

XXVI.—NOTES ON ORIENTAL DIPTERA

IV.—ON SOME INDIAN SPECIES OF *LIMNOPHORA* AND *ANTHOMYIA*, WITH A DESCRIPTION OF A NEW SPECIES OF THE FORMER GENUS.

By E. BRUNETTI.

While passing through Lucknow in April last Dr. Annandale found a small, well-marked, black-and-grey Anthomyid fly very common and troublesome in houses, having apparently supplanted the common *Musca domestica*, although a species of *Musca* closely allied to *M. domestica*, but I think distinct, also occurred.

On reference to descriptions I identified the Anthomyid, with very little doubt, as the *Anthomyia tonitrui* of Wiedemann. It would, however, now be placed in the more modern genus *Limnophora*. The species is evidently widely distributed in the East. I found it common at Mhow, Central India, in the middle of April, 1905; in this locality it used to rest, motionless, on the flowerpots in an open-air conservatory, seldom on the plants themselves. At Mussoorie, towards the end of June, 1905, I also found it common in a churchyard garden full of clover, in company with the ordinary European dung fly *Scatophaga stercoraria* L., a species of *Chortophila*, and a small Tachinid.

I have no doubt that the *A. lobalis* of Thomson from China is the same species, my specimens answering even better to this description than to that of *tonitrui*; and as Thomson himself says it is closely allied to Wiedemann's species, the identity of the two is practically assured.

I give a full description, which has been drawn up from a considerable number of freshly captured and well preserved specimens from various localities.

Limnophora tonitrui Wied. (Plate xv; fig. 1, ♂; fig. 2, ♀.)

Anthomyia tonitrui, Wied. Aus. Zweifl., ii, p. 429.

? *Anthomyia lobalis*, Thoms. Eugenie Reise, p. 551.

Head shining silvery grey, vertex and antennæ black, frons in ♀ with a broad central black stripe, bearing a row of strong hairs on its borders; bending strongly inwards; mouth with stiff bristles of different lengths; the posterior orbit of the eyes entirely encircled by similar bristles; eyes subcontiguous in the ♂, just below the lengthened triangular vertex, separated only by the frontal white ocular orbit; proboscis short, thick, black; palpi not apparent.

Thorax ash-grey, with, on the front border, two black spots joined together; a wide jet-black transverse band across the mesothorax, reaching the wing-insertions, where it is slightly produced posteriorly; scutellum unicolorous, basal half black. The whole thorax and scutellum beset with isolated long stiff bristles, including two longer ones at the tip of the scutellum. Sides of thorax whitish grey, with some stiff bristles.

Abdomen pale yellowish; first segment semi-transparent, with an oblong black spot on the posterior border towards each side that is often indistinct or nearly absent; second and third segments with a long linear spot on each side of the posterior border and a small oval spot in the centre of the foreborder; fourth segment ash-grey, with two round black spots in the centre, these spots much wider in the ♀. Belly yellowish white, blackish at tip. Dorsum of abdomen with soft black hair, which is also present at the sides of the segments while at each side on the posterior border of each segment, placed at the extreme edge, are two long black bristles posteriorly deflexed.

Legs black or dark brown; anterior femora curved, with a row of stiff hairs on the upper side and another row on the outside; middle femora with a row of very short hairs below and a few on the upper side and one or two long bristles at the tip; posterior femora very slightly curved, with a row of stiff hairs on the outer side above and on the inner side below; tibiæ practically bare, with a few spiny bristles at the tip; tarsi simple.

Wings clear; the third and fourth longitudinal veins distinctly converging at the tip (as in *Hydrotaea*) but at the extreme tip the fourth slightly deflexed; the internal cross vein placed at two thirds of the distance from the base of the discal cell; external cross vein nearly or quite straight, distant its own length from the internal cross vein and half its length from the wing border. Three or four short, stiff bristles at the extreme base of the costa; alulæ white, iridescent, the lower scale much the larger; halteres pale yellowish.

Described from 5 ♂♂ in the Indian Museum collection taken by Dr. Annandale in houses at Lucknow on April 21st, 1907, and from a considerable number of specimens of both sexes taken by me at Mhow, Central India, between April 11th and 16th, 1905, and at Mussoorie between June 20th and 24th, 1905. A ♂ from the Gonda district, Central India, taken between March 3rd and 5th, 1907, is also in the Indian Museum.

Limnophora himalayensis, sp. nov., mihi. (Plate xv, fig 3, ♀.)

♀ This species is allied to the preceding one but quite distinct; it differs from *L. tonitruui* in the following characters:—

The abdominal marks consist of a pair of well separated spots in the centre of the posterior part of each of the first three segments, the first pair small and round, the second elongated, triangular in shape and placed lengthwise, with the bases of the

spots approximate, the third similar but rather shorter ; fourth segment with a row of four bristles.

Minor characters concern the frontal black spot, of which the upper margin takes the form of a V ; also the scutellum, of which only the extreme base is black, whilst the black band in front of it is narrower.

Described from 3 ♀ ♀ in the collection of the Indian Museum, two taken by Dr. Annandale between the 28th and 30th of April, 1907, at Theog (alt. 8,000 feet) in the Simla district, and one from Dharampur in the same district (alt. 8,000 feet), taken between May 6th and 8th.

Types in Indian Museum collection.

NOTE.—The other species of *Limnophora* recorded up to the present from the East are—

- L. bengalensis*, R. Desv. Essai sur les Myodaires, 518. Bengal.
- L. macei*, R. Desv. Loc. cit., 519. Bengal.
- L. prominens*, Stein. Tijd. voor Ent., xlv i, 106. Java.
- L. nigripennis*, Stein. Loc. cit., 108. Java.

Anthomyia pluvialis, L. (Plate xv, fig. 6, ♀.)

A single male of this pretty species was taken by Dr. Annandale at Theog on May 2nd this year. It is very common throughout Europe and North America, and probably occurs right across the Palæarctic region to Japan and China, and may perhaps be found at many places in the Himalayas. I believe it has not been recorded from India before.

Anthomyia bisetosa, Thoms. (Plate xv ; fig. 4, ♂ ; fig. 5, ♀.)

Ant'iomyia bisetosa, Thoms. Eugenie Reise, p. 555.

Described first in the "Eugenie Reise" from China (♀), this species has come under my notice several times lately. I took it myself at Mhow, 11th to 16th April 1905, and at Hongkong, 5th March 1906, whilst the Indian Museum possesses specimens from Calcutta taken in May this year. The appearance of the thorax of this species is the same as that of the two species of *Limnophora* described above, while the abdomen is similar to that of *A. pluvialis* ; it is very distinct, and I do not think there can be much doubt about the identification of the species with that of Thomson.

Head—

In the male : eyes separated by only the narrowest possible silver-white dividing line, extending to the vertex ; lower part of face greyish white, more or less silvery seen from above, with, on each side of the lower part of the cheeks, a triangular black spot bearing one strong bristle and some smaller ones ; antennæ black, arista bare ; a row of bristles along under part of head ; vertex

very small with some long bristles; back of head grey, with a single row of small bristles round the eye border. In the female the front equals one third the width of the head, silvery grey, with a quadrate black spot, sometimes appearing as a thick V, just above the antennæ; on either side of this spot is a vertical row of four bristles.

Thorax—

Ash-grey, lower part rather more whitish, a deep black broad stripe runs transversely across the dorsum from the wing-insertions, and a narrower one immediately in front of the scutellum. The disposition of bristles is not quite consistent, but seems to be as follows: a lateral row of three large ones on the humeral limit of the dorsum; a transverse row of eight bristles immediately in front of the transverse black stripe, of which the two centre ones are smaller than the rest; a row of six then follows, and in front of these again, a rather irregular row of quite small ones of varying number; three or four occur on the black stripe, and between it and the scutellum are ten or twelve others. The unicolorous scutellum bears a few short ones and two long ones at the tip which cross one another; a row of five bristles in front of each wing-insertion with three or four behind; metanotum whitish grey, bare.

Abdomen—

Whitish grey; at the base of the second, third and fourth segments a narrow black band which is produced downwards in the form of three triangles, the centre ones being longest and narrowest, the outer ones not reaching the posterior border, nor the side margins. A row of bristles on posterior edge of each segment, the dorsum of which is covered with scattered hairs. Belly grey.

Legs—

Black; femora with a row of bristly hairs on outer and under sides, longest on fore pair; four posterior tibiæ with a few scattered bristles. Hind femora curved, ♂ ♀

Wings—

Pale grey, with the slightest yellowish tint towards base and foreborder; alulæ whitish, lower scale slightly the larger; halteres pale yellow.

Described from six males and four females in the Indian Museum collection, from Calcutta, May 1907, Mhow (India), 11th to 16th April 1905, Hongkong, 5th March 1906, and from further specimens of both sexes from Mhow and Hongkong in my own collection, the specimens from these two localities having been taken by me.

NOTE.—These four species stand out as conspicuous ones, amongst the generally sombre coloured Anthomyids, yet, although in general appearance resembling one another, they can all be easily recognized.

In Van der Wulp's Catalogue of South Asian Diptera, only nineteen species are given, and to these no new ones have since then been added. Of these, *tonitruui*, Wied., is a *Limnophora*, as herein shown; *albicornis*, Wlk., is referred by Kertész to *Mydæa*; *peshawarensis*, Big., is considered by Künckel d'Herculis (to whom co-types have been sent from the Indian Museum) as synonymous with *Chortophila cilicrura*, Rond.; whilst the remainder may be roughly separated into four groups: A (arista bare; legs black), B (arista bare; legs more or less pale), C (arista plumose; legs black), D (arista plumose; legs more or less pale). A few species in which the arista is minutely pubescent are, as is usual in these cases, classed with those which have the arista bare.

Group A. *metallica*, Wied.; *exigua*, Wied.

Group B. *bina*, Wied.; *flexa*, Wied.; *manillensis*, Frfld.

(V d. Wulp's quotation as to page is incorrect; it should be 449).

Group C. *calens*, Wied.; *concana*, Wlk.; *lenticeps*, Thoms.

Group D. *quadrata*, Wied.; *bibax*, Wied.; *trina*, Wied.; *peræ*, Wlk.

The two remaining species I cannot place, as their author gives no information regarding the pilosity or otherwise of the arista. They are *illocata*, Wlk., and *procellaria*, Wlk.

Probably some of the above species belong to the more recently established genera, but this is not the place to deal with the question, nor have I the means at hand to form any opinion on the matter.