

RECORDS
of the
INDIAN MUSEUM

(A JOURNAL OF INDIAN ZOOLOGY,

Vol. II, 1908-09.

EDITED BY

THE SUPERINTENDENT,
INDIAN MUSEUM, NATURAL HISTORY SECTION.

Calcutta :

PUBLISHED BY ORDER OF THE TRUSTEES OF THE INDIAN MUSEUM.
BAPTIST MISSION PRESS.

1908-09.

CONTENTS.

PART I, APRIL, 1908.

	Page
The Retirement of Lieutenant-Colonel Alcock, with a list of his papers, etc., on Indian Zoology	1
I. The Fauna of Brackish Ponds at Port Canning, Lower Bengal—	
Part VII.—Further observations on the Polyzoa, with the description of a new genus of Entoprocta	11
II. Description of a new Dictyonine Sponge from the Indian Ocean	21
III. Notes on Freshwater Sponges—	
No. VIII.—Preliminary notice of a collection from Western India, with descriptions of two new species	25
IV. Remarkable cases of variation—	
No. I.— <i>Squilla investigatoris</i>	29
V. Description of a new species of lizard of the genus <i>Salea</i> from Assam	37
VI. The Fauna of Brackish Ponds at Port Canning, Lower Bengal—	
Part VIII.—Preliminary description of an Oligochæte Worm of uncertain position	39
VII. Description of a new Cavernicolous Phasgonurid from Lower Siam	43
VIII. Descriptions of new species of marine and freshwater shells in the collection of the Indian Museum	45
IX. Notes on Oriental Syrphidæ, Part I	49
X. Description of a new variety of <i>Spongilla loricata</i>	97
XI. Notes on Oriental Diptera—	
No. V.—Description of a new species of Psychodid of the genus <i>Phlebotomus</i>	101
Miscellanea (pp. 105—112):—	
Remarks on <i>Simotes splendidus</i>	105
Corrections to No. IV of “Notes on Oriental Diptera”	107
A note on the Isopod genus <i>Tachæa</i>	107
The habits of the Amphipod, <i>Quadrivisio bengalensis</i>	107
New varieties of <i>Nanina berlangeri</i> and <i>Corbicula fluminalis</i>	108
Recent additions to the collection of Entozoa in the Indian Museum	108

	Page
A sub-fossil Polyzoan from Calcutta	... 109
Corrections as to the identity of Indian Phylactolemata	110
Notes on a peculiar form of <i>Englena</i>	... 111

PART II, JULY, 1908.

XII.	Gordiens du Musée Indien	... 113
XIII.	The Fauna of Brackish Ponds at Port Canning, Lower Bengal—	
	Part IX.—A new species of Amphipoda	... 119
XIV.	Description of a new species of <i>Danio</i> from Lower Burma	125
XV.	Rhynchota Malayana, Part I	... 127
XVI.	<i>Cimex rotundatus</i> , Signoret	... 153
XVII.	Notes on Freshwater Sponges—	
	No. IX.—Preliminary notice of a collection from Burma, with the description of a new species of <i>Tubella</i>	... 157
XVIII.	Fruits Bats of the genus <i>Pteropus</i> inhabiting the Andaman and Nicobar Archipelagos	... 159
XIX.	A new species of Sun-Bird obtained near Darjiling	... 167
XX.	Three Indian Phylactolemata	... 169
XXI.	On two new species of Eagle-Rays (<i>Myliobatidæ</i>)	... 175
XXII.	Description of a new species of the genus <i>Sesarma</i> , Say., from the Andaman Islands	... 181
XXIII.	Descriptions of new species of land, marine and fresh-water shells from the Andaman Islands	... 187

PART III, OCTOBER, 1908.

XXIV.	The Fauna of Brackish Ponds at Port Canning, Lower Bengal—	
	Part X. Decapod Crustacea, with an account of a small collection from brackish water near Calcutta and in the Dacca District, Eastern Bengal	... 211
XXV.	The Fauna of Brackish Ponds at Port Canning, Lower Bengal—	
	Part XI.—Two new Mysidæ from brackish water in the Ganges delta	... 233
XXVI.	On some Oriental Solifugæ, with descriptions of new forms	... 241
XXVII.	The difference between the Takin (<i>Budorcas</i>) from the Mishmi Hills and that from Tibet, with notes on variation displayed by the former	... 249
XXVIII.	On <i>Caridina nilotica</i> (Roux) and its varieties	... 255
XXIX.	Description of a new species of <i>Charaxes</i> from the Bhutan Frontier	... 285

	Page
XXX. First report on the collection of Culicidæ and Corethridæ in the Indian Museum, with descriptions of new genera and species	287
Miscellanea (pp. 303—307):—	
Measurements of the skeletons of two large Indian elephants in the Indian Museum	303
The young of <i>Elurus fulgens</i>	304
Notes on some Batrachia recently added to the collection of the Indian Museum	304
Breeding habits of <i>Tylotriton verrucosus</i>	305
The occurrence of <i>Rhinodon typicus</i> at the head of the Bay of Bengal	306
Note on <i>Ephydatia meyeri</i> (Carter)	306

PART IV, DECEMBER, 1908.

XXXI. Report on a collection of aquatic animals made in Tibet by Captain F. H. Stewart, I.M.S., during the year 1907—	
Part I.—Introduction, Cœlenterates, Nematomorpha, Rotifers and Gastrotricha, Entomostraca, Arachnids, Fish (Systematic) and Batrachia	309
XXXII. Notes on Aculeate Hymenoptera in the Indian Museum, Part I	347
XXXIII. Indian Psychodidæ	369
XXXIV. Description of a new species of mouse from the Madura District, Madras	385
XXXV. Some Cleridæ of the Indian Museum	387
XXXVI. The Fauna of Brackish Ponds at Port Canning, Lower Bengal—	
Part XII.—Description of a new species of Polychæte worm of the genus <i>Spio</i>	389
XXXVII. Description of a new species of Saw-Fish captured off the Burma Coast by the Trawler "Golden Crown"	391
XXXVIII. A new Sting-Ray of the genus <i>Trygon</i> from the Bay of Bengal	393
XXXIX. New Micro-lepidoptera from India and Burma	395
XL. Notes on some Chrysomelid Beetles in the collection of the Indian Museum	401
XLI. Six new Cicindelinae from the Oriental Region	409
XLII. Description of a new Slug from Tibet	413

PART V, JANUARY, 1909.

XLIII. Revision of the Oriental Leptidæ	417
XLIV. Revised and annotated catalogue of Oriental Bombyliidæ, with descriptions of new species	437

LIST OF PLATES.

	<i>Follow page</i>
Plate I (<i>Eurete annandalei</i>) ... ..	... 24
Plates II and III (<i>Squilla investigatoris</i>) ... ..	... 36
Plates IV and V (Eagle-Rays) ... ..	... 180
Plate VI (<i>Grandidierella bonnierii</i>) ... ..	... 124
Plates VII and VIII (Malayan Rhynchota) ... ..	... 152
Plate IX (<i>Spongilla loricata</i> var. <i>burmanica</i>) ... ..	... 100
Plate X (Skulls of Eagle-Rays) ... ..	... 180
Plate XI (<i>Sesarma thelxinoë</i>) ... ..	... 186
Plate XII (Leptidæ and Bombylidæ) ... ..	... 492
Plate XIII (<i>Cimex rotundatus</i> and <i>C.[♀]lectularius</i>) ... ..	... 156
Plates XIV to XVII (Andaman Shells) ... ..	... 210
Plates XVIII and XIX (Crustacea) ... ..	... 232
Plate XX (<i>Caridina nilotica</i>) ... ..	... 284
Plates XXI and XXII (Mysidæ) ... ..	... 240
Plate XXIII (Floor of nasal chamber of <i>Budorcas taxicolor</i>) ... ..	... 254
Plate XXIV (Indian Psychodidæ) ... ..	... 384
Plate XXV (Tibetan Fish) ... ..	... 346
Plate XXVI (Views of the Rham-Tso) ... ..	... 346
Plate XXVII (<i>Frygon microps</i>) ... ..	... 394

IX.—NOTES ON ORIENTAL SYRPHIDÆ
WITH DESCRIPTIONS OF
NEW SPECIES.

PART I.

By F. BRUNETTI.

(N.B.—*The plates herein referred to, are to be found in vol. i of the
Rec. Ind. Mus.,¹ following p. 380.*)

Since Van der Wulp's Catalogue of 1896, little work has been done on Oriental *Syrphidæ*. So far as I am aware, less than twenty new species have been described and no paper of importance published. The following notes, collected during a revision of the Indian Museum collection of *Syrphidæ*, may prove of interest. The recently recorded species are referred to and descriptions of thirty-nine new species added, the types of which exist either in the Museum collection or my own.

A number of species named by Bigot, but apparently not described, are in the Museum collection, and these I have described herein.

The tables of species are drawn up partially from descriptions, to serve as aids to their identification *pro tem.*, pending a more thorough revision of this family, and are therefore not intended to represent an ultimate view of their characters and affinities. Mr. Verrall's sequence of sub-families has been followed, but the genera are not arranged in any special order. Circumstances permitting, I hope to deal later on with some of the genera not touched upon in this paper. In the explanation of the plates (given in previous volume) belonging to this paper, the terms "anterior" and "posterior" *leg*, would be more correctly replaced by "fore" and "hind" leg respectively; throughout the text the terms "anterior legs" and "posterior legs" are used in their correct sense, to designate the two front pairs or two hind pairs respectively.

¹ In the explanation of pl. xi on p. 379, opposite "fig. 9," Macquart is given as the author of the species *Volucella nubeculosa*. This is an error; it should be Bigot.

BACCHA, F.

Twenty-one species of *Baccha* have been recorded from the East. Mr. Austen's paper on some new species of this genus in the British Museum (Proc. Zool. Soc. Lond., 1893, p. 132) contains descriptions of seven from the Orient, excellently illustrated, and to these I add three more which appear to be new.

B. robusta, mihi, sp. nov. (Pl. xi, figs. 3, 4.)

♂ ♀. Lower Burma (Mergui). Long. 10–12 mm.

♂. Front above antennæ triangular, nearly wholly occupied by a shining black triangle; the remainder grey; vertex shining black; below antennæ dull black, seen from below, but brilliant, shining, silvery white seen from above. Eyes subcontiguous at nearest point of approach, rather widely separated at vertex. Antennæ bright red, tip of 3rd joint brown above.

Thorax: dorsum cinereous, with three darker stripes, of which only the centre one attains the fore border. Humeral calli testaceous; sides of thorax grey. Scutellum dull testaceous.

Abdomen only slightly contracted at base; 2nd and 3rd segments pale tawny, posterior borders widely blackish, 4th segment all black, with an arched band near base, of pale shining grey, interrupted in the middle; extreme posterior border of segment brown.

Legs black; four anterior femora, basal half of hind femora, and basal half of all the tibiæ, yellowish tawny; tips of anterior femora sometimes darkened above.

Wings clear; stigma yellow, halteres yellowish.

♀. Front rather broad, grey, the callosity above antennæ shining black, oblong, nearly reaching from eye to eye; upper part of frons shining black, reaching from vertex nearly to the callosity. Abdomen black; 2nd segment with a vertically elongated pale spot on each side, nearly meeting in the centre on the fore-border; 3rd and 4th with a transverse hoary yellowish grey oval spot on each side, nearly on the fore border; 4th segment with brown posterior border; last segment brown.

Described from six ♂♂ and four ♀♀ in the Indian Museum collection from Mergui.

B. nigricosta, mihi, sp. nov. (Pl. xi, fig. 5.)

♂. Lower Himalayas (Bhim Tal, 4,500 feet). Long. 10 mm.

Front above and below antennæ grey dusted. Eyes quite contiguous nearly to the vertex, which is very small and shining black. Below antennæ a wide shining black stripe; frontal triangle above antennæ shining black seen from the front. Antennæ reddish brown, the two basal joints black. Proboscis black, tip red.

Thorax shining black, minutely pubescent, unmarked, sides blackish grey; scutellum rather large, shining black, with a few pale hairs.

Abdomen: 1st segment broadly semi-circular, of exactly the same shape and size as scutellum, 2nd very pedicellate, 3rd narrow at base, thence sharply widening; general colour of abdomen black, moderately shining, with rather long blackish grey hairs at sides of 2nd and 3rd segments, and faint traces of a pair of spots at the middle of the sides of 3rd segment, and towards the base (at the sides) of 4th segment.

Legs pale tawny, hind femora and tibiæ with a dark band towards the tip, hind tarsi blackish.

Wings blackish, nearly clear at base. Stigma black, much elongated and a blackish cloud immediately below it, and a small blackish spot at extreme tip of costa.

Described from one ♂ taken by Dr. Annandale (19-22-ix-06) at Bhim Tal¹, Kumaon, now in the Indian Museum collection.

***B. tinctipennis*, mihi, sp. nov.** (Pl. xi, fig. 6.)

♀. Lower Himalayas (Bhim Tal, 4,500 feet). Long. 8-9 mm.

Head: front broad, narrowing towards vertex, grey dusted, nearly wholly occupied above antennæ by a broad black band with ill-defined edges; filling the whole vertex, and resolving itself into a shining black callosity above antennæ. Under side of face grey dusted, with a black central line, slightly prominent; mouth-border and proboscis tawny; antennæ tawny.

Thorax shining black with minute grey pubescence; humeri and a vertical short stripe just before base of wing, pale; scutellum shining black, immediately above the pronotum, giving the appearance of two scutelli, one above the other.

Abdomen brown, 1st segment wholly pale yellow; extreme tip of 2nd, base of 3rd and 4th, and two very small spots on the sides at the base of 5th, pale yellow-brown.

Legs pale yellow, a brown ring at tip of hind femora; hind tibiæ brown, except base and tips; hind tarsi darker.

Wings clear, iridescent, a dark brown oblong spot forming a stigma, and a dark spot at tip of subcostal cell, also at tip of wing, the discal cross-vein, and a streak from just below the mediasutinal vein down to and enclosing the lower cross-vein blackish.

Described from one ♀ taken by Dr. Annandale (22-27-ix-06) at Bhim Tal, Kumaon, now in the Indian Museum collection. Some specimens taken by me at Kobe in Japan, 15-v-06, which I consider to be the same species, differ only in the 1st abdominal segment being all black instead of yellow.

I also took at Darjiling and Lucknow respectively a specimen each of what may be two additional new species.

Of *B. dispar*, Wlk., a ♀ named by Bigot is in the Indian Museum collection—this being the only other Oriental species I have seen. Van der Wulp added in 1898 (Termés. Füzet., xxi, 423) two species from Papua new to his list; these were *rubella* and *mundula*.

PARAGUS, Latr.**P. luteus**, mihi, sp. nov. (Pl. xi, fig. 1.)

♀. Persia (Bushire). Long. 5 mm.

Head pale yellowish white, vertex black, with a thin stripe (slightly enlarged in the middle) leading to a large black roughly-square shining spot above antennæ. Antennæ brown, base paler. Frons gradually narrowed towards vertex.

Thorax wholly shining ænous, a whitish hairy stripe, commencing in front of the insertion of the wings, and reaching downwards; scutellum yellow, base black.

Abdomen yellow, basal segment black, and a thin black line almost (but not absolutely) on the border of 2nd segment, a similar line just below centre of 3rd segment, and a black mark on each side at the edge of the 4th segment.

Legs all yellow, a brown ring towards tip of hind femora.

Wings absolutely clear, no stigma.

Described from the above type in the Indian Museum collection.

P. serratus, F.

A common species variable both in size, and coloration of the abdomen. The species is the only one with serrated scutellum, and the specimens in the Indian Museum collection, added to those of my own collecting, show a distribution from Calcutta to Nepal and reaching as far west as Karachi and as far south as Bangalore.

PIPIZELLA, Rond.**P. indica**, mihi, sp. nov.

♂ ♀. Lower Himalayas (Simla and Nepal). Long. 5 mm.

Head yellow; vertex, eyes, mouth and proboscis black. A black central line on the frons in the ♀, which slightly narrows on the vertex; just below the antennæ it is hardly one-third the width of the head.

Thorax smooth, shining black, with a little gold-brown hair on the posterior half, and a little white hair on the lower anterior portion of the sides.

Abdomen shining black, minutely pubescent, especially on last segment, and distinctly so along the sides of all the segments.

Legs tawny yellow, basal half of the four anterior, and basal three-fourths of the hind femora black; tibiæ yellowish white towards the base.

Wings clear, stigma very pale yellow: halteres yellow.

Described from a ♂ and two ♀♀ in the Indian Museum collection from the Simla district and from Katmandu in Nepal.

The genus has not previously been recorded from the East. This species does not agree with any European one known to me,

but there are two of which I have not been able to obtain descriptions, *viz.*, *P. curvinervis*, Str., and *P. sculpeonata*, Rond.

P. rufocincta, mihi, sp. nov.

♂. Burma (type) and India. Long. 6 mm.

Face yellowish white with a narrow black line below antennæ, which are blackish brown; mouth and proboscis black; vertex shining black, narrowing rather suddenly to the eyes, which are contiguous for only a very short distance.

Thorax black, shining, with a slight ænous tinge; a few white hairs on the sides, in front of insertion of wings; dorsum with short greyish hair; scutellum unicolorous with grey hair.

Abdomen shining black, with very short pale pubescence, the whole 3rd segment reddish testaceous, and, in the type-specimen, extreme tip of abdomen reddish.

Legs yellowish white; coxæ, a narrow ring at base of four anterior femora, and the basal two-thirds of hind femora black.

Wings quite clear.

Described from two ♂♂ taken by me at Rangoon, 23-xii-04 to 3-i-05 (type), and from one ♂ taken by me at Umballa (N.-W. India; altitude 900 feet), 8-13-v-05. In my collection. Most species of *Pipizella* have unmarked abdomens, but this species is certainly of this genus, and apparently widely distributed.

MELANOSTOMA, Sch.

Dr. Annandale took specimens of *M. ambiguum*, Flu., and *M. dubium*, Zett., at Matiana (8,000 feet; Simla district), both species being European ones and unrecorded previously from the East.

PLATYCHIRUS, St. Farg.

Four males of *P. albimanus*, F., are in the Indian Museum collection from the Simla hills (8,000 feet); taken by Dr. Annandale between 27-iv-07 and 3-v-07. These differ in no way from European specimens.

SPHÆROPHORIA, St. Farg.

The Oriental species in this genus will require careful revision and comparison with European forms, allied to which the Indian Museum possesses several species; I have a fair amount of material of my own collecting, showing considerable variation of forms, from India, the Himalayas and South China.

Herr Kertész, in the Termés. Füzet. (1899), xxii, 177 and 178, describes two species from Papua new to Van der Wulp's list; *distinctus* and *novæ-guinææ*.

DIDEOIDES, mihi, gen. nov.

Allied to *Didea*, Macq., from which it is separated by two characters, *viz.*, (1) distinctly and closely pubescent eyes, and (2) by the 3rd longitudinal vein (cubital, Verrall) being nearly straight, as in *Syrphus*, and not dipped, *Eristalis*-like, into the cell below. In all other respects it resembles *Didea*, Macq., having a bare arista and the large flat ovate abdomen in both sexes much wider than the thorax, and bearing the distinct, ridged margin as in that genus.

D. ovata, mihi, sp. nov.

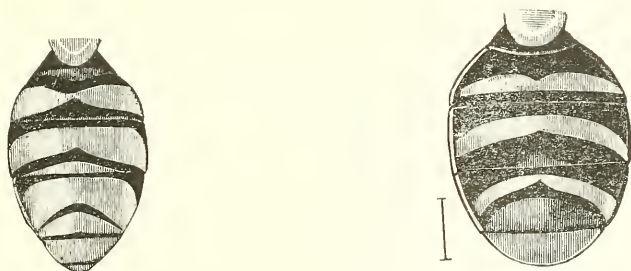
♂ ♀. Sikkim. Long. 12-16 mm.

Head, ♂: face moderately produced above the mouth and just below the antennæ; in depth descending only a little below the eyes. Face and frons bright yellow, with moderately thick yellow hair, which above the antennæ is replaced by black hairs. Eyes touching for half the distance from the top of the frons to the triangular elongated vertex, which is black with black hairs and prominent reddish ocelli. Eyes with close grey pubescence. Antennæ reddish brown, situated on a tawny (darker on upper side) protuberance; 3rd joint of antennæ darker on upper side, arista orange, bare. Mouth and proboscis black, latter with some grey hair at tip. Back of head greenish grey; posterior orbit of eyes with a thick fringe of short bright yellow hair, of equal length all round.

In the ♀ the frons bears a broad greenish black stripe from the vertex down to and enclosing the upper part of the antennal protuberance, the black hairs being thicker than in the ♂. The antennæ are nearly all black except the under side of the first two joints, and the under side of the 3rd at the base; the arista is more brownish than in the ♂, the pubescence of the eyes almost yellowish, especially on the lower part; but the rest of the characters are as in the other sex.

Thorax: dorsum dull greenish ænous with three central, narrow, well-separated, not very distinct brownish lines reaching from the anterior nearly to the posterior margin. Sides concolorous, rather darker behind; with a broad yellow vertical stripe just in front of the wing, descending to and terminating on, the meta-pleuræ, this stripe bearing a rather thick fringe of bright yellow hair. In the ♀ all the pleuræ are dull greenish yellow, and the hair is rather more abundant. The dorsum is covered with soft short yellow hair, which around the wing-insertion is bright orange. Scutellum rather dull orange-yellow, covered with soft black hairs; an orange elongated callosity on each side in front with bright orange-brown hair, forming posterior corners to the dorsal surface of the thorax. Metanotum black.

Abdomen black, with an unbroken, deep brown raised edge around the entire dorsal surface, closely beset with very short bristles: 1st segment greenish black, sub-metallic, very short; 2nd segment aënous at base, with two orange elongated spots, placed transversely, forming a band, interrupted in the centre; this band being enlarged at the ends (foreshortened in front) in the ♂, and contracted at the ends and barely attaining the ridged edges of the segment in the ♀. A bunch of yellow hairs on the shoulders of this segment in both sexes.



Dideooides ovata, mihi, sp. nov., ♂.

Dideooides ovata, mihi, sp. nov., ♀.

The 3rd segment bears a transverse orange band across the centre, the anterior edge being slightly convex forward, the posterior edge forming two straight lines narrowing the band in its centre and leaving the remainder of the segment as a flattened black triangle, the extreme posterior edge being sub-metallic dark brown with a fringe of very short black hairs. The sides of this orange cross-band are parallel with the sides of the abdomen, to the ridges of which they extend.

On the 4th segment is a similar, but rather narrower and slightly more arched band, with a second orange band (as a flattened triangle, sub-metallic posteriorly) on the posterior part of the segment, the extreme edge of which is sub-metallic brassy, with a fringe of longish yellowish hair. The ♀ shows no trace of the sub-metallic tinge. The 5th segment is orange, with black at the base in some specimens of ♂♂; yellow haired. The whole abdomen bears yellow hairs on the yellowish parts (longest towards the tip), and shorter, black hairs on the black parts. Genitals: in the ♂ rather prominent, orange, with some short black hairs; in the ♀ small, elongated, dark coloured.

Belly in the ♂ black with narrow yellowish bands at the juncture of the segments, widest on the posterior border of the 2nd. In the ♀ black, with two semi-circular large yellow spots at the base of the 2nd, 3rd and 4th segments; the posterior border of the 1st, widely, of the 3rd, narrowly, and of the 2nd, very narrowly (with enlargements at the corners) yellow. Belly nearly bare, a little short yellow sparse hair.

Legs: coxæ and base of femora black with some short black hair; remainder of legs entirely orange-yellow, the upper sides

of the tarsi being a little browner. The anterior femora bear a little pale hair on their under side, but the black hairs on the hind pair extend almost to the tip below, the upper apical part being bare. All the tibiæ bear very short golden yellow pubescence the hind pair having a row of short black bristles on the outer side.

Wings pale yellowish grey, slightly tawny on the basal and anterior parts. Halteres orange. Tegulæ bright orange-yellow with concolorous fringe.

Described from four ♂♂ and two ♀♀ (one, a melanic ♀ described below) all from Sikkim and in the Indian Museum collection in good condition.

One specimen (a melanic ♀) has the antennæ almost entirely black (another characteristic of *Didea*), the abdomen black with a dark blue sub-metallic reflection, beset with short black hairs, the only marks being a transverse band across the centre of the 2nd segment, composed of two narrow straight oblong spots, extending to the distinct ridged edge which runs round the entire abdomen; some yellow hair on the 2nd segment. Belly black, but with the two pale yellow spots at the base of the 2nd, 3rd and 4th segment exactly resembling those in the typical form; posterior edge of segments narrowly yellow, showing a tendency to spread at the sides on the 2nd segment.

N.B.—I had some hesitation before deciding to establish a new genus for the reception of this well-marked species, but probably if I had not done so, some other author would. It appears to be intermediate between *Didea* and *Syrphus*, having the broad ovate and ridged abdomen of the former genus, but differing in the straight 3rd longitudinal vein and pubescent eyes.

The pubescence of the eyes, and the dip of the 3rd longitudinal vein are neither of them conclusive characters, and as *Syrphus* contains species some with bare and others with hairy eyes, and also species with straight and dipped cubital veins, I think *Didea* might well do the same, and I would have kept the species in that genus, except for the reason given above.

ERIOZONA.

E. ruficauda, mihi, sp. nov. (Pl. xi, fig. 2.)

♀. Sikkim. Long. 13 mm.

Face prominent, bright yellow, shining, with minute yellow pubescence, smooth; cheeks and lower part of face black with very inconspicuous black hairs. Front above antennæ to vertex blackish with black hairs, with a pale irregularly-shaped yellow spot immediately over the antennæ, which are black. Eyes pubescent, wide apart, frontal space gradually widening from vertex to cheeks.

Thorax quadrate, blackish above, sides dark brown with brownish yellow hairs, hair on dorsum less thick; scutellum brown with yellowish hairs.

Abdomen with thick black hair on basal half, 4th and 5th segments with thick orange-red hair, and with a small dark triangle in the middle of the posterior border of each; the 2nd segment has traces of a lighter basal band, somewhat resembling that of *Leucozona tucorum*. Belly pubescent, basal half black, apical half red.

Legs tawny, basal half of all femora blackish.

Wings pale grey, a broad brown band in the middle, narrowing posteriorly from foreborder up to just across the base of the discal cell; base of wing brown.

Described from three ♀ from Sikkim in the Indian Museum collection.

N.B.—This genus has only recently been known from the East. In 1901 Herr Kertész described a species, *analis*, which also came from Sikkim (Termés. Füzet., xxiv, 414).

SYRPHUS, F.

This genus I dare not touch upon at present in view of the large number of supposed species described from Oriental regions, and their close affinities.

I have seen several species from the hills that are common in Europe, the specimens showing generally little or no difference; amongst them are *baltcatus*, DeGeer; *torvus*, Os. Sac.; *pyrastri*, L.; *luniger*, Mg.; and *umbellatarum*, F.; all taken by Dr. Annandale in the Simla district, and all, except *baltcatus*, are new to the Oriental fauna.

RHINGIA, Scop.

Until quite recently (1904) this genus appears to have been unrecorded from the East, but in that year Meijere described a new species, *cincta*, from Java, whilst I have taken a new species occurring in Mussoorie and Darjiling, and also a second one, represented by a single ♂ from Darjiling; moreover the Indian Museum collection supplies a third undescribed species from Darjiling and Simla. Meijere's species, therefore, is still the only one from a tropical locality. The two common European species, *rostrata*, L., and *campes-tris*, Mg., are both likely to occur in the north of India. The former would be easily recognised from all the other species by its ash-blue-grey thorax (the others being cinereous grey or æneous); and the latter can be distinguished from *cincta* and *binotata* by its tawny instead of mainly blackish abdomen.

Table of Oriental species of Rhingia.

Scutellum distinctly bright ferruginous tawny.

Abdomen with three or four pale bands.

Long. 9 mm. *cincta*, Meij.

Abdomen black, 2nd segment with two

lateral spots

.. Long. 9 mm. *binotata*, mihi, sp. nov.

Scutellum cinereous grey.

Posterior border of abdominal segments
widely black . . . Long. 7-9 mm. *laticincta*, mihi, sp. nov.
Posterior border of abdominal segments
very narrowly black. Long. 8 mm. *angusticincta*, mihi, sp.
nov.

R. laticincta, mihi, sp. nov. (Pl. xi, fig. 7.)

♂ ♀. Mussoorie, Darjiling, 7,000 to 12,000 feet. Long. 7 to 9 mm.
(without snout).

Head: snout tawny; lower part of head shining grey; antennæ tawny; eyes quite contiguous as far as the vertex; frons in ♀ of about the usual width in the genus, cinereous grey.

Thorax cinereous grey, with ænous reflections and soft black-and-grey hair; four blackish longitudinal stripes, not always very distinct, the two outer ones interrupted at the suture, the two inner ones close together on the front, diverging widely posteriorly, where they become diffused and meet the ends of the outer pair just in front of the scutellum. Scutellum unicolorous, similarly haired, a row of stiff black hairs on posterior edge, from which a fringe of soft pale yellow hair hangs down.

Abdomen bright tawny, with soft yellow hair, thickest at the base on the sides; 1st segment very narrowly black edged, 2nd, 3rd and 4th with a broad black band on posterior border, interrupted in the centre in front, but continuous on the extreme edge of segment; a vertical long black spot on the dorsum of each segment forms a sort of longitudinal dorsal stripe. Belly tawny brown.

Legs all pale tawny, all the femora black at the base, and an indistinct blackish wide ring around the centre of the hind tibiæ; feet darker. In the ♀ the femora are nearly all pale and the ring on the hind tibiæ is less distinct.

Wings pale grey, stigma yellowish.

Described from a ♂ (Darjiling) and ♀ (Mussoorie) in the Indian Museum collection (types), and a ♂ and ♀ in my own collection.

Var. **fasciata**, ♂ ♀. (Pl. xi, fig. 8.)

What I take to be a variety of *laticincta* differs by the abdominal bands being reduced to semi-circular spots placed on the posterior borders of the segments and joined by a very narrow line on the extreme edge. The legs in the ♂ are paler, and show only very slight traces of black at the base of the femora; in the ♀ they are wholly pale, almost livid, with only the faintest indication of a dark band on the hind tibiæ. Another point of difference is that the pubescence on the thorax is much shorter, and almost absent on the posterior part, and the scutellum is practically bare, except for some long hairs towards the tip.

I have four specimens (♂ ♂ ♀ ♀) taken by myself at Darjiling (7,000 feet), 10-15-X-05, and am not at all sure that it is not specifically distinct, for which reason I have given it a name. In my collection.

R. angusticincta, mihi, sp. nov.

♂ ♀. Darjiling and Simla, 8,000 to 12,000 feet. Long. 8 mm. (without snout).

This species resembles *laticincta*; the points of difference being as follows: the snout is distinctly shorter; the abdominal transverse bands are extremely narrow, and not interrupted, this being the main, but a consistent, difference.

Described from a ♂ and ♀ taken by Dr. Annandale at Simla and Theog (Simla district) respectively. The Indian Museum possesses these types, also what is apparently an additional ♂ from Darjiling (9,000 to 12,000 feet), 2-x-06, but in this specimen the thorax is darker, and all the tibiæ have a distinct broad black ring.

R. binotata, mihi, sp. nov.

♂. Darjiling. Long. 9 mm.

Head: frons and upper part of snout deep black; lower part of both face and snout tawny yellow. Antennæ brownish red. Vertex very small, with a few black hairs; short yellow hairs behind the head above, and rather close whitish hair on lower part; proboscis black.

Thorax yellowish grey, with four rather indistinct dorsal, slightly darker stripes; the two outer ones wide, and interrupted at the suture; the two inner ones very narrow and close together. The dorsum with rather thick, short bright yellow hair; sides of thorax cinereous grey, darker posteriorly, some yellow hair just below wings; scutellum bright tawny, dorsum bare, a fringe of short yellow hairs at base, and a fringe dependent from posterior margin, on which margin is set another fringe of long yellow hairs, projected posteriorly, by which character this species differs from all the others.

Abdomen æneous black, covered with thick, short, bright yellow hair; the 1st segment appears pale, and on the 2nd on each side, towards the base, is a lateral, oval, pale yellow spot.

Legs orange-yellow, basal half of all femora black; the femora with soft yellow hair, the rest of the legs practically bare.

Wings yellowish grey, slightly darker in front; stigma pale yellowish brown; halteres yellowish brown.

Described from one ♂ in perfect condition, captured by me at Darjiling, 13-x-05. In my collection.

The three species, herein described as new, are quite distinct and good species, and quite different from the two European species, *rostrata* and *campestris*, and from Herr Meijere's species *cincta* from Java.

VOLUCELLA, Geoff.

To this handsome genus I introduce four new species, whilst Meijere has added one from Darjiling to the five in Van der Wulp's

catalogue. The following table is made up partly from descriptions, as, beyond my own species, the only one before me is a headless specimen of what I have identified as *nubeculosa*, Big. (see pl. xi, figs. 9, 10).

Table of Oriental species of Volucella.

- Quite small species . . . Long. 7 mm. *opalina*, Wied.
 Larger species. Long. 13 to 16 mm.
 Non-pubescent (not *Bombus*-like) species.
 Thorax and abdomen only slightly and shortly hairy.
 Abdomen yellow, with two spots and tip black . . . Long. 13 mm. *trifasciata*, Wied.
 Abdomen black; marked or not.
 Thorax bright tawny.
 Abdomen with two narrow pale cross-bands; wing suffused in centre and at tip . . . Long. 16 mm. *nubeculosa*, Big.
 Abdomen entirely black; wings pale brown, unmarked. . . Long. 16 mm. *discolor*, mihi, sp. nov.
 Thorax black.
 Abdomen with only one transverse narrow basal pale spot. Long. 16 mm. *basalis*, mihi, sp. nov.
 Abdomen with more than a single spot.
 Abdomen marks in the form of spots.
 Long. 13 mm. *pelesterii*, Macq.
 Abdominal marks in the form of three yellow bands. Long. 14 mm. *decorata*, Wlk.
 Pubescent (*Bombus*-like) species. Thorax and abdomen with long thick hair.
 Tip of abdomen black haired.
 Long. 17 mm. *ursina*, Meij.
 Tip of abdomen yellow or red.
 Belly uniformly black.
 Long. 14-15 mm. *ruficauda*, mihi, sp. nov.
 Belly with 2nd and 3rd segments livid.
 Long. 15-16 mm. *lividiventris*, mihi, sp. nov.
 The above species all appear quite well separated.

V. basalis, mihi, sp. nov. (Pl. xi, figs. 11, 12.)

♀. Sikkim district (Mungphu). Long. 16 mm.

Head entirely bright orange, frons narrows towards vertex, which is black; mouth-border brown; proboscis and extreme lower part of cheeks black; eyes bare. The face is considerably produced into a large snout, which is cut away just below the antennæ; antennæ small, orange.

Thorax moderately shining black, bare, sides black; scutellum very dark brown, almost bare, except for a row of strong bristles near posterior edge.

Abdomen black, a little shining, almost bare; the basal half of the 2nd segment occupied by a large transverse livid yellow elongated spot, which is contracted in the middle behind and does not reach the sides of the segment except at the extreme base, where it joins a large livid spot on the same segment of the belly.

Legs all black and bare.

Wings grey, yellow at base, a yellowish brown suffusion from the centre of the costa reaching half way to the posterior border, and a similar suffusion at the wing-tip extending inwards just beyond the subapical and postical cross-veins. Halteres yellow.

Described from one ♀ in the Indian Museum collection.

This species bears a considerable general resemblance to the *V. pellucens*, L., of Europe, but in that species the *whole* of the 2nd segment is livid yellow, the colour passing over the side of the segment in its full width, whereas in *basalis* it is narrowed to the extreme base of the segment; also in *pellucens* the sides of the thorax along their upper edge are always brownish yellow, of which there is no trace in my species; moreover, the scutellum in *pellucens* is bright tawny, whereas in *basalis* it is nearly black.

V. ruficauda, mihi, sp. nov. (Pl. xi, fig. 13.)

♂ ♀. Sikkim. Long. 14-15 mm.

Head black, epistome well produced, shining black; eyes densely hairy in ♂, distinctly hairy in ♀, but to a much less extent; vertex crowned by a tuft of long bright yellow hairs; eyes in ♀ separated by narrow shining black frons. Antennæ ferruginous; first two joints nearly black.

Thorax black with black hair, dorsum covered with dense long bright ferruginous red hair which also covers the bright ferruginous red scutellum.

Abdomen black with rather thick black hair; posterior border of 3rd segment and the whole of the 4th and 5th segments covered with yellowish red hair. Belly entirely black, with black hair.

Legs slender, wholly black with short black hair.

Wings pale yellowish grey, a rather large brown irregular spot in the centre of the fore border, and reaching half-way across the

wing; a brown suffusion along the recurrent portions of the sub-apical and postical (4th and 5th longitudinal) veins and extending to the costa about the termination of the marginal cell. Between this suffusion and the outer margin the wing is darker grey, base of wing slightly yellowish. Halteres black.

Described from eight ♂♂ and eight ♀♀ in the Indian Museum collection from Sikkim.

V. lividiventris, mihi, sp. nov.

♂ ♀. Sikkim. Long. 15-16 mm.

Very near *ruficauda*, but distinct. The hair on the thoracic dorsum is distinctly grey, the tuft of hair on the vertex is greyish white, while the belly has the 2nd and 3rd segments livid grey with unicolorous hair. A bunch of grey hair is found on each of the two basal abdominal segments at the sides, and the sides of the 2nd segment in front have a perceptible subdued livid reflection when seen from behind.

Described from three ♂♂ and a ♀ from Sikkim in the Indian Museum collection.

V. discolor, mihi, sp. nov.

(*Id. id.*, Bigot, *nom. nud.*)

♂. Assam. Long. 10 mm.

Head: eyes not quite contiguous, black, facets small, uniform. Vertex, frons, and entire face bright orange, bare. Face immediately below antennæ flush with the eyes, but from thence projecting well forward, forming a large squarish prominence, not reaching downwards much below the eye-level. Antennæ on a barely perceptible prominence, orange, with orange plumose arista. Back of head and under side orange, a little orange-yellow hair below.

Thorax wholly uniformly bright orange, with close short golden yellow hair on dorsum, changing to longer orange hair on the edge, on the posterior part, and on the pleuræ. Scutellum pinkish orange, a little yellow hair round the sides.

Abdomen: 1st segment (hardly visible) dark coloured, remainder wholly shining black, with microscopic black pubescence. On each extreme anterior corner is a small bunch of rather short yellow hairs. Belly black, unmarked.

Legs wholly bright orange, with short golden yellow hair, which is a little longer on the coxæ. The tarsi very narrowly black between the joints.

Wings uniformly pale brown, outer half towards the anterior margin a little darker. Halteres bright orange.

Described from one perfect ♂ from Sibsagar in the Indian Museum collection.

GRAPTOMYZA, Wied.

Van der Wulp's reference in his catalogue is incorrect, as the genus was described ten years previously in Wiedemann's *Nova Dipteriorum* (1820), and redescribed in his *Auss. Zweifl.*, ii (1830).

Since that catalogue, no new Oriental species have been described. Osten Sacken treats of the genus in the *Berl. Ent. Zeits.*, xxvi, 117, where he gives a table of species.

G. longirostris, Wied.

Var. nov. *12-notata*, mihi.

(*Graptomyza 12-notata*, Bigot, *nom. nud.*)

A specimen in the Indian Museum collection seems to be but a variety of *longirostris*, Wied., although presumably the type of Bigot's species *12-notata* (*nom. nud.*). It, however, agrees quite well with both Wiedemann's description and his three figures, except that the longitudinal stripes are interrupted at the juncture of the segments, thus being divided into twelve separate elongated spots placed in four longitudinal rows, the "stripes"



Graptomyza longirostris, Wied.



Graptomyza longirostris, Wied, var. *12-notata*, Big., *nom. nud.*

being simply broader. On the strength of this close resemblance I can only admit it provisionally as a variety. A second specimen in the collection (from Tenasserim) agrees more closely still with Wiedemann's figure of the abdomen, the black longitudinal stripes being narrower, and continuous.

Bigot's second species "*6-notata*" must be near *ventralis*, Wied.; according to Osten Sacken's table, from which it would be separated by the six well-defined sub-triangular spots on the abdomen, which is bordered on each side by a rather wide dark brown line.

G. sexnotata, mihi, sp. nov.

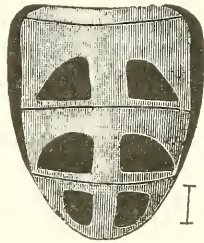
(*Id. id.*, Bigot, *nom. nud.*)

♀. Sikkim. Long. $7\frac{1}{2}$ mm.

Head: frons, vertex, face, entirely yellow, eyes blackish brown, with very short greyish pubescence; frontal space less than one-third the width of the head. Antennæ, entirely uniformly dark yellow, with plumose orange arista. A dark brown square spot on frons above the antennæ is continued as a stripe below to the

end of the rostrum; a broad brown stripe on each side of the rostrum. Proboscis brown; palpi, pale yellow. Back of head and below yellow, centre part apparently black.

Thorax orange-yellow, the dorsum occupied by a shining black quadrate spot, which leaves only a yellow anterior margin, wider lateral margins and a squarish spot in front of the scutellum. A rather wide dark brown vertical stripe extends from between the fore and middle coxæ, to the lateral yellow edge of the dorsum, thence curving backwards to just above and behind the root of the wing; a shorter similar stripe is immediately below the wing-insertion, with a roundish brown spot behind it. Dorsum nearly bare, a few yellow hairs on pleuræ; scutellum yellow, dorsum dark brown, indented; some yellow hairs round the margin.



Graptomyza 6-notata, mihi, sp. nov., ♀.

Abdomen orange yellow, with a rather thick moderately broad lateral dark brown margin, narrowing posteriorly and disappearing at tip. On the hind border of the 2nd segment two moderately large, dark brown triangular spots; reproduced on the 3rd segment, but a little larger, and with rounded angles; and again on the 4th segment, more triangular and of the same size as those on the 2nd segment, but placed quite clear of the hind border. Dorsum of abdomen practically bare, but with some short yellow hairs towards the tip.

Legs yellow, fore coxæ with short pale yellow hairs; femora with a brown streak below; tibiæ pale yellowish brown, the hind leg (one leg missing) showing the brown almost as a wide band; tarsi, yellowish, brownish on upper side. Legs with short yellow hair, a little thicker on the tibiæ.

Wings clear yellowish grey, tip of subcostal cell tawny brown, forming a not very well-defined stigma at the tip of the mediastinal vein. Halteres orange-yellow.

Described from one ♀ in fair condition in the Indian Museum collection from Sikkim.

HELOPHILUS, Meig.

In dealing with this genus, the short descriptions of the species, many of which are very closely allied, have materially hindered satisfactory progress. The following table is made up mainly from descriptions. My material in the genus has been three species in the Indian Museum collection determined by myself,—*bengalensis*

W., *quadrivittatus*, W., and *insignis*, Dol.; plates of *curvigaster*, Mcq., *notabilis*, Mcq., *insignis*, Dol., and *pilipes*, Dol.; two new species in the Indian Museum collection which I have named *aënus* and *tuberculatus*, both very distinct from all others, and descriptions only of the remainder. I think the table may assist as an introduction to the better study of this genus, but I find great difficulty in understanding the true affinities of Walker's species.

Table of Oriental species of Helophilus.

- A Face perpendicular, not produced as usual, nor excavated below antennæ, nor gibbous above mouth. Hind tibiæ incrassated .. Long. 11 mm. *celebes*, O.S.
- AA Face distinctly and normally produced (exceptionally so in *notabilis*, Mcq.). Hind tibiæ not incrassated.
- B Thorax with transverse bands of pubescence .. Long. 8 mm. *curvigaster*, Macq.
- BB Thorax with ground colour longitudinal black and yellow stripes.
- C Body aënous Long. 10 mm. *aënus*, mihi, sp. nov.
- CC Body yellow and black, not aënous.
- D Abdomen very elongated.
- E Middle legs not denticulated. Long. 22 mm. *caudatus*, Meij.
- EE Middle legs strongly denticulated. Long. 17-25 mm. *tuberculatus*, mihi, sp. nov.
- DD Abdomen of the ordinary oval or ovate shape.
- F Anterior femora and tibiæ with dense yellow hair .. Long. 12 mm. *pilipes*, Dol.
- FF Anterior femora and tibiæ moderately and normally haired.
- G Length 14 to 16 mm.
- H Abdomen with two luteous bands.
- J Shining blue above antennæ. Long. 16 mm. *dotschalli*, mihi. (Change of name from *insignis*, Dol.)
- JJ Blackish brown above antennæ. Long. 15 mm. *vestitus*, W.
- HH Abdomen with three luteous bands.
- I Side stripe on thorax yellow. Long. 16 mm. *insignis*, Wlk.
- LL No side stripe (presumably). Long. 14 mm. *notabilis*, Macq.
- OO Length 9 to 11 mm. (in *mesoleucus* 13).
- M Sides of thorax with broad oblique yellow stripe.
- N Legs mainly luteous, "shaded with black," wings green .. Long. 10 mm. *conclusus*, Wlk.
- NN Legs mainly black, base of tibiæ pale, wings not green Long. 10-11 mm. *albiceps*, Wulp.

- MM Sides of thorax cinereous or grey; without yellow stripe.
 O Length 13 mm. . . Long. 13 mm. *mesolucius*, Wlk.
 OO Length 9 to 10 mm.
 P Posterior femora incrassated. Long. 10 mm. *consors*, Wlk.
 PP Posterior femora only ordinarily thickened.
 Q 4th abdominal segment with an inverted V-mark Long. 9-10 mm. *bengalensis*, Wied.
 QQ 4th abdominal segment without such mark Long. 9-10 mm. *quadrivittatus*, Wied

H. aënus, *nili*, sp. nov. (Pl. xii, fig. 15.)

♀. Nepal (Soondrijal). Long. 10 mm.

Head black, face moderately produced, very shining and bare above antennæ, but changing to dull velvet black on vertex with black hair, frontal space narrowing above, ocelli very close together. Face below antennæ, dull black, with, seen from above, silvery grey hair; a central shining bare black line. Antennæ dark brown. Back of eyes with a thin silvery white line, with unicolorous hair.

Thoracic dorsum, ash-blue-grey, with two transverse black bands; one across the centre, and one on the posterior border. Anterior part of thorax cinereous, with two faint, narrow darker bands in centre, which disappear on reaching the 1st transverse black band; whole dorsum covered with short bright yellow hair. Sides of thorax light cinereous grey, with some yellow hair. Scutellum blue ash-grey, basal half black; entirely covered with bright yellow hair.

Abdomen aënous, 1st segment paler; 2nd with a rather broad dead black velvet line on base, joined by a stem to a similar band on the posterior border, which, however, is curved upward a little in the middle, clear of the posterior border; 3rd segment with a central round spot joined to two moderately broad lines which proceed obliquely almost to the posterior corners; 4th segment with a nearly similar pattern, the oblique lines joining one another in the centre—without being enlarged into a dorsal spot. All these abdominal marks dull velvet black. The whole upper surface of the abdomen with rather close, short yellow hair. Belly black.

Legs: femora black, hind pair more shining, all with yellow hair below; tibiae and tarsi tawny yellow, with some yellow hair; hind pair with apical half black.

Wings pale grey, costal cell absolutely clear, stigma brown, small, veins brownish; halteres and tegulæ pale yellow.

Described from one ♀ in the Indian Museum collection (October).

It reminds one very much of the European species *Eristalis sepulchralis*, L., and, more so, of the North American species *dimidiata*, Wied., and *saxorum*, Wied., but is distinctly smaller.

H. tuberculatus, *mili*, sp. nov. (Pl. xii, figs. 16, 17.)

♂ ♀. Calcutta. Long. 19–25 mm.

Head: epistome normally produced. Front black, shining just above antennæ, dull in the ♀ from thence to vertex. Eyes contiguous (♀) at base of supra-antennal triangle, diverging gently to the vertex. Front in ♀ moderately wide, narrower above; face below antennæ blackish or reddish, with grey or yellow hair, antennæ ferruginous brown to black; 3rd joint sometimes quite greyish; first two joints with a few black hairs. Front, vertex, and back of head with short, stiff, all-black hair.

Thorax rather elongated, yellowish, with three broad black long stripes of equal width (third abbreviated behind) placed close together, so that the yellow intermediate space is very narrow; dorsum covered with short yellow hair. Humeral calli brown, with yellowish hair; posterior calli oval, distinct, shining. Sides of thorax blackish grey with mixed tufts of brown, white and yellow hair; scutellum yellow with yellow hair.

Abdomen quite elongated, resembling that of a *Milesia*; in the ♂ the 1st segment very short, yellow; 2nd tawny, with a thin basal black line produced downwards across the disc to a rather wide, very indistinct blackish band towards posterior border; 3rd segment, basal half tawny, apical half brown; 4th segment similar, but only basal fourth yellowish; 5th segment uniformly rich brown. In the ♀ the transverse bands across the hind parts of the segments are black instead of brown.

In the ♂ the first three segments are covered with soft yellow hair, much thicker on 2nd segment; this hair appears to be sparser in the ♀.

Legs all black, knees of four anterior legs tawny; *all the femora much thickened in the ♂*, but *only the posterior pair moderately so in the ♀*. In the ♂, the hind femora bear a distinct tooth in the centre of the under side, and an erect fringe of bright yellow hair on upper side for three-fourths of the length from the base, the remaining fourth bearing black hair. The middle femora bear a transverse ridge below near the tip, followed by a small blunt tooth; the middle tibiæ are suddenly incrassated before the middle, and bear two pairs of blunt teeth at the base.

All the legs with short black pubescence, longest on femora and posterior tibiæ.

Wings brownish grey; apical half, anteriorly, darker.

Described from two ♂♂ and three ♀♀ from Calcutta in the Indian Museum. A remarkable species, and one which, from the elongated, almost cylindrical abdomen, and denticulated middle legs in the ♂, will no doubt require the erection of a new genus for its reception. I, however, refrain from doing this prematurely; in all other respects it agrees with *Helophilus*. Moreover, it must be closely allied to a recently described species by Meijere, from the Aru Islands (*H. caudatus*), from which, however, the denticulation of the middle tibiæ at once distinguishes it.

H. celeber, O. S.**H. curvigaster**, Macq.**H. ænus**, mihi, sp. nov.

These three are quite distinct from all the other species, and may be instantly recognised respectively by the perpendicular face and incrassated hind tibiæ in *celeber*; the transverse bands of pubescence on the thoracic dorsum in *curvigaster*; and the wholly ænous and *Eristalis*-like appearance of my new species.

H. caudatus, Meij.**H. tuberculatus**, mihi, sp. nov.

These two species stand out from all others by their elongated abdomens, my new species being easily differentiated from Meijere's by the presence of the strong denticulation of the middle tibiæ, a feature which he does not mention as being present in his specimen; the latter was a ♂, the middle legs of which were, moreover, not missing, as he describes their coloration.

H. pilipes, Dol.

The author figures his species, and distinctly shows the thick pubescence of the *first* pair of femora and tibiæ, the *middle* pair being nearly bare; so that the specimen in the Indian Museum collection named "*pilipes*, Dol.," by Bigot is erroneously identified.

This specimen (♂) I have figured in pl. xii, figs. 18, 19, 20, a lateral view being given, because the specimen is partly curled up, and also to show the formation of the anal segments. The anterior and middle legs are also shown, the hind pair being missing. It approximates to *insignis*, Dol., but the hairy middle legs separate it; I therefore figure it, so that perhaps some other dipterologist may recognise it. In the Indian Museum collection are a ♂ and ♀ approaching *pilipes*, Dol., but they have *clear* wings and *no yellow hair* on anterior legs. This species (a ♂ from Calcutta) I also figure in pl. xii, figs. 11 and 12.

Doleschall distinctly says his *pilipes* is near the *pendulus*, Meig., of Europe, but smaller.

H. vestitus, Wied.**H. doleschalli**, mihi (*nom. nov.* for *insignis*, Dol.). (Pl. xii, figs. 7, 8, 9.)**H. notabilis**, Mcq.**H. insignis**, Wlk.

The specific name *insignis* was employed by Walker and Doleschall for two different species, both in the same year (1857). I venture to change Doleschall's specific name to *doleschalli* and

let Walker's name stand, because the introduction (by Mr. W. W. Saunders) to Walker's paper in the Proceedings of the Linnean Society of London is dated Jan. 14th, 1856, whereas Doleschall's paper is dated March 16th, 1857. I have, however, no means of deciding which was *published* first, both appearing in 1857.

H. doleschalli extends from Calcutta to Assam.

H. conclusus, Wlk.

H. albiceps, Wulp.

These two species stand out from the remainder by the broad oblique yellow stripe on the side of the thorax, which is absent in the other four, and the recorded green wings of *conclusus* should easily identify it.

H. mesoleucus, Wlk.

H. consors, Wlk.

H. bengalensis, Wied. (Pl. xii, figs. 4, 5, 6.)

H. quadrivittatus, Wied. (Pl. xii, figs. 1, 2, 3.)

These four species must be closely allied, but a comparison of specimens of the two latter species (which are not uncommon in Calcutta, and are identified by me from Wiedemann's Auss. Zweifl.) with Walker's types of the other two species, may allow me to speak definitely later on.¹ Walker says of *mesoleucus*, "hind femora thick," and of *consors*, "hind femora incrassated, hind tibiæ curved." The femora are always thickened in this genus, and in most cases the hind tibiæ are curved also, although, of course, a case of very distinct incrassation would clearly define a species. As regards *H. bengalensis*, Wied., and *quadrivittatus*, Wied., they are both good and distinct species although extremely closely allied. Of the latter species Wiedemann saw only a single ♂ and expressed doubts as to its being distinct from the former one. His distinctions as to the whiteness of the face and the coloration of the legs I do not find reliable, but the differences of markings on the 4th abdominal segment are quite consistent in both species.

In *bengalensis* the 4th segment has a mark which varies greatly in colour,—yellow, red, brown, and deep black,—but it is always present, is clearly cut, and in the form of an inverted V (or, sometimes, that of a bow) stretched out right across the segment. In *quadrivittatus* this mark is absent, the segment being black with whitish dust at each side, the ground colour showing roughly in the form of a triangle with its apex on the base of the segment. Both species are moderately common in Calcutta and I have examined a good many of both sexes of each, including a long series of *quadrivittatus* from Bangalore, South India, in the

¹ Specimens determined by me as *H. bengalensis*, Wied., have been confirmed as such by Herr. Handlirsch of the Vienna Museum after comparison with the type.

Indian Museum collection, and a good series of *bengalensis* taken in Calcutta.

In pl. xii is a figure (fig. 10) of what I at first thought might be a different species, but now consider only a variety of *bengalensis*. Several specimens from various parts of India and Assam are present in the collection.

In addition to the described species enumerated herein, there is a ♀ specimen (wings missing) in the Indian Museum collection taken on the Second Yarkand Expedition and apparently a different species to any known to me. I therefore figure it in pl. xii, figs. 13 and 14, showing the abdomen and the markings of the legs. The black on the middle femora, however, is at the *base*, and not in the form of a distinct band removed from the base, as it appears in the figure. It may be a variety of some Palæarctic species. The last figure (pl. xii, fig. 21) is of a Calcutta specimen, which may be a variety of *bengalensis*, or may be distinct.

ERISTALIS, Latr.

I do not propose to deal with this genus in the present paper to any extent, its intricacies being far too extensive, considering the limited amount of material at my disposal. Two species were omitted by accident from Van der Wulp's Oriental Catalogue; these are—

E. tortuosus, Wlk., 1861, Proc. Linn. Soc. Lond., v, 266; Tond.

E. (Eristalomyia) sapphirina, Big., 1880, Ann. Soc. Ent. Fr. (v), x, 230; Papua.

One non-Oriental species crept into the catalogue by error; this is *E. semicirculus*, Wlk., the habitat of which is Honduras.

E. ursinus, Big.

I propose to change this name to *himalayensis*, as the species is found at Mussoorie, Sikkim, Darjiling, Simla, and several localities in Nepal.

Bigot's species (of which the type is in the Indian Museum collection) was described by him in the Ann. Soc. Ent. Fr. (1880) (5), x, 215 from "Hindustan," but the name was preoccupied by Jænnicke in 1868 in "Neue exot. Dipt.," 93, for a very different species, from Java. The present is a furry species, belonging to the *intricarius* group, and to which Wiedemann's *orientalis* also belongs. Of the latter species the Indian Museum possesses a short series of both sexes from Sikkim.

N.B.—Amongst some unnamed species of *Eristalis* in the Indian Museum collection is a ♀ from Sikkim closely resembling *intricarius*, L., but with the face much more produced, the hair on the major part (apical) of the abdomen bright red, the legs wholly black, and the arista plumose nearly to the tip. The produced face makes it appear specifically distinct.

E. tenax, L.

This nearly cosmopolitan species, including the variety *campestris*, Mg., appears quite widely distributed in the Palæarctic districts of the east, as it comes from every station in the Himalayan hills. I have taken it myself at Mussoorie and Darjiling, also from localities further east (Hongkong, Shanghai, and in Japan); yet I have seen only a very few specimens from the Indian plains (Barcilly, Meerut) and none at all from any more tropical locality.

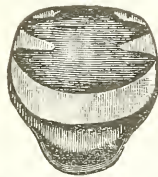
E. solitus, Wlk.

My identification of this species is corroborated by Mr. Austen, who has kindly compared specimens with the type in the British Museum. A considerable series in the Indian Museum collection shows specimens from Sikkim, Shillong, Kurseong and Mussoorie, all of which agree well with my own collected examples from Mussoorie, Darjiling, China and Japan, and with others taken by Dr. Annandale at Naini Tal. Walker originally described it from Nepal.

MEGASPIS, Macq.

This is a good genus, but the roughness on the frons, which distinguishes it, is not always easily visible.

A new species closely allied to, yet quite distinct from, *errans*, F., gave me much trouble but Mr. Austen confirms it as distinct, and Osten Sacken's note (Ann. Mus. Gen., xvi, 441) about the presence of the metallic spots on the 3rd and 4th abdominal segments, as remarked after comparison by him with the types. con-



Megaspis errans, F.

vinced me that I had correctly determined *errans*, F., from Wiedemann's description in his *Auss. Zweifl.*, although that author did not mention these spots. What hindered my recognition was that a specimen of *errans* was in the Indian Museum collection (apart from other undetermined specimens of the species) labelled in Bigot's handwriting *Erist. cognatus*, Wied., a species which is evidently of similar appearance but is a true *Eristalis*, Wiedemann marking off very clearly those of his species of "*Eristalis*" which we now place in *Megaspis*. The spots vary from shining brassy almost to steel colour and exist in a less degree in my new species.

The species *sculptatus* of V. d. Wulp seems to be separated from *crassus*, F., only by the absence of the large red-and-black spine on the underside of the hind femora, and the abnormal width of the 2nd abdominal segment, which the author says forms the major part of the abdomen, whereas in the common *crassus* it is of normal width.

Table of Oriental species of Megaspis.

- A Basal half of wing entirely quite black.
- B Hind femora bright tawny red, with black tips.
 Hind femora untoothed below; 2nd abdominal segment abnormally wide Long. 11 mm. *sculptatus*, V. Wulp
 Hind femora with distinct black-and-red tooth below, near tip; 2nd abdominal segment normal.
 Long. 12-15 mm. *crassus*, F.
- BB Hind femora wholly black. Long. 15 mm. *chrysoxygus*, Wied.
- AA Basal half of wing not black; only normally a little tawny brown.
1. Hind femora, basal half tawny, rest blackish brown with soft yellow hair. Thorax almost wholly occupied by an ill-defined blackish square dorsal spot, with a tendency to be divided transversely from each side by a light, very narrow cross-band. Abdomen (more or less *tenax*-like), with a large black triangular spot on the posterior border of each segment, barely reaching the sides. Wings pale yellow, without distinct suffusion, merely the mediastinal cell tawnyish, also base of wings. Face, seen from above, pinkish tawny (♂); greyish with black hair (♀)
 Long. 10-12 mm. *errans*, F.¹
2. Femora unicolorous, but varying from light brown to blackish; hind pair *never* with tawny basal half and dark apical half. Thorax with a wide, well-defined, quite black uninterrupted transverse band, occupying one-third the vertical length of the dorsum.

¹ In the accompanying diagram of the thorax of this species the dorsal dark marks are shown much more distinct than they really are; the shape of the markings will, however, clearly distinguish the species.

Abdomen (more or less *tenax*-like) with posterior edges of segments black, sometimes showing a tendency in the centre to form a dorsal stripe.

Wings practically as in *errans*.

Face, seen from above, quite white (σ), or yellowish grey, with black vertex (♀).

Long. 11-15 mm. *transversus*, sp. nov.¹

3. All femora wholly quite black, hind pair with short, stiff, bristly hair.

Thorax blackish, covered with close black hair which on anterior border is reddish yellow.

Abdomen not *tenax*-like, somewhat *intricarius*-like, though not so pubescent; 2nd segment with a broad, bright yellow band, covering nearly the whole segment.

Wings nearly clear, with a distinct blackish brown suffusion in the middle of the anterior border and in a less degree at the base also.

Face grey, with blackish hairs (σ ♀).

Long. 11-15 mm. *zonalis*, F.

M. *transversus*, *mili*, sp. nov.

σ ♀ . India. Long. 11-14 mm.

Head: ground colour of frons and face, blackish with white hair (seen from above) in the σ , and yellowish grey hair with blackish vertex in the ♀ . A black frontal stripe more or less visible. Eye-facets small, uniform. Antennæ reddish brown, on very short shining brown prominence; 3rd joint blackish. Back of head grey, posterior orbit of eyes yellow on vertex with short yellowish hair, greyish at sides and below with snow-white short hair. Under side of face blackish. Mouth and proboscis dark brown.

Thorax: dorsum greyish tawny (sometimes greenish yellow in front) with yellowish or greyish hair; crossed transversely by a clear-cut wide black band (ground colour) with close short blackish brown hair; this band occupies rather more than one-third the vertical length of the dorsum and is narrowed at the sides. A patch of tawny red hair on each shoulder. Sides cinereous grey

¹ In the accompanying diagram of the thorax of this species the dorsal dark marks are shown much more distinct than they really are; the shape of the markings will, however, clearly distinguish the species.

with sparse hair. Scutellum, of the usual great width, black, with close very short black hair, and some pale hairs on the margin.

Abdomen tawny, posterior borders of segments with a black band, wider in some specimens than in others, and with a tendency sometimes on the 2nd segment to form a dorsal band. Centre of 1st segment black. At each of the fore corners of the 3rd and 4th segments is a triangular brassy metallic spot (not strikingly conspicuous, as the colour is so similar to the ground colour) which is somewhat raised, and does not attain the ridged sides of these segments. Whole dorsum covered with short yellow hair, which is darker on the posterior part of each segment; a minute row of black hairs on the extreme edge of each segment. Belly tawny with some yellow hair, centres and posterior halves of the segments more or less blackish.



Megaspis transversus, mili, sp. nov.

Legs: coxæ blackish grey, hind pair with a little yellow hair; femora wholly brown, sometimes lighter, sometimes nearly black, but *always unicolorous*, except that the extreme tip is occasionally lighter, with light golden yellow hair; tibiæ, rather variable, usually with tawny basal half and lighter or darker brown apical half, with yellowish or whitish hair, which is brown or black on the darker parts; tarsi dark brown, with yellowish grey hair below, which is sometimes golden brown under hind pair.

Wings nearly clear, a little tawny brown suffusion at base, in the mediastinal cell, and near the base of the discal cell. Halteres yellow.

Described from four ♂♂ and four ♀♀ in fair condition (supplemented by a long series of both sexes in indifferent condition) in the Indian Museum collection from Bangalore and Calcutta. Allied to *errans*, F., but quite distinct. The sub-metallic raised triangles on the abdominal 3rd and 4th segments are identical with those in *errans*, F., but the hind femora are *never* pale on the basal half and dark on the apical. This character alone, or the thoracic markings, will at once separate the two species.

POLYDONTA, Macq.

(?) *P. orientalis*, mili, sp. nov.

(*Id. id.*, Bigot, *nom. nud.*)

♂. Orient. Long. 11 mm.

Head: eyes touching for a short space only, facets small, uniform; vertex small, with some black hair. Antennæ on a moderate

prominence, both blackish, 3rd joint brownish orange, with orange arista. Frons and face with whitish hair, yellowish brown mixed with black above the antennæ; facial callus of moderate size, shining, bare; proboscis and mouth, brownish black. Back of head dark grey, with a narrow fringe of short greyish yellow hair, which is longer below the head.

Thorax blackish, covered with light yellowish grey pubescence which also occurs in front of the wing-insertion, on the cinereous grey sides of the thorax. Scutellum tawny, with rather long yellowish grey erect pubescence.

Abdomen light chestnut-brown; 1st segment and base of 2nd in middle, blackish; 2nd segment, towards the posterior border, 3rd and 4th segments, both at base and towards posterior borders, with broad black transverse bands, slightly elevated; extreme edges of segments pale. Whole abdomen lightly clothed with pale yellow hair, which is much longer and thicker on the yellowish belly, on which some traces of black transverse bands can be seen. The abdomen consists of only the four distinct segments as described; unless a fifth segment can be recognised in a bare brown curved plate twisted to the *left side* of the large genital process, which is shining brown, bare, biglobular; the lower globe bearing on its under side some further small appendages.

Legs: coxæ dark brown, with pale yellow hair; trochanters much lengthened, brown, with some black marks and yellow hairs; anterior femora blackish, except pale tips, with soft yellow hair; hind pair enormously enlarged, blackish on upper side, and on apical half below, with a broad black ring round the middle, most distinct on the outer side; on the lower side (apical half) is a collection of short black spines, whilst soft yellow hair occurs rather thickly on the upper side, and on the basal half below; scattered long yellow hairs occurring over the whole femur more or less. The basal half of the femur below is considerably cut away, the vacancy being replaced by a prominent, tawny yellow tooth, closely covered with long yellow hair. Tibiæ brown, lighter at base, with yellow short pubescence; hind pair shining chestnut-brown, much curved, almost bare, and terminating in a point inwards. Tarsi dark brown, the metatarsus thicker than the rest of the joints.

Wings very pale grey—not darker at base; two minute blackish suffusions at the stigma, and on the spurious vein just below the fork of the 3rd longitudinal vein. Halteres very short, pale yellow, covered wholly by the dirty white tegulæ, which bear whitish hairs on the margins.

Described from a single ♂ in fair condition in the Indian Museum collection, bearing no data, but marked "Inde" in Bigot's handwriting.

N.B.—I leave this species in *Polydonta*, as being the most suitable genus to receive it, as the shape of the abdomen, venation, and pointed curved hind tibiæ all agree perfectly with Macquart's description and figure. There are, however, several points in

which it very materially differs from the definition given by Macquart.

Firstly, he says the front in the ♂ (the only sex given) is moderately wide, whereas in my specimen the eyes touch for a distinct space; but possibly Macquart's specimen was a ♀; secondly, the hind femora in my species are very greatly enlarged, in the same proportion as in *Syritta*, whereas Macquart's description is only "épaisses"; moreover they are barely curved at all, much less possessing the extraordinary curvature shown in Macquart's figure (Dip. Ex. Supp. iv, pt. 1, pl. xiii, fig. v c.). Again, though that figure shows a small tooth at the base below, it is not so conspicuous as in *orientalis*.

The genus was established for *bicolor*, Macq., from Nova Scotia, and has not been previously recorded from the East; but, knowing of no other in which to place the Oriental species, I leave it here, where Bigot placed it.

Apart from the question of the location of *orientalis* in *Polydonta*, the genus requires renaming, being preoccupied in Mollusca by Fischer in 1807.

I might add that Bigot's label reads "*Polydnota*," but I presume he means *Polydonta*.

The type-specimen only possessed one tarsus, which has, unfortunately, been broken off since my describing it, but I noticed particularly, the slight thickening of the metatarsus below, mentioned by Macquart.

EUMERUS, Mg.

E. argyropus, Dol.

(*E. argentipes*, Wlk.)

There are three ♂ ♂ and a ♀ from Assam in the Indian Museum collection which I have identified with this species.

E. nepalensis, mihi, sp. nov.

♀. Nepal (Chonebal). Long. 8 mm.

Head very shining black, face below antennæ, black, antennæ bright tawny red, the *edge* of the 3rd joint black.

Thorax dark shining æuous black, with tawny grey pubescence on dorsum, and grey pubescence at the sides; scutellum unicolorous, with soft, rather long yellowish grey hair, posterior border with a flat edge which is serrated above.

Abdomen shining black, with two oval, oblique pale spots on 2nd segment, their ends touching the posterior border of the segments near the side margin; extreme posterior border of segments very narrowly tawny. On the 3rd segment are two smaller and narrower spots similarly situated; on the 4th segment, two hardly visible pale grey similar spots with white hair. Sides and tip of abdomen with white hair. Belly black, pale in centre.

Legs black, femora fringed with whitish hair below, posterior femora with black hair on upper side; the basal half and tips of the femora, four anterior tarsi, tip of posterior metatarsus, and apical half of next joint, tawny yellow: under side of whole posterior tarsi with bright golden yellow pubescence; four anterior tarsi with some white hairs at base.

Wings clear, iridescent, veins well marked, stigma brown; tegulæ and halteres yellowish.

Described from the one type-specimen in the Indian Museum collection. It is near *argyropus*, Dol., but distinct by the wholly clear wing.

N.B.—I have a *Eumerus* taken by me at Mussoorie, 20-24-vi-05, and another species taken by me at Lucknow, 2-xii-04, but shall reserve these for further consideration. The first I cannot identify with any of Schiner's species, but in view of the forty known European species, any one of which it may be, I refrain from describing it as new.

SYRITTA, St. Farg. et Serv

In a subsequent paper I hope to deal with this genus. Five species have been recorded from the East, all apparently bearing considerable resemblance to one another. *S. pipiens*, L., the very common European and North American species, has not been recorded, but I have taken it myself not only at Mussoorie and Darjiling, but from the Indian plains also. My first impressions derived from a study of the Oriental species of this genus are that there may be only three species: (1) *pipiens*, L., of which *orientalis*, Mcq., and *indica*, W., may be synonyms; (2) a species with the pairs of spots replaced by entire bands which, when interrupted, are only very slightly so. This species would be *amboinensis*, Dol., with *illucida*, Wlk., as a possible synonym, although in the latter the bands are straight, whilst in *amboinensis*, Dol., they are not so. The third species varies from both, but approximates most to *pipiens*.

On the other hand there may be eight or ten good species. One specimen in my own collection taken by me at Agra, 4-iv-05, has the posterior femora nearly wholly bright red and the 2nd pair of abdominal spots also reddish.

An example in the Indian Museum collection has the second pair of spots nearly as large as the first pair, whilst a third species, which occurs in Calcutta and elsewhere (Karachi), has a broad pale entire band occupying two segments. This is labelled *S. laticincta*, Bigot, which is I believe a *nomen nudum*, but the *species* may be a good one. Other specimens in inferior condition in the Indian Museum collection may prove to be still further species.

XYLOTA, Meig.

The Indian Museum possesses specimens named by Bigot, *cuprina*, *cupropicta*, *flavitaris*, and *auronitens*, all being his own

species. Of these *cuprina*¹ is a described species and the ♂ and ♀ ♀ of it apparently are co-types, and therefore, presumably, correctly identified. *Cupropicta* and *flavitaris* (two ♀ ♀ and one ♀ respectively) are certainly only the same species as *cuprina*, and are probably *nomina nuda*. The other species, *auronitens*, is apparently a good species, which I describe here, with a second very distinct species from Assam.

X. auronitens, mihi, sp. nov.

(*Id. id.*; Bigot, *nom. nud.*)

♂. Assam. Long. 12 mm.

Head: vertex shining black, a few yellow hairs immediately above junction of eyes, which are contiguous for only half the distance from the frontal prominence to the crown of the head. Facets small, of uniform size, except being a little larger where the eyes touch; ocelli distinct, no ocellar prominence. Frons shining black, grey dusted round the margins, with lower edge immediately above the antennæ, tawny. Cheeks and lower part of face blackish, with a brownish blue tinge, with whitish reflections in certain lights. Antennæ reddish brown, 3rd joint lighter, whitish dusted; arista reddish brown. Mouth and proboscis brown. Back of head grey, encompassed by a fringe of gold-yellow hair, which is shortest behind the upper corners of the eyes.

Thorax: dorsum golden brassy, with gold-yellow hairs, which are absent in the centre, giving an appearance, seen from behind, of a dark dorsal stripe. Humeral calli, bluish black, with a few yellow hairs. Sides of thorax blackish, shining, with some scattered yellow hairs. Mesopleura, pteropleura and sternopleura, ænous grey, shining, with yellow hairs. Metanotum ænous, bare. Scutellum brassy gold, with rather close, moderately short, yellow hair.

Abdomen: 1st segment ænous, with a slight brassy tinge; 2nd, tawny brown, shining, posterior border blackish; the colour extending forward in the centre as a partial dorsal stripe; 3rd, tawny brown, shining, posterior part, blackish; the colour widest in the centre; 4th, ænous shining, reddish brown towards posterior border. Tip of abdomen reddish brown. Belly red-brown, black at base. The whole abdomen—dorsum, sides and belly—is covered with short, soft yellow hair.

Legs: coxæ shining ænous, posterior pair with yellow hair on outer sides; femora ænous, with soft yellow hair, extreme tips tawny; tibiæ and tarsi bright tawny with yellowish pubescence, apical half of tibiæ blackish, especially in fore and hind pair, the fore tibiæ bearing a fringe of long yellow hair on their inner sides.

¹ This specific name has been used for a second time by Coquillett for a species from Japan described by him in 1898 (*Proc. U. S. Nat. Mus.*, xxi, 327). Bigot's species therefore antedates this latter by thirteen years.

Wings pale grey, mediastinal cell uniformly brownish yellow; no distinct stigma. Halteres bright yellowish red. Tegulae whitish grey.

Described from a single ♂ in good condition in the Indian Museum collection from Margherita.

This species must be very near *nigroaenescens*, Rond., but his description of the abdomen does not quite agree, and he says the antennae are black, whereas in *auronilens* they are bright reddish brown. My longer description will enable some author to decide whether it is synonymous with Rondani's species or not.

X. assamensis, mihi, sp. nov.

♀. Assam (Kohima). Long. 13 mm.

Frons shining black narrowing towards vertex, a slight trace of a grey pollinose line across the centre; face below antennae tawny, with minute not very strongly marked silvery white pubescence; proboscis blackish brown; antennae brown; a fringe of yellowish hair behind eyes at the sides.

Thorax, dull violet bronze, nearly bare, sides black, some yellow hairs in front, at the base of the wing; scutellum unicolorous, yellow hair at sides and on posterior border.

Abdomen, dull violet aënous, nearly bare, but with minutely yellowish pubescence seen from in front.

Legs, bright red tawny, with very slight yellow hair; coxae black; posterior femora with traces of a brown mark in the middle of the upper side.

Wings, pale yellowish tawny, stigma tawny. Halteres brown, alulae brown with a fringe of thick yellow hair behind.

Described from one ♀ in the Indian Museum collection.

The Oriental species of this genus may be separated thus—

Abdomen with distinct bands or spots.

Legs black. . . . Long. 11 mm. *nigroaenescens*, Rond.

Legs partly tawny.

Abdomen with two broad interrupted testaceous bands.

Thorax unstriped; antennae black; basal half of femora pale . . . Long. 8 mm. *calopus*, Big.

Thorax with two testaceous tomentose stripes; antennae tawny; femora chalybeous.

Long. 10 mm. *conformis*, Wlk.

Abdomen with six bands.

Long. 12 mm. *aqualis*, Wlk.

Abdomen unicolorous, or at least, without distinct bands or spots.

Legs tawny or red.

Abdomen tawny towards the base.

Long. 10 mm. *aethusa*, Wlk.

Abdomen all shining violet.

Long. 13 mm. *assamensis*, mihi, sp.

Legs not tawny (metallic blue, green, nov.

aënous or black: in *ventralis* "dingy testaceous").

Belly with two very broad testaceous stripes

.. Long. 9 mm. *ventralis*, Wlk.

Belly without pale stripes.

Long. 10-11 mm. *cuprina*, Big.

MILESIA, Latr.

In this genus there is little to record.

Only two new species have been described recently; these are—

M. balteata, Kert., 1901, Termés. Füzet., xxiv, 414; Sikkim.

M. semifulva, Meijere, 1904, Bijd. Dierk., xviii, 19; Darjiling (figured).

To these I add two undescribed species in the Indian Museum collection named by Bigot *variegata* and *himalayensis*.

For a table of most of the species up to 1882, Baron Osten Sacken's notes in the Berl. Ent. Zeits., vol. xxvi, 187, can be consulted.

Two other species are in the Indian Museum collection determined by Bigot; two ♂♂ of *conspicienda*, Wlk., from Sandakari, and two ♂♂ of *gigas*, Mcq. (*Sphixea*), without data.

M. variegata, mihi, sp. nov.

(*Sphixea variegata*, Bigot, *nom. nud.*)

♂. Sikkim. Long. 20 mm.

Head: vertex narrow, black, with black hairs; a small yellow triangle just above the juncture of the eyes, which are contiguous for only a short space. Frons and face bright lemon-yellow, with a broad, shining black stripe on each cheek; frontal prominence, blackish brown. Antennæ red-brown, 1st and 2nd joints with one or two strong bristles above and below towards the tips. Proboscis blackish brown. Back of head grey, posterior orbit of eyes with yellow hair, longest below.

Thorax mainly blackish. Humeral calli with a small oblong spot below each; præalar calli, meso-, ptero-, sterno-, and metapleuræ, also posterior border of thoracic dorsum, bright lemon-yellow. Two greyish stripes, narrowed behind, extend from the anterior margin to the centre of the dorsum, where they meet two similar ones extending inwards from either præalar callus. Scutellum black, the posterior half yellow, with yellow hair; the whole thorax and scutellum covered with short, soft yellowish grey hair.

Abdomen: 1st segment shining black, yellowish towards each side in front; 2nd segment lemon-yellow with a very narrow black posterior border; a dorsal, clean-cut, rather narrow black stripe extends more than half the distance from the base, when it meets a transverse narrow line, almost parallel with the posterior border, but curved forward towards the sides; 3rd and 4th segments pinkish brown, with very narrow, black posterior borders, and a short narrow, dorsal stripe, which immediately divides, and extends to each side in the shape of a loop, attaining the edge just before the middle of the segment. Posterior half of 3rd segment



Molestia variegata, mihi, sp. nov., ♂.

blackish, the colour extended forwards in the middle; the 4th segment is narrowly black at the base. Genitalia not conspicuous, yellowish brown. The whole abdomen is covered with short yellow hair on the yellow parts, and short black on the remainder, with rather long yellow hair at the sides, and with a row of moderately long black hairs on posterior border of the 4th segment.

Belly yellow on basal half, with a blackish, narrow central line; blackish on posterior half, all covered with light yellow soft fluffy hair.

Legs: fore coxæ shining black with soft yellow hair; posterior coxæ apparently yellow, with a black streak below, all covered with close long yellow hair. Femora orange-yellow, with a long black streak on under side; hind pair with a diffused black streak above also, and bearing a moderately long orange-yellow spine below, near the tip. All the femora with long yellow hair, with some short rows of black hair intermixed; the hair being scarcest on the upper side of the four anterior femora, and thickest on the lower and inner sides of the hind pair. Tibiæ tawny brown, the fore pair darker towards the tip, the middle pair much lighter, the hind pair darker; all the tibiæ with minute yellow pubescence, and with long yellow hair on the under side, consisting of a single shorter fringe on the fore pair, a long and a short fringe on the middle pair, the hind pair being densely covered on the whole of the lower and inner sides. Tarsi yellowish tawny, with short yellow pubescence; upper sides blackish brown.

Wings pale grey, brownish along anterior margin, and the

slightest possible trace of a dark diffusion towards tip. Halteres: stems yellow, knob red-brown.

Described from a perfect ♂ in excellent condition in the Indian Museum collection from Sikkim. A very conspicuous species.

N.B.—This may be the ♂ of Walker's *M. lamus*, described from an unknown locality. The description of the abdomen agrees very well, but my specimen has no frontal stripe from the antennæ to the mouth. The markings on the sides of the thorax do not quite agree; my species has no distinct black spots on the belly, nor does Walker, in spite of his minute description of the feet, mention the conspicuous streaks on the under side of the femora, which are present in *variegata*. The black band across the vertex, with a second stripe extending to the antennæ would probably be a sexual character. The black posterior border of the 3rd segment extends to the base of the 4th, therefore there is less difference between Walker's "fore border" of 4th segment, and my "posterior border of 3rd," than would at first appear.

M. himalayensis, mihi, sp. nov.

(*Sphyxæa himalayensis*, Bigot, *nom. nud.*)

♂ ♀. Assam and North India. Long.: ♂, 20 mm.; ♀, 17 mm.

Head: ♂: vertex shining black, a very small grey-haired triangle just above the junction of the eyes. Frons and face blackish grey, shining, with silvery reflections, seen from above; frontal prominence, dark brown (antennæ missing). Back of head grey, posterior orbit of eyes with a little short greyish hair.

♀: frons yellowish grey; a broad shining bare black stripe (occupying nearly the whole width of the frontal space) extends from the vertex to the frontal prominence. Lower part of face and cheeks shining black, nearly bare, without whitish reflections, but with traces of a greyish stripe on cheeks. Antennæ tawny.

Thorax: ground colour blackish, covered with close ferruginous brown hair (♂); or greenish yellow tomentose, with greenish yellow hair (♀). Humeral calli concolorous in ♂, yellow, with yellowish hair in ♀, with a small, oval, yellow spot below them. Sides of thorax, dark grey, with considerable brownish, rough hair in ♂; barer in ♀ with a little sparse grey hair, and a stripe below wing-insertions, extending to the scutellum, which is light brown in ♂ and yellow in ♀, in both sexes with yellow hair.

Abdomen in ♂ dark brown; in ♀ shining metallic blue; in both sexes, with a broad bright lemon-yellow band at the base of the 2nd segment, occupying more than half of it. A very narrow yellow band near the base of the 3rd segment in ♀.

The dorsum is covered in the ♂ with yellow hair mixed with black, but wholly yellow on the cross-band. That on the sides of the abdomen is brown, except towards the base, where it is longest, and is yellow and silky. In the ♀ the dorsum is clothed with yellow hair on the cross-band, and minute black hair elsewhere,

except at the sides towards the base, where it is thick and yellow, but shorter than in the ♂.

Legs black, shining, with some blackish brown hairs on hind pair, a not very strong black tooth on under side near tip (♂ ♀). Femora black, tips tawny, some black short bristly hair, mixed with yellow hairs on the lower side of the fore pair: the middle pair have long brownish yellow hair above and below (much longer in the ♂); the hind pair in the ♂ are covered with long yellow hair on the upper side, and longer brown hair on the under side; in the ♀ there is short yellow silky hair on the upper side, and brown hair below, which is neither as long or as thick as in the ♂. The fore tibiæ (♂ ♀) are tawny, with a long black streak in front, extending from the tip nearly to the base. In the ♂ there are minute black hairs in front, and longer black silky hair behind; in the ♀ they are nearly bare, only a few short, black hairs being present. The middle pair are bright lemon-yellow (♂ ♀), and have soft pale yellow hair in the ♂, which is very long behind; whereas in the ♀ they are almost bare, except for some moderately long pale yellow hairs behind. The hind tibiæ are blackish brown (darker in ♂); the tips narrowly brown (♂) or the colour spread more or less over the upper side towards the tip (♀). The ♂ has a row of long and very thick dark brown hair on the front, outer and innermost sides, being longest on the latter, whilst the ♀ has only very short black hairs, which attain to a short row of bristly hair on the upper side; and some moderately long silky brownish black hair on the lower side. Tarsi blackish brown, with short black hairs; basal joint of middle pair pale yellow in ♀ above and below; under side of hind pair with gold-brown short pubescence.

Wings pale grey, a little darker yellowish brown from the anterior margin to about the 3rd longitudinal vein. Halteres tawny. Tegulæ pale yellow, with long yellow hair.

Described from a ♂ from Assam (Sibsagar) and a ♀ from Sikkim, both in the Indian Museum collection in excellent condition. A very conspicuous species.

DEINECHES, Wlk.

D. *simioides*, mihi, sp. nov.

(*Id. id.*, Bigot, *nom. nud.*)

♂. Orient. Long. 18 mm. (without snout).

Head: vertex black. Eyes reddish bronze, facets uniform, touching for only a short space above frontal prominence. Antennæ light reddish brown, situated on a short black prominence. Snout produced. Face black, shining, with a greyish dusted wide stripe on each side. Back of head blackish grey, nearly bare.

Thorax obscure blackish grey (apparently). Humeral calli brown; a greyish stripe on sides. Scutellum blackish, hairy. The whole dorsum and sides of thorax clothed with thick blackish grey and brown hair.

Abdomen clothed with dense *Bombus*-like pubescence, which is yellowish on basal half (except the extreme base, which is barer and apparently tawny), followed by a wide blackish band of hair; the tip of the abdomen being clothed with red hair. Belly blackish; the last segment covered with dense black and reddish hair. Genital organ black, shining.

Legs reddish brown; fore femora with broad dark brown band near tip; middle pair with a black streak on inner under side, and a shorter one on outer side near tip; hind pair apparently unmarked. All the femora with more or less scattered black hair, which on under sides becomes longer and bristly. All the tibiæ with short stiff black hairs. Tarsi with short black hair, mixed with some yellowish ones; under side of hind tarsi rich golden brown.

Wings brown; anterior half and basal half much darker; centre of 1st and 2nd posterior cells very slightly clearer. Halteres yellow.

Described from one ♂ in the Indian Museum collection.

No distinct locality is given on the specimen, the label bearing the statement "*Deinches simioides*, Big., sp. nov., Inde," "Inde" being a general expression of that author's to include Malay species as well as Indian ones.

Owing to the bad condition of the specimen, I would not have described this species, except that, in spite of its state, the specific characters are sufficiently obvious and the generic characters agree perfectly with Walker's description and plate in *Ins. Saunders. Dipt.*

Moreover, the genus has not been recorded from the Orient before, having been established for a species from New South Wales.

AZPEYTIA, Wlk.

A. bifascia, mihi, sp. nov. (Pl. xiii, figs. 1—5.)

♂. Assam (Margherita). Long. 14 mm.

Head black, antennæ prominence small; front, vertex, and lower part of face with strong black hairs; eyes absolutely contiguous for a short space, slightly diverging towards vertex; antennæ dark brown, arista black, but base very distinctly thicker, and distinctly ferruginous; outer ocular orbit with a fringe of short yellow hairs.

Thorax black, moderately shining, with a rather thick covering of short bright yellow hair, which is, however, invisible if viewed directly from above. This yellow pubescence extends over the sides also. Scutellum nearly of the full width of thorax, tawny, darker at base, covered with thick yellow hair.

Abdomen black, moderately shining, with very short, rather thick black hair. On the sides of the 2nd segment, a very large pale aënous triangular spot, covered with yellowish grey hair;

extreme edge of the abdomen, except just before the tip, with a fringe of short bright yellow hair.

Legs wholly brown, with yellow hair on outer side of all tibiæ, on the coxæ, and on hind femora; the latter with a fringe of brown hair on more than the apical half below.

Wings yellow, veins tawny brown, stigma tawny brown, placed near tip of wing; halteres and tegulæ yellowish brown.

Described from the type-example in the Indian Museum collection.

It is interesting to add a second species to this curious genus originally described by Walker from Papua. The inflexed portions of the 3rd and 4th longitudinal veins (Verrall's subapical and postical veins) are considerably curved, exactly as in *Merodon*.

LYCASTRIS, Wlk.

L. albipes, Wlk. (Pl. xi, figs. 14, 15.)

(Syn. *Xiphopheromyia glossata*, Big.)

A ♂ from Mussoorie in the Indian Museum collection agrees with the author's description, except that the pubescence is yellowish instead of white, yet I have no doubt of it being this species. Walker says the legs are white. The specimen only possesses one leg (fore leg), which is yellow with black base to the femora.

L. flavohirta, mihi, sp. nov. (Pl. xi, figs. 16, 17.)

♂. Darjiling. Long. 10 mm.

Antennæ protuberance and snout all shining black, except a yellowish streak each side, commencing broadly at the eye, just below the antennæ, and gradually narrowing, extending nearly to the tip of the snout. Proboscis black. Antennæ black, 3rd joint dark reddish brown, arista bare. Eyes quite bare, contiguous only immediately above the antennæ, thence diverging rather widely to the vertex, which is yellowish black with a few long grey hairs; ocelli distinct, small, well separated. Sides and under side of head with pale yellow hairs, shortest above, longest near the mouth.

Thorax ænous, blackish grey at sides, dorsum and sides with long pale greenish yellow hair, thickest on posterior part. Scutellum unicolorous, with long yellow hair.

Abdomen bright yellow, 1st segment wholly ænous black on dorsum, the colour extending to the 2nd segment in the form of a triangle on the base of the segment. The whole abdomen covered with long soft hair, which is greenish yellow on basal segments, and bright yellow on the rest. Belly wholly yellow, with short yellow hair.

Legs bright yellow, coxæ, and about basal half of femora, black; anterior tarsi wholly, middle pair at tip, black; posterior metatarsus very long, and with extreme tip of tibiæ red, tips of posterior tarsi black. All the femora have a fringe of yellow hair,

longest in the centre; anterior tibiæ bare, middle pair with fringe of long yellow hair, posterior pair with yellow hair behind on apical half.

Wings grey, yellowish at base, slightly suffused at base of 2nd and 3rd longitudinal veins; over the discal cross-vein, and at wing-tip; discal cross-vein is placed nearly at the tip of the discal cell, and is very oblique; and the spurious vein is very distinct and complete; a few veinlets between the subcostal vein and the costa (this latter peculiarity being also the case in *L. albipes*). Halteres very small, knob brown, tegulæ pale grey, edge yellow, with short yellow hair.

Described from one ♂ in my collection taken by me at Darjiling, 10-15-ix-05 (type), and a ♂ in the Indian Museum collection also from Darjiling, taken 25-ix-06.

BRACHYPALPUS, Macq.

(?) *B. dives*, mihi, sp. nov.

♂. Assam (Kohima). Long. 17 mm.

Whole face yellow with silvery yellow tomentum; antennæ yellow, 3rd joint darker, eyes contiguous for half the distance to the vertex; proboscis brown, posterior orbit of head entirely encircled by a fringe of bright yellow hair.

Thorax ground colour ænous with a slight violet tinge on the dorsum, covered with rather thick short yellow hair. No signs of stripes or bands. Sides of thorax cinereous, with a thick elongated bunch of yellow hair just in front of and below the insertion of the wings, scutellum ænous, thickly covered with yellow hair; the extreme edge is narrowly ridged all round and is yellow.

Abdomen elongated, much narrower than thorax and only slightly narrowing toward apex, brilliantly shining golden yellow, 1st joint dull ænous green, the whole abdomen thickly covered with golden yellow hair which is longest at the sides and tip. Belly yellow, nearly bare.

Legs bright yellow, fore pair normal, the femora rather thickly yellow haired; the middle femora are distinctly, though not greatly enlarged towards the tip, with a fringe of long golden yellow hair in front and behind and a shorter fringe above; the middle tibiæ have, above and below, excessively long and thick golden yellow hair; the hind femora are slightly and uniformly thicker, very slightly pale brownish with a blackish streak on upper side, and are covered with moderately long golden yellow hair—the tooth on the under side is near the tip and is followed by a semicircular protuberance marked with black; the hind tibiæ are well curved, yellowish brown, darker on inner side, slightly narrow at the base, near which is a distinct tooth; black hairs on the inner side and a narrow row of pale yellow hair on the outside. The four anterior tarsi yellow, with some small black spines at the tip of each joint, hind tarsi similar, but brownish, with golden brown thick short

pubescence on under side and long black hair, bushy and straggly, on the outer side.

Wings pale yellowish, anterior border to the subcostal (1st longitudinal) vein, a little deeper yellow. Halteres, yellowish brown : tegulæ yellow, both with a fringe of thick yellow hair.

Described from one ♂ in perfect condition in the Indian Museum collection.

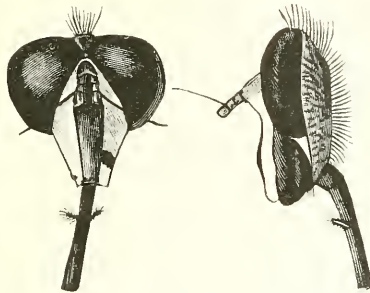
I am not certain of the position of this species here, but the only difference it shows from *Brachypalpus* is its insufficiently thickened posterior femora. It is a magnificent species.

CRIORHINA, Mg.

(?) *C. dentata*, mihi, sp. nov.

♂. Simla district. Long. 11 mm.

Head : antennal protuberance rather prominent, face much excavated below antennæ, and bearing a central knob. Eyes black, sub-contiguous for only a very short space, facets smaller round the outer parts. Vertex moderately narrow, raised, black, with long



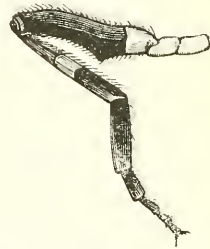
Criorhina dentata, mihi, sp. nov., ♂.

black hair in front, and tawny brown hair behind, on posterior edge. Face dull yellowish, with, seen from above, a silvery white dusted reflection ; upper side of antennal prominence shining black. Antennæ red-brown ; a few hairs on upper side of basal joints ; arista, orange, bare. Whole side of the produced snout, from the eyes to the tip, shining black, bare ; a central wide bare shining brown stripe from base of antennæ to tip of snout, mouth black, proboscis dark brown, rather long. Back of head grey ; posterior orbit of eyes with a fringe of grey hair which is shortest behind the vertex and longest on under side.

Thorax ænous, with a slight reddish coppery tinge, closely covered with thick long light brown hair, which extends over the concolorous scutellum, but is almost absent at the base of the latter, and longest of all and erect on the posterior border of the same. Sides of thorax blackish grey, shining, with thick long brownish grey hair. A small yellow callus a little below the shoulder, bearing apparently microscopic cream-coloured pollinosity. A small oval

callus, hollowed in centre, above each hind coxa, bearing very short cream-coloured pubescence. Metanotum, shining black, bare.

Abdomen: 1st segment dull bluish grey, blackish at base with a bunch of pinkish brown hairs in the centre of the posterior border; 2nd, 3rd and 4th segments with the basal half sub-metallic dull bluish black, and the apical half sub-metallic brownish black with a light brown posterior edge (widest on 4th segment). Each segment is indented transversely by a narrow grey band bearing short grey hair, the hair in front of it being light brownish grey and on apical half brownish black. Tip with brown hairs, genitals black, concealed, globular, with black hairs. Belly blackish, with greyish hairs, posterior borders of segments tawny.



Criorhina dentata, mihi, sp. nov., ♂.

Legs: coxæ blackish, fore pair with whitish reflection and grey hair; hind pair yellowish, streaked with black above, with yellowish grey hair below. Femora black, extreme tips orange-yellow, basal half of middle pair below, and a basal band on hind pair, orange-yellow. The hind femora are barely thicker than the others and bear a distinct wide tooth on the under side near the base. All the femora considerably covered with light greyish hair, mixed with some brown hairs, the under sides bearing the longest hair. Tibiæ: rather more than basal half of anterior pairs brownish yellow, the rest black, hind pair nearly all black; all with short whitish hair. Tarsi: anterior four brownish yellow, with darker tips and traces of a darker central line; hind pair dark brown, with the upper side mainly black.

Wings pale grey; stigma dark brown; cross-veins lightly suffused for a small space with brown. Halteres yellow. Tegulæ, transparent white, with yellowish brown border bearing long white hair.

Described from a ♂ in the Indian Museum collection taken at Kodiali, Simla district.

N.B.—This species may require the erection of a new genus, as it varies from typical *Criorhinæ* in several particulars, but I know of no other genus in which it can be placed. Its points of difference are the prominent antennal protuberance, the distinct central knob on face, the contiguity (sub) of the eyes for only the shortest possible distance, the straight outer side of the 3rd antennal joint and the barely thickened hind femora bearing a distinct tooth,

SERICOMYIA, Mg.

S. himalayensis, mihi, sp. nov. (Pl. xiii, figs. 6, 7, 8.)

♂. Sikkim. Long. 12 mm.

Entire frons, cheeks and lower part of head bright yellow, with some yellow hair immediately below eyes, at the sides of the cheeks, and lower part of head behind; eyes comparatively rather small, contiguous for only the shortest space, facets very small, especially on lower part, but with no distinct line of demarcation; vertex very small, slightly raised, with a few black hairs; a few black hairs also just above the antennæ, which are rather small, black and plumose above and below.

Thorax yellowish grey, entirely covered with moderately thick yellow hair, which is longest at the sides and on the posterior border; dorsum cinereous, with short yellow pubescence, and black hairs in the centre, this pubescence being hardly visible from above. Scutellum tawny, with rather long yellow hair.

Abdomen bright yellow with a black band, indistinct in the middle, on the posterior borders of 2nd, 3rd and 4th segments; the whole abdomen with minute yellow pubescence and some longer yellow hair at the tip; belly bright yellow.

Legs tawny, with thin yellow hair; femora (except tips) brownish; posterior pair nearly black; tarsi tips brown.

Wings pale grey, a dark brown moderately broad band from beyond the tip of costal cell, reaching from the fore border to the upper part of the discal cell and the lower transverse vein.

Described from one ♂ from Sikkim in the Indian Museum collection.

This genus has not been previously recorded from the Orient.

CHRYSOTOXUM.

C. sexfasciatum, mihi, sp. nov. (Pl. xiii, fig. 9.)

♀. India. Long. 13 mm.

Entire head yellow, with an orange central facial line below antennæ. Vertex shining blackish bronze reaching from eye to eye, moderately broad in front of the three ocelli, back of head continuously yellow above, but whitish behind lower portions of eyes, yellow haired above, white haired on lower part of orbit. Face minutely yellow haired. Eyes bare, facets very small. Antennæ protuberance brown, black at base above; antennæ, 1st two joints tawny brown, 3rd joint black, base tawny brown, arista tawny brown. Proboscis yellow, base black.

Thorax tawny yellow, parts of the pleuræ brassy, sides of dorsum lemon-yellow, dorsum aënous with two narrow central pale stripes placed near together; scutellum lemon-yellow, centre darker; whole dorsum of thorax and scutellum clothed with short soft pale yellow hair.

Abdomen tawny yellow; 1st segment very short, posterior border narrowly black; 2nd, 3rd and 4th segments more yellow on basal half and tawny on apical half, with two black oblique elongated oval streaks in the disc, pointing to posterior corners, those on the 2nd segment meeting towards the base of the segment in the centre. The base of 2nd, 3rd and 4th segments towards the sides and widening at the edge, black; 5th segment tawny brown with two oblique oval semi-lunate lemon-yellow fascia.

Legs yellow, coxæ brown.

Wings nearly clear, slightly yellow below the pale brown stigma. Halteres pale yellow.

Described from the above type in the Indian Museum collection taken 23-31-xi-07, at Rampore Chaka, Bijnor district, United Provinces.

C. citronellum, mihi, sp. nov.

♂. Ceylon. Long. 12 mm.

Head: vertex very small, black with a few black hairs; ocelli distinct, red, well separated. Eyes touching for half the distance from vertex to frontal triangle, facets very small, uniform. Frontal triangle small, black, with blackish brown hairs, lower part shining. Antennæ, base black (rest missing). Face bright greenish yellow, bare, with a black stripe from the antennæ, continued distinctly into the mouth cavity for some distance, each side of this stripe being narrowly tawny. Proboscis short, black. Under side of head pale livid orange. Back of head black; posterior orbit of eyes whitish, with a fringe of short white hairs, replaced behind the vertex by yellowish hairs.



Chrysotoxum citronellum, mihi, sp. nov., ♂.

Thorax: sides of dorsum occupied by a thick, wide greenish yellow stripe. Rest of dorsum shining greenish black, with two central, longitudinal, moderately wide ochreous yellow stripes, separated from each other by about the width of one of them. Sides of thorax shining black, with some yellow hairs. Mesopleuræ and an oval spot on upper part of sternopleuræ, greenish yellow; metapleuræ pale yellowish grey. Scutellum, disc, brownish, shining with brownish hairs, posterior edge, greenish yellow.

Abdomen : tricolorous ; greenish yellow, black and tawny orange, in about equal proportions. Difficult to decide on a ground colour: The best plan is to consider the abdomen as black : 1st segment very narrow, brownish, with some hairs. On each of the 2nd, 3rd and 4th segments are a pair of arched greenish yellow lunules of uniform width, almost contiguous at the base of the segment, and curving thence (convex side uppermost) to the posterior corners, where they attain the border, slightly widened. These lunules are repeated on the 5th segment, on which they are almost perpendicular. The posterior border of the 2nd, 3rd and 4th segments is tawny orange, being much wider in its centre on the 2nd segment ; whilst on the 3rd and 4th segments it spreads forwards in the shape of a triangle, of which the apex distinctly attains the base of the segment, where it separates the two lunules. This pattern is repeated on the 5th segment, but in a more exaggerated form perpendicularly (as though laterally compressed) ; thus reducing the black part between the yellow lunules and the orange triangle to two narrow streaks. The whole dorsum is very sparsely covered with short yellow hairs, and there is a fringe of very short black hairs along the edge of the whole abdomen, and a bunch of yellowish hair on the anterior corners of the abdomen. Genitalia inconspicuous.

Legs : fore coxæ greenish yellow, bare ; posterior coxæ, dark brown, shining, with a little brownish hair. Femora and tibiæ mainly greenish yellow, distal half of hind femora and tibiæ, and all the tarsi, wholly, tawny orange. Legs practically bare, but the femora have some very short light yellow hairs on the under side.

Wings pale grey ; anterior border slightly tawny ; subcostal cell dark grey. Halteres pale yellow. Tegulae whitish, with tawny edges and a little yellow hair.

Described from a unique ♂ in my own collection, sent by Mr. E. Green, taken at Kandy (Ceylon), December 1907. The specimen is perfect, except for the missing antennæ. At first I thought it was the ♂ of my *sexfasciatum*, but am now convinced it is quite distinct. The three colours in the abdomen stand out very clearly.

MICRODON, Mg.

Six species are given in V. d. Wulp's catalogue ; to which are added the following :—

M. obscurus, V. d. Wulp, 1898, Termés. Füzet., xxi, 421 ; Papua.

M. metallicus, Meijere, 1904, Bijd. Dierk., xviii, 98 ; Darjiling.

M. annandalei, mihi, sp. nov. (Pl. xiii, fig. 10.)

♂. Nepal (Soondrijal). Long. $9\frac{1}{2}$ mm.

Head black ; frons narrowed just above antennæ, covered with close silver-white hair, only visible from above ; vertex

black; antennæ black; 3rd joint one-and-a-half times as long as 2nd, or as long as 1st and 2nd together. Under side of head black, eyes bare, very shining and smooth.

Thorax black, with very sparse gold-grey hair towards the posterior part, seen best from behind; scutellum similar, with a slight indentation in centre of posterior border.

Abdomen and belly uniformly brick-red, with traces of minute whitish pubescence on posterior half; base of 1st segment black.

Legs black, with fine silvery white hair on coxæ and outside of tibiæ.

Wings pale blackish.

Described from one ♂, the type, in the Indian Museum collection.

I have much pleasure in naming this handsome species after the Superintendent of the Indian Museum, at whose hands I have received so much assistance and consideration in my study of Oriental Diptera.

M. cæruleus, mihi, sp. nov.

♀. Assam (Margherita). Long. 5 mm.

Frons shining black with very sparse and short yellowish hair; vertex forming a slightly raised triangle reaching almost to the base of the antennæ, which are blackish brown. 3rd joint a little flattened, three or four times as long as 2nd, 1st much shorter than 3rd; mouth-border pale.

Thorax (much broken) violet-black; scutellum likewise, with two short blunt but distinct spines.

Abdomen deep violet-black, posterior borders of segments and tip of abdomen with whitish hair.

Legs bright tawny red, base of fore femora brown, middle femora and tibiæ brownish grey, base of hind femora and apical half of posterior tibiæ brown.

Wings pale grey, the recurrent portions of 4th and 5th longitudinal veins almost straight.

Described from above type, which is in the Indian Museum.

M. flavipes, mihi, sp. nov.

♀. Lower Burma. Long. $7\frac{1}{2}$ mm.

Frons and vertex blackish, the former with dense gold-yellow hair, only visible from above; eyes bare, shining, bright brown, antennæ and antennal stem brown, 3rd joint twice as long as 2nd; 1st as long as 2nd and 3rd together.

Thorax brown, dorsum black, with gold hair; scutellum black, with gold hair.

Abdomen brown with gold pubescence, which is very minute on 1st three segments, seen only from in front, and forming a gold spot extending over the edges at the sides of the 3rd and 4th

segments. Two broad gold hair spots, meeting towards the apex of the abdomen, form a V.

Legs entirely bright tawny, with minute silver-yellow pubescence on outside of tibiæ and tarsi.

Wings quite clear, 4th longitudinal vein quite straight on the recurrent portion.

Described from four ♀ ♀ (including type) from Mergui in the Indian Museum collection.

M. ruficaudus, mihi, sp. nov. (Pl. xiii, fig. 11.)

♀. Calcutta. Long. 14 mm.

Entire face above and below antennæ ferruginous red, with short tawny hair; frons one-fourth width of head; ocelli very close together; antennæ tawny red, 3rd joint brownish black. Eyes bare, shining, facets very small.

Thorax blackish, with fiery red ferruginous hair; scutellum similar.

Abdomen obconical, distinctly longer than thorax; basal half black; apical half tawny red with short golden red hair. Belly bare, basal half black, apical half red.

Legs ferruginous red, practically bare; coxæ, a streak at base below middle femora, hind femora wholly except tip, and a spot on outer side of hind tibiæ at tip, black.

Wings tawny yellow. Halteres tawny.

Described from the one ♀ taken by me in Calcutta, 26-ix-04. Type in my collection.

M. apicalis, V. d. Wulp.

As the specific name *apicalis* has been used in this genus I propose *wulpii* for this species.

M. auricinctus, mihi, sp. nov.

♀. Ceylon. Long. 13 mm.

This species bears considerable resemblance to my *ruficaudus*, its differences being as follows:—

The antennæ are black, except the dark red basal half of the 1st joint. The hair on the face is thick, golden yellow. Metanotum shining black. The 2nd abdominal segment is black in the centre, and ferruginous red towards the sides; nearly the whole segment, including the posterior border, being covered with short, fiery golden-reddish tomentose hair. 2nd segment black; a stripe of short bright golden hair across the base, continued downwards over the edge, and along the sides, below. A stripe also of similar hair on the posterior border, also carried over the edge to the under side. 4th segment, wholly ferruginous red, nearly bare, except for a little concolorous hair at tip.

Fore coxæ tawny, posterior coxæ blackish, all coxæ with bright short golden yellow hair. Remainder of legs wholly bright tawny red, unmarked.

Wings dark grey, distinctly blackish at tip and bright yellowish tawny from the anterior border down to the *vena spuria*, this colour extending distally to a little beyond the end of the upper basal cell.

Described from a perfect unique example sent me by Mr. E. Green, taken at Kandy in October 1907. In my collection.

The full list of Oriental species will now stand thus—

1. *stilboides*, Wlk., 1849, List Dip. Br. Mus., ii, 538; East India.
2. *indicus*, Dol., 1857, Nat. Tijd. Ned. Ind., xiv, 404 (*Ceratophyia*); Amboina.
3. *fulvicornis*, Wlk., 1859, Pr. Linn. Soc. Lond, iii, 94; Aru Islands.
4. *apicalis*, Wlk., 1859, Pr. Linn. Soc. Lond, iii, 94; Aru Islands.
5. *sumatranus*, Wulp, 1892, Dipt. Sum. Exp., 29; Sumatra.
6. *wulpïi*, Wulp, 1892 (change of name from *apicalis*, V. d. Wulp), Dipt. Sum. Exp., 29; Sumatra.
7. *obscurus*, Wulp, 1898, Termés. Füzet., xxi, 421; Papua.
8. *metallicus*, Meijere, 1904, Bijd. Dierk., xviii, 98; Darjiling.
9. *annandalei*, mihi, sp. nov., ♂; Nepal.
10. *cæruleus*, mihi, sp. nov., ♀; Assam.
11. *flavipes*, mihi, sp. nov., ♀; Assam.
12. *ruficaudus*, mihi, sp. nov., ♀; Calcutta.
13. *auricinctus*, mihi, sp. nov., ♀; Ceylon.

CERIA, F.

To the six species of this genus given in V. d. Wulp's catalogue, are to be added five others, two being described recently, and three of mine described below.

C. metallina, V. d. Wulp, 1898, Termés. Füzet., xxi, 420; Papua.

C. trinotata, Meijere, 1904, Bijd. Dierk., xviii, 97; Darjiling.

C. obscura, mihi, sp. nov. (Pl. xiii, fig. 12.)

♀. Sikkim. Long. 12½ mm.

Frons and vertex all black; a yellow thin V-mark below antennæ, which are all black, the three joints being about equal in length, and the antennal stem a little longer than the 1st joint.

Thorax dull black, humeral calli tawny; scutellum black, the posterior edge narrowly yellow.

Abdomen black; basal three-fourths of the contracted 2nd segment brown; posterior borders of 2nd and 3rd segments narrowly yellow; 4th with a distinctly wider black border; 5th black, small.

Legs all dark brown, the outer sides of the tarsi with a little grey pubescence.

Wings grey, dark brown from the costal border; the colour extending over both basal cells, and to about half way between the 3rd and 4th longitudinal veins, and reaching to the wing-tip at the termination of these two veins. The lower half of the discal cell is thus clear.

Described from one ♀ in the Indian Museum collection, from Sikkim.

C. compacta, mihi, sp. nov. (Pl. xiii, fig. 13.)

♀. Lower Himalayas (Mussoorie). Long. 11½ mm.

Vertex broadly black, also a wide stripe below antennæ and lower part of face and a transverse line just below the vertical black spot; rest of face red, antennal protuberance reddish brown, antennæ dark brown, 3rd joint nearly black. A little white hair behind the eyes and on lower part of head.

Thorax all black except red shoulder spots and a vertical red stripe each side of the thorax a little in front of the wings; scutellum entirely red.

Abdomen black, dull, posterior edges of 2nd, 3rd and 4th segments with a thick but narrow red border.

Legs red; coxæ, a narrow ring at the base of the four anterior femora, and extending to about two-thirds on the hind femora (extreme base red), and a narrow, somewhat interrupted ring on apical half of all the tibiæ, black.

Wings clear; brown from fore border to just beyond the 3rd longitudinal vein and including the whole of the lower basal cell. Halteres yellowish red.

Described from one ♀ taken by me at Mussoorie, 22-vi-05. In my collection.

C. apicata, mihi, sp. nov.

(*Id. id.*, Bigot, *nom. nud.*)

♂. South India. Long. 18 mm.

Head: face wholly bright orange-yellow, bare; cheeks and mouth with a raspberry-red tinge. Antennæ raspberry-red, the apical half of 3rd antennal joint yellowish grey. Vertex narrowly yellow, ocellar elevation small, reddish. Proboscis and palpi black. Eyes dark bronze-brown. Back of head yellow.

Thorax reddish brown, bare. Humeral and præalar calli orange-yellow. Meso-, ptero- and sternopleuræ, brownish yellow. Scutellum and metanotum red-brown; posterior border of scutellum yellow.

Abdomen reddish brown, with very minute pubescence. Posterior border of 2nd segment narrowly yellow, a wider yellow border on the 3rd segment, widening at the sides; 4th segment

yellow, narrowly dark red-brown at base, and with a thick yellow posterior border, narrowest in the centre, and widened and extended forwards along the sides. Genitals raspberry-brown.

Legs red-brown; a yellow streak on the under side of fore pair, and the basal half of hind femora yellow.

Wings clear; basal half of costa yellowish, also base of wing; a blackish spot at the tip, limited posteriorly by the 4th longitudinal vein. Anal vein suffused with yellow, as far as the cross-vein. Halteres small, blackish.

Described from a ♂ in the Indian Museum collection taken at Ganjam (Madras Presidency). One of each pair of legs is missing: the species appears quite a distinct one.

Of the previously described species, *C. eumenoides*, Saunders, is represented in the Indian Museum collection by two ♀ ♀ (one from Calcutta), and *C. javana*, Wied., by a pair from Tenasserim.

A specimen from the Naga Hills in the collection, labelled *C. vittigera*, Big., is only *C. javana*, Wied., the former name being a *nomen nudum*.

NOTES ON THE ORIENTAL SYRPHIDÆ.

By E. BRUNETTI.

PART I.

[Owing to delay in the receipt of the MS. it has been found necessary to postpone the publication of this paper until the next number of these "Records" appears. As the plates have been already printed, however, they are issued now, with the Author's bare references to the figures.—ED.]

EXPLANATION OF PLATES XI, XII AND XIII.

PLATE XI.

- FIG. 1.—*Paragus luteus*, Bru., sp. nov., ♀.
 ,, 2.—*Eriozona ruficauda*, Bru., sp. nov., ♀.
 ,, 3.—*Baccha robusta*, Bru., sp. nov., ♂ ♀. Abdomen.
 ,, 4.— Id. Head.
 ,, 5.—*B. nigricosta*, Bru., sp. nov. Wing.
 ,, 6.—*B. tinctipennis*, Bru., sp. nov. Wing.
 ,, 7.—*Rhingia laticincta*, Bru., sp. nov. ♂ ♀. Abdomen.
 ,, 8.— Id. var. ♂ ♀. Abdomen.
 ,, 9.—*Volucella nubeculosa*, Macq. Abdomen.
 ,, 10.— Id. Wing.
 ,, 11.—*V. basalis*, Bru., sp. nov., ♀. Abdomen.
 ,, 12.— Id. Wing.
 ,, 13.—*V. ruficauda*, Bru., sp. nov., ♂ ♀.
 ,, 14.—*Lycastris albipes*, Wlk. ♂.
 ,, 15.— Id. Wing.
 ,, 16.—*L. flavohirta*, Bru., sp. nov., ♂. Abdomen.
 ,, 17.— Id. Wing.

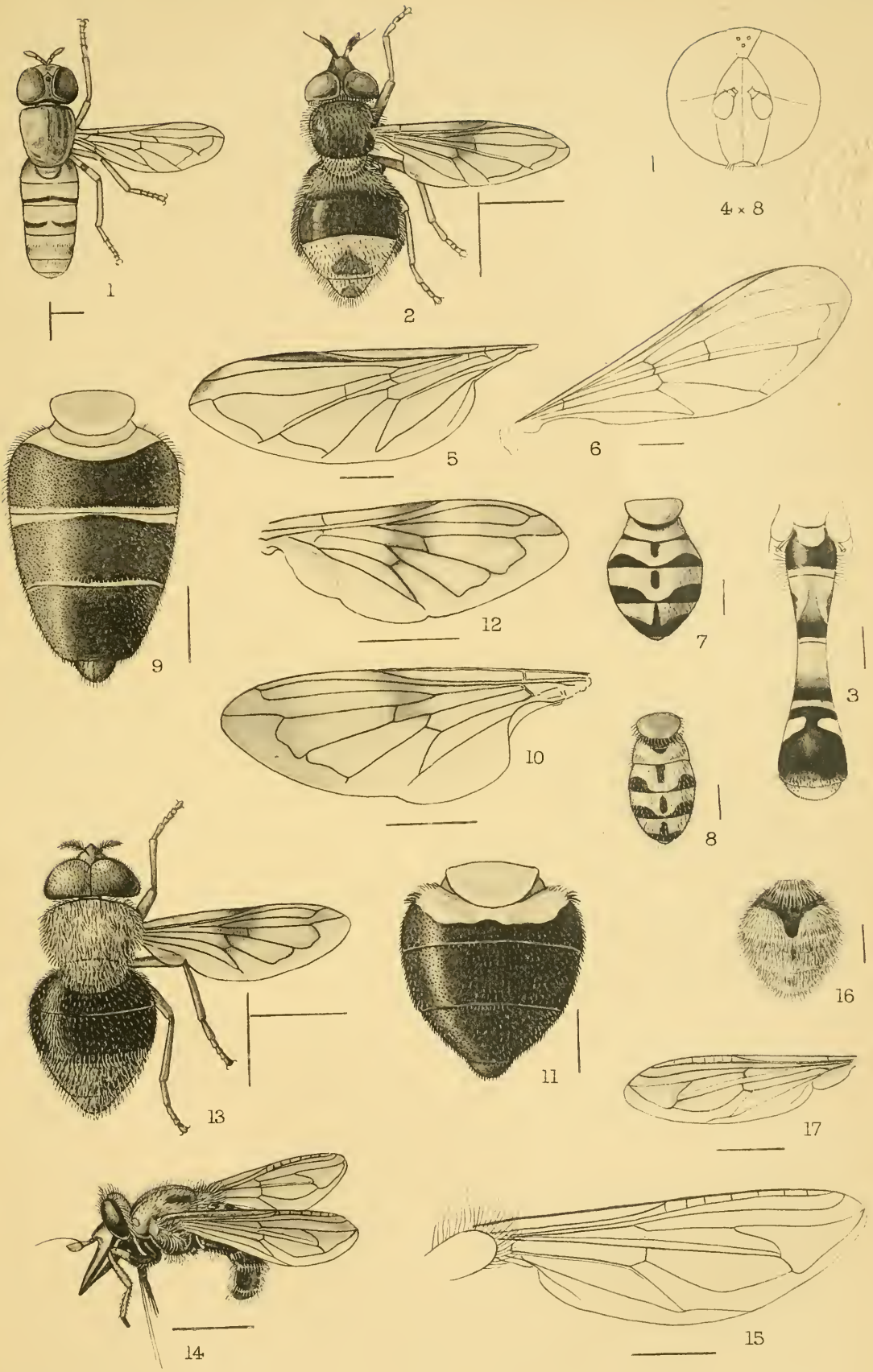
PLATE XII.

- FIG. 1.—*Helophilus quadrivittatus*, Wied., ♂. Abdomen.
 ,, 2.— Id. ♀. Id.
 ,, 3.— Id. var. ♀. Id.
 ,, 4.—*H. bengalensis*, Wied. ♂. Id.
 ,, 5.— Id. ♀. Id.
 ,, 6.— Id. var. ♀. Id.
 ,, 7.—*H. insignis*, Dol ♂. Id.
 ,, 8.— Id. ♀. Id.
 ,, 9.— Id. Posterior leg.
 ,, 10.—*H. sp.?* ♀. Abdomen.

- FIG. 11.—*H. sp.* near *pilipes*, Dol. ♂. Abdomen.
 ,, 12.— Id. Anterior, middle and posterior leg.
 ,, 13.—*H. sp.*, ♀. Abdomen.
 ,, 14.— Id. Anterior middle and posterior leg.
 ,, 15.—*H. aënous*, Bru., sp. nov., ♀.
 ,, 16.—*H. tuberculatus*, Bru., sp. nov., ♂ ♀. Abdomen.
 ,, 17.— Id. Middle leg.
 ,, 18.—Bigot's "*H. pilipes*, Dol.," ♂. Abdomen in profile.
 ,, 19.— Id. Anterior leg.
 ,, 20.— Id. Middle leg.
 ,, 21.—*H. sp.*, ♀. Abdomen.

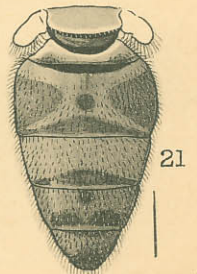
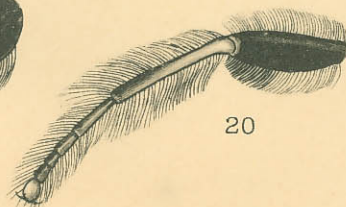
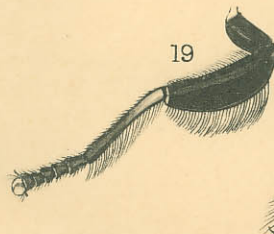
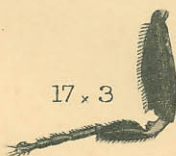
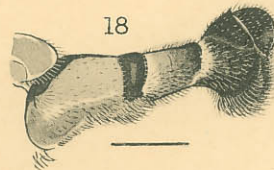
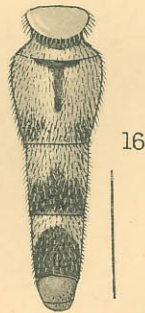
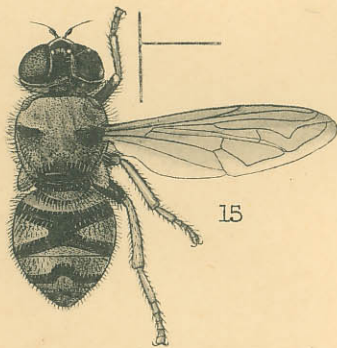
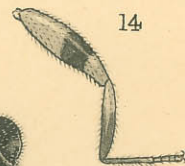
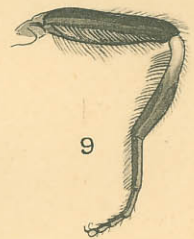
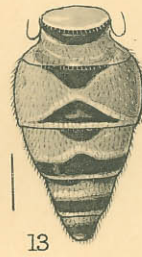
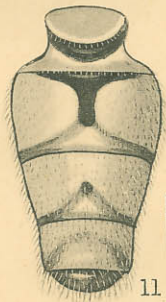
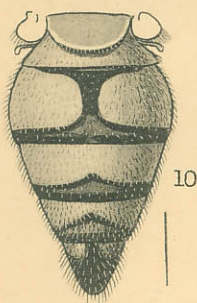
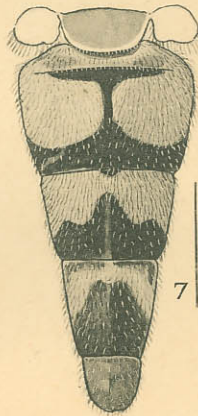
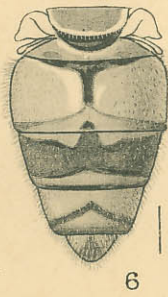
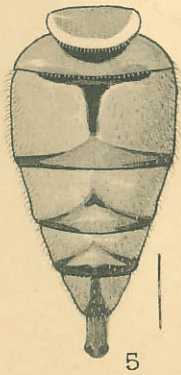
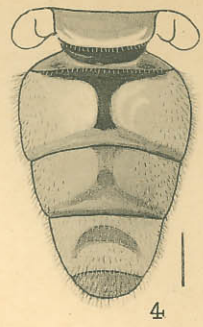
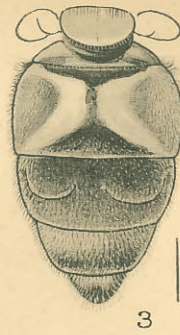
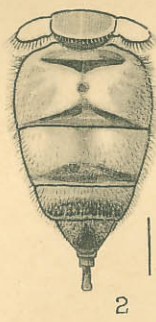
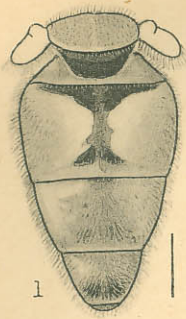
PLATE XIII.

- FIG. 1.—*Azpeytia bifascia*, Bru., sp. nov., ♂. Abdomen.
 ,, 2.— Id. Wing.
 ,, 3.— Id. Head.
 ,, 4.— Id. Thorax and scutellum.
 ,, 5.— Id. Posterior leg.
 ,, 6.—*Sericomyia himalayensis*, Bru., sp. nov., ♂.
 ,, 7.— Id. Antenna.
 ,, 8.— Id. Posterior leg.
 ,, 9.—*Chrysotoxum sexfasciatum*, Bru., sp. nov., ♀.
 ,, 10.—*Microdon annandalei*, Bru., sp. nov., ♂.
 ,, 11.—*M. ruficaudus*, Bru., sp. nov., ♀.
 ,, 12.—*Ceria obscura*, Bru., sp. nov., ♀.
 ,, 13.—*C. compacta*, Bru., sp. nov., ♀.



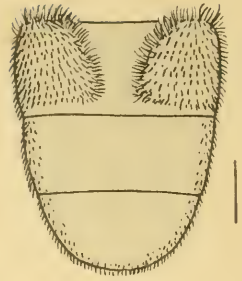
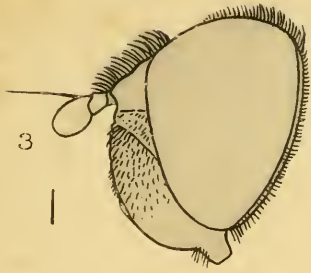
A C. Chowdhary, del.

ORIENTAL SYRPHIDÆ.

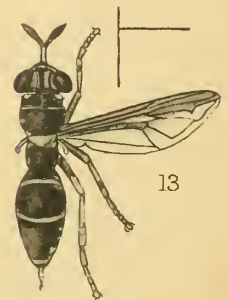
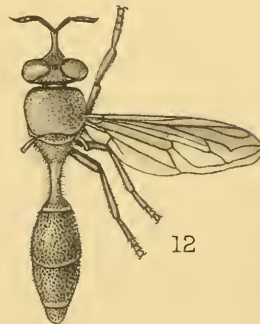
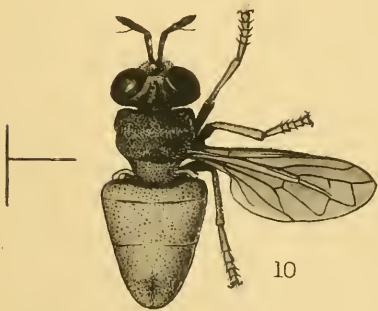
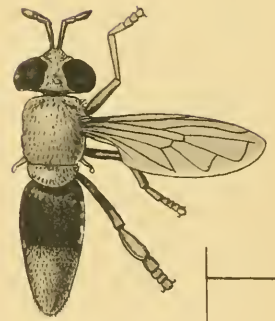
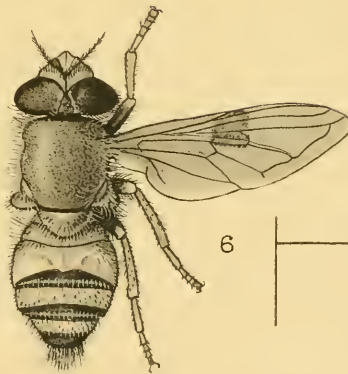
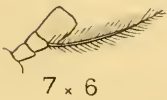
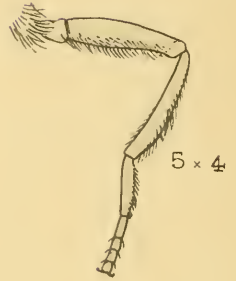
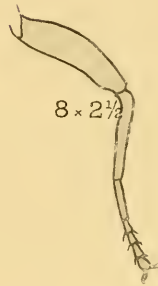


A.C. Chowdhary, del.

ORIENTAL SYRPHIDÆ.



1 x 4



A. C. Chowdhary, del.

ORIENTAL SYRPHIDÆ.