegomyia* further material has been collected in Assam and Eastern Bengal, and through the kindness of Dr. N. Annandale, C.I.E., I have been able to examine a number of type specimens in the Indian Museum. A very interesting collection has recently been received from Lieut.-Colonel C. A. Gill, I.M.S., including *Stegomyia flavopicta*, Yam. which had previously only been found in Japan.

Stegomyia desmotes, Giles.

Stegomyia desmotes, Giles, Jour. Trop. Med., Vol. vii, page 367, 1904.

Stegomyia gracilis, Leicester, Cul. of Malaya, page 81, 1908.

Stegomyia albipes, Theobald, Rec. Ind. Mus., Vol. iv, page 11, 1910.

I have examined Theobald's type female specimen of *S. albipes*, i the Indian Museum, and there are now further specimens of the same species in the Central Malaria Bureau collection, Kasauli. These

Explanation of Plate XVIII.

Outline drawings of the male hypopygium of *Stegomyia desmotes* Giles. (All the figures are drawn to the same scale.)*

Fig. 1. Ventral view of one side, in a natural position (the ninth segment, and the scales, hairs, and bristles of the side-piece are not shown).

„ 2. Ventro-lateral plate of anal segment, side view.

„ 3. Basal apoderme, side view.

„ 4. Lateral plate of phallosome, side view.

„ 5. Parameral plate, side view.

„ 6. Ninth tergite, as seen in a natural position.

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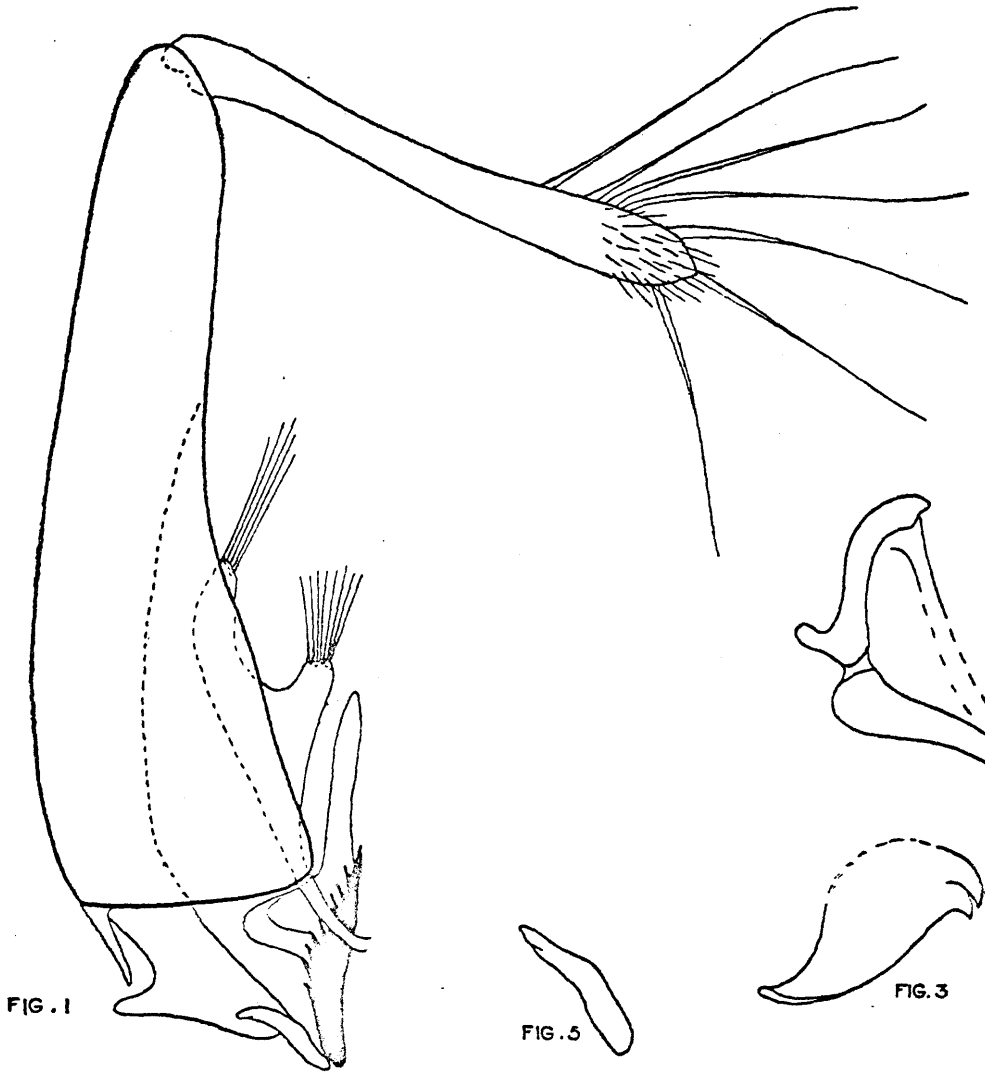
* Note.—For explanation and names of parts *vide* Ind. Jour. Med. Res., Vol. x, No. 3, January, 1923, Plate LI.

PLATE XVIII.



P. J. BARRAUD.—A Revision of the Culicine Mosquitoes of India.—Part V.

specimens agree with Leicester's description of *S. gracilis*. The type of *S. desmotes* is in the British Museum and has been examined by Edwards who sank *S. gracilis* and *S. albipes* under that species [Bull. Ent. Res., Vol. iv, part 3, 1913 (November), page 225].

Distinguishing characteristics :—A small slenderly built mosquito, usually only found in heavy jungle or forest. Mesonotum with a double median white line (the type of *S. albipes* is somewhat rubbed and these lines are difficult to make out), a patch of white scales in front of the wing root, three white lines before the scutellum, the latter with flat white scales on all the lobes. Legs ; all the tibiae with a white ring on the basal half ; anterior surface of mid femora white at base and apex, and with two white spots, one near the base and the other nearer the apex. Tarsi of fore and mid legs with white rings at the bases of the first and second segments, those of the hind legs with similar rings at the bases of the first three segments, and the fourth and fifth segments entirely white.

Male hypopygium (outline drawings, Plate XVIII,) (for explanation of parts *vide* Ind. Jour. Med. Res., Vol. x, No. 3, January, 1923, Plate LI). *Ninth tergite* narrow and strongly chitinised with a flat median hairy lobe, and small lateral setaceous lobes. *Basal plaque* with two lobes bearing hairs. *Ventro-lateral plate of anal segment* with a small lateral arm. *Lateral plate of phallosome, basal apodeme,* and *parameral plate* of the usual *Stegomyia* form.

Type of *S. albipes,* Theo. in the Indian Museum, from Maddathoray, Travancore, 17th November, 1908 (Annandale). The Central Malaria Bureau collection, Kasauli, contains specimens from :—Nilgiri Hills and Malabar coast (Khazan Chand), Kadra, Kanara district (Barraud).

Stegomyia flavopicta, Yam.

Aedes flavopictus, Yamada, Annotationes Zoologicae Japonenses, Vol. X, Article 6, page 52.

This very closely resembles *Stegomyia albopicta* (Skuse), but differs in the structure of the male hypopygium, and in the markings of the mesonotum in both sexes, which, except for the median silvery stripe, are of a yellowish colour. At the sides of the mesonotum at the suture there is a small collection of yellowish scales ; three short lines of similar scales before the scutellum, the middle one divided either side of the ante-scutellar space, and a somewhat ill-defined curved yellowish line

over the wing root. The other markings of the body and legs agree with those of *S. albopicta.*

Male hypopygium (outline drawings, Plate XIX).* *Ninth tergite* strongly chitinised and curved, with a pronounced median lobe and a pair of small hairy lateral lobes. *Side-piece,* ventral view, about three times the length of the width at the base ; ventral border with a small lobe bearing hairs, arising rather nearer the base than the apex. *Clasper* and *appendage* of the usual *Stegomyia* form, but longer than in some species, together about the length of the side-piece. *Basal plaque* flat topped bearing strong hairs. *Lateral plate of phallosome, basal apodeme, parameral plate,* and *ventro-lateral plate of anal segment* do not show any marked modifications.

The Central Malaria Bureau collection, Kasauli, contains a number of specimens from Murree, 7,000 ft. larvae from tree-holes, 1922 (Gill).

Stegomyia mediopunctata, Theo.

Stegomyia mediopunctata, Theobald, Jour. Bomb. Nat. His. Soc., Vol. xvi, page 240, 1905. Mon. Cul., Vol. iv, page 187, 1907.

There seems to be a good deal of variation in the leg markings of this species. The fore and mid tarsi in some specimens have only one white ring, at the base of the first segment ; in others there is a second ring on the mid tarsi, and sometimes also on the fore. The fourth segment of the hind tarsi may be dark at the extreme tip, or entirely white, and in the latter case there may or may not be white scaling at the base of the fifth. These variations occur in both sexes. I have seen one male in which there are some white scales on the lateral lobes of the scutellum, usually these are all blackish. I think there is little doubt that *Stegomyia perplexa* Leic., which only differs in having the fourth and fifth segments of the hind tarsi entirely white, is only a variation of the same species.

Stegomyia annandalei, Theo.

Stegomyia annandalei, Theobald, Rec. Ind. Mus., Vol. iv, page 10, 1910.

Kingia annandalei, Theobald, Mon. Cul. Vol. v, page 139, 1910.

This species is also subject to variation in the leg markings.

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* NOTE.—Yamada's figure of the male hypopygium is on a rather small scale and appears to be a dorsal view of a slide preparation, in which the parts are somewhat flattened.

Explanation of Plate XIX.

Outline drawings of the male hypopygium of *Stegomyia flavopicta*, Yam. (All the figures are drawn to the same scale.)*

Fig. 1. Ventral view of one side in a natural position (the ninth segment, and the scales, hairs, and bristles of the side-piece, are not shown).

„ 2. Ventro-lateral plate of the anal segment, side view.

„ 3. Basal apodeme, side view.

„ 4. Lateral plate of phallosome, side view.

„ 5. Parameral plate, side view.

„ 6. Ninth tergite, as seen in a natural position.

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* Note.—For explanation and names of parts *vide* Ind. Jour. Med. Res., Vol. x, No. 3, January, 1923, Plate LI.

PLATE XIX.

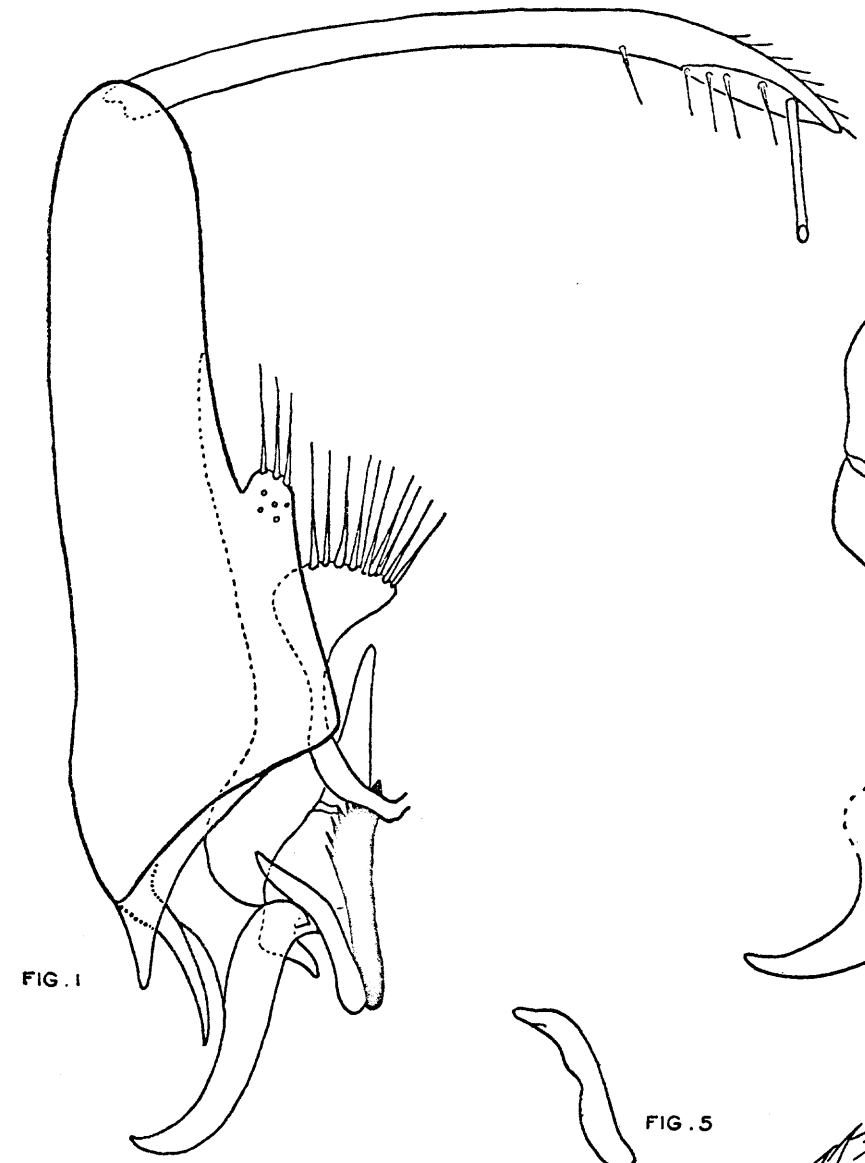

FIG. 1

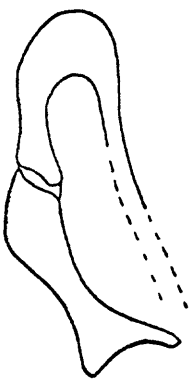

FIG. 2

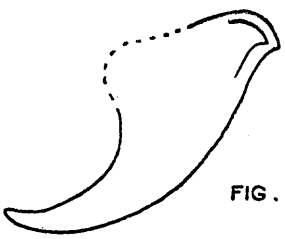

FIG. 3

FIG. 5

FIG. 4

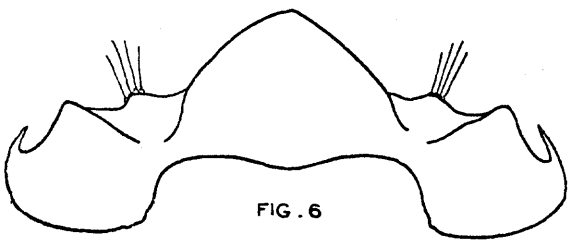

FIG. 6

⅙ M.M.

Explanation of Plate XX.

Outline drawings of the male hypopygium of *Stegomyia craggi*, sp. n. (All the figures are drawn to the same scale.)*

Fig. 1. Ventral view of one side in a natural position (the ninth segment, and the scales, hairs, and bristles of the side-piece are not shown).

„ 2. Ventro-lateral plate of anal segment, side view.

„ 3. Basal apodeme, side view.

„ 4. Lateral plate of phallosome, side view.

„ 5. Parameral plate, side view.

„ 6. Ninth tergite, as seen in a natural position.

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* Note.—For explanation and names of parts *vide* Ind. Jour. Med. Res., Vol. x, No. 3, January, 1923, Plate LI.

PLATE XX.

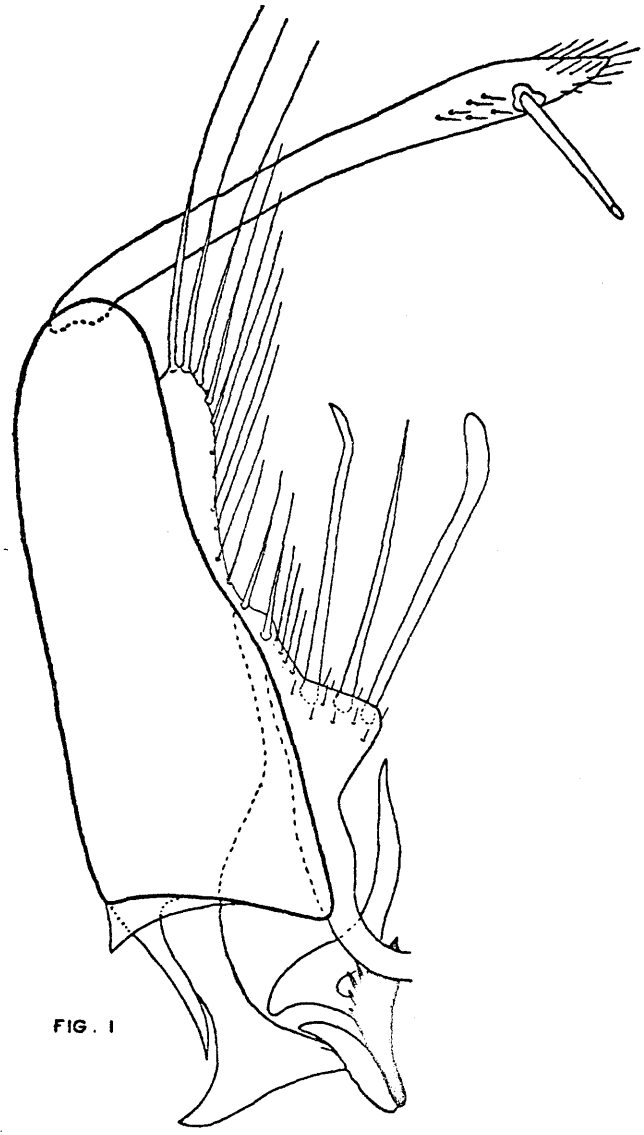

FIG. 1

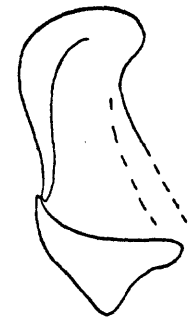

FIG. 2

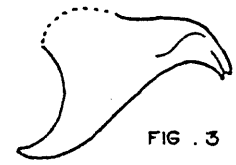

FIG. 3

FIG. 4

FIG. 5

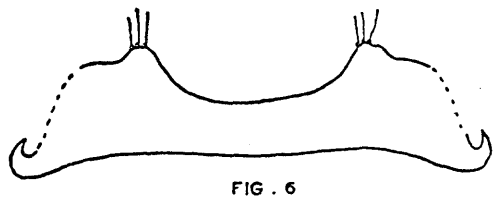

FIG. 6

½ M.M.

var. **quadricincta.** var. n.

Differs from the typical form in having four basal white rings on all the tarsi. The third and fourth rings on the fore and mid legs are very small and incomplete, those on the hind legs wider and complete. In the type form there are usually two rings on the fore and mid tarsi, at the bases of the first and second segments, and three on the hind tarsi, on the first, second, and fourth segments, the last occupying nearly the whole segment.

One female from Nongpoh, Assam, July, 1922 (Barraud). I have not seen any males of this form.

There is another female specimen from the same place which agrees with the above in the markings of the hind tarsi, but the fore and mid legs have only two rings, as in the type form.

Stegomyia craggi, sp. n.

This is evidently closely related to the preceding, but differs in the structure of the male hypopygium, and in the leg markings. Fore and mid tarsi with only one white ring at the base of the first segment, hind tarsi with two white rings at the bases of the first and second segments, otherwise entirely dark. The other markings agree with *S. annandalei* (remarks on variation in leg banding of the last named species are given above).

Male hypopygium (outline drawings, Plate XX). *Ninth tergite* without a median lobe, two small lateral setaceous lobes. *Side-piece*, ventral view, two and a half times the length of the width at the base; *clasper* as long as the side-piece, with a moderately long sub-apical tube-like *appendage*. *Basal plaque* remarkably large, with two lobes, and occupying the whole anal surface of the side-piece. The more basal lobe is armed with three long blade-like processes, resembling similar structures in *S. annandalei* (*vide* Ind. Jour. Med. Res., Vol x, No. 3, January, 1923, Plate LVI). The upper lobe has a rounded apex bearing long hairs. *Lateral plate of phallosome, basal apodeme, parameral plate* and *ventro-lateral plate of anal segment*, very similar to other closely allied species.

Type and one other male from Haflong, Assam, August, 1922, one other male from Nongpoh, Assam, July, 1922 (Barraud), in the collection of the Central Malaria Bureau, Kasauli. The female is at present unknown. I have much pleasure in dedicating this species to Major F. W. Cragg, I.M.S.

Stegomyia w-alba, Theo.

Stegomyia w-alba, Theobald, Ann. Mus. Hung., Vol. iii, 1905. Mon. Cul., Vol. iv, page 180, 1907.

Stegomyia minutissima, Theobald, Rec. Ind. Mus. Vol. iv, No. 1., page 9, 1910. Mon. Cul. Vol. v, page 168, 1910.

I have examined the type female specimen of *S. minutissima,* in the Indian Museum (Sukna, 1st July, 1908, Annandale), which is now in very poor condition. The abdomen and hind legs are missing and there are no scales on the mesonotum or scutellum ; one of the middle legs is however complete, and this agrees in markings with *S. w-alba.* There is another specimen, taken at the same time and place, labelled 'paratype,' which is in much better preservation. This appears to be a small specimen of *S. w-alba.* The mid lobe of the scutellum is partially denuded, apparently in the process of pinning, and it is not now possible to say whether any white scaling originally existed in that position.

Finlaya prominens, sp. n.

This is closely allied to *Finlaya khazani* Edw., *F. melanoptera* Giles, and *F. watasei,* Yam., differing from the first named in both sexes in having a patch of flat white scales on the proepimera, and in the female in having white scales on the lateral lobes of the scutellum, and broader white markings on the abdominal sternites. From *F. melanoptera* in having long roughened scales on the dorsum of the abdomen, and in the absence of any white rings on the fore tarsi and possibly in other details (I have not seen any specimens or a full description of *F. melanoptera*). Differs from *F. watasei* in the scutellar scaling, and in having the fore tibiae white ventrally for nearly the whole length, and in the absence of a median white line on the head in the female. As in *F. khazani* the scutellum in the male is clothed with whitish scales on all the lobes.

Particulars of structural details will be given in another paper now in preparation.

Type male and female and other specimens from Sukna, North Bengal, larvae collected from bamboo stumps, September, 1922 (Barraud).