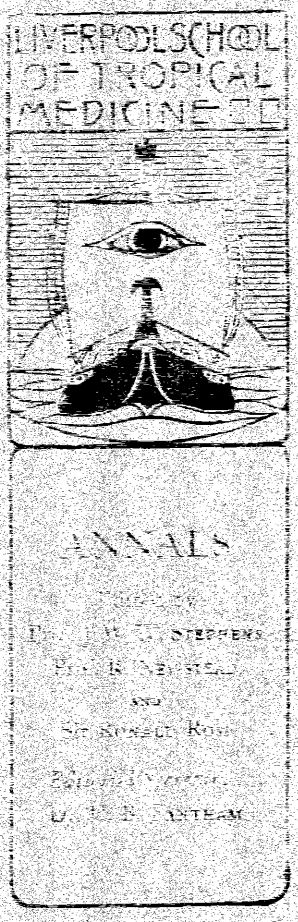

On Certain Mosquitos of the Genera *Banksinella*, Theobald, and *Taeniorhynchus*, Arribalzaga

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ON CERTAIN MOSQUITOS OF THE GENERA *BANKSINELLA*, THEOBALD, AND *TAENIORHYNCHUS*, ARRIBALZAGA

BY

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(*Received for publication 28 November*, 1913)

During the past few weeks I have made a critical examination of the male genital armatures of numerous species of African mosquitos and, in certain instances, somewhat interesting results have been obtained from their subsequent study. These studies are more especially connected with the affinities of certain obscure species and in reference also to the synonymy adopted by other students of this group of blood-sucking insects.

Before dealing with the specific characters, it would perhaps not be out of place in this paper, if I draw attention to the fact that the structure of the male genitalia does not support the separation of the pale coloured African species of *Chrysoconops*, so defined by Theobald, from the genus *Taeniorhynchus*. The armatures of typical examples of the latter genus compared with those of the African *Chrysoconops* are so essentially similar that I consider them to be congeneric.

BANKSINELLA PALPALE (Newstead).

Neomelanoconion palpale Newstead. *Ann. Trop. Med. and Parasit.*, I, p. 31 (1907).

Banksinella luteolateralis, Edwards (*nec* Theob.). *Bull. Ent Res.*, III, p. 6 (1912).

This species was originally described by Newstead (*l.c.*) from a single male collected by Drs. Dutton and Todd at Boma, Congo Free State. Unfortunately, however, the specimen was somewhat rubbed and therefore certain of the more important characters rendered obscure. Last year the type was submitted to

Mr. Edwards, of the British Museum, for examination, who subsequently placed the species as a synonym of *B. luteolateralis*, Theob. Some time ago a perfect male example* of an apparently new species was received from Broomassie, Ashanti. The armature of this specimen was prepared for microscopical examination, and, on comparison with a similar preparation of the type of *N. palpale*, was at once seen to be the same. Newstead's species is therefore a valid one, and must be raised to specific rank.

Male genitalia (fig. 1).†

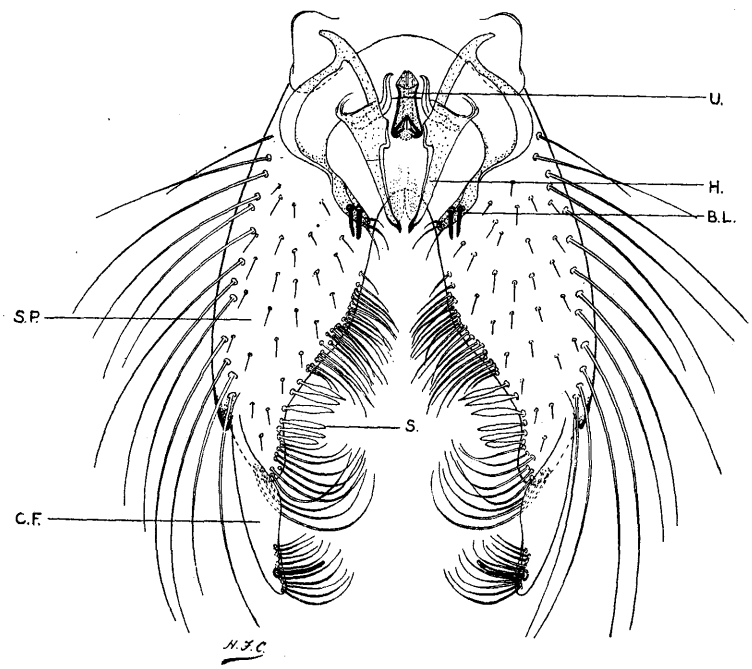

FIG. 1A. Male genitalia of *Banksinella palpale*, Newst. × 160; s = lanceolate spines

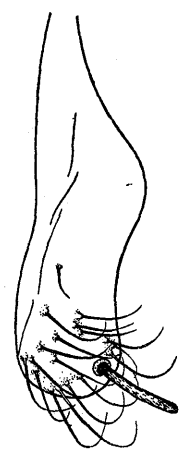

FIG. 1B. Inner lateral view of right clasp filament (c.f.) of *B. palpale*, Newst. × 240

Side pieces relatively large, broad posteriorly, narrow and rod-like distally, the internal edges being somewhat strongly curved, as shown in the figure. The latter bear numerous fine hairs in the central region, extending from each side towards the middle line,

* Mr. Edwards has kindly examined this specimen for me.

† In the designation of the parts I have followed Messrs. Howard, Dyar and Knab and the main lettering in all the figures is as follows :—
s.p. = side piece; c.f. = clasp filament; u = unci; h = harpe; b.l. = basal lobe of side piece.

and several long, markedly curved ones on the apical lobe-like projection; between these groups of hairs are situated six or seven lanceolate spines (fig. 1 *s*), but the number of these appears to vary, since in the specimen from Ashanti only three are visible. Clasp filament comparatively short and stout, expanding slightly on the inner side near the middle, tapering off towards the apex, and bearing numerous curved hairs and a large conspicuous, slightly curved tooth-like projection in this region. The inner lateral surface of this organ (fig. 1 *b*) is considerably broader, with a blunt and rounded apex; the hairs and tooth previously mentioned, arise from the apical portion of this surface and extend towards the middle line. Basal lobes small, each bearing two distinct spines or teeth, and a few

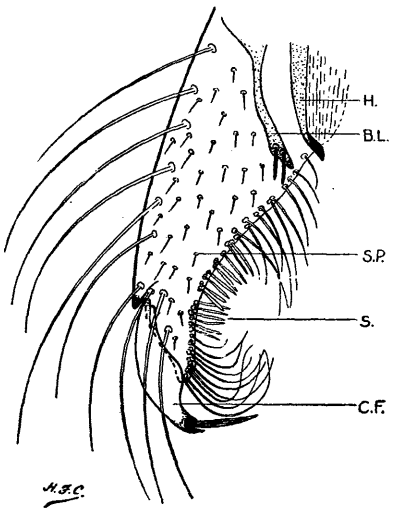

FIG. 2A. Left side-piece and appendages of *Banksinella luteolateralis*, Theob. × 160; s = lanceolate spines.

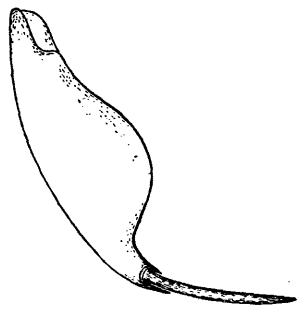

FIG. 2B. Left clasp filament enlarged (× 240)

delicate hairs. Harpes well developed, the apical extremity pointed, forming a single tooth. Harpagones absent. Unci of complex structure bearing three pairs of comparatively large, inwardly and ventrally directed, teeth on the apical ventral margin; these teeth increase proportionately in size, the lowermost pair being the smallest.

The genital armature of *B. luteolateralis* (fig. 2) is very similar to that of the previous species as regards the structure of the basal parts, and general form of the side pieces. The clasp filaments

(fig. 2 *b*) provide, perhaps, the most distinctive character. These are of a somewhat different shape, and are completely devoid of hairs at the apical extremity; the tooth, also, is distinctly larger. The internal edges of the side pieces bear similar arrangements of hairs and spines as in *B. palpale*, but the hairs of the central region are less numerous, and the lanceolate spines are smaller and about fifteen in number.

As previously mentioned, the type of *Banksinella palpale* was in a somewhat damaged condition when described, and I therefore thought it desirable to add a few notes on the specific characters of the male.

Head: The narrow, curved scales occupy a narrower median area than in *B. luteolateralis*, Theob., and the pale coloured region is formed to a considerable extent by cream coloured flat scales.

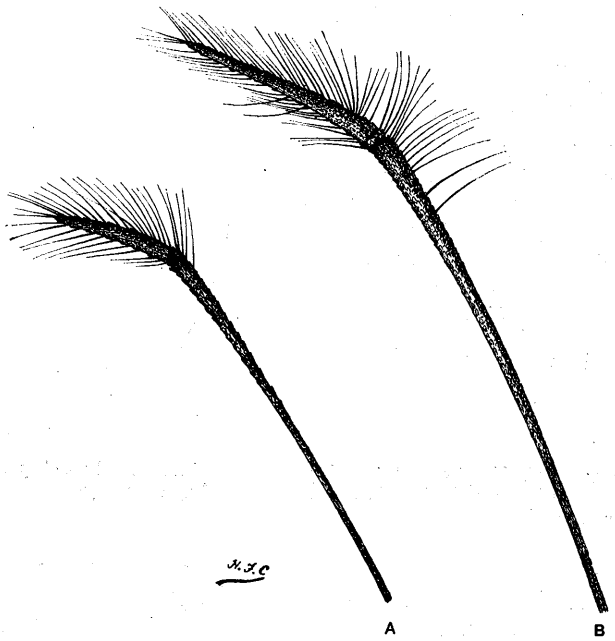

FIG. 3. (*a*) Male palpus of *Banksinella palpale*, Newst.; (*b*) Male palpus of *Banksinella luteolateralis*, Theob.; ×136.

Palpi with the second or terminal segment relatively much shorter than in *B. luteolateralis*; the basal segment is nearly three and one-third times the length of the apical segment, whereas in *B. luteolateralis* it is approximately two and one-third times as long. *Proboscis* sometimes showing an ill-defined yellowish band.

Thorax: Clothed with golden, narrow-curved scales laterally, dark curved scales and a few scattered golden ones in the central region—similar to the ornamentation usually met with in this genus.

Abdomen: First two segments dark, unbanded; third and fourth with basal lateral cream coloured spots, especially noticeable on the latter; fifth, sixth and seventh segments* with well-marked yellowish-white basal bands. In the male of *B. luteolateralis* the first and second segments usually possess a few pale scales on the median area, the others being adorned with basal pale bands.

Wings: Very similar to those of *B. luteolateralis*.

Legs: Brown, the femora and tibiae being pale on the ventral surface; tibiae with apical knee-spots, well marked in the hind pair of legs.

TAENIORHYNCHUS MACULIPENNIS (Theobald).

Chrysoconops maculipennis, Theobald. *Novae Culicidae*, Part I, p. 27, April, 1911.

This species, described by Theobald from Uganda, has recently been placed as a synonym of *Taeniorhynchus* (*Chrysoconops*) *annettii*, Theob., by Mr. Edwards. Through the kindness of Mr. H. H. King, of the Wellcome Laboratories, a male example has been received by the School, and an examination of the genitalia at once proves the species to be a valid one. Mr. Edwards writes that he has now examined preparations of the armature and is in a position to confirm the above statement.

Male genitalia (fig. 4.)

Side pieces large, gradually tapering to a broadly rounded apex. Clasp filaments long and relatively narrow, each bearing two short closely appressed teeth at the tip. The apical third bears four delicate hairs, and is deeply constricted at its base, on the lower side. Basal lobes large, each with a pair of dark rod-like appendages; one of the latter, in each case, is a very conspicuous, stout, elongated structure, the other much narrower and slightly shorter. The larger rod-like process is evidently composed of three or four fused spines or modified hairs, the smaller rod of one only.

* The last few segments are necessarily wanting, as they were removed for microscopical examination.

Harpes well marked, with five comparatively large teeth at the extremities. Harpagones absent. Unci as depicted (fig. 4 *u*), bearing numerous minute teeth on the apical, dorsal and ventral edges.

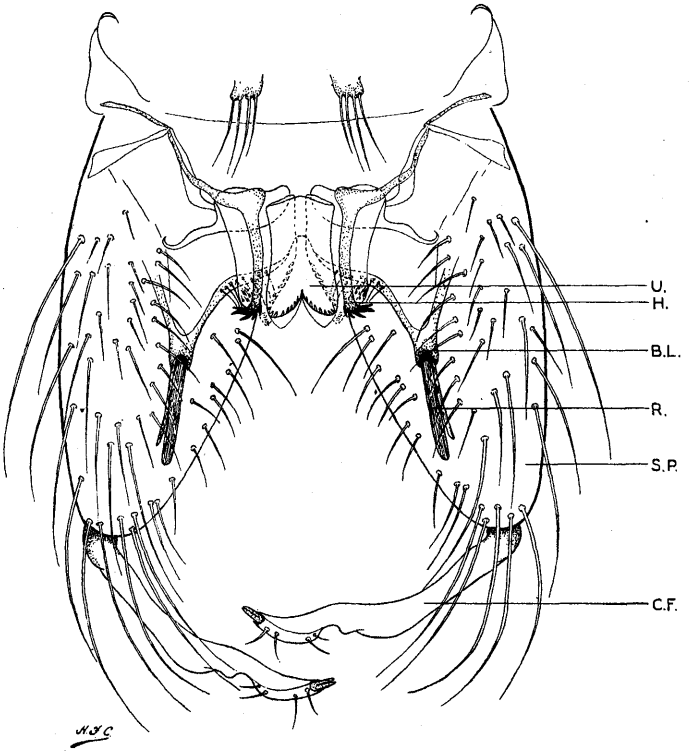

FIG. 4 Male genitalia of *Taeniorhynchus maculipennis*, Theob.; × 160.

Genital armature of T. annettii (fig. 5).

The main point of difference between this and the previous species is in the structure of the clasp filaments. These are of very peculiar form, and an idea of their shape can best be gained from the figures. The apical portion is broad and very deeply cleft on the ventral surface; it bears a few delicate hairs and three teeth, closely pressed together, at the tip.

The basal parts closely resemble those of *T. maculipennis*, although the harpes appear to be more elongated (*vide* fig.) This, however, may be due to displacement of the parts in mounting,

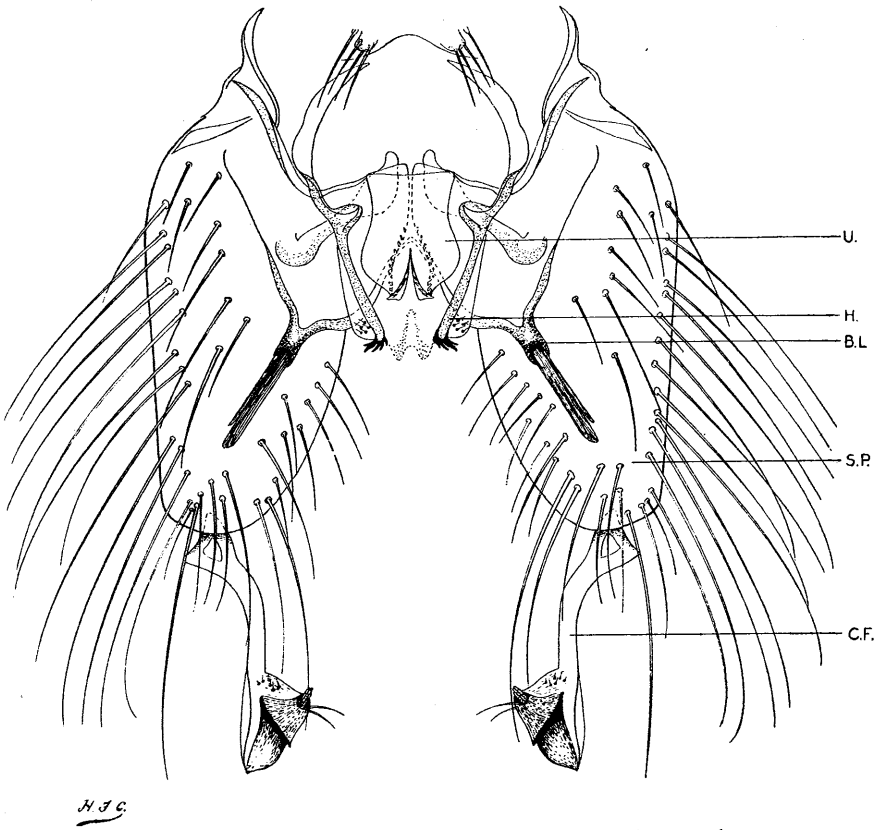

FIG. 5A. Male genitalia of *Taeniorhynchus annettii*, Theob.; × 160.

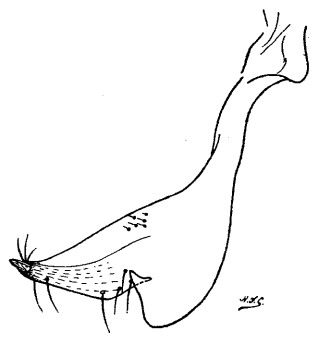

FIG. 5B. Right clasp filament of *T. annettii*, mounted under pressure; × 240.

but, owing to lack of material, no definite statement can be made. The identification of these two species by other means is a matter of no little difficulty, and, unfortunately, the material at my disposal is insufficient to enable me to give any constant and well-defined characters for distinguishing purposes.

TAENIORHYNCHUS METALLICUS (Theobald).

Culex metallicus, Theobald. *Mon. Cul.*, II, p. 63 (1901).

Banksinella metallicus (Theobald). *Mon. Cul.*, V, p. 408 (1910).

Taeniorhynchus violaceus, Theobald. *Third Report Wellcome Labs.*, p. 262 (1908).

The examination of preparations of the male armature of authenticated specimens of *T. metallicus* from various parts of Africa, and of *T. violaceus* from the Sudan (Mr. H. H. King) show that the above synonymy, previously proposed by Mr. Edwards, is correct.

Male genitalia (fig. 6).

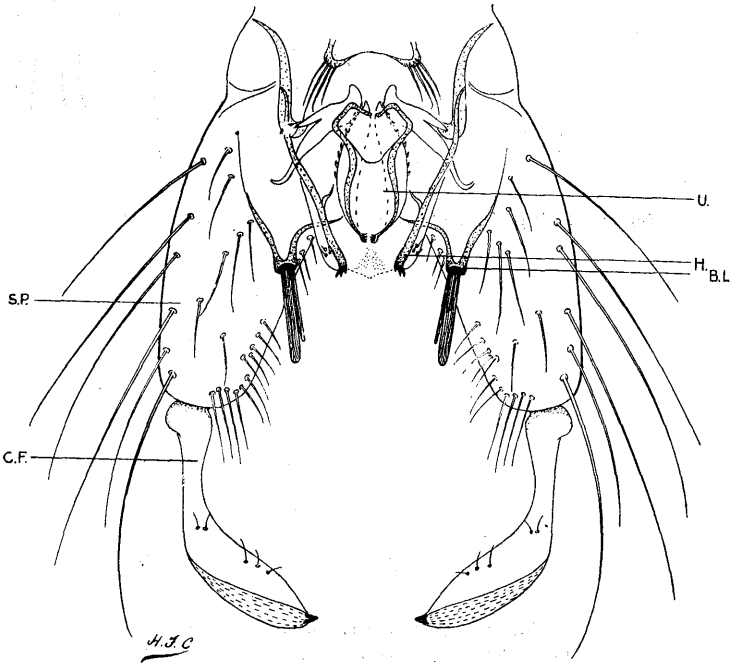

FIG. 6. Male genitalia of *Taeniorhynchus metallicus*, Theob.; × 160.

Side pieces sub-cylindrical, adorned with the usual stout and slender hairs, and bearing basal lobes with their appendages, which greatly resemble those of the two above-mentioned species. Clasp filament very characteristic, the apical two-thirds being expanded for part of its length, then tapering gradually to the tip, on which is situated a very short, stout tooth; the lower side of the apical half is sharply re-curved, forming a distinct ridge. Harpes apparently provided with three teeth. Harpagones absent. Unci with a series of eight or nine small teeth on the ventral basal edges, and four larger teeth at the apex.

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