

NOTES ON SOME MOSQUITOES FROM NEWCASTLE,  
JAMAICA.

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During the summer and autumn of 1905 several small collections of mosquitoes were sent to me by Major Hassard, of the Royal Army Medical Corps, and Colonel Loscombe, from the Military Station at Newcastle, alt 4,000 feet, and more recently a number of living larvæ from the same locality, collected by Miss Maclaverty. The species represented are as follows :

1. *Stegomyia fasciata*, Fab.
2. *Culex fatigans*, Wied.
3. *Culex scutator*, Theo.
4. *Culex Hassardii*, nov. sp.
5. *Howardina Walkeri*, Theo.
6. *Howardina aureostriata*, nov. sp.
7. *Dendromyia*, ? nov. sp.

1. *Stegomyia fasciata*, Fab.—A few specimens of this form and *S. fasciata*, Fab., sub-species *Luciensis*, Theo., were sent in one of Major Hassard's collections. It appears to be quite uncommon.

2. *Culex fatigans*, Wied.—Specimens were received in all the collections, and the larvæ from rain-water barrels.

3. *Culex scutator*, Theo.—Very abundant and troublesome during the day. Larvæ very numerous in tanks and river-side pools.

4. *Culex Hassardii*, nov. sp.—♀. Head grayish, with narrow curved pale golden scales and hairs clustered thickly on the occiput and between the eyes, upright forked scales on the nape, sides of the head black, eyes bordered with bright white scales; antennæ, palpi and clypeus black; proboscis black, penultimate quarter of its length banded with yellow scales; apex yellow. Thorax grayish, clothed with numerous elongated spindle-shaped black and white scales; white scales collected in two conspicuous white spots near the centre, and a broad area near the scutellum, also in patches along the borders of the mesothorax, a number of long black hairs especially abundant about the origin of the wings. Prothoracic lobes white-scaled. (Fig. 25, 4.) Central lobe of the scutellum white scaled. Lateral lobes black. Pleura black, with several patches of white scales. Metanotum deep brown. Halteres with pale yellow stems and knobs. Legs bluish-black, clothed with black scales

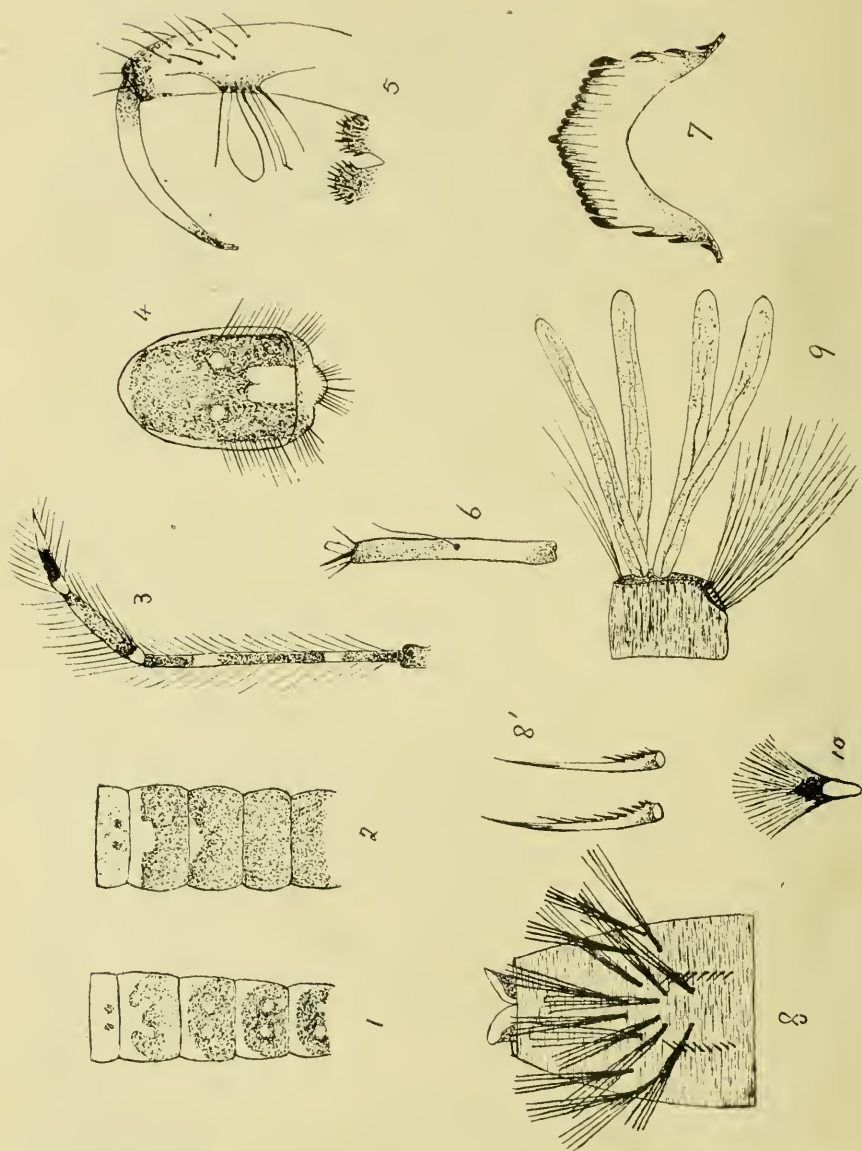


Fig. 25. *Culex Hassardii*: 1, male abdomen; 2, female abdomen; 3, male palpus; 4, thorax of female; 5, male genitalia; 6, larval antenna; 7, labial plate; 8, air-tube; 8', teeth; 9, appendages of ninth segment; 10, scale of comb.

with bluish metallic reflections. all joints faintly banded both apically and basally. Venter of femora and tibiae pale, with white scales. Apical banding of the hind tibiae conspicuous; ungues equal and simple. Abdomen black, speckled with grayish scales, base grayish, with black and white scales, two black spots in the centre; second segment with broad basal creamy band expanding in the mid line into a square area; third segment with a narrow crescentic basal creamy area, the following segments unbanded; last two apical segments with faint basal bands. All the abdominal segments bordered apically with long white hairs. (Fig. 25, 2.) Wings densely scaled, veins with thick median and broad lateral scales, especially on the third and fourth long veins. Scales not mottled. The first submarginal considerably longer and narrower than the second posterior cell, stem only one-sixth the length of the cell. Stem of the second posterior slightly larger than half the cell; posterior cross vein rather more than its own length distant from the mid cross vein.

Length, 4-5 mm.

♂.—Scale ornamentation of the head and thorax closely resembling that of the ♀. Palpi exceeding the proboscis by the two terminal joints; terminal joints hairy and somewhat swollen, bearing many long hairs in a row on each side; apex and base of the terminal joint white-scaled, penultimate joint basally banded; on the venter, a little below the apex, there is a white scaled area. (Fig. 25, 3.) Antepenultimate joint with two bands of white scales, the distal broader one a short interval below the apex, at a point corresponding to the band on the proboscis; the narrow basal band a short distance above the base; a row of black hairs along the inner aspect; apical region somewhat inflated. Abdomen, base white, with two central black spots; second segment with broad basal band expanding laterally into wide areas, also centrally into two divergent rounded areas. Third and following segments with basal bands expanding at the sides; scales of all the lateral areas brighter than those in the middle portion of the bands, which are creamy; two white spots in the centre of the third and succeeding segments. (Fig. 25, 1.) Appendages of the basal segment of clasp composed of a leaf-like organ and a broad flattened hooked spine, also three simple straight spines. Apical segment terminating in two blunt teeth. (Fig. 25, 5.) Ungues of the fore and mid legs uniserrated and unequal, of the hind equal and simple.

Length, 4-5 mm.

The following points were noted in the adult LARVA : Antennæ short, truncate, nearly straight, smooth, entirely devoid of spines. Lateral tuft represented by one short hair. A short lamella and several short spines at the apex. (Fig. 25, 6.) Labial plate columnar, lateral teeth strongly curved, upper nearly straight. (Fig. 25, 7.) Air tube short, a little longer than broad (at the base), subconical ; row of pecten of eight curved and spinous teeth, their serrations reduced to a row of fine elongated spicules. (Fig. 25, 8, 8'.) Eight pairs of four-fid hairs are attached to the central region of the tube posteriorly, forming a characteristic cluster. Scales of comb 15-20, each consisting of a thin oval basal plate bordered with fine radiating hairs. (Fig. 25, 10.) Terminal portion of the ninth segment completely encircled by a ring of chitin. Terminal tufts of hairs springing from distinct plates ; the upper tuft of only two pairs of hairs, the lower of seven pairs, the latter feathered. Anal papillæ very long narrow cylindrical, relatively larger than those of any other Jamaican Culicid ; papillæ stiffened with fine spiral chitinous threads. (Fig. 25, 9.)

Pupa : siphons short, apertures bordered internally by many fine branching hairs. Terminal appendages broad, segments nearly equal ; mid rib extending as a fine hair a short distance from the free margin.

OBSERVATIONS.—A few living larvæ of this species, with some of *Culex secutor*, Theo., were sent in September, 1905, by Major Hassard, after whom I have named the species, collected by him from a tank at Newcastle. They were easily distinguished by their pale straw-coloured bodies and dark heads and siphons. The singular group of hairs at the back of the siphon, and the very long anal papillæ at once attracted attention. In January, 1906, I found some specimens in a water barrel at the Government Botanic Garden at Castleton, alt. 500 feet, living harmoniously with *Stegomyia fasciata*, Fab. The adult insects bred from these bit vigorously. I have placed this species provisionally in the genus *Culex* ; the characters of the larval siphons and antennæ clearly point to its being an aberrant form.

5. *Howardina Walkeri*, Theo.—This species is stated to cause much annoyance during the day ; it abounds in woods, breeding in Bromelias. I have already described the larva in my Monograph on the Culicidæ of Jamaica ; the following noteworthy points were omitted : two stout branched hairs are present on the clypeus ; the rays of the hair tufts on

the body are flattened, and feathered along their margins. The pecten rows extend through the whole length of the tube, a branched hair is present on each side, about half way up; the chitinous covering of the thorax and abdomen is densely covered with interlacing dendritic spicules. The ungues of this species are as follows:

♀. All equal and simple. ♂. Fore tarsus unequal, larger claw biserrate, the mid tooth blunt; basal tooth narrow and pointed; smaller claw uniserrate. Mid tarsus unequal, larger claw biserrate, with a blunt mid tooth; smaller claw uniserrate. Hind tarsus, claws equal and simple.

6. *Howardina aureostriata*, nov. sp.—♀. Proboscis black, slightly curved downwards, rather long and narrow, three-quarters length of abdomen. Palpi black, extremity of terminal joint golden-scaled, a few golden scales on the upper median surface of the penultimate joint; under surface of palpi speckled with gold scales. Antennæ black, scattered gold scales throughout its length, especially on the lower joints; about three-quarters length of proboscis. Clypeus black. (Fig. 26.) A narrow median band of golden scales on the centre of the occiput, two broad bands of golden scales on each side of the occiput, the intervening spaces black-scaled; a number of upright forked scales on the nape; scales on the extreme sides of the head silvery. Thorax black-scaled, with seven rows of brilliant narrow curved golden scales, the outermost pair starting from the wing insertions, curving round and bordering the mesonotum laterally and anteriorly; the next pair arise from the preceding near the anterior border of the mesonotum, and run backward, terminating in the lateral lobes of the scutellum; the innermost pair also originate anteriorly, and course backwards, gradually



Fig. 26.—*Howardina aureostriata*; ornamentation of head and thorax.

narrowing, over three-quarters the length of the mesonotum. The seventh row arises in the hinder third of the mesonotum, and terminates on the posterior margin of the mid lobe of the scutellum. Prothorax with brilliant silvery scales. Patches of silvery scales on the pleura. Scutellum with a median and two lateral bands of golden scales. Three long hairs on each of the lateral lobes and four on the central lobe. Wings with pale brown scales, the lateral ones long and narrow, median ones short and obconical. First submarginal cell narrower and one-third of its length



longer than the second posterior cell, its stem less than half the length of the cell ; stem of the second posterior as long as the cell ; posterior cross vein more than its own length behind the mid cross vein. Halteres with white stems and brown knobs. Abdomen black-scaled, with violet reflections ; first four segments with basal bands of golden scales ; all segments apically bordered with long white hairs. Triangular patches of silvery scales on the sides of the segments extending ventrally a short distance. Venter with broad basal bands of golden scales on all the segments except the last two. Legs black, with violet reflections, speckled with golden scales, especially towards the extremities ; femora golden-scaled on the under surface throughout their whole length, upper surface golden-scaled near the base, a few silvery scales at the apices above forming three spots, especially on the mid and hind legs. Tibiæ unbanded in all the legs. A narrow white basal band on the mid metatarsus. Broad basal bands of silvery-white scales on the metatarsus and first two tarsi of the hind legs. Ungues equal and simple.

Length, 2.5 mm.

♂.—Palpi black, very long and narrow, extending about one-quarter of their length beyond proboscis ; three long black hairs at the extremities of the terminal joints ; a few on the sides of the penultimate and at the extreme apices of the antepenultimate joints ; a few golden scales at the junction of the terminal and penultimate joints ; a conspicuous band of golden scales at the lower third of the antepenultimate joint. Shaft of the antennæ conspicuously golden-scaled. The median band of gold scales on the occiput is divided into two by a line of black scales. Abdomen black, segments with long white hairs along the apical borders ; all segments with silvery lateral areas ; in the last three segments these nearly meet dorsally, forming basal bands. Venter with broad basal bands of silvery scales, among which are a few golden scales along the mid line. Ungues, of the fore leg, unequal, larger biserrated, smaller uniserrated ; of the mid leg larger biserrated, smaller uniserrate ; of the hind leg simple and equal.

Length, 2.5 mm.

Description of the adult LARVA.—Seen in the breeding jar, it has an almost transparent outline ; the head and siphon of a dull red colour. When disturbed it displayed marked activity, retreating with great speed to the dark side of the bottle, and hiding among the alge. Head nearly

circular, dull red in colour; antennæ transparent, slightly curved inwards, gradually tapering to a blunt apex; lateral hair tuft reduced to a single simple stout hair, one-quarter the length of antenna, arising about half way up the shaft. Apex with four very short spines and a lamella; surface of shaft entirely devoid of spines. A pair of stout simple hairs on clypeus. Mentum a wide angle of 20 rounded teeth. Several tufted hairs on the upper surface of the head near the bases of the antennæ. Thorax and abdomen with scattered tufted hairs, rays 5-20 elongated, jagged at the eyes, some obsoletely feathered; lateral hairs feathered. Comb of twelve stout straight spines in a single row. Air tube sub-cylindrical, about five times as long as broad (at the base), not swollen, tapering gradually towards the summit. Pecten of two rows of simple elongated spines, 24 in number, extending half way up the tube, with a compound 2-3-fid hair situated at the upper extremity of each, about the middle of the tube. Chitinous plate of ninth segment narrow, saddle-shaped, widely open below, with long spines along its posterior border, a large simple hair at the posterior inferior border (corresponding to the digitate hair in *H. Walkeri*). Ventral group of hairs springing from a diamond-shaped plate. Dorsal group of two pairs, one compound, with short branches, the other pair simple and of great length. Anal papillæ narrowly conical, one-third the length of the longest dorsal hairs. Pupa, siphons long and narrow. Terminal appendages ovate, nearly equally divided by mid rib.

OBSERVATIONS.—The first specimen of this fine species was sent by Colonel Loscombe in September, 1905. Recently three larvæ were found among a number of *H. Walkeri* larvæ collected by Miss Macclaverty from Bromelias, and sent to me alive. They were isolated and developed into adult insects. The pupa stage in both this species and *H. Walkeri* is unusually long—4 days. The chief points of difference between the two species are to be found in the characters of the frontal hairs, hair tufts and siphons. The chitinous covering of the thorax and abdomen of *H. aurcostriata* is entirely devoid of the spicules so conspicuous in *H. Walkeri*, which give the latter its dark appearance.

7. *Dendromyia*? nov. sp.—A much-broken specimen of ♀ was sent by Colonel Loscombe, not in a condition to allow of a satisfactory description. The mid legs have triangular basal areas of white scales quite unlike any other species of the genus.