XIII. A NEW GENUS OF PSYCHODID DIPTERA FROM THE HIMALAYAS AND TRAVANCORE.

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The genus described below is represented in the collection of the Indian Museum by specimens of two species. One of these species I attributed in a former paper to the fossil genus *Diplonema*, which it resembles as regards the structure of the antennæ and the male genitalia. The venation of the wings is, however, so distinct that it seems necessary to recognize it as representing a new genus, which I have named *Brunettia* in honour of Mr. E. Brunetti, who has done so much to increase our knowledge of the Indian Diptera.

BRUNETTIA, gen. nov.

Diplonema, *Annandale* (nec *Loew*), *Rec. Ind. Mus.*, vol. iv, p. 39 (1910).

Heavy moth-like Psychodidæ with broad, thickly-scaled wings, which are held in a horizontal position during repose; second longitudinal vein with three branches, which originate close together near the base of the wing; fourth longitudinal vein with two forks. Mouth parts not forming a proboscis; palpi long, with 4 joints. Antennæ with 15 joints, of which two form the scape; each of the first 12 joints of the flagellum bearing a couple of stout S-shaped chætæ as well as fine hairs. Eyes strongly emarginate. Male genitalia of complicated structure; the inferior appendages bearing numerous racket-shaped spinules; a chitinous intromittent organ present.

Habitat. Darjiling district (E. Himalayas) and Travancore (S. India).

Brunettia differs from *Diplonema*, Loew,[1] not only in its much broader and heavier wings but also in having three branches instead of two to the second longitudinal vein. The palpi also appear to be longer. In respect to venation the wing is to some extent intermediate between that of the Phlebotominæ and that of the Psychodinæ. The lowest branch of the second longitudinal vein is, however, less distinct from the other two than is the case in the genera of the latter family. The male genitalia, moreover,

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[1] "Zu der öffentlichen Prüfung der Schüler des Königlichen Friedrich-Wilhelms-Gymnasium zu Posen," *Dipt. Beitr.*, i, 7 (1845).

agree in their complexity with those of the Phlebotominæ, and the female genitalia in the absence of the horny ovipositor. *Brunettia* may therefore be placed provisionally in the Phlebotominæ.

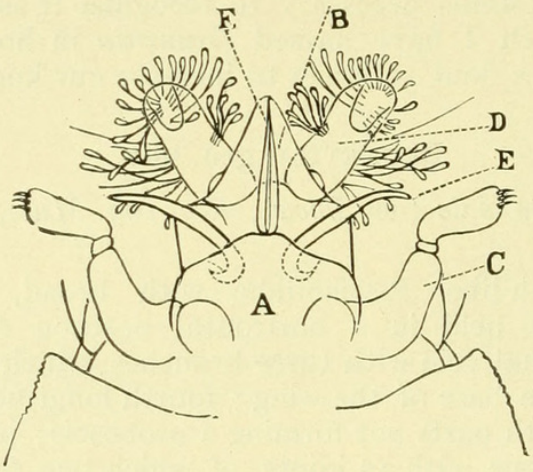
Brunettia superstes (Annandale).

Diplonema superstes, *Annandale, Journ. Asiat. Soc. Bengal,* vol. iv, p. 353 (1908).

♂, ♀. Total length 3 mm.; expanse of wings 8 mm.

Colour sooty black with a strong white refulgence; the first joint of each tarsus partly white, the extent of the white portion varying with the incidence of light.

Antenna with 15 joints; the basal joint cylindrical, the second almost discoidal, these two (the scape) covered with scales; each joint of the flagellum except the last bearing, in addition to a broad basal band of hairs, a long, stout S-shaped chæta on



Male genitalia of *Brunettia superstes*, from above.

either side; joints of the flagellum spindle-shaped, the distal end of each smooth, devoid of hairs; the last joint bearing hairs only, produced at the tip into a minute, cylindrical, blunt process covered with exceedingly fine pubescence. Palpi 4-jointed; the first joint short, the others longer, subequal; the whole organ covered with flattened hairs, which gradually take the form of scales towards the base of the second joint.

Wings broadly heart-shaped; the convexity of the anterior margin pronounced and irregular; the length to the greatest breadth as 4 to 3; the alula large, elongate, bearing a dense tuft of long hair; the disk covered with overlapping, spatulate scales, which are narrower near the margins than at the centre and base; the veins clothed with a double row of hairs; the marginal fringes long on both margins; a tuft of very long hairs at the posterior basal angle. Subcostal vein practically obsolescent; base of first

longitudinal vein approximating to the stem of the second, the two branches of which arise close together, the second fork being practically opposite the anterior fork of the fourth longitudinal vein; the bases of the second and third and of the fifth and sixth longitudinal veins united; the third vein reaching the margin at a point posterior to the tip of the wing; the fourth nearly straight; the sixth almost as long as the fifth.

Abdomen covered with bristling hairs; thorax covered with similar hairs mixed with scales; front bearing a dense tuft of semi-erect scales.

The male genitalia can now be described in detail, for it has been possible to examine specimens preserved in spirit: to give a satisfactory account of their structure from dried specimens is very difficult. The arrangement of the appendages, etc., is clearly shown in the text figure, which is drawn from a specimen mounted in canada balsam. A represents the supergenital plate (last abdominal tergite), which is thin and membranous, transverse, subtriangular, with the apex slightly emarginate. At either side it becomes chitinized and bending downwards and inwards gives rise to a very stout chæta (E), which bends outwards and slightly downwards. This structure does not appear to be homologous with any in the genitalia of *Phlebotomus*, *Psychoda* or *Pericoma*. On either side, at a lower level, however, there is an appendage (C) evidently homologous with the superior appendage of these genera. It consists of two joints the proximal of which is stout in form and somewhat conical, while the distal joint is flattened and membranous, its sides being sinuous and its tip truncate or very broadly rounded. There are three or four short sensory hairs at the tip, but otherwise the appendage is naked; its integument is thin. The subgenital plate (B) projects as a narrow triangle; its integument is rather thick and bears a minute pubescence. The inferior appendages (D) are borne at the base of the subgenital plate. In the dried specimen they appear to be short and rounded, but they are actually elongate and pointed, with the tips curved upwards and forwards. They bear numerous long hairs and spatulate spinules, each of which (fig. 1*i*, pl. xii) has a fringe of minute spines round its flattened extremity. These spines are all turned inwards towards one surface of the spinule. The intromittent organ (F) consists, as in *Phlebotomus*, of a pair of narrow flattened chitinous valves closely pressed together, the fissure between them being vertical, with a pair of delicate chitinous filaments that can be thrust out between them. The form of the organ in this species is narrowly conical.

The original specimens were taken at an altitude of about 5,000 feet at Kurseong during the "rains" (July) on a window-pane and on the upper surface of a fern-frond. They rested with the wings spread out quite flat. I have recently (June, 1910) taken other specimens at the same place. They were running erratically on the leaves of *Caladium* in dense jungle at dusk.

Brunettia travancorica, sp. nov.

♀. Total length 1·5 mm.; expanse of wings 4 mm.

Colour jet-black with a slight metallic sheen, which is most conspicuous on the lower surface of the wings; nine small white spots at the edge of the wings, each consisting of a tuft of white hair-like scales and situated at the tip of a vein; first tarsal joints white; a tuft of long white hairs on each side of the mesonotum just in front of the wings; some of the hairs on the abdomen grey or white in a reflected light.

The verticels of hairs surrounding the antennæ rather less compact than in *B. superstes* and the S-shaped chætæ more slender.

Wings heart-shaped, the maximum breadth being rather more than $\frac{5}{8}$ of the length; the convexity of the anterior margin much less pronounced and more regular than in *B. superstes*; scales little different from those of the wing of *B. superstes*; a very long marginal fringe on the posterior border only; anterior fork of second longitudinal vein distinctly nearer the base of the wing than that of the fourth longitudinal vein; third longitudinal vein reaching the tip of the wing.

Habitat. Base of Western Ghats, Travancore, S. India: a single female taken by myself in November, 1908.

Lack of material makes it impossible to give a fuller description of *B. travancorica*, which may be distinguished from *B. superstes* at a glance by its smaller size and by the white spots on its wing. It will be noted that the two species differ from one another in the character that distinguishes *Psychoda* from *Pericoma*, namely, the position of the apex of the third longitudinal vein. I think, however, that they must be regarded as congeneric.

Addendum—

A third species of *Brunettia* has recently been taken by Mr. E. E. Green and Mr. F. H. Gravely at Peradeniya in Ceylon. *Psychoda atrisquamis*, Brunetti, from Calcutta also belongs to this genus.—N. A., 24-viii-10.