NOTES ON ORIENTAL BIBIONIDAE, WITH DESCRIPTIONS OF NEW SPECIES.

By E. Brunetti.

In the following notes are offered revised and augmented tables of species in *Bibio* and *Plecia*, descriptions of several new species and some notes of interest on others. My genus *Paraplecicmyia* may be of subgeneric rank only and it is herein so regarded. My thanks are due and tendered to Mr. Edwards of the British Museum, for the information that three species of *Bibio*, considered by me to be synonymous, are really distinct, also of a similar instance regarding three species of *Plecia*.

Scatopse pulchripes, sp. nov.

♂. Sikkim. Long. 1½ mm.

Head black; antennae black, shortly pubescent, two basal joints of flagellum bright orange, last joint bluntly conical, twice as long as penultimate and with a trace of constriction about the middle. Eyes with reddish brown facets; the ocelli conspicuous, whitish, very large and well separated.

Thorax and *abdomen* dull black.

Legs black, basal half of tibiae shining white, tips of tibiae brownish yellow; tarsi yellowish.

Wings grey, costa at extreme base yellow. Venation normal, 1st and 3rd veins black, distinct, former ending at one-third, the latter distinctly beyond the middle of the wing: remaining veins fainter but obvious: 4th longitudinal forking at half its length; the 2nd posterior cell long and narrow, slightly contracted about the middle, the veins thence gradually diverging; 5th vein straight for the greater part of its length; 6th bent down suddenly shortly beyond the base, almost immediately afterwards turning outward again. Halteres obscure.

Described from a unique ♂ in good condition in the Indian Museum from Shamdang, Sikkim, 3,000 ft., 7-ix-09.

Mr. Edwards has pointed out to me the affinity of this species with the European *S. nigripennis* Mg. (*annulipes* v. Ros.).

Crapitula melanaspis Wied.

Specimens shewing the following data have recently come before me. Dalat, Langbian Prov., South Annam, 5,000 ft., iv-v-1918 (*Boden Kloss*); Umang-Lai, Wang Jing Village, Manipur, Assam, 2,600 ft.; Thanga Is., Logtak Lake, Manipur, Feb., 1920 (*Manipur Survey*).

Crapitula simplicipes, sp. nov.

♂ ♀. Very near *melanaspis* W., but structurally distinct in two characters; 1st, the hind tibiae are not at all dilated apically, nor are the hind metatarsi in the least degree incrassated, and 2nd, the scapal joints of the antennae are longer and the last two (9th and 10th) flagellar

joints are annealed into a single joint. A third character which is at once obvious is the entirely reddish orange thoracic dorsum. In all else as in *melanaspis*.

Three of each sex from the Darjiling District, Darjiling, Ghoom and Lebong, 11-13-vi-14 (*Gravely*).

Type ♂, Lebong, 6,000-6,600 ft., 13-vi-14; *type* ♀, near Ghoom, 6,000-7,000 ft., 11-vi-14, both in the Indian Museum.

Plecia Wied.

The presence of two new species, *aterrima* and *sordida*, necessitated a closer examination of known species and revealed the fact (which I believe has not hitherto been noted) that the number of antennal joints is not always the same in both sexes.

From actual observation of specimens before me *indica* has 12 joints ♂♀; *atra* ♀, 12 joints, the ♂ being unknown; *obscura* ♂♀, 10 joints; *carbonaria* ♂, 11 joints, ♀ 12 joints; *thoracica*[1] ♂, 10 joints, ♀ 11 joints; *impostor* ♂♀, 9 joints; *tergorata* ♂♀, 10 joints; *aterrima* ♂, 10 joints, ♀ 12 joints; *sordida* ♂♀, 9 joints.

Of *forcipata* Ost. Sack. ♂ and *tristis* Wulp ♀, the authors do not state the number of joints and neither species has come before me.

Table of Oriental species of Plecia.

1.	3rd vein forking soon after anterior cross vein; approximately opposite fork of 4th vein; upper branch more or less parallel with lower one (*melanaspis*-like). (*Parapleciomyia*, Brun.)[2] ..	2
	3rd vein forking some distance after anterior cross vein, distinctly beyond fork of 4th vein; upper branch at an angle of from 45° to nearly perpendicular (*fulvicollis*-like). (*Plecia*).[2]	5
2.	Thoracic dorsum orange[3], (antennae 12-jointed). Long. 6—9 mm.	*indica* Brun. ♂♀.
	Wholly black species	3
3.	Long. 8—12 mm.; (antennae 12-jointed) ..	*atra* Brun. ♀.
	Long. 6—7 mm.	4
4.	Antennae 10-jointed. Long. 6—7 mm.	*obscura* Brun. ♂♀.
	Antennae ♂ 11-jointed, ♀ 12-jointed. Long. 6 mm...	*carbonaria* Brun. ♂♀.
5.	Thorax with at least dorsum wholly orange (except in *impostor*, in which only the hinder half is of this colour)	6
	Thorax all black	9
6.	(*a*) Entire thorax orange, including pleurae, scutellum and metanotum: (antennae ♂ 10, ♀ 11-jointed) ..	7
	(*b*) Only hinder half of thoracic dorsum orange, the whole thorax otherwise entirely black. (Antennae 9-jointed)	*impostor* Brun. ♂♀.
	(*c*) Thoracic dorsum wholly orange, remainder black	8

[1] According to Mr. Edwards, the common Oriental species of the plains generally known as *fulvicollis* F. is really *thoracica* Guer.

[2] The exact angle of the upper branch of the 3rd vein is not constant, nor is its exact position in relation to the fork of the 4th vein.

[3] The term orange is used in this table as being the most generally applicable, including the reds and yellows of the older authors. It is only employed here in contrast to blacks and browns, therefore confusion is impossible.

7.	Ocelli and ocellar triangle in ♂ very large ; antennae in ♂ 9, in ♀ 11-jointed	*fulvicollis* F. [1]
	Ocelli and ocellar triangle in ♂ very small ; antennae in ♂ 10, in ♀ 11-jointed	*thoracica* Guer.
8.	A broad " red " (?orange) stripe reaching from base of one halter to the other, passing forwards over the pleurae	*forcipata* Ost. Sack. ♂.
	No such stripe, (antennae 10-jointed).	*tergorata* Rond. ♂ ♀.
9.	Thorax light grey, with 3 longitudinal shining black stripes, united at their centres	*tristis* Wulp ♀.
	Thorax black or blackish, unstriped	10
10.	Velvet black species ; antennae ♂ 10, ♀ 12-jointed ..	*aterrima*, sp. nov. ♂ ♀.
	Dirty black species ; antennae ♂ ♀ 9-jointed ..	*sordida*, sp. nov. ♂ ♀.

Plecia indica Brun.

Further specimens are in the Indian Museum from Almora, Kumaon District, 5,000 ft., 27-ix—4-x-11, four females (*Paiva*) and one from the same locality and collector 1—18-iii-12 ; another from Sureil, 11—31-x-17 (*Annandale* and *Gravely*).

Plecia atra Brun.

Sureil, 5,000 ft., iv-v-17 (*Kemp*), two ♀♀.

Plecia (Parapleciomyia) carbonaria Brun.

A better characterisation of this species would have been the position of the forking of the 3rd vein, as adopted in the table of species herein offered. In the unique type ♂ and ♀ the antennae of the former contain only 11 joints, those of the latter 12 joints. Both specimens are from the same district and captured within a few days of each other. The ♂ flagellum is apparently of 9 joints, of which the two basal ones give the impression of being a single longer joint almost constricted in the middle, the basal half being bare, though the whole of the remainder of the flagellum is very distinctly pubescent. In the ♀ the basal flagellar joint is very obviously of the nature described, the constriction just before the middle more distinct, the joint less than twice as long as the next joint, the basal half bare, the rest of the flagellum pubescent. Counting this way there are 9 very distinct joints and a very distinct small apical joint, making a 12-jointed antenna altogether.

Plecia impostor Brun.

This species may have been overlooked in collections on account of its extraordinary resemblance to *Crapitula melanaspis* W., as these two species are the only two in which only the hinder half of the thoracic dorsum is orange. It is certainly much inferior in size, but some of the smallest specimens of *melanaspis* seen by me are very little larger than *impostor*. The number of antennal joints is an infallible test, as in Wiede-

[1] Mr. Edwards informs me that *subvarians* Walk. is distinct from *fulvicollis* F. As I have not seen a male I am unable to include it in the table.

mann's species there are 12 whilst *impostor* possesses only 9, the ultimate one minute but distinct.

Plecia forcipata Ost. Sack.

Though this has never come before me, de Meijere records it twice recently from Java. It should be easily recognised from all others by the uninterrupted reddish stripe passing from the base of one halter to the other by extending forwards across the pleurae, descending below the front coxae. The species must be quite a sound one as it was described from 11 specimens (from Sumatra), all ♂♂.

Osten Sacken does not mention the number of antennal joints.

Plecia tergorata Rond.

Kalau, S. Shan States, 4—5,000 ft., 10-iii-17 (*Gravely*) ; Khasi Hills, viii ; Rangamati, Chittagong Hill Tracts, 11—16-xi-15 (*Hodgart*) ; Sukna, vii ; Darjiling District, vii, viii ; Kurseong, vi ; Talewadi, near Castle Rock, North Kanara District, 3—10-x-16, common (*Kemp*) ; Thanga Is., Logtak Lake, Manipur, Feb. 1920 (*Manipur Survey*) ; Potsengbam, Manipur, Feb. 1920 (*Manipur Survey*).

This species occasionally attains very small proportions, de Meijere recording a ♂ from Batavia only 4 mm. in wing length. The smallest in the Indian Museum is a ♂ barely 3 mm. long, taken *in cop.* with a ♀ hardly appreciably larger.

Plecia tristis Wulp.

Van der Wulp described this from a unique ♀ from East Java, and de Meijere refers to this species a ♂ from Java. Wulp noted that the venation was similar to that of *fulvicollis*, and at that time no forms were known of the group that constituted my *Parapleciomyia*. The species should be distinct from all others by the light grey thorax with longitudinal black stripes. Neither Wulp nor de Meijere note the number of antennal joints.

Plecia aterrima, sp. nov.

♂♀. Darjiling District. Long. 8-9 mm.

Very like *atra* in appearance and size, but differing radically in the forking of the 3rd vein, being a true *Plecia*. Wholly black ; antennae in ♂ 10-jointed, in ♀ 12-jointed. In the ♂ the 1st flagellar joint is very distinctly larger than the 2nd and there is no sign of constriction or any impressed line ; the apical (8th) flagellar joint is elongate, distinctly longer than the other sub-apical joints, and is rounded at the tip. In the ♀ the flagellum consists of ten very distinct joints, the basal and apical ones similar to those in the ♂.

Described from a single ♂ and ♀ from Kalimpong, 600—4,500 ft., 24-iv—10-v-15 (*Gravely*). I have since seen it from Langbian Peaks, South Annam, 6,000—7,500 ft., iv-1918 (*Boden Kloss*), several specimens ; and from Dalat, South Annam, iv-v-1918 (*Boden Kloss*).

Plecia sordida, sp. nov.

♂ ♀. Darjiling District. Long. 4 mm.

A dirty black small species with a little greyish dust on thoracic dorsum ; pubescence of dorsum very sparse, that of abdomen and legs more obvious, brownish grey. Legs distinctly though slightly clubbed towards tips. Antennae 9-jointed in both sexes. Wings brownish, venation that of normal *Plecia*.

2 ♂♂, 1 ♀ in Indian Museum, Darjiling, 7,000 ft., 7-vi-17 (*Brunetti*).

Table of Oriental species of Bibio.

1.	Thorax wholly yellowish (reddish or orange) ; or at least dorsum completely so	2
	Thorax wholly black or blackish	8
2.	Abdomen yellowish	3
	Abdomen black	6
3.	Entire thorax reddish yellow or orange ..	4
	Pleurae black ; thoracic dorsum orange ..	*hortulanoides* Brun.
4.	Wings wholly and conspicuously yellow ..	5
	Wings grey brown, distinctly dark brown anteriorly, in no part at all yellowish ; (inner spine of fore tibia about half as long as outer one) ..	*obediens* Ost. Sack.
5.	2nd scapal and 1st palpal joint black ; fore tibial spines subequal ; all femora black-tipped ..	*rubicundus* Wulp.
	2nd scapal and 1st palpal joint yellow or orange ; all femora orange to tips ; inner claw of fore femora about half as long as outer one	***flavissimus,*** **sp. nov.**
6.	Legs yellowish	***discalis*** **Brun.**
	Legs black	7
7.	Pleurae black ; thoracic dorsum reddish yellow ..	***bicolor*** Walk.
	Whole thorax reddish yellow	***plecioides*** Ost. Sack.
8.	Abdomen practically wholly orange	*abdominalis* Brun. ♀.
	Abdomen all black	9
9.	Femora wholly yellowish	10
	Femora wholly black or dark brown	13
10.	Fore femora with a conspicuous fringe of black pubescence at about the middle	*collaripes,* sp. nov. ♂.
	Fore femora without such fringe	11
11.	Tibiae and tarsi black	*rufifemur* Brun.
	Tibiae and tarsi reddish yellow	12
12.	(*a*) Wings nearly clear, veins and stigma very distinct	*johannis* L.
	(*b*) Wings distinctly blackish, veins distinct ..	*nigripennis* Brun.
	(*c*) Wings distinctly yellowish, anteriorly and stigma darker yellow	*collaripes*, sp. nov. ♀
13.	Large species, 11—15 mm.	*obscuripennis* De Meij.
	Smaller species, at most 8 mm.	14
14.	Body pubescence nearly or wholly black or dark brown	15
	Body pubescence yellowish or grey	17
15.	(*a*) Tibiae distinctly brownish yellow (femora shining black)	*fuscitibia* Brun.
	(*b*) Tibiae moderately dark brown (femora darker)	*defectus* Brun.
	(*c*) Tibiae (and femora) wholly black	16

16. Costal region of wings distinctly infuscated ; stigma inconspicuous	*abdominalis* Brun. ♂.
Wings practically wholly clear ; stigma conspicuous	*proximus* Brun.
17. Wings conspicuously long	*approximatus* Brun.
Wings normal	18
18. Wings nearly clear, legs dark mahogany brown . .	*aequalis* Brun.[1]
Wings pale brown, legs shining black	*pallidohirtus*, sp. nov.

Bibio hortulanoides Brun. and **abdominalis** Brun.

It seems impossible to satisfactorily separate the males of these two species. The characters of greater size and browner wings attributed originally to the ♂ of *hortulanoides* are not sustained in subsequent specimens captured in company with undoubted females of the same species. That the two forms are valid species is proved by the females, which are wholly orange brown in *hortulanoides* and wholly shining black in *abdominalis*. The type ♂ and ♀ of the latter species were captured *in cop.* and have remained united. The genitalia of the ♂♂, so far as I can perceive without dissection, offer no separative characters. Some males of intermediate size also eliminate the suggested difference of size as a specific character. One ♂ *hortulanoides*, Ghoom, Darjiling District, undated (*Kemp*) ; three ♂♂ apparently of *abdominalis* from the same locality (*Kemp*).

Bibio obediens Ost. Sack.

This species, with *rubicundus* Wulp and *flavissimus*, sp. nov., is very closely allied and I was inclined to regard them as synonymous as my new species was the only one of them I had seen. Thanks, however, to Mr. Edwards, who had identified more than one specimen of both *obediens* and *rubicundus* in the British Museum collection, in which the characters set up by Osten Sacken were fully confirmed, I am now convinced of the specific validity of all three. He also pointed out the character of the fore tibial spines, which I had not had the opportunity of testing, with only a single species before me. The species was described from Papua. In the British Museum from the Moluccas.

Bibio rubicundus Wulp.

The characters given in the table of species hold good in the short series of specimens of this species identified by Mr. Edwards in the British Museum. They are from the Malay Peninsula.

Bibio flavissimus, sp. nov.

♀. Assam. Long. 9 mm.

Head all orange, nearly bare ; eyes black, ocelli at extreme vertex, black, very small and close together. Scapal joints of antennae orange, flagellum black ; last two joints of palpi black.

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[1] *Bibio aequalis*, described from Shanghai, is hardly Oriental in the strict sense,

Thorax dull yellowish, ground colour shining, dorsum with yellow pubescence; scutellum concolorous with yellow pubescence.

Abdomen all orange, practically bare, tip a little darker, belly orange.

Legs. Coxae and femora all orange, with yellow pubescence, the former less bright; tibiae and tarsi jet black with black pubescence.

Wings broadly orange yellow on anterior part, the rest pale yellow; veins yellow; halteres orange.

Described from 2 ♀♀ in the Indian Museum from Cherrapunji, Assam, 4,400 ft., 2—8-x-14 (*Kemp*). In the second example (not the type) the hinder part of the thorax and base of abdomen are more or less blackish. Three further ♀♀ from Pashok, Darjiling District, 2,000-3,500 ft., 23-iv—11-v-15 (*Gravely*); Kalimpong, 600-4,500 ft., 24-iv—10-v-15 (*Gravely*).

Bibio collaripes, sp. nov.

♂ ♀. Western Himalayas. Long. 10 mm.

Head wholly black, covered with thick black hairs especially dense and coarser on underside. Antennae with 8-jointed flagellum, black, as are the hairy palpi.

Thorax black, with considerable black pubescence at sides and round margin of dorsum; centre of dorsum sparsely pubescent, (? rubbed). Pubescence above and behind roots of wings dirty yellowish grey. Scutellum black, with a fringe of long erect black hairs around whole margin.

Abdomen all black with thick black pubescence, which is denser on basal half; dorsum of posterior half nearly bare, (? rubbed). Some yellowish hairs on underside near tip.

Legs orange, coxae black, with rather thick black pubescence. Fore femora with some black pubescence at base, increasing just before the middle into a large bushy fringe encircling the limb, beyond which only a little pale short pubescence is present. Middle femora with less dense black pubescence, not forming any fringe, and apparently mainly confined to the lower surface. Orange parts of legs with short concolorous pubescence; upper side of hind femora with some very long well-separated black hairs on basal half. Claws blackish at tips; hind tibiae considerably incrassate, hind metatarsus distinctly so.

Wings clear, costal cell and moderate sized stigma yellowish; halferes black.

♀ Frons and occiput with thick bright yellow pubescence extending over upper part of frons towards sides: basal joints of antennae with short bright yellow hairs; 1st palpal joint with short yellow hairs. Anterior half of thoracic dorsum with comparatively sparse yellow hair, also along side margins and around posterior calli. A little yellow hair on pleurae, longer on mesopleura; scutellar hairs yellow. Sides of abdomen with bright yellow, moderately dense pubescence. Legs, except the black coxae, orange yellow with short yellow pubescence; hind legs much less incrassate than in ♂. Wings yellowish, deeper anteriorly; stigma large, just perceptibly deeper still.

Described from 2 ♂♂ (including type) in the Indian Museum from Onari, Garhwal District, Western Himalayas, 11,000 ft., 20-vi-11 (*Col. Tytler*); a further ♂ from Pashok, Darjiling District, 2,000-3,500 ft.,

23-iv—11-v-15 (*Gravely*), and from one type ♀ taken with the first mentioned ♂♂. The four specimens in the Indian Museum.

The peculiar fringe of pubescence on the fore femora in the ♂ is a decidedly novel character.

The probability of the two sexes herein described representing but a single species was brought to my notice by Mr. Edwards and I have accepted his view.

Bibio obscuripennis de Meij.

Several of this common Himalayan species from Ghoom and Sureil, both Darjiling District, including a pair *in cop.* from the latter place, 11—31-x-17 (*Annandale* and *Gravely*).

Bibio proximus Brun.

A short series of ♂♂ from the Darjiling District (Lebong, Ghoom Soom, Darjiling), 11—14-vi-14 (*Gravely*).

Bibio pallidohirtus, sp. nov.

♂. Darjiling District. Long. 6—7 mm.

Head. Upper facets of eyes bronze brown with short dense black pubescence, their edges almost overhanging the region of small black facets: ocelli large, shining black, contiguous, wholly filling the well elevated ocellar triangle, the latter bearing a few stiff hairs behind. Antennae and palpi all black, underside of head with a little moderately long, brownish yellow rather coarse pubescence. Occiput black, with similar pubescence

Thorax shining black, with some short brownish yellow pubescence; anterior corners of dorsum narrowly brownish orange, shining. Scutellum concolorous with dorsum; pleurae black, bearing some moderately long coarse, yellowish hair.

Abdomen black, with similar pubescence; genitalia large, black (type) or rather dark orange brown (2nd specimen), the claspers with short yellowish hairs. Belly black, with concolorous pubescence.

Legs mahogany brown, femora indistinctly black on upper and under sides; anterior pairs nearly all black; hind femora considerably narrowed basally, making them appear by comparison more strongly clubbed than usual. Pubescence of legs obscurely brownish yellow.

Wings distinctly yellow, a little brownish anteriorly; stigma just obviously darker but not well defined. Halteres dull brownish yellow.

Described from two ♂♂, Darjiling District, Kalimpong, 600-4,500 ft., 24-iv—10-v-15 (*Gravely*). *Type* and second specimen in Indian Museum.