

DIPTERA NEMATOCERA FROM MOUNT KINABALU.

(Plate xii, and thirteen text figures.)

BY

F. W. EDWARDS.

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XX. DIPTERA NEMATOCERA FROM MOUNT KINABALU.

By F. W. EDWARDS.

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(With one plate and thirteen text figures).

The following report is based entirely on collections made by Mr. H. M. Pendlebury during an ascent of Mt. Kinabalu (North Borneo) in the early months of 1929, these being the first collections of Nematocera ever made on the mountains of North Borneo. The localities of the various camps,¹ with altitudes and dates, are as follows:

Locality	Altitude	Dates
Kabayau	600 ft.	March 24.
Kiau	3,000 ft.	April 21—30.
Kenokok	3,300 ft.	April 22—26.
Tenompok Pass	4,700 ft.	March 18.
Marei Parei	5,000 ft.	April 27—May 1.
Lumu Lumu	5,500 ft.	March 20—April 11.
Kamborangah	7,200 ft.	March 19—April 5.
Pakka	10,200 ft.	March 23—26.

It should be noted that Kabayau and Kiau are in the zone of secondary forest and cultivation, all the other localities being in the primitive forest which covers the mountain above an altitude of 3,000 ft. Consequently it is not surprising to find that the fauna of Kiau is rather different from that of the other localities and includes a greater proportion of known species.

Up to the present about 200 species of Nematocera (excluding 100 Culicidæ) have been recorded from the whole of Borneo, the great majority of these being described in two papers by the writer.² This collection from Mt. Kinabalu includes about 180 species, only 43 of which had previously been recorded from Borneo, most of these being from the mountains of Sarawak. Of the remainder, 98 are described as new in this report, the others being

¹For descriptive account of the expedition, by Messrs. H. M. Pendlebury and F. N. Chasen, *vide* Journ. F.M.S. Mus. xvii, pp. 1—38 (1932).

²Diptera Nematocera from the Mountains of Borneo. Sarawak Mus. Journ., Vol. III, No. 10, pp. 243—278 (1926).

Diptera Nematocera from the lowlands of North Borneo. Journ. F.M.S. Mus., Vol. XVI, pp. 486—504 (1931).

identified with species previously known from Malaya, Java, Sumatra or (in a very few instances) the Philippine Is., or Japan.

It had been anticipated that the Mt. Kinabalu fauna might show a greater degree of affinity with the faunas of the Philippine Islands or Formosa than is evident in Malaya or even in Sarawak. As regards the Nematocera there is some evidence that this is the case, but the material available from any of these regions is not yet full enough for a detailed comparison. So far as can be judged, the Tipulid fauna is much more like that of Formosa than that of Luzon, but the species, though in many cases very similar, are seldom actually the same. The Nematocera of Palawan, which might be expected to show the greatest resemblance to those of North Borneo, have not yet been investigated.

About one-third of the species represented in the collection belong to families other than Tipulidæ; of these, the new mimetic *Platyura*, the new genus of Allactoneurinae the new *Blepharocera* and the new *Nemopalpus* call for special note, as does the occurrence of two species of *Anisopus* which seem to be representatives of the European *A. fenestralis* and *A. punctatus*. In the Mycetophilidæ, the large preponderance and variety of species in the Sciariinae is noteworthy, this being also the case in Malaya. The five species of Simuliidæ are the first of this family to be recorded from Borneo.

Among the Tipulidæ the genus which is best represented is *Limonia* (sens. lat.), with 32 species, of which, however, only 11 are new. On the other hand almost all the rather numerous species of *Helius* are new, and a very high proportion of new species (12 out of 21) is found among the Tipulinae, a fact which confirms the conclusion previously arrived at that the larger species of this family show a greater tendency to the development of local races and species than the smaller ones. The Eriopterini and Hexatomini are not very strongly represented, and the majority of the species of these groups were already known. Very striking is the almost complete absence of the genus *Eriocera*; and it is noteworthy that some groups which are extensively developed in the Philippines (e.g. *Polyphragma*, *Scamboneura*, *Pselliophora*) also appear to be absent. Rather unexpected is the occurrence of *Discobola argus* (together with two other species of the same subgenus), which seems to indicate the presence of a definite holarctic element in the fauna.

Through the kindness of Messrs. C. Boden Kloss and H. M. Pendlebury the types of all new species are preserved in the British Museum.

Family MYCETOPHILIDÆ.

Subfamily CEROPLATINÆ (incl. MACROCERINÆ).

***Macrocera picturata* sp. n. (Pl. XII, fig. 1.)**

♂. *Head* light brownish, with a small black ocellar triangle; palpi and first few segments of antennæ light brownish. Antennæ about twice as long as body, rather stout towards base. *Thorax* dark brown, scutum mainly occupied by three shining blackish stripes, the middle one divided anteriorly by a pale line; pleuræ mainly blackish. *Abdomen* largely blackish above, light brown beneath; tergites 1—2 with broad light brown basal bands; similar but narrower bands on 3 and 4. *Legs* brownish, middle and hind coxæ dark brown at tips. *Wings* (pl. xii, fig. 1) bare, with faintly yellowish ground-colour; cells *C*, *Sc* and base of cell *Cu2* deep yellow; conspicuous dark brown markings as figured. Anal angle nearly square. Halteres with outer half of knob dark.

Length of body, 7 mm.; antennæ, 15 mm.; wing, 7 mm.

Kamborangah, 1 ♂.

A very beautiful species related to *M. ornata* Brun. (India) and *M. decorosa* Skuse (Australia), from both of which it differs in the presence of a dark band along the posterior margin of the apical third of the wing.

***Macrocera ephemeræformis* Alex. (Pl. XII, fig. 2).**

♀. Allied to *M. alternata* Brun. (Himalayan region), differing chiefly as follows:—Antennæ longer, less conspicuously ringed, mostly brown on outer half, pale rings on basal half broader but duller brown; first flagellar segment only slightly darkened at base, next few with less than the basal half blackish, rest brown, indistinctly lighter towards tips. *Wings* (pl. xii, fig. 2), as in *M. alternata*, with conspicuous alternating dark brown and yellow spots costally, but spots over humeral cross-vein and tip of *Sc* much larger; no obvious darkening at tips of *M1*, *M2* and *Cu1*, but a rather broad brown seam extending almost the whole length of *Cu2*.

Length of body, 8.5 mm.; antenna, 8 mm.; wing, 15 mm.

Kamborangah, 1 ♀.

Alexander's type was a male from Japan (Honshiu); the description corresponds so nearly (except as regards length of antennæ) with the female before me that I have no hesitation in referring it to the same species. I have also seen specimens, differing in minor details, from Malaya and Assam.

***Macrocera trinubila* sp. n. (Pl. XII, fig. 3.)**

♀. *Head* dark brownish, lighter on occiput. Antennæ dark brown, lighter towards base. *Thorax* shining

brown, pleuræ and post-notum darker; a rather ill-defined blackish brown stripe extends from middle coxa on to sides of scutum. *Abdomen* with segment 1 ochreous, 2—7 mainly black, but each with a rather narrow ochreous basal band. *Legs* brownish, middle coxæ darker than the others. *Wings* (pl. xii, fig. 3) bare, ground-colour greyish, with three dark brown areas towards costa separated by two small pale yellowish areas. Tips of veins not darkened. Costa much produced. Halteres pale.

Length of body, 4 mm.; wing, 4.5 mm.; antenna 6.5 mm.

Kamborangah, 1 ♀.

Very distinct from other species by the wing-markings.

Macrocera klossi sp. n.

♂ ♀. *Head* blackish above, yellow round antennæ. Palpi black. Antennæ with scape ochreous, flagellum dark brownish. *Thorax* with brownish ground-colour, moderately shining; scutum mainly occupied by three blackish stripes, which in ♀ are quite fused; pleuræ also mainly blackish. *Abdomen* dark brown, posterior margins of segments pale, especially in ♀. Hypopygium normal. *Legs* brownish, all coxæ completely pale. *Wings* hairy on about the apical fourth. Ground-colour clear; apical fifth light brown, but the marking clearly defined; a small brown area over tip of *R1*; a large rounded brown patch over stem of median fork, not reaching costa but crossing cell *Cu1* near base and continued faintly as a grey seam along *Cu2*. Costa much produced; *R4* short (situated well before the dark tip), its basal half vertical, outer half bent outwards, tip of *R1* considerably thickened. Halteres with dark knob, stem mostly pale.

Length of body, 4.5 mm.; wing, 5.5 mm.; antenna, ♂ 17, ♀ 13 mm.

Kamborangah, 1 ♂ 1 ♀.

Allied to *M. nitens* Edw. (Samoa), differing in colour of thorax and wing-markings.

Platyura (Isoneuromyia) polybioides sp. n. (Fig. 1).

♂ ♀. *Head* blackish above, orange on face and above antennæ. Palpi and labrum black. Antennæ alike in the two sexes (slightly longer in ♂), stout and much flattened, fully as long as head and thorax together; first four or five flagellar segments orange, scape and outer part of flagellum black. *Thorax* yellow; mesonotum slightly shining, with three confluent black stripes, median stripe reaching front margin, lateral stripes much abbreviated in front, but reaching back to the yellow scutellum; pleuræ largely dull blackish, but postnotum (mediotergite and pleurotergites) yellow,

without the silvery dusting which is present in many species of this sub-genus. *Abdomen* blackish (largely owing to dense pubescence), segments 1—4 with ochreous basal bands, a less distinct light band on 5. In both sexes segments 1 and 2 are narrow (2 being rather longer than



Fig. 1. *Platyura (Istoneuromyia) polybioides* sp. n.
♀ $\times 6$. With portion of hind leg
further enlarged.

usual), 3 gradually widened, and 4 and 5 still wider, so that the abdomen has a petiolate, wasp-like appearance. Hypopygium small, styles with two black teeth as usual in this subgenus. Cerci of ♀ short and mostly hidden. *Legs* with coxæ and femora ochreous, front femora somewhat darkened above at base. Front tibiæ brownish at base, outer half blackened, spur black. Middle and hind tibiæ brownish, spurs pale yellow. Front tarsi black, first segment half as long again as tibia. Middle tarsi with first segment somewhat paler than tibia, rest darkened. Hind tarsi with first segment whitish, very slightly swollen in both sexes, with only a few rows of close-set setulæ, only three such rows being visible in dorsal view; second segment somewhat pale, rest dark. *Wings* rather broad, slightly brownish tinged, with a large but not well-defined darker brownish patch at tip. Venation normal for the sub-genus; *An* ending near tip of *Cu*2. Halteres orange.

Length of body, 13—14 mm.; wing, 12 mm.

Lumu Lumu, 1 ♂, 1 ♀.

This large *Isoneuromyia* is remarkably distinct from others hitherto described, notably by the strongly bicolored antennæ, shape of abdomen, pale spurs of posterior tibiæ, and form and colour of hind tarsi; nevertheless it shows all the essential features of the subgenus.

The form of the body is distinctly wasp-like, and there can be little doubt that this species is a definite mimic of a Vespid. In the present collection there is a female wasp taken by Mr. Pendlebury at the same time and place as the *Platyura*, and sent with the fly to show their similarity; the resemblance is fairly close in form and colouring of the body, though not of the antennæ and legs. This wasp is presumably the model; it has been determined for me by Mr. R. B. Benson as *Polybia raphigastrea* Sauss.

P. polybioides is not the first wasp-mimic of this subfamily to be discovered; the Australian *Nicholsonomyia respiformis* Tonn. is also apparently a mimetic form, and in many respects is not unlike *P. polybioides*, although in the case of *N. respiformis* no definite model has been recorded. Tonnoir's genus *Nicholsonomyia* is very close indeed to the subgenus *Isoneuromyia* of *Platyura*, in fact the only important distinction appears to be the presence in the former of a distinct basal section of media dividing the basal cell into two.

Platyura (Rutylapa) kinabaluensis sp. n.

♂ ♀. Allied to *P. (R.) penrisseensis* Edw. (Sarawak), differing as follows:—Thorax darker. Postnotal mediotergite bare, without the usual small bristles (though in all other respects the species is typical of the subgenus *Rutylapa*). Male hypopygium with the tergite larger,

square-ended; style with the blackened tip pointed and somewhat narrowed instead of expanded. Wings with the markings more conspicuous; outer brown band filling tip of cell *R*₄ and extending irregularly almost or quite to hind margin; brown area over tip of *Cu*₂ larger. Halteres with knob darkened, especially on its basal half.

Length of body, 5.5 mm.; wing, 5.5 mm.

Lumu Lumu, 1 ♂ 1 ♀ (*in cop.*)

In these two specimens there is a sexual difference in the spurs of the middle tibiae. In the male (as in the male of *P. penrissenensis*) both spurs are very short, much shorter than the tibial diameter; in the female (as in both sexes of the subgenotype, *P. ruficornis* Zett.) the outer spur is about as long as the tibial diameter, the inner spur only about a quarter as long. Most if not all species of *Rutylapa* seem to have the mid-tibial spurs shorter than in most other subgenera.

Platyura (*Rutylapa*) *binocellifera* sp. n.

♀. *Head* blackish, face more brownish. Only two ocelli, placed rather close together. Supra-antennal grooves rather more pronounced than usual, as is the ridge above them. Antennæ with scape and base of first flagellar segment light brownish, flagellum black, last segment with tip narrowed and pointed. Palpi pale yellowish, rather long. *Thorax* light brownish, somewhat shining, postnotum and pleuræ darker brown, pleurotergites almost black. Spiracular hairs present but few in number; mediotergite and anepisternite bare. *Abdomen* brownish, segments indistinctly lighter posteriorly, first tergite black. *Legs* yellowish, tarsi darkened; spurs normal for the subgenus. Front tarsi long, basitarsus considerably longer than tibia. *Wings* faintly yellowish, with an ill-defined dark cloud at tip below *R*₅, veins dark; venation normal for the subgenus; *R*₅ straight, *M*₂ and *4n* somewhat abbreviated; *m-cu* fusion less than half as long as stem of median fork. Halteres with knobs black.

Length of body, 4.5 mm.; wing, 4.5 mm.

Lumu Lumu, 1 ♀.

This is probably related to *P. funerea* Brun. (Sikkim), which also has only two ocelli, but is said to have the thorax dull black, with greyish shoulders. Although the new species differs from typical *Rutylapa* in the absence of the median ocellus and the bare anepisternite and mediotergite, it exhibits all the other features of the subgenus and I do not consider it necessary to exclude it therefrom.

Subfamily SCIOPHILINAE.

Leptomorphus *chasei* sp. n.

♀. Allied to *L. ornatus* Brun. (Assam) which it rather closely resembles, differing as follows:—Antennæ

rather shorter, most flagellar segments only a little longer than broad. Prothorax and sternopleura shining black, like remainder of thorax (though the scutellum is yellow). Ovipositor with a group of stiff black bristles beneath, instead of yellowish hairs. Hind femora with the tip darkened on the upper surface only, no darkening at base. Wings with only a faint darkening at tip. Knob of halteres completely black, as well as most of stem.

Kenokok, 1 ♀.

L. ornatus and the new species belong to a group of closely allied Oriental and African forms which differ from the genotype (*L. walkeri* Curt.) in the reduction of the thoracic hairs and bristles, the fine hairs of the scutum being almost confined to two dorso-central rows; in both *L. ornatus* and *L. chaseni* the minute dorso-central hairs are uniserial or irregularly biserial.

Mycomyia spp.

The collection includes three female specimens, apparently representing three distinct species, all resembling the British *M. maura* Walk. In the absence of the male sex it seems undesirable to describe them; one of them may possibly be a form of *M. unipectinata* Edw. (Ceylon).

Leia (s. str.) **major** sp. n.

♂ ♀. *Head* black above, face brownish. *Palpi* light brownish. *Antennæ* with first few segments light brownish, remainder dark. *Thorax* mainly black, moderately shining, only the pronotum orange. *Scutum* largely bare, acrostichal and dorso-central hairs roughly biserial. *Scutellum* with four strong bristles. *Abdomen* black, slightly shining, with small lateral basal yellowish spots on each segment, on 4 and 5 forming narrow basal bands. *Hypopygium* small. *Legs* brownish, coxæ and front femora lighter; posterior femora extensively blackened beneath and narrowly black at tip. *Middle tibiæ* with strong bristles in four rows: four dorsal, four external, four ventral (two towards base rather externo-ventral, the two towards tip rather interno-ventral) and four internal. *Hind tibiæ* with strong bristles in three rows: four dorsal, five external and four interno-dorsal. *Wings* with a strong brown tinge, apical fourth much darker brown; all veins very dark; no clouds over any veins in middle. *R1*, *r-m* and stem of median fork all about equal in length; *M2* bent upwards apically; *Cu1* not detached at base, rather sinuous. *Halteres* orange.

Length of body, 4—5 mm.; wing, 5—6 mm.

Kamborangah, 1 ♂ 1 ♀.

Distinguished from other Oriental species with a black mesonotum by its larger size, chætotaxy of tibiæ, etc.

Leia (Indoleia) bisetosa Edw.

Kenokok, 1 ♀.

Subfamily ALLACTONEURINAE.

Allactoneura obscurata Walk.

Kiau, 1 ♀.

The specimen agrees with Walker's types from Sula and Menado. *A. obscurata* differs from *A. nigrofemorata* de Meij. in its completely black abdomen and in having the costal border of the wing dark on the outer half or more.

Genus **Eumanota** gen. n.

Head shaped much as in *Allactoneura* and *Manota*, but not quite so flat behind (somewhat conical). Strong, recurved, outstanding bristles present round greater part of orbits, but those at vertex (immediately behind ocelli) quite short. Three ocelli in a straight line, laterals very large and close to eyes. Face broad, with numerous short bristles in addition to shorter pubescence, not divided by a suture into an upper bare portion and a lower pilose portion (as in *Allactoneura*) but the vestiture uniformly distributed (as in *Manota*). Palpi apparently consisting of three segments, first expanded, rather leaf-like, second inserted near base of first, almost cylindrical, third inserted before tip of second, very long and whip-like, several times as long as first and second together. *Thorax* with rather numerous short bristles on pronotal lobes and propleuræ (thus differing from both *Allactoneura* and *Manota*). Pleurotergites hairy. No dorso-central bristles. *Abdomen* with six visible segments as usual. *Legs* with front coxæ very large, reaching to the tips of the long posterior coxæ; femora flattened; tibial setulæ in regular close-set rows throughout; bristles much shorter than tibial diameter, spurs moderately long, formula 1. 2. 2. Hind tibia with outer and inner combs at tip, formed of slender bristles. *Wings* (pl. xii, fig. 4) with the microtrichia irregularly arranged; rather numerous erect macrotrichia along whole posterior border of wing. Venation: *Sc* very short, ending in *R*; *R1* about as long as *r-m*, which is long and almost horizontal; *R5* much curved and running close to costa, which is much produced; median fork with very short stem; *M1* faint at base for a short distance, ending slightly above wing-tip and immediately beyond tip of costa, so that cell *R5* is unusually narrow; *Cu1* and *Cu2* arising separately at base of wing; *An* abbreviated, running unusually close to *Cu2*; *Ax* absent.

Genotype, *E. leucura* sp. n.

This is a remarkably distinct genus, which seems to connect the Manotinæ with the Leiini. It differs from the Manotinæ as defined by me in the possession of numerous though short prothoracic bristles, but shows so many points in common with *Manota* that there seems little doubt that the two are somewhat closely related. The venation of the new genus is absolutely distinctive, but resembles that of *Manota* (in which the venation is degenerate) in several respects, especially the position of the tip of *M1* above the wing-tip and close to the tip of the costa. The remarkable form of the palpi also reminds one of the somewhat similar form of these organs in *Manota*.

Eumanota leucura sp. n. (Pl. XII, fig. 4.)

♂. *Head* dark brownish, lighter round orbits. Face dull pale ochreous, parallel-sided, only about one-fourth longer than broad, bristles black, scutellum pale. Antennæ nearly twice as long as thorax, dark brown, scape and under side of first few flagellar segments paler; first flagellar segment not longer than broad, second considerably longer, rest gradually lengthened, last few nearly three times as long as broad. *Thorax* blackish, mesonotum slightly shining, with short, dense, uniformly distributed dark pubescence; scutellum with about a dozen black marginal bristles, not very strong. *Abdomen* black above and below, scarcely shining; hypopygium large, somewhat shining black, anal segment projecting much beyond hypopygium, white in colour. *Legs* with coxæ light brownish, middle and hind pairs obscurely dark brown at base and tip; front coxæ with very numerous short black bristles over the whole surface, middle and hind pairs without bristles. Front femora dark brownish, pale at tip; middle femora all blackish; hind femora pale brownish basally, almost black on rather more than the basal half. Tibiæ and tarsi ochreous; spurs black; hind tibiæ at base on inner side with three slender outstanding bristles in a row; rows of fine setulæ on inner side of basal third of hind tibia rather peculiarly arranged; only a few short postero-ventral bristles near middle of hind tibia. *Wings* smoky, more especially on outer half, the tint deepest in cell *R5*, which is darkened right to the base. Halteres yellow, base of knob somewhat darkened.

Length of body, 4 mm.; wing, 4.2 mm.

Lumu Lumu, 1 ♂.

Eumanota humeralis sp. n.

♂. Much resembles *E. leucura*, differing as follows:—*Head* blackish above, ochreous at sides, the colours rather sharply separated. *Thorax* with shoulders and lateral margins of mesonotum ochreous. *Abdomen* with sternites 2—5

ochreous; hypopygium smaller, anal segment less projecting, more yellowish. *Legs* with posterior coxæ not darkened at base; femora mainly light brownish, middle pair somewhat darkened beneath; hind tibiæ without longish bristles at base on inner side, and the rows of setulæ less noticeably irregular in arrangement, but with a more continuous row of minute postero-ventral bristles. *Wings* rather less smoky, outer half scarcely darker than base.

Length of body, 4 mm.; wing, 3.5 mm.

Kenokok, 1 ♂.

Subfamily MYCETOPHILINAE.

Exechia flava White, var.

Marei Parei, 1 ♂.

The specimen is darker than White's type (from Assam), but otherwise very similar; it has much less resemblance to *E. pallidula* Edw. of Sarawak.

Mycetophila lineicoxa Edw.

Lumu Lumu, 2 ♀.

Mycetophila lineola Mg., var. ?

Marei Parei, 1 ♀.

Mycetophila borneana sp. n.

♂. *Head* light brownish, also palpi and first few segments of antennæ, remainder of flagellum dark. Palpi with segments 2 and 3 rather long but thick, 4 longer and slender. *Thorax* brownish, not or scarcely shining, without markings, only pleurotergites darker brown. Five propleural and four strong pteropleural bristles. *Abdomen* dark brown, posterior margins of tergites lighter. *Legs* light brownish; hind femora not darkened at tip, but with a dark brown spot beneath at some distance before the tip. Mid-tibial bristles: 6 dorsal, 1 short subdorsal, 3 external (the basal one quite short), 2 rather long ventral, 7—8 internal. Hind tibial bristles: 4 long and a number of short dorsal, 8 external. *Wings* with strong yellowish ground-colour; a moderately large central brown spot; an oblique and irregular subapical brown band which fills tip of cell *R1* but does not quite extend back to tip of vein *R1*; the band extends on to *Cu1* but is more or less broken up into four separate spots; *fCu* just before *r-m*. Halteres ochreous.

Length of body, 5.5 mm.; wing, 5 mm.

Lumu Lumu, 1 ♂.

This is closely allied to the European *M. ornata* Steph., which has almost the same colouring and chaetotaxy, but differs in the hypopygium, especially in the form of the

lower style. In the new species this part is rounded (without the ventral arm characteristic of *M. ornata*) and bears on its margin some short black spines (instead of long bristly hairs) one of which is broad and leaf-like.

***Delopsis borneensis* sp. n.**

♀. *Head, thorax and abdomen* blackish-brown, only slightly shining; no yellow collar on thorax, and no distinct markings on abdomen, only the fifth tergite obscurely yellowish laterally at base. Palpi and base of antennæ pale. Three strong black propleural bristles. *Legs* yellowish; hind femora with black tips and a narrow dorsal brown line. Mid-tibial bristle-formula 5.0.3.3.1, two of the ventral bristles long. Hind-tibial bristles in three rows, five or six in each row, those in the internal row weaker than the others, but not very small, widely-spaced. *Wings* slightly smoky, slightly more so over base of *Rs* and *r-m*. Costa not produced. Halteres yellow.

Length of body, 3 mm.; wing, 2.8 mm.

Lumu Lumu, 1 ♀.

Among previously described species this most resembles *D. sumatrensis* Edw. and *D. seychellensis* End., differing in the stronger propleural bristles, and in the chaetotaxy of the middle and hind tibiæ. When describing *D. sumatrensis* I omitted to state that it has no internal bristle on the hind tibia. *D. seychellensis* has such a bristle; its midtibial bristles formula is 5.0.3.2.1.

Subfamily SCIARINAE.

***Trichomegalosphys laticornis* (Walk.) (*funesta* End.)**

Lumu Lumu, 16 ♂ 8 ♀; Kamborangah 7 ♂ 3 ♀; Kenokok, 2 ♀.

***Scythropochroa velata* End.**

Kiau, 1 ♂.

***Scythropochroa rhodogaster* sp. n.**

♀. A large species with light-coloured abdomen, resembling *S. leucogaster* Edw. (E. Java), but differing as follows:—Thorax more shining; pubescence of anepisternite reduced to two or three hairs or even absent. Abdomen (except for the black eighth segment) light reddish rather than pale ochreous. Tibial spurs more yellowish. Wings rather broader; costal cell rather widened; *R1* very slightly bent down in middle, not quite straight; *R5* distinctly arched and more curved down at tip; costa reaching over three-fourths of the distance from *R5* to *M1*; median fork scarcely shorter than its stem; *Cu1* not uniformly arched but very slightly concave above on its distal half; *An* reaching

hardly more than half-way across anal cell; membrane uniformly smoky, scarcely darker towards costa; *R1* and *R5* not distinctly seamed.

Length of body, 6—7 mm.; wing, 6.5—7.5 mm.

Kamborangah, 7 ♀; Lumu Lumu, 4 ♀.

The position of *fCu* is somewhat variable; in some specimens it is slightly before the base of the stem of the median fork, in others distinctly beyond this point. As in *S. leucogaster*, *R1* reaches well beyond *fM* and is almost twice as long as *R*; the branches of *M* and *Cu* are not distinctly darkened; the antennæ are rather slender with the flagellum entirely blackish; the acrostichal hairs are biserial, but do not quite extend to the front margin.

***Scythropochroa subfasciata* sp. n.**

♀. Resembles the preceding, differing as follows:—Antennæ rather shorter, first two flagellar segments under twice as long as broad and yellowish in colour. Thorax less shining; anepisternite bare. Abdomen not entirely reddish, but with the posterior and lateral borders of tergites 1—4 blackish, incisures of other segments also narrowly blackish. Wings with *R1* straight and very little longer than *R*, though reaching beyond *fM*, the difference being due to the somewhat greater distance of *Rs* from the base of the wing; *M1* as long as stem of fork.

Length of body, 6.5 mm.; wing, 7 mm.

Marei Parei, 1 ♀.

***Scythropochroa ochrogaster* sp. n.**

♂ ♀. Resembles *S. leucogaster* and the two new species described above, but much smaller, and also differs as follows:—Face narrower, almost twice as long as broad in ♀. Anepisternite with about three hairs. Abdomen mainly ochreous, in ♂ with segments 7—8, in ♀ with 6—8 and also hind border of 5 blackish; last few segments in ♀ very slender (hypopygium in ♂ small, style rather small, tapering, with three short spines in a vertical row at tip). Tibial spurs longer, on hind legs nearly twice as long as tibial diameter. Wings almost uniformly smoky, darker towards costa in ♀; *R1* very long, reaching nearly to middle of median fork and nearly 2.5 times as long as *R* (rather longer in ♀ than in ♂); median fork as long as its stem, which is faint, as is also the base of *M1*; *An* faint, not reaching middle of anal cell.

Length of body, 4 mm. (♂)—5 mm. (♀); wing 5.5 mm.

Pakka, 1 ♂ 2 ♀.

In two females from Kamborangah *R1* is not quite so long and the median fork shorter; *fCu* beyond instead

of before base of stem of median fork. Another female from Kenokok seems to represent another allied species. Some damaged specimens (7 ♂ 1 ♀) in the Sarawak Museum collection labelled "Mt. Kinabalu, alt. 4,500 ft., September 7, 1913," are probably *S. ochrogaster*.

Scythropochroa nigricalcar sp. n.

♀. A large species superficially resembling *S. rhodogaster*, and like it having the head, thorax, and halteres black, abdomen dull reddish with the eighth segment black, legs dark and wings strongly and almost uniformly smoky, but differs as follows:—Antennæ stouter, flagellar segments barely half as long again as broad, with more obvious pubescence. Face broader. Thorax dull, not shining; acrostichal hairs absent and dorso-central hairs shorter; anepisternite bare. Tibial spurs black (hind pair about as long as tibial diameter). Wings with all veins conspicuously darker than membrane, including stem of median fork; *R*₁ very little longer than *R* (though ending beyond *fM*); base of *R*s further from base of wing; median fork fully as long as its stem; cubital fork longer, *fCu* below middle of basal section of *M*; *An* distinct and reaching well beyond middle of anal cell.

Length of body, 8.5 mm.; wing, 9 mm.

Lumu Lumu, 1 ♀.

The four new species of *Scythropochroa* described above all differ from *S. incohata* Ldf. (from an unstated locality in Borneo, alt. 700 m.) in the much more produced costa, fairly distinct basal half of *M*₁, and other details of venation.

Trichosia ornatipennis sp. n.

♀. *Head* black, somewhat shining. Eye-bridges three facets wide and almost in contact. Palpi black, rather long, with three distinct segments which are subequal in length though the first is stouter. Antennæ blackish, segments 2 and 3 light brownish; flagellar segments about twice as long as broad. *Thorax* black, somewhat shining, especially on mesonotum; prothorax entirely yellow. Acrostichal hairs absent; dorso-central hairs short and irregularly biserial, almost uniserial in front; scutellum with two rather long hairs and some shorter ones. *Abdomen* slender, with first tergite and first two sternites yellowish, remaining tergites and sternites blackish, with posterior borders narrowly pale. *Legs* with front coxæ and front and middle femora ochreous; posterior coxæ black; hind femora blackish except at base; all tibiæ and tarsi black, or nearly so. Spurs brownish, on hind legs twice as long as tibial diameter. *Wings* with all veins dark, except for stem of median fork, which is faint; ground colour clear, but tip

dark brown as far as middle of median fork; also a large dark brown area on hind margin below apical half of *Cu2*. Branches of *M* and *Cu* hairy, also membrane on apical fourth of wing, but few or no macrotrichia in cell *Cu1*. *R1* longer than *R* and ending above *fM*; cubital fork with short stem, very narrow on its basal two-thirds, then much widened; *An* very faint, but reaching margin. Halteres brownish, stem paler.

Length of body, 4 mm.; wing, 4 mm.

Lumu Lumu, 1 ♀.

A very distinct species on account of the conspicuous wing-markings. I refer it provisionally to *Trichosia* on account of the hairy wing-tip, but it is certainly not nearly related to the European species.

***Trichosia subnuda* sp. n.**

♂. *Head* dull black. Eyes practically bare; dorsal bridges 3—6 facets wide and in contact. Palpi black, 3—segmented but short. Antennæ blackish, not much shorter than body; first few flagellar segments about twice as long as broad, rest rather longer; all with dense pubescence which is longer than diameter of segments, and distinct necks which are fully one-third as long as the segments. *Thorax* black, moderately shining, hairs black; acrostichal hairs very few, in one row; dorso-centrals rather long and bristly, uniserial; notopleurals still longer and more bristly; scutellum with 6—8 long marginal bristly hairs. *Abdomen* black, black-haired. Hypopygium small, with no very distinctive features; styles nearly 3 x 1, rounded and finely spinulose at tip. *Legs* ochreous, including all coxæ; tarsi darkened. Hind tibia with about six short externo-dorsal bristles in middle. Spurs pale, longer than tibial diameter. *Wings* moderately and uniformly smoky, posterior veins not very dark; branches of *M* and *Cu* hairy, also most of stem of median fork, as well as membrane on nearly the apical half of the wing; a few macrotrichia present in cell *Cu*, none in anal cell. *R1* rather longer than *R* and ending above or immediately before *fM*, costa long; *fCu* below middle of basal section of *M*; *An* reaching half-way across cell. Halteres black, base of stem pale.

Length of body, 2.5 mm.; wing, 3 mm.

Kamborangah, 1 ♂.

The combination of practically bare eyes with hairy wings is very unusual.

***Phorodonta longipes* (Walk.)**

Kamborangah, 3 ♀.

This is very similar in colouring and stature to *Sciara ponderosa* Walk.

Phorodonta ruficoxa (Brun.) ?

Several specimens from Kamborangah and Lumu Lumu belong to a *Phorodonta* near *ruficoxa*, but exhibit considerable variation in colour, and more than one species may be represented.

Sciara nigrifemur Edw.

Kamborangah, 1 ♀. Lumu Lumu, 1 ♀.

Sciara ? nigripennis Brun.

Lumu Lumu, 2 ♂ 6 ♀. Kiau 1 ♀.

Sciara lygropis Edw.

Lumu Lumu, 10 ♀ ; Kabayau, 1 ♀ ; Kiau, 2 ♀ ; Tenompok, 1 ♀.

Sciara ponderosa Walk.

Lumu Lumu, 1 ♀.

Sciara ? horrescens Edw.

Lumu Lumu, 25 ♀ ; Marei Parei, 4 ♀ ; Kamborangah, 2 ♀.

Sciara politula Edw.

Kamborangah, 5 ♀.

Sciara kinabaluana sp. n. (Fig. 2).

Head black, rather heavily dusted with grey. Eye-bridges of moderate breadth (3—4 facets), not quite in contact. Pubescence of eyes very scanty. Face broad. Palpi long, first visible segment rather swollen, spindle-shaped, last two slender. Antennæ partially alike in the two sexes, slender, black; first flagellar segment 1.5 times, remainder 2—2.5 times as long as broad; necks not obvious; pubescence half as long as diameter of segments. *Thorax* entirely black; mesonotum shining, with short dark hair, acrostichal hairs very small, uniserial, dorso-central hairs irregularly bi- or triserial. *Abdomen* dull dark reddish-brown to black, rather long in ♀. Hypopygium (text fig. 2)



Fig. 2. *Sciara kinabaluana* sp. n.
♂ hypopygium.

of ♂ moderately large, somewhat swollen; style shorter than the stout coxite, curved and strongly tapering, with a tuft of longish bristles at the narrow tip. *Legs* in ♂ yellowish-brown, in ♀ much darker, almost black, only the front coxæ and femora lighter; tibial spurs yellow. No bristles on tibiæ, the pubescence very short and even. *Wings* smoky, but not very dark, even in ♀. Venation practically alike in the two sexes. *R1* rather longer than *R* and extending distinctly beyond *fM*; costa very long, extending over five-sixths, sometimes even nine-tenths of the distance from *R5* to *M1*; *M1* longer than stem of fork, which is distinct throughout; *r-m* shorter than basal section of *M*; stem of fork of *Cu* moderate; *An* very short and indistinct. Halteres blackish.

Length of body, 3.5 mm. (♂)—7.5 mm. (♀); wing, 4 mm. (♂)—7 mm. (♀).

Kamborangah, 31 ♂, 28 ♀; Pakka, 1 ♀; Lumu Lumu, 1 ♀.

By my key to the Oriental species of *Sciara* this would run to *S. fratercula* Brun., which is much smaller, has pale thoracic hair, and is only known in the female sex.

Sciara lamprina sp. n. (Fig. 3).

Head black, scarcely shining. Frons rather high, ocelli well removed from the rather narrow eye-bridges, which are about three facets wide. Face rather narrow. Antennæ completely black, moderately slender; middle flagellar segments in ♂ about three times, in ♀ about twice as long as broad; first flagellar segment noticeably shorter than the rest, second also shorter than third; necks very short; pubescence scarcely as long as the diameter. Palpi black, rather long, the three segments subequal in length. *Thorax* wholly black, mesonotum brightly shining, with some greyish dusting on lateral margins and no shoulders; pleuræ also mainly greyish-dusted. Acrostichal hairs short, uniserial, running whole length of scutum; dorso-central hairs also short, dark, bi- to triserial. Scutellum with about six marginal bristly hairs, not very long. *Abdomen* dull blackish-brown, in ♀ rather long and slender; hypopygium (text fig. 3) in ♂ dark brown, with black styles which are



Fig. 3. *Sciara lamprina*
sp. n. ♂ hypopygium.

rather long, narrow and straight, with three or four spinules at tip, one of which is rather longer and stronger than the rest. *Legs* black, only the tibiae somewhat brownish; spurs yellowish (1.2.2), slightly longer than tibial diameter; short bristles of hind tibia numerous but not very obviously longer or thicker than the hairs; no distinct hind tibial comb. *Wings* with a faint brownish tinge; posterior veins distinctly darkened (including stem of median fork) and bare. Base of *Rs* ("cross-vein") rather longer than usual, so that basal cell is as broad as costal cell. *R1* noticeably shorter than *R*, but ending only just before *fM*; costa extending four-fifths of the distance from *R5* to *M1*; *Rs* ending scarcely before tip of *M2*; *M1* rather longer than stem of fork; cubital fork narrow on basal fourth only, *Cu2* being bent down before middle, stem rather long; *An* short and faint. Halteres black.

Length of body, 3.5 mm.; wing, 3.5—4 mm.

Pakka 4, ♂; Kamborangah, 2 ♂, 1 ♀; Lumu Lumu, 1 ♀.

Perhaps nearer to *S. nitulina* Edw. (Sumatra) than to any other described Oriental species, but differing in shorter and less pubescent antennæ, presence of acrostichal hairs, larger size, etc.

***Sciara griseicollis* sp. n.**

A black species closely resembling the last in all structural details (eyes, antennæ, hypopygium, legs, venation) but differing conspicuously in having the ground colour of the mesonotum completely obscured by coarse grey dust. When seen obliquely from in front the mesonotum appears uniformly grey; from above the area between the dorso-central hairs is in some specimens faintly shining blackish; from behind there are often faint indications of darker stripes. Acrostichal hairs barely distinguishable. Head dull black. Wings in ♂ (but not of ♀) clearer than in the last species, with posterior veins pale. Legs completely blackish. Abdomen of ♀ less slender.

Length of body, 2.5—3.5 mm.; wing, 2.7—4 mm.

Tenompok Pass, 3 ♂ 10 ♀.

The grey colour of the thorax distinguishes this from all other Oriental species of the genus known to me.

***Sciara subbrunnipes* sp. n.**

♀. *Head* dull dark greyish. Eye-bridges three facets broad and in contact; vertex not much raised. Antennæ blackish, second segment lighter; all flagellar segments, including the first, subequal in length and fully twice as long as broad, middle segments slightly longer than the others; necks absent; pubescence short. Palpi brownish, moderately long, second segment quite twice as long as broad but

shorter than third. *Thorax* with surface dull, grey-dusted, somewhat brighter grey on shoulders; as seen from in front or above the mesonotum shows three blackish-grey stripes, the middle one divided (except anteriorly) by a median grey line. Dorso-central hairs all short and pale, bi- to triserial; acrostichal hairs biserial and running almost whole length of scutum but extremely short. Scutellum dull reddish-brown, with rather short pale hairs. *Abdomen* dull brownish, grey-dusted, posterior margins of tergites paler. *Legs* rather light brownish; coxæ blackened at base, but not extensively; tibial spurs yellowish, almost twice as long as tibial diameter. *Wings* with very slight smoky tinge; posterior veins bare, slightly darkened. *R1* slightly shorter than *R* and ending a little before *fM*, costa reaching two-thirds of the distance to *M1*, or rather more; fork even, *M1* rather shorter than stem; cubital fork narrow on almost the basal half, with longish stem; *An* reaching nearly half-way across cell. Halteres more or less pale.

Length of body, 3—3.3 mm.; wing, 3—3.5 mm.

Lumu Lumu, type ♀; Kamborangah, 1 ♀.

This bears a considerable resemblance to the European *S. brunnipes* Mg., differing in the reduced mesonotal pubescence. In *S. brunnipes* longer dark bristly hairs occur mixed with the shorter hairs in the dorso-central series, and the acrostichal hairs are better developed; *R1* is rather longer.

Sciara zygotocera sp. n.

♂. Head blackish, somewhat dusted with grey. Eye-bridges four facets wide, median ocellus in contact with bridge. Antennæ longer than the body entirely black; all flagellar segments with long erect pubescence which is about twice as long as the diameter of the segments, and with long necks; first flagellar segment (excluding the neck) half as long again as broad, remaining segments gradually lengthening till they are almost four times as long as broad (again without reckoning the neck). Palpi black; second segment twice as long as broad, third twice as long as second. *Thorax* black, moderately shining; acrostichal hair absent; dorso-central hairs very minute and decumbent; notopleural and scutellar hairs short. *Abdomen* dull black; hypopygium not enlarged; styles short and broad, with a few short spinules on the rounded tip. *Legs* with coxæ and four posterior femora black; tips of front coxæ, front femora and all tibiae brownish. Tibial spurs yellowish, twice as long as diameter. *Wings* with slight brownish tinge, all veins darkened; posterior veins bare. *R1* shorter than *R*, but ending scarcely before *fM*; costa reaching little more than half

way from *R5* to *M1*; *R5* ending above tip of *M2*, fork normal, as long as its stem, but *M1* slightly turned up and *M2* slightly down at tip. Cubital fork narrow on almost the basal half, with rather long stem; *An* reaching half-way across cell. Halteres black.

Length of body, 2.5 mm.; wing, 3 mm.; antenna, 3.3 mm.

Kamborangah, 1 ♂.

By my key to the Oriental species of *Sciara* this would run to *S. microtricha* Edw., from which it differs conspicuously in the form of the antennæ, which are not unlike those of the European *Zygomia sciarina* Mg.

***Sciara lumuensis* sp. n. (Fig. 4.)**

♂. Closely allied to *S. pahangensis* Edw. (Malaya), which it resembles in colour and structure (broad eye-bridge; rather short antennæ; long costa, pointed base of median fork, etc.), differing chiefly in the form of the



Fig. 4. *Sciara lumuensis*
sp. n. ♂ hypopygium.

hypopygium (text fig. 4): styles subglobular, the three strong spines on their inner margin rather wide apart, one almost apical; ventrally at base of hypopygium is a small finger-like process, which though itself quite bare has a number of hairs grouped round its base.

Length of body, 2.3 mm.; wing, 3 mm.

Lumu Lumu, 2 ♂.

***Sciara tenompokensis* sp. n. (Fig. 5.)**

♂. Closely allied to *S. pahangensis* Edw., differing chiefly as follows: Acrostichal hairs fewer, confined to one row of minute hairs extending over front half of scutum or less. *R1* shorter, ending above *fM* instead of slightly

beyond. Hypopygium (text fig. 5) with styles relatively small, but almost globular, the three spines on their inner



Fig. 5. *Sciara tenompokensis*
sp. n. ♂ hypopygium.

margin set near the middle, and rather longer; there is no midventral process such as is present in the last species.

Length of body, 2.3 mm.; wing, 3 mm.

Tenompok Pass, 2 ♂.

***Sciara pakkana* sp. n. (Fig. 6.)**

Head dull blackish. Eye-bridges three facets broad and in contact. Antennæ black, rather slender, scarcely longer in ♂ than in ♀, flagellar segments barely 1.5 times as long as broad, with short pubescence and without distinct necks. Palpi light to dark brownish, rather short, first two segments each very little longer than broad, third longer. *Thorax* blackish-grey, not shining. Acrostichal hairs short but distinct, biserial; several rather long black dorso-central bristles present, mixed with shorter dark hairs; three or four long black notopleural bristles (two of which are about as long as half the width of the thorax), also two supra-alars; two long scutellar bristles, besides a few short hairs. *Abdomen* black; hypopygium small; style



Fig. 6. *Sciara pakkana*
sp. n. ♂ hypopygium.

(text fig. 6) of rather characteristic shape though resembling that of *S. bispinosa* Petzey and *S. diacantha* Edw.

Legs light brownish-yellow; spurs yellow, twice as long as tibial diameter. *Wings* almost clear, posterior veins scarcely darkened and bare; in shape unusually narrow, especially in ♂, with very obtuse anal area. *R1* considerably shorter than *R* and ending well before *fM*; costa reaching almost five-sixths of the distance from *R5* to *M1*; *R5* ending before level of tip of *M2*; *M1* rather shorter than stem of fork; cubital fork narrow on its basal two-thirds, with very short stalk; *An* very short. Halteres black, base of stem yellow.

Length of body, 1.5—2 mm.; wing, 2 mm.

Pakka, 11 ♂ 2 ♀.

In the shape and venation of the wing this rather resembles *S. heteroptera* de M. (Java), but the hypopygium is different. *S. bispinosa* Pettey (Philippine Is.) has a rather similar hypopygium but broader wings.

The collection also includes examples of about a dozen other species of *Sciara* showing no very striking characters and at present indeterminable.

Family BIBIONIDÆ.

***Plecia fumida* sp. n.**

♂ ♀. Entirely dull black, including all appendages; thorax of ♀ with a brownish tinge in parts; wings black. Antennal flagellum in ♂ 7-segmented, in ♀ 8-segmented, last two segments not deeply separated, but subequal in size, preceding 4 or 5 sharply separated, especially in ♀, subglobular. No grey dusting on thorax, which is entirely bare above except for a small area of fine decumbent pubescence on each side of median area of scutum in front. Scutum with two deep and narrow furrows, finely rugose on shoulders and sides. A few dark hairs on sternopleura. Hypopygium with tergite divided practically to base into two large triangular lobes; corners of sternite produced, rather pointed, reaching beyond tips of lobes of tergite; styles of moderate size, wide apart, square-ended. Legs rather stout, moderately long, pubescence of tibiæ dense and as long as their diameter; front tibiæ flattened, especially in ♂; first front tarsal segment about 8 x 1. Vein *R4* almost straight, oblique.

Length of body, 5—6.5 mm.; wing, 6.5—9 mm.

Tenompok Pass, 20 ♂ 1 ♀; Lumu Lumu, 2 ♀; Kiau, 2 ♀.

Most nearly related to *P. sordida* Brun., but larger, deeper black, with slightly longer antennæ, stouter tibiæ, and slightly different hypopygium.

***Plecia fumidula* sp. n.**

♂ ♀. An entirely black species resembling the last, but much smaller; antennal segments rather less deeply

appearance, straight, and rather densely hairy, segments 1—3 (or 2—4 if basal portion is counted) each about twice as long as broad, last segment longer and considerably more slender, especially on its distal portion, which varies in length in different specimens and may be very long and slender, resembling the terminal segment of the antenna. Antennæ 15-segmented as usual, 1—3 dark brownish, remainder black; 3 with transverse constriction in middle beneath; 4 slightly broader than long; 5—10 each about as long as broad, 11—14 slightly longer, all with dense pubescence above; 15 long and slender, fully as long as preceding 5 segments together. *Thorax* almost uniformly shining blackish including scutellum and pleuræ, with very slight traces of grey dusting dorsally and no indication of stripes or markings of any kind. Scutellum with the usual small bunch of tiny black hairs on each side. *Abdomen* with distal half of each of segments 2—6 velvety black, proximal half shining dark leaden grey, slightly translucent yellow and with a brownish tinge in some lights. Tip of abdomen black, only cerci yellowish-brown. *Legs* with all coxæ blackish-brown, trochanters mainly yellowish, femora rather narrowly yellowish at base, otherwise dark brown, front pair almost black; tibiæ and tarsi dark brown. All legs shorter than usual. Front femora quite bare beneath on the slender yellow basal portion, densely pubescent on the much stouter black portion, the enlargement of the femur beginning rather abruptly at the point where the tip of the tibia touches the femur when leg is closed. Front tarsus barely as long as tibia. Middle coxa with the process on inner side characteristic of the genus, but this process rather more slender and finger-like than in the other species, densely pubescent like the middle trochanter. Hind femora moderately stout, not reaching beyond end of abdomen when extended backwards. Hind tibia with two minute spurs as usual; hind tarsus considerably shorter than tibia, with at most one or two bristly hairs beneath base of first segment. Claws normal, rather small. *Wings* agreeing with the genotype in shape and venation (*Rs* scarcely longer than *r-m*), but differing conspicuously in having the whole of the membrane between costa and *R1* blackish. Halteres black, base of stem brownish.

Length of body, 7 mm.; wing 6 mm.; hind femur 5 mm.

Kabayau, 8. v. 29; 8 ♀♀. "Resting on a shrub overhanging the Tampassuk River. H. M. P."

The discovery of a species of *Blepharocera* in Borneo is of unusual interest, because hitherto no member of this genus, nor even of the subfamily Blepharocerinae, has been found in any part of the tropics, the known distribution of the genus including only Europe, North-West India, Japan

and North America. The new species, though in all respects a typical *Blepharocera*, differs in many details of structure and colour from any species which I have previously examined, and, so far as can be judged, appears to be equally distinct from any species recently described from Japan. Among its most characteristic features are the more widely separated upper and lower eye-divisions, the shape of the hair patches on the face, the elongate terminal segment of the antenna, the uniformly shining blackish thorax, and the shorter legs.

Although several species of *Blepharocera* have been described, no very satisfactory specific distinctions in the adult have been noted, and I therefore take this opportunity to record some observations on this matter. One of the best distinctions is to be found in the hairs on the face of the female, which, in this new species are dense, black, and in the form of two wedge-shaped patches. In the European *B. cinerascens* the hairs are also black, but occur in a pair of small round patches, conspicuous on the grey-dusted face. In *B. indica* they also form a pair of round patches, but are yellowish in colour. In the North American species the hairs are fewer in number and scattered over a larger area of the face. Other specific distinctions are to be found in the relative lengths of the antennal segments, the extent and amount of the grey dusting on the mesonotum, the colour of the fronto-clypeus, scutellum, pleuræ and coxæ, and the form of the mid-coxal process.

Family CULICIDÆ.

Subfamily DIXINAE.

Dixa rostrata sp. n.

♀. *Head* blackish above, somewhat shining. Proboscis orange, clypeus fully twice as long as its breadth at the base. Palpi and antennal flagellum blackish; first flagellar segment almost cylindrical, about six times as long as broad. *Thorax* with ochreous ground-colour, shoulders extensively dusted with grey; mesonotum with three slightly shiny brown stripes which are just contiguous, median stripe undivided; pleuræ largely brown on upper half, and with a large dull black area occupying the whole of the mesepimeron and extending on to upper part of sternopleura; lower part of sternopleura pale and bare. *Abdomen* dark brown above, pale beneath; cerci elongate and black. *Legs* ochreous; femora very narrowly dark at tip; hind tibia as usual with tip swollen and dark. *Wings* with a large dark cloud in middle round *r-m* and another cloud near base in lower basal and anal cells. Cell *R2* slightly shorter than its stem; *r-m* practically at fork of *R5*; *m-cu* about its own

length beyond *r-m*; vein *M* bare above, but setulose below for the greater part of its length, bare at base only. Halteres yellow.

Length of body, 3.5 mm.; wing, 4.5 mm.

Kamborangah, 1 ♀.

This belongs to a small group of species which includes *D. binotata* Edw. (Sumatra) and *D. zeylanica* Senior-White (Ceylon and India), characterised by having the proboscis in both sexes and the cerci of the female unusually long. From the two mentioned the new species differs conspicuously in the markings of the pleuræ.

Subfamily CULICINAE.

Rachionotomyia vicina Edw.

Kamborangah, Lumu and Kiau; a series bred from larvæ from pitcher-plants (*Nepenthes lowii*).

Culex (Culiciomyia) shebbearei Barraud.

Marei Parei, a series bred from larvæ in a large pitcher-plant (*Nepenthes rajah*). There is a slight difference from typical specimens from the eastern Himalayas, the outstanding scales of the male palpi being 3—4 instead of 6—8 in number, and rather narrower; the hypopygium has the same structure.

Megarhinus pendleburyi Edw.

Bull. Ent. Res. xxi, 1930, p. 305.

Kenokok, 1 ♀.

Family CERATOPOGONIDÆ.

Lasiohelea equitans sp. n.

♀. *Head* blackish. *Antennæ* brown; first eight segments of flagellum scarcely broader than long, last five together slightly shorter than first eight, last with stylet as usual. *Palpi* and *proboscis* short, second palpal segment not much swollen. *Eyes* bare (so far as can be seen in the dry specimen under a magnification of 120). *Thorax* dark brown, not, or scarcely shining; *scutum* with coarse and uniformly distributed but not very dense light brown hair. *Scutellum* with four long bristles and at most as many short hairs on margin. *Abdomen* dark brown. *Legs* light yellowish-brown, only the last tarsal segment somewhat darkened. First hind tarsal segment nearly three times as long as second, which is only about twice as long as broad. *Wings* not very densely hairy, with only two rows of hairs between middle of *Cu1* and *M2*; fringe long, near base of wing as long as width of anal area. *Costa* reaching well beyond

middle of wing, almost as far as level of tip of *Cu1*; second radial cell several times as long as first. Halteres yellow.

Length of body, 0.62 mm. (abdomen fully distended); wing, 0.65 mm.

Kiau, 1 ♀.

The specimen has its proboscis inserted into the scutellum of a Tipulid (*Trentepohlia pennipes* O. S.) taken at light. The fact that it is firmly fixed and that the abdomen is distended with food strongly suggests that it was sucking the juices of the Tipulid, and if this was so it is the first record of a Ceratopogonid fly attacking another Dipterous insect much larger than itself. The *Lasiohelea*, however, was not observed by the collector till after the Tipulid was pinned and mounted; moreover, one would not expect it to pierce a hard part like the scutellum.

L. equitans differs from other species of the genus in its smaller size (it is among the very smallest of all Diptera), proportionate lengths of antennal segments, and fewer bristles on the scutellum.

Culicoides klossi sp. n.

♀. Closely allied to *C. gymnopterus* Edw. (Sarawak), which it resembles in form of palpi, colour of thorax and legs, and wing-markings, differing chiefly as follows:—Scutellum with four bristles, one at each lateral corner in addition to the two close together in middle (the lateral bristles were possibly overlooked in the type of *C. gymnopterus*). Wings with the dark spot which crosses the first radial cell much widened above base of median fork; an additional separate dark spot present on margin of wing at anal angle. Second radial cell broader. Macrotrichia of membrane much more numerous round apical margin; in cells *M1* and *M2* two close-set rows of hairs extend back on the folds as far as level of tip of costa, but as in *C. gymnopterus* there are no hairs in the anal area.

Lumu Lumu, 7 ♀.

Culicoides nitens sp. n.

♀. *Head* blackish. Eyes touching. About four long orbital bristles on each side. Antennæ long, brownish basally, last five segments darker. Palpi long, slender, antepenultimate segment almost as long as remainder combined, only slightly swollen beneath beyond middle. *Thorax* shining blackish, with scarcely a trace of grey dusting; humeral pits normal, but less obvious than usual owing to the uniformly shining surface of the mesonotum. Scutellum with four bristly hairs, one at each corner, two close together in middle. *Abdomen* blackish, slightly shining, but less so than thorax. *Legs* with all coxæ dark brown; front

femur dark brown, lighter distally; middle femur with proximal two-thirds dark brown, distal third yellow; hind femur blackish except at base; front tibiae entirely brownish; middle tibiae yellow on almost the basal half, remainder dark; hind tibia yellow, with a broad dark ring beyond middle; tarsi dark. *Wings* devoid of macrotrichia on membrane or on branches of *M* and *Cu*. Costa reaching to almost three-fourths of the wing length; radial cells united (cross-vein *R2* absent), the combined cell uniformly narrow throughout its length; *R4* + 5 twice as long as *R1*, not noticeably thickened, its tip just extending into the third dark costal mark. Markings well-defined and moderately dark; the usual irregular transverse bands before and beyond the cross-vein, first rather broad (much broader than in *C. gymnopterus*), widened but faint on hind margin of wing, second equally broad, continued broadly to hind margin along *Cu2*; distal fourth of wing mainly dark, including the usual three clear areas, of which the uppermost is large and reaches costa, middle one small and well removed from margin, lower one touching margin; faint dark area on anal angle, otherwise no separate dark spots. Halteres yellowish.

Length of body, 2 mm.; wing, 2 mm.

Marei Parei, 2 ♀.

This is the only species of *Culicoides* known to me in which the thorax is shining blackish. The costa is unusually long, and the absence of the cross-vein *R2* (on both wings of both specimens) is another striking peculiarity; the last feature is also shown by *C. indianus* Macfie and by *C. (Haemophoructus) maculipennis* Macfie. The new species is certainly a true *Culicoides*, and is perhaps nearly related to *C. indianus*, which is smaller and has the rather shorter costa ending in the clear area before the third dark spot.

Dicrohelea dichroa sp. n.

♀. *Head* dark brownish, dusted with grey on vertex and occiput. *Antennae* with first eight flagellar segments light brownish, narrowly darkened at tips, scape and last five segments darker. *Palpi* dark, second segment not much longer than first but about equal to third and fourth together. *Thorax* wholly black, slightly shining; scutum and scutellum with coarse and rather dense decumbent pubescence, no long marginal hairs or bristles on scutellum. *Abdomen* entirely pale dorsally, with very heavy white dusting, and so strongly contrasting with thorax; venter dark brownish. *Legs* with coxae blackish; front and middle femora and tibia light brownish, knees darkened; hind femur dark brown, with a broad pale subapical ring; hind tibia dark brown on basal third, rest pale yellowish; front and middle tarsi yellowish, hind tarsi wholly white, including last segment. Hind tarsus markedly longer than tibia,

the first segment alone not much shorter than tibia, and as usual with two close-set rows of black spinules, second segment with one such row. Pubescence of legs rather long. Fifth tarsal segment of all legs with about four pairs of slender but blunt-tipped spines ventrally. Claws as in other species of the genus: front pair long and equal, posterior pairs very unequal, one very long, the other very short, all with an external barb at base. *Wings* milky-white, all veins pale. Costa nearly reaching wing-tip, and produced a short distance beyond *R5*; *R5* (from crossvein to tip) three times as long as *R1*; second radial cell five or six times as long as first. Halteres clear yellowish.

Length of body, about 2.5 mm.; wing, 3 mm.

Lumu Lumu, 1 ♀.

This is apparently closely allied to *D. uncinata* Kieff. (Formosa), in which *R5* is said to reach the distal fourth of the wing (it is therefore presumably much shorter than in the present species); the fifth tarsal segment (of all legs ?) is blackish. The other Oriental species described by Kieffer have the abdomen and halteres dark, and differ in other respects.

Palpomyia spinipes Mg., var. ?

Kamborangah, 1 ♀.

Apparently there are no obvious distinctions from this common European species. The front and middle femora are mainly yellowish, with a darker area at the base; in British specimens these parts vary in colour, being usually either all black, or if largely yellowish with the tip and not the base darkened.

Palpomyia pendleburyi sp. n.

♀. Allied to *P. calcarata* Edw. (Philippine Is.), which it resembles in its swollen, spiny front femora and curved front tibiae, differing as follows:—Eyes above antennae separated by only the width of one facet. Palpi entirely black. Thorax uniformly light reddish brown. Scutellum with eight marginal bristles. Abdomen with the last two segments dark brown, like those immediately preceding. Apical spine of front tibia shorter, not longer than the tibial diameter.

Lumu Lumu, 1 ♀.

Heteromyia indica Kieff. (South India) may also belong to this group of species, but is very different in colouring, with largely black body and legs, white tarsi and smoky wings. According to Kieffer the front femur in *H. indica* has a ventral groove into which the tibia fits; this groove is not present in the new species.

A second specimen, from Kamborangah, is darker than the type; face, scape, and most of scutum (except shoulders), blackish.

Family SIMULIIDÆ.

Simulium nigripilosum sp. n.

♀. *Head* with frons shining black, with very sparse, short erect black pubescence, bare below, its breadth above about equal to its length. Face densely grey-dusted. Antennæ wholly black, rather stout. Palpi black, rather short. *Thorax* wholly black; mesonotum slightly and almost uniformly shining, with a barely perceptible greenish lustre, with little trace of grey dusting except when viewed from in front or from side; pleuræ almost uniformly grey-dusted; scutellum dull black. Mesonotal pubescence fine, blackish, uniformly distributed except on and in front of scutellum, where there are some sparse erect black hairs but no decumbent pubescence. *Abdomen* black, with the usual grey dusting on tergite 2; tergites 3—5 all small, dull black, 6—8 large, shining; pubescence very scanty, black; basal fringe short and black. *Legs* black, including all coxæ and femora and whole of front and middle tibiæ and front tarsi; front tibia distinctly silvered on outer side; hind tibia with integument narrowly yellow at base, silvered dorsally for nearly half their length; middle tarsi with basal two-thirds of first segment and a narrow ring at base of second segment yellow; hind tarsi with rather more than basal half of first segment whitish. Pubescence of legs all black. Front tarsi moderately wide; first segment fully 5 x 1; third segment (as seen from side) nearly twice as long as its greatest breadth. Calcipala rather larger than usual in this group. Claws simple, without sub-basal tooth. *Wings* with normal venation; hair at base black; basal section of radius bare. Halteres orange, stem mostly blackish.

Wing-length, 3 mm.

Kamborangah, 7,000 ft., 26. iii. 29, 1 ♀.

This species shows a greater resemblance to *S. fuscopilosum* Edw. (Malay Peninsula) than to any other described Oriental *Simulium*, but differs in its simple claws, finer mesonotal pubescence, dark front coxæ and anterior tibiæ, more extensively dark hind tibiæ and more extensively yellow middle basitarsi. *S. iridescens* de Meij. (Java and Sumatra) and *S. melanopus* Edw. (Philippine Is.), though similar in colouring to the new species are less closely allied, as they have the fifth abdominal tergite larger and shining.

A male from Marei Parei probably belongs to this species. It has the usual large perlaceous shoulder-patches;

legs mainly black, only mid and hind basitarsi obscurely yellowish on basal third; hind basitarsus broad.

A female from Tenompok Pass is rather smaller than the type and has the base of the antennæ reddish and the front coxæ yellow; it perhaps represents another allied species.

Simulium crassimanum sp. n.

♀. Closely resembles *S. nigripilosum*, differing chiefly as follows:—mesonotum more distinctly shining. Front tarsi decidedly broader; as seen in side view the basitarsus appears scarcely four times as long as its greatest breadth and the third segment very little longer than broad. Middle tarsi with the first two segments mainly yellow, only narrowly dark at tips; third segment also yellowish at base. Hind basitarsi with fully the basal two-thirds whitish. Wing-length, 2.5 mm.

Kamborangah, 2 ♀.

Another ♀ from Lumu Lumu is similar, but has the antennal scape reddish and the front coxæ pale.

Simulium aeneifacies sp. n.

♀. Closely resembles *S. nigripilosum* in most characters, including form of front tarsi, differing chiefly as follows:—Face shining dark-greenish, without grey dusting, and apparently relatively smaller. Antennæ reddish at base. Thorax more shining. Front coxæ yellow; middle as well as hind tibiæ narrowly yellowish at base. First two segments of middle tarsi mainly yellowish, darkened at tips only. First segment of hind tarsi whitish on at least the basal two-thirds. Wing-length, 2.5 mm.

Kamborangah, 1 ♀.

Simulium laterale sp. n.

♀. Closely resembles *S. nigripilosum*, differing chiefly as follows:—Mesonotum with a rather broad band of green to bronze iridescence on each side, the two bands bent inwards near the front margin; this iridescence is most distinct in side view, and in other aspects the iridescent area is either not clearly marked or is replaced by dull-blackish. Dorsal pubescence of second front tarsal segment (and on tip of first) rather longer and coarser. Hind tibia almost completely black, the yellow ring at base indistinct. Middle tarsi black, with basal half of first segment yellow. Hind tarsi with basal half of first segment whitish. Wing-length, 3 mm.

Lumu Lumu, 2 ♀.

Simulium fuscinervis sp. n.

♂. A large dark brown species without special ornamentation, closely related to *S. senile* Brun. (W. Himalayas)

and *S. feuerborni* Edw. (Java and Bali), and like those species having the front tarsi unusually long and slender and the hind basitarsus (in ♂) about as long as the tibia and decidedly broader; differs from both in having the branches of *M* and *Cu* distinctly darkened, almost as dark as the costa. Hind tibia with only a few long hairs dorsally (much less hairy than in *S. feuerborni*). Hypopygium differing slightly from both the species mentioned; style with a moderate-sized terminal spine (in the type two such spines are present on one style; in *S. feuerborni* the spine is very stout, in *S. senile* it is absent); parameral structures each with about ten long, sharp teeth. Hind basitarsus uniformly brown, as in *S. feuerborni* (not bicoloured as in *S. senile*), but more widened at tip.

Pakka, 1 ♂.

Family PSYCHODIDÆ.

Nemopalpus unicolor sp. n.

♀. Closely allied to *N. orientalis* Edw. of Malaya, differing as follows:—Antennæ uniformly light brown, hairs more yellowish. Palpi rather shorter, second and third segments more slender, almost cylindrical. Wings with the long hair on the veins uniformly light brown, not obviously darker on *Cu* and neighbouring veins. Venation: *Sc* ending above fork of *R4 + 5*; *Sc1* absent, *Sc2* very faint; *Rs* more curved; stem of *M1 + 2* scarcely as long as *r-m*; *An* rather sinuous and running rather nearer hind margin.

Length of body, 4 mm.; wing, 4.5 mm.

Lumu Lumu, 1 ♀.

In describing *N. orientalis* I omitted to state that the segments of the antennal flagellum (except the first two) are distinctly darkened at the base; the second palpal segment is slightly enlarged at the tip beneath, and the third is rather stout; the stem of *M1 + 2* is about twice as long as *r + m*.

Family TIPULIDÆ.

Subfamily LIMONIINÆ.

Limonia longivena Edw. (*multinodulosa* Alex.)

Lumu Lumu, 1 ♂.

This specimen differs from the type male of *L. multinodulosa* Alex. (from Luzon) in having the front and middle tarsi entirely dark, but there seems to be no other difference. The type of *L. longivena* (a female from Ceylon) although smaller than the Philippine male agrees well with it in colouring and is no doubt conspecific; a similar female

is in the British Museum from Selangor. The third and fourth front tarsal segments of the female are somewhat swollen.

Limonia nongkodjadjarensis de Meij.

Marei Parei, 3 ♀; Kamborangah, 1 ♀.

I am indebted to Prof. J. C. H. de Meijere for the loan of the type of this species, and can add the following details to his description:—Front at its narrowest point about as wide as three facets. Flagellar segments somewhat narrowed apically but shortly pubescent throughout, without bare necks; one long dorsal hair. Pronotum rather long, dark brown. No black pit behind front coxa. About 6—8 hairs on sternopleura and two on hypopleura; two below and just before base of wing, but none on mesepimeron. Dark border to cross-veins less distinct than shown in figure. Claws with strong tooth. Hypopygium with tergite produced into two triangular lobes; no dorsal style; ventral style rather large, swollen, with a long and rather slender rostrum which is bent beyond the middle, with a single rather slender spine arising from the bend, and with a strong black spine borne on a curved process arising from base of rostrum; parameres long, blackened, rounded at tip.

A male in the British Museum from Pahang agrees rather closely with the type, differing only slightly in the shape of the rostrum of the style. The females from Mt. Kinabalu seem certainly conspecific; they have the extremely short cerci characteristic of the closely allied Formosan species *L. alticola* Edw. and *L. koringa* Alex.

Limonia biceps Alex.

Pakka, 3 ♂; Marei Parei, 1 ♂.

This belongs to the same group as *L. nongkodjadjarensis*, differing slightly in the hypopygium and more definitely in the male antennæ, which are more slender, with two very long hairs on each flagellar segment. It may be that either *Dicranomyia fortis* Brun. (India) or *D. alticola* Edw. (Formosa) is an earlier name for this species.

Limonia mjöbergi Edw.

Lumu Lumu, 1 ♀.

Limonia sp. indet.

1 ♀ Lumu Lumu; 8 ♀, Kenokok; 1 ♀, Marei Parei.

Limonia alta de Meij.

Kenokok, 1 ♂; Kamborangah, 5 ♀; Pakka, 2 ♀.

I am also indebted to Professor de Meijere for the loan of the type of this species, and though it is now badly damaged I am satisfied that the above-mentioned specimens from Borneo are conspecific. The following details may be

noted:—Front broad and distinctly silvery as viewed from above. Antennal flagellum in ♂ with pubescence as long as the diameter, but no trace of verticils; segments nearly cylindrical, first two or three each about five times as long as broad. Palpi well developed. Pronotum rather small. A small black pit on sternopleura just behind base of front coxa. Three longish hairs on upper part of mesepimeron just below wing-base; 1—2 sternopleural hairs. Abdominal tergites dark; sternites black basally, with moderately broad greyish apical bands. Claws simple. Hypopygium of *Dicranomyia* type, with tergite simple; coxite small; ventral style very large and fleshy, with one short, thick spine on the short rostrum.

The thoracic characters noted above apply to both sexes. The female has the antennæ much shorter, with short verticils in addition to very short pubescence; cerci normal, of moderate length.

***Limonia (Limonia) lateromacula* sp. n. (Pl. XII, fig. 8.)**

♂. *Head* blackish, somewhat dusted with grey. Front moderately narrow. Antennæ, palpi and rostrum blackish. Flagellar segments elongate oval, with short verticils. *Thorax* with ground-colour ochreous. Mesonotum scarcely shining, with three small rounded dull black spots on the margin, one on the pseudosuture, one on præscutum shortly before suture, and one on scutum immediately behind suture; præscutum with a pair of brown areas in middle posteriorly; scutal lobes largely blackish, also postnotum. Sides of thorax with three oblique blackish stripes, somewhat interrupted; one extending along side of the large pronotum and continued to wing-base; second from front coxa to middle of pleurotergite; third from sternopleura and middle coxa to below base of haltere. *Abdomen* dark brown, posterior margins of tergites lighter. Hypopygium with a single style which has a pair of short spines placed close together on the outer margin of the swollen basal portion; tip produced inwards and narrowly blackened. *Legs* mainly dark brownish; hind coxæ and basal half or more of all femora ochreous; tips of femora black, preceded by a yellow ring. Claws with a long median tooth preceded by one or two smaller teeth. *Wings* (pl. xii, fig. 8) with ground colour whitish, but most of surface occupied by brown clouds which form four or five irregular cross bands, stigma darker brown. Tip of *R*₁ somewhat longer than *r*; *m—cu* well before base of discal cell. Halteres with dark knob.

Length of body, 5 mm.; wing, 7 mm.

Lumu Lumu, 1 ♂.

The very distinctive pattern of the thorax distinguishes this from allied species such as *L. nitobei* Edw. and *L. esakii* Alex. (Formosa).

Limonia (Limonia) chaseni sp. n. (Pl. XII, fig. 6.)

♀. *Head* brownish-ochreous, front considerably darker than occiput, rostrum light ochreous and quite short. *Antennæ* black; flagellar segments elongate oval, with short verticils. *Thorax* with ochreous ground-colour, mesonotum with surface dull; præscutum with a broad median stripe somewhat darker, lateral margins also darkened behind pseudosuture; scutal lobes, scutellum and median area of postnotum dark brown. A dark brown stripe on pleuræ from pronotum to base of haltere, lower part of sternopleura also darkened. *Abdomen* brown, posterior margins of tergites broadly ochreous, cerci moderately long. *Legs* brownish, tibiæ and tarsi lighter than femora, but last three tarsal segments dark. *Wings* (pl. xii, fig. 6) with ground nearly clear, veins pale; dark markings as figured. *Rs* long, angled at base; *m-cu* much before base of cell. Halteres ochreous, base of knob darkened.

Length of body, 4.5 mm.; wing, 6.5 mm.

Kamborangah, 1 ♀.

Sufficiently distinguished by wing-markings from any other species known to me, especially by the presence of dark clouds at the tips of *R2* + *3* and *Ax*.

Limonia (Limonia) pacatina sp. n. (Fig. 8.)

♂. *Head* blackish, dusted with brownish-grey; rostrum, palpi and antennæ black. Eyes practically touching. *Antennæ* about as long as thorax, flagellar segments elongate-oval, verticils not longer than segments. *Thorax* almost uniformly brownish-ochreous above, præscutum indistinctly darker in middle, surface dull but without dusting; pleuræ with a broad but very ill-defined darker brown stripe from neck and front coxa to base of abdomen. *Abdomen*



Fig. 8. *Limonia (L.) pacatina*
sp. n. ♂ hypopygium.

blackish. Hypopygium (text fig. 8) with a single style, which is simple in form, with swollen base and long, slender terminal portion; tergite somewhat produced in middle.

Legs brownish, posterior coxæ and bases of femora ochreous, tips of femora also indistinctly paler. Claws with one long median tooth. *Wings* rather broad, with slight brownish tinge, veins somewhat darker, stigma dark. *Sc* ending just beyond middle of *Rs*, which is gently curved; *Sc2* at tip of *Sc*; tip of *R1* turned up at *r*; *m-cu* at base of cell. Halteres dark brown.

Length of body, 6 mm.; wing, 7.5 mm.

Kamborangah, 5 ♂; Lumu Lumu, 2 ♂.

Though superficially resembling *L. nongkodjadjarensis* de Meij. this is very distinct in antennal and hypopygial characters. It seems to be closely related to *L. pacata* Alex. and *L. subpacata* Alex. (Philippine Is.) differing in the longer *Sc*, form of ninth tergite, etc.

***Limonia (Limonia) negativa* sp. n. (Fig. 9.)**

♂. Allied to *L. luteivittata* Alex. (Luzon), which it resembles in the peculiar præscutal adornment of yellowish stripes on a dark brown ground, the median yellow stripes extending the whole length, lateral stripes abbreviated;



Fig. 9. *Limonia (L.) negativa*
sp. n. ♂ hypopygium.

differs from the Philippine species as follows:—*Head* rather light brownish instead of black; front rather narrower, being decidedly less than twice the width of one scapal segment. *Wings* not at all darker at tip, though with general dark ground and other markings as described for *L. luteivittata*. Hypopygium (undescribed in the case of *L. luteivittata*): ventral process of coxite arising from base, rather long, hairy, slightly swollen apically, with a terminal lobule. Ventral style rather small, of peculiar form as figured (text fig. 9).

Length of body, 5 mm.; wing, 7.5 mm.

Lumu Lumu, 1 ♂.

In this species the rostrum is extremely short, scarcely produced beyond the rest of the head, and the palpi are formed of a single segment, as in *L. citrofocalis* Edw., a species with very different colouring.

***Limonia (Dicranomyia) punctulata* de Meij.**

Kiau, 4 ♂ 1 ♀.

These specimens belong to the typical form of *L. punctulata* as recently restricted by Alexander.

***Limonia (Dicranomyia) subpunctulata* Alex.**

Marei Parei, 4 ♂ 1 ♀; Kamborangah, 1 ♂.

The exact form of the hypopygium shows some variation in the two specimens mounted, but in both the rostral prolongation is rather shorter than is shown in Alexander's figure of the type (from Formosa) and the two short spines are well removed from its base.

***Limonia (Dicranomyia) convergens* de Meij.**

Kamborangah, 1 ♂.

***Limonia (Dicranomyia) sordida* Brun.**

Kamborangah, 14 ♂ 3 ♀; Marei Parei, 3 ♂ 4 ♀; Pakka, 1 ♀; Lumu Lumu, 1 ♀.

The specimen from Lumu Lumu shows some particularly interesting features of venation; the discal cell is open on both wings, being coalescent on one wing with cell *M1* and on the other with cell *M3*.

***Limonia (Alexandriaria) frontina* sp. n.**

♀. *Head* black, slightly shining above, with silvery-grey dusting round eye-margins; front rather broad, conspicuously silvery-grey. *Rostrum* short, light brownish; palpi and antennæ black; flagellar segments shortly oval. *Thorax* with integument wholly black; mesonotum rather brightly shining, but with large areas of silvery-grey pruinescence on sides of præscutum from suture nearly to front margin. *Pleuræ* as seen from above wholly silvery-grey. *Abdomen* blackish above, paler below. *Cerci* of moderate length. *Legs* pale brownish. *Wings* greyish, unmarked except for the faint stigma. *Sc* short, ending well before base of *Rs*, which is very short and obtusely angled. Halteres dark brownish.

Length of body, 4 mm.; wing, 5 mm.

Marei Parei, 1 ♀.

Differs from *L. simplissima* Alex. (Java) and *L. brevissima* Alex. (Luzon) in the silvery frons and blackish integument of pleuræ. Although referred to the artificial group *Alexandriaria* it perhaps belongs more correctly to the *morio* group of the subgenus *Dicranomyia*.

***Limonia* (*Dicranomyia*) *fulvomorio* sp. n. (Fig. 10).**

Head dull dark brownish above, front conspicuously silvery and rather broad. Rostrum short, yellowish. Palpi black, with three or four distinct segments. Labium black. Antennæ entirely black, alike in the two sexes, rather shorter than thorax, flagellar segments oval, with short verticils. *Thorax* rather light ochreous brown, mesonotum almost uniformly shining and unmarked; pronotum dark brown. Pleuræ slightly darkened on upper half, with a conspicuous stripe of silvery pubescence from neck to below wing-base, and a large silvery area below middle of sternopleura. *Abdomen* dark brown, posterior margins of tergites broadly paler, in ♀ segments 1—2 almost all pale. Hypo-



Fig. 10. *Limonia* (*D.*) *fulvomorio*
sp. n. ♂ hypopygium.

pygium of characteristic form (text-fig. 10); tergite with two small, widely separated knobs; ventral style small; a single long rostral spine. *Legs* dark brownish, including all tarsi; coxæ, trochanters and base of femora ochreous. *Wings* with slight brownish tinge, unmarked except for the stigma, which is distinct and dark brown. *Sc* ending above base of *Rs*; *Sc1* very long; *Rs* long, only slightly curved; anal area rather small. Halteres black.

Length of body, 6 mm.; wing, 7 mm.

Pakka, 1 ♂; Kamorangah, 1 ♀.

I am unable to point out any close ally of this species. It seems to belong to the *morio* group, differing from other members of this group in the brown instead of black thorax.

***Limonia* (*Geranomyia*) *melanocephala* Edw. (*phoenaspis* Alex.).**

Kamorangah, 2 ♂ 2 ♀.

***Limonia* (*Rhipidia*) *griseipennis* Edw. (? = *javanensis* de M.)**

Kamorangah, 1 ♀.

Limonia (Rhipidia) spadiceithorax Edw.

Kenokok, 1 ♀.

This specimen agrees with the types of *Dicranomyia spadiceithorax* Edw. (from the Seychelles Is.) in the following particulars:—Antennæ with the first three segments dark, remainder alternately light and dark. Mesonotum, except for a narrow margin to præscutum, but including scutellum and postnotum, wholly deep chestnut or blackish-brown, velvety in appearance, strongly contrasting with pale yellowish pronotum and upper part of pleuræ. The broad blackish pleural stripe continued on to first abdominal segment, which is almost wholly coloured like the mesonotum. All femora broadly dark at tips, dark area broader and sharper on front femora (extreme tip of middle and hind femora indistinctly lighter). Front and hind tibiæ and tarsi entirely blackish, middle tibiæ brownish, rather narrowly blackened at base and tip. Hind femora without any modified hairs posteroventrally (a very similar West African species has a long row of black hairs in this position).

Other similar specimens are in the British Museum from India, Java, and Malay Peninsula.

It is probable that *L. spadiceithorax* may be a synonym of *L. pulchra* (de Meij.), but this is not certain as recent experience has shown that there are certainly several closely allied but distinct species of this group in the Oriental region and others in Tropical Africa. Another form which appears to be widely distributed in the Orient differs slightly from the above in having the front and hind tibiæ brownish, only narrowly black at tips; this form is probably only a variation of the above. De Meijere's type of *R. pulchra* (from Tosari, Java), had only one (middle) leg left and was stated to have antennæ yellowish (no dark rings being mentioned). It is of interest to note that the Seychelles form is one of the Oriental species and is not identical with any of the three African species of the group at present known to me.

I have elsewhere quoted *Dicranomyia marmoripennis* Brun. as a synonym of *R. pulchra*, and some specimens so determined by Brunetti certainly agree with those described above, but the original description is at variance in several particulars and was probably compiled from a mixed series, the type perhaps belonging to another species.

Limonia (Rhipidia) xanthoscelis sp. n.

♀. Resembles *L. (R.) spadiceithorax* Edw., as regards markings of antennæ and wings and general colouring of body, differing as follows:—Thorax more reddish-brown dorsally, scutum and scutellum darker; postnotum with the distal half orange, contrasting with the velvety-black first

abdominal segment. Legs entirely yellow, without trace of dark rings even on front femora, only last two tarsal segments darkened.

Pakka, 1 ♀.

***Limonia* (*Rhipidia*) *pictipennis* Edw.**

Kamborangah, 11 ♂ 5 ♀; Pakka, 3 ♂ 2 ♀; Marei Parei, 1 ♂.

In several of the females and in one male the white centres of the dark costal areas are lacking.

***Limonia* (*Rhipidia*) *impicta* sp. n.**

♂. Head blackish, dusted with grey. Front moderately wide. Rostrum black, about as long as remainder of head. Antennæ black, except for necks of flagellar segments, which are yellowish and fully as long as the oval basal portion; each flagellar segment except the first two and the last two with two pubescent processes ventrally which are about as long as or slightly longer than the segment itself (including the neck), and with two rather long dorsal hairs. *Thorax* blackish, dusted with grey, especially on pleuræ; lower part of sternopleura more brownish. *Abdomen* black, posterior margins of segments greyish. Hypopygium without very distinctive features; rostrum with two long spines. *Legs* uniformly light brownish. Claws with a small basal tooth. *Wings* rather smoky, with the tip, stigma, and clouds on base and tip of *Rs* darker, areas on each side of stigma clear. *Sc* ending above base of *Rs*; *Sc2* far before tip of *Sc*; *Rs* obtusely angled; discal cell confluent with cell *M1*. Halteres blackish.

Length of body, 4 mm.; wing, 5.5 mm.

Marei Parei, 1 ♂.

Differs from other members of the *rostrifera* group in the much shorter antennal pectinations; the slight wing-markings are also distinctive.

***Limonia* (*Libnotes*) *sumatrana* Edw. (*stantoni* Edw., var. ?).**

Lumu Lumu, 23 ♂ 3 ♀; Kenokok, 3 ♂ 2 ♀; Marei Parei, 1 ♂.

***Limonia* (*Libnotes*) *limpida* Edw.**

Marei Parei, 1 ♂; Lumu Lumu, 1 ♀.

***Limonia* (*Libnotes*) *neofamiliaris* Alex.**

Lumu Lumu 1 ♂.

In this specimen the tip of *Sc* is distinctly swollen, as in the closely related *L. subcostalis* Edw. of Buru; Alexander does not mention this point.

Limonia (Libnotes) subfamiliaris Alex.

Kabayau, 1 ♂.

The tip of *Sc* is not in the least swollen.

Limonia (Libnotes) aurantiaca Dol.

Kenokok, 1 ♂.

This specimen differs from specimens in the British Museum (from Buru) chiefly in having no obvious darkening at the tips of the femora. *L. illecebrosa* Alex. (Luzon) is very closely allied, but differs (according to the description) in having the rostrum and base of antennæ dark brown instead of yellowish.

Limonia (Libnotes) kinabaluana sp. n. (Pl. XII, fig. 7).

Closely allied to *L. alexanderi* Edw. (Java), with which it agrees in having the knob of the halteres dark, differing chiefly as follows:—Antennal flagellum black or blackish. Scutellum entirely pale; postnotum also scarcely darkened. Middle and hind coxæ not darkened. Black marks on sides of abdominal tergites less obvious. Hypopygium differing slightly, especially in having the slender distal portion of the rostrum rather shorter as compared with the stouter proximal portion. Wing-markings (though similar in arrangement) less extensive, dark areas on veins forming broad streaks rather than patches.

Length of body, 11—13 mm.; wing, 15—18 mm.

Kemborangah, 8 ♂ 4 ♀; Pakka, 1 ♂; Lumu Lumu. 1 ♂.

From the somewhat similar *L. sumatrana* Edw. and *L. scutellata* Edw., this differs not only in the dark knob of the halteres, but also in the more pollinose thorax and the absence of a black spot in the upper corner of the anepisternite, as well as in details of venation and wing-markings.

Limonia (Libnotes) pilulifera sp. n.

♂. *Head* blackish, without obvious grey dusting (but perhaps discoloured). Front about as wide as two or three facets. Rostrum and palpi black. Antennæ almost as long as the whole body; scape dark brownish; flagellar segments with base almost globular or very little longer than broad, and long slender necks which are considerably longer than the basal portion, in most cases nearly twice as long; the globular portion bearing very long erect pale pubescence which is longer than the whole segment (including the neck); one black dorsal hair (representing the verticil) is slightly thicker but somewhat shorter than the others. *Thorax* brownish-ochreous, præscutum with a rather ill-defined darker median stripe; pleuræ unmarked. *Abdomen* blackish, unbanded. Hypopygium with coxites long, much

longer than the small styles; latter constructed somewhat as in *L. perparvula* Alex.; parameres long but stout, flattened and deeply grooved externally, somewhat spatulate with pointed tip; penis stout, not obviously divided at tip. *Legs* very slender, brownish, tips of femora indistinctly yellow. *Wings* clear, with small, faint stigma; macrotrichia of veins longer than usual. Venation as in *L. perparvula* Alex., except that *Rs* is much longer and gently curved. Halteres black.

Length of body, about 4.5 mm.; wing, 6 mm.; antenna, about 4 mm.

Kenokok, 1 ♂.

This seems to be nearly related to *L. perparvula* Alex. (Luzon), but is very distinct from that species and from all known to me in the form of the antennæ. *L. tenuiclava* Alex. (Mindanao) is evidently also closely related, but has the antennæ less elongate.

Limonia (Discobola) argus Say.

Pakka, 1 ♂; Kamborangah, 2 ♀.

This North American species has already been recorded by Alexander from Japan, Formosa and Luzon. The present specimens agree entirely with North American examples in the British Museum (from Amherst, Mass.) as regards wing-markings and structure of hypopygium, as well as in the entirely black antennæ and colour of halteres, but differ in having no dark stripes on the præscutum and no trace of darkening on the posterior borders of the abdominal tergites; the scutellum is entirely pale and the postnotum scarcely darkened.

Limonia (Discobola) parargus sp. n. (Pl. XII, fig. 9.)

Closely allied to *L. (D.) argus*, and with practically identical wing-markings, but differing as follows:—Antennæ with second segment clear yellowish. Præscutum unmarked, but scutal lobes blackened posteriorly, scutellum blackish except at base, pleurotergites mainly blackish, mediotergite also darkened. Front and middle coxæ dark brown in front, not all yellowish as in *argus*. Femora with obvious indications of a second dark ring, in addition to the normal subapical black ring, the yellow area between the two dark rings broader than either of these and decidedly broader than the yellow tip. Tibiæ with an ill-defined darker ring close to base. Abdomen unbanded, but with blackish marks on sides of tergites. Hypopygium with margin of tergite produced into two slight lobes, which are very widely separated; fleshy style somewhat longer than broad (not almost globular as in *argus*), the two very short rostral spines sessile, not set on a tubercle. Wings (pl. xii, fig. 9) with vein *R1* more sinuous.

Marei Parei, 1 ♂ ; Lumu Lumu, 2 ♀ .

This seems to be somewhat intermediate between *L. argus* and *L. taiwanella* Alex. (Formosa), at least as regards hypopygial structure. It differs from *L. taiwanella* as well as from *L. moiwana* Alex. (N. Japan) in having no separate spots in cell *M*, and in other respects. In the specimens before me the basal section of *R*₄ + 5 is continuously seamed with black, whereas in the Bornean specimens of *L. argus* there is a small separate dark spot on the fork of *Rs*.

Limonia (Discobola) epiphragmoides sp. n. (Pl. XII, fig. 10.)

♂. *Head* black, including rostrum and palpi. *Antennæ* with first segment black, second yellowish, third brownish yellow, remainder all yellowish. *Thorax* light brownish yellow, unmarked except that the pronotum is dark brown laterally; the præscutum also somewhat darkened on margin. *Abdomen* light-brownish, lateral margins of tergites somewhat darkened. Hypopygium of very distinctive form; tergite with two small, rounded, sub-contiguous lobes; dorsal style pale; ventral style with the fleshy area very much reduced, the two rostral spines pale and blunt-tipped as in *L. argus*, but very long and inserted far from the rostrum, near outer margin of the style, and directed straight backwards. *Legs* uniformly yellowish, femora with faint traces of a very narrow subapical dark ring. *Wings* (pl. xii, fig. 10) with an elaborate and very distinctive pattern somewhat reminiscent of *Epiphragma*. Tip of *R*₁ much more looped than in *argus*; *m-cu* well beyond base of cell. Halteres entirely yellowish.

Length of body, 6 mm.; wing, 8 mm.

Lumu Lumu, 1 ♂ .

Very distinct in wing-markings from all other species of the subgenus.

Antocha (Antocha) retracta sp. n.

Head light ochreous, somewhat dusted with grey, especially round eye-margins. Front nearly as broad as one eye. *Antennæ* alike in the two sexes, noticeably shorter than thorax; scape ochreous, flagellum brownish; second scapal segment enlarged; flagellar segments rather shortly oval, with short verticils. Rostrum ochreous, palpi blackish. *Thorax* dull ochreous; in ♀ with scutum largely dark brown (dark area formed by the almost complete fusion of four ill-defined stripes), scutal lobes mainly dark, also postnotal mediotergite and lower part of sternopleura; in ♀ the scutal lobes only are somewhat darkened. *Abdomen* brownish-ochreous, genitalia paler. *Legs* light brownish. *Wings* slightly milky as usual; veins not very dark; stigma absent.

Macrotrichia numerous on distal part of $R4 + 5$ and branches. Cross-vein r placed at extreme tip of $R1$ and less than twice its own length beyond fork of Rs ; $m-cu$ rather oblique and fully its own length before fork of M . Halteres pale, knob somewhat darkened.

Length of body, 4—5.5 mm.; wing, 5.5—7 mm.

Kamborangah, 1 ♂ 1 ♀.

Differs from most other species of the subgenus known to me in the unusually retracted position of $m-cu$, in this respect approaching the subgenus *Orimargula*, and resembling *A. thienemanni* Alex. (Java), from which it differs in colouring.

Antocha (*Orimargula*) *maculipleura* sp. n.

♀ *Head* black, heavily dusted with grey. Front scarcely half as broad as one eye. Antennæ slightly shorter than thorax, first segment light brownish, remainder almost black; second scapal segment not very large, flagellar segments elongate-oval, with short verticils. Palpi blackish. *Thorax* rather dark brown, slightly dusted with grey; pleuræ with two large velvet black spots, one on the anepisternite, one on the pleurotegite. *Abdomen* dark brown, ovipositor ochreous. *Legs* rather dark brown. Wings with slight milky tinge, veins all very dark, stigma distinct, dark grey. Cross vein r well before tip of $R1$, less than twice its length from fork of Rs ; $m-cu$ at right angles to Cu , placed slightly beyond level of fork of Rs . Macrotrichia present on $R2 + 3$ as well as on other veins in apical part of wing. Halteres yellow.

Length of body, 5.5 mm.; wing, 7 mm.

Kenokok, 1 ♀.

A very distinct species from others known to me by the pleural markings. It is the largest *Orimargula* I have examined.

***Orimarga fasciventris* sp. n.**

Head black, somewhat shining above, with conspicuous silvery grey dusting on the rather narrow frons. Antennæ, rostrum and palpi black. *Thorax* blackish, somewhat shining; sides of præscutum with greyish dusting; pleuræ blacker and more shining than dorsum, but with a broad median longitudinal stripe of grey dusting; hollow above front coxæ deep black. *Abdomen* with segments 1 and 7—9 blackish; 2—6 blackish on the basal half, yellow on the apical half. *Legs* dark brown, coxæ and bases of femora ochreous. *Wings* nearly clear, base of Rs , $m-cu$ and apical and posterior margins narrowly seamed with brownish; squama and base of cell An dark. Macrotrichia very numerous on all branches of R and M , Rs and $R4 + 5$ obtusely angled

near base; r twice its length before tip of $R1$, and a little beyond $r-m$; $M4$ twice as long as $M3 + 4$, the cell $M3$ therefore very long; $m-cu$ well before middle of Rs , which is under twice as long as basal section of Rs . Halteres yellow.

Length of body, 6—7.5 mm.; wing, 7 mm.

Kamborangah, 1 ♂ 1 ♀.

A rather distinct species by the conspicuously banded abdomen.

Helius (Helius) amplus sp. n.

♀ *Head* blackish, with brown dusting and black hair. Rostrum blackish above, lighter on sides, slightly longer than head. Antennæ dark brown, second segment rather lighter; about as long as thorax; verticils of moderate length. *Thorax* uniformly reddish-brown, pronotum and upper part of pleuræ indistinctly darker. *Abdomen* dark brown, unbanded. *Legs* uniformly brownish, not very dark, tarsi not paler than tibiæ; on front legs the first tarsal segment about four-fifths as long as the tibia, last four segments together one-third as long as first. *Wings* broad, with faint brownish tinge on membrane; veins not very dark, but with slight and indefinite seams on cord, also on Cu and Ax ; stigma rather dark brown, elongate-oval. $R2 + 3$ not quite two-thirds as long as $R4 + 5$, ending well beyond $R1$; cells $M1$ and $M2$ subequal at base; $m-cu$ a little beyond base of discal cell (in some specimens near middle), discal cell rather small. Halteres dark brownish.

Length of body, 9—10 mm. (including ovipositor): wing, 9—11 mm.

Kamborangah, 7 ♀; Pakka, 1 ♂.

Allied to *H. kambangani* (de M.) but larger, differing slightly in venation and in the darkened cord. In *H. kambangani* the stigma fills the tip of cell $R1$, whereas in the new species there is a clear area at the tip of this cell which is about as long as the stigma.

Helius (Helius) bicolor sp. n.

♂ *Head* blackish, somewhat dusted with grey. Rostrum light brownish, slightly longer than remainder of head. Antennæ about as long as thorax; scape brownish, flagellum blackish; dorsal hairs of moderate length. *Thorax* uniformly light ochreous, slightly shining. *Abdomen* with segments 1—4 and 8—9 ochreous, 5—7 blackish. Hypopygium with tergite produced into two widely separated triangular points; inner style long, narrowed and bent inwards on its distal third. *Legs* with coxæ and femora ochreous, tibiæ and tarsi dark brown. First segment of front tarsus about four-fifths as long as tibia and nearly four times as long as remaining four segments together. Hind legs

noticeably shorter than middle pair. *Wings* clear, without trace of stigma, veins scarcely darker than membrane, except costa, which is brownish. Fringe rather longer than usual, but not conspicuous. $R2 + 3$ about half as long as $R4 + 5$; $r-m$ nearly twice its length beyond fork of Rs ; $m-cu$ at base of the rather small discal cell. Halteres light brownish.

Length of body, 6 mm.; wing, 8 mm.

Lumu Lumu, 1 ♂.

Allied to *H. unicolor* Brun., differing in the bicolored abdomen and other respects.

***Helius (Helius) dolichorhynchus* sp. n.**

Head black, somewhat dusted with grey. Rostrum black, slender, almost twice as long as thorax, rather shorter in ♀. Antennæ blackish, second segment lighter; in ♂ subequal in length to rostrum, in ♀ not longer than thorax; verticils of moderate length. *Thorax* reddish-brown, somewhat shining; scutal lobes, scutellum and postnotum darkened. *Abdomen* blackish above, pale beneath. Hypopygium with the tergite somewhat produced in middle, with a small tuft of short black hair; tip of coxite slightly produced and with 3—5 very long, pale, bristly hairs; a tuft of pale hair also near base of coxite within, and some bristly pale hairs at the base of the narrow distal third of the inner style. *Legs* brownish, only coxæ and bases of femur paler; middle and hind legs equal in length; first segment of front tarsus scarcely two-thirds as long as tibia and only about twice as long as remaining four segments together. *Wings* clear, all veins dark but not seamed; stigma elongate, greyish, leaving tip of cell $R1$ broadly clear. $R2 + 3$ two-thirds as long as $R4 + 5$; $r-m$ about its own length beyond base of $R4 + 5$; $m-cu$ at base of discal cell; cells $M1$ and Ms subequal at base. Halteres light brownish.

Length of body, 6—7 mm.; wing, 7.5 mm.; rostrum 3—3.5 mm.

Lumu Lumu, 1 ♂ 1 ♀.

This differs from other Oriental species known to me in the unusual length of the proboscis.

***Helius* (subgen. n. ?) *patens* sp. n.**

Head pale yellowish; antennæ, rostrum and palpi black. Front rather wider than in most species of the genus, but eyes subcontiguous below. Antennæ alike in the two sexes, slender, about as long as thorax. Rostrum very slender, but only a little longer than head, bare above, shortly hairy beneath. Palpi unusually short, and composed of only one or two segments (two distinct segments in ♂, apparently only one in ♀). *Thorax* dull yellowish, præscutum with a brownish median stripe, not very conspicuous. *Abdomen*

yellow, with blackish bands on posterior margins of segments 2—6, rather broader in ♀ than in ♂. *Legs* (only one remaining) uniformly pale brownish. *Wings* clear, all veins pale, including costa. *Rs* short, somewhat angulate near base, not much more than half as long as $R2 + 3$, which is well over half as long as $R4 + 5$; tips of $R1$ and $R2 + 3$ ending rather close together in costa in ♀, but both abbreviated in ♂ (perhaps not normally); *r-m* long, placed only a little beyond fork of *Rs*; discal cell confluent with cell $M1$; cell $M3$ about as long as its stem; *m-cu* fully its own length beyond first fork of *M* and scarcely its own length from wing-margin. Halteres yellow.

Length of body, 3.5—5.5 mm.; wing, 4.5—5.5 mm.

Kamborangah, 1 ♂; Lumu Lumu, 1 ♀.

Although with a superficial resemblance to *H. (Eurhamphidia) pallens*, this is very distinct by the slender rostrum, reduced palpi, and quite different venation. The characters are probably sufficient to warrant the erection of a new subgenus.

***Helius (Eurhamphidia) pallens* sp. n.**

♂ Allied to *H. (E.) mirus* Edw. (Sarawak), which it resembles in its pale yellowish body and pale grey wing-markings, including the tip, a rather broad band over the cord, and an area along the basal half of *Cu* (this last point not mentioned in the original description), but differs as follows:—Antennæ black, except for the first segment, which is yellow. Palpi black. *Thorax* with indications of a darker median area on front of præscutum. Femora rather darker. *Abdomen* with black basal bands on segments 2—6; segment 8 and tergite 9 black. *Wings* with *r-m* well preserved; cell $M1$ broad at base.

Length of body, 4 mm.; wing, 5 mm.

Lumu Lumu, 2 ♂.

***Helius (Eurhamphidia) mimicans* sp. n.**

Head brownish; rostrum, palpi and antennæ blackish. Rostrum about equal in length to remainder of head. Antennæ in ♂ quite half as long as body, flagellar segments nearly cylindrical, about four times as long as broad, with rather long erect pubescence; in ♀ scarcely longer than thorax, with shorter pubescence. *Thorax* uniformly dull brownish. *Abdomen* blackish, genitalia ochreous. Ninth tergite in ♂ somewhat produced, slightly bilobed in middle. *Legs* with coxæ ochreous; femora, tibiæ and basal third of tarsi blackish, remainder of tarsi white. *Wings* clear, with brownish stigma; all veins dark; venation normal for the subgenus, *r-m* a little beyond middle of *Rs*. Halteres with ochreous stem and brown knob.

Length of body, 4—5 mm.; wing, 5—6 mm.

Kamborangah, 6 ♂, 2 ♀; Lumu Lumu, 2 ♂, 4 ♀.

The colouring of this species is very suggestive of a species of *Thrypticomys*, especially as regards the dark knees and white-tipped tarsi; hence the specific name. In *H. (E.) niveitarsis* Skuse (Australia) as well as in some allied Oriental forms, the knees, tips of tibiae, and the whole tarsi are white. The specimen previously recorded by me from Mt. Dulit is *H. mimicans* and not *H. niveitarsis*.

***Ceratocheilus majus* Edw.**

Kamborangah, 1 ♀

***Ceratocheilus latifrons* Brun.**

Kamborangah, 1 ♀; Lumu Lumu, 1 ♂; Tenompok Pass, 1 ♂.

The specimens are considerably larger and darker than those I recently reported from North Borneo.

***Ceratocheilus contractifrons* sp. n.**

Head light grey (owing to heavy dusting on a dark ground), darker on occiput. No corniculus. Front in ♂ at its narrowest point (which is much above base of antennæ) about as wide as 4—5 facets, in ♀ broader (8 facets). Antennæ 12-segmented, the small first segment ochreous, remainder black; second segment less swollen than in *C. latifrons*, third longer and narrower than second, following segments distinctly longer than broad even in ♂, and longer in ♀ than in ♂. *Thorax* only moderately produced in front; ground colour dark; præscutum with three subconfluent dark brown stripes on a greyish ground; scutum and scutellum dark brownish; pleuræ somewhat lighter below, but not striped. *Abdomen* blackish, not distinctly banded, though the tergites are lighter at the posterior lateral corners. Hypopygium rather large, ochreous; in structure remarkable for the form of the two penis-filaments, which are stout, longer than the hypopygium itself, and bent into an S-shaped curve; tergite somewhat prominent in middle; style rather slender, mainly pale, but with a long black tooth in middle at right angles to the main axis. *Legs* blackish. *Wings* slightly smoky, veins all dark, no stigma or other markings. *R*₂ + *3* short, with a rather strong double curve; discal cell closed in ♀, open on one wing in ♂, *m-cu* at its base. Halteres yellowish.

Length of body, 5—8 mm.; wing, 6—7 mm.; rostrum, 4—5 mm.

Kamborangah, 1 ♂, 1 ♀; Lumu Lumu, 1 ♀.

Allied to *C. latifrons*, Brun. differing in the narrower frons, pale first antennal segment, rather longer antennæ,

and structure of hypopygium. *C. formosensis* Alex. (Formosa) has a hypopygium of somewhat similar type, but quite different in detail. In describing *C. formosensis* Alexander refers to the filiform structures as gonapophyses; they are however tubular organs with an opening at the tip, and undoubtedly are to be regarded as a double penis.

Elephantomyia (Elephantomyodes) argenteocincta Walk.

Kenokok, 1 ♀.

Elephantomyia (Elephantomyodes) nigriclava sp. n.

♀ *Head* black above, with a narrow median grey line; pale yellowish beneath and round ocelli. Eyes separated by at least the width of five facets. Antennæ and rostrum black; verticils of distal flagellar segments about twice as long as the segments. *Thorax* dull brownish-orange, pleuræ lighter posteriorly. *Abdomen* mainly velvet-black; all tergites with posterior margins narrowly yellow; broader basal dull yellow bands on each of segments 2—6. Ovipositor dark. *Legs* mainly black; coxæ brownish-orange; tarsi with tips of first and whole of second and third segments pure white; on posterior legs the white tip of the first segment is very narrow, on front legs broader (one-fifth the length of the segment). *Wings* nearly clear, all veins black; stigma blackish, filling the space between *R1* and *R2* + 3, cell *Sc* also dark; *Rs* and *R2* + 3 rather gently curved at base, not angulate as in most allied species; distance between tips of *Cu* and *An* about equal to *m-cu*; *Ax* nearly in contact with hind margin basally. Halteres black.

Length of body, 9 mm.; wing, 9 mm.; rostrum, 6.5 mm.

Lumu Lumu, 1 ♀.

Closely allied to *E. nigriceps* Edw. (Sarawak and Malaya), differing in the more widely separated eyes, shorter rostrum, shorter antennal verticils, and less white on tarsi. In these points it resembles *E. major* Alex. (Formosa), of which it may be a variety, but seems to differ from both *E. major* and *E. nigriceps* in the black halteres and curved instead of angulate base of *R2* + 3.

Styringomyia flava Brun.

Lumu Lumu, 1 ♀; Kamborangah, 1 ♀.

Atarba limbata sp. n.

Head yellowish, somewhat shining. Antennæ brownish-yellow, darker apically; flagellar segments oval, first not longer than second, about twice as long as broad. Palpi yellow, the long terminal segment black. *Thorax* largely yellow, mesonotum shining; lateral (but not anterior) margins of præscutum black; pleuræ blackish above, especially posteriorly, pleurotergites wholly black; immediately below

the black area of pleuræ is a conspicuous patch of fine silvery pubescence. *Abdomen* yellow; first tergite dark; broad dark brown bands on posterior margins of tergites 2—5 (none on 6). *Legs* entirely yellow, femora not darkened apically. *Wings* yellowish, unmarked, veins all yellowish. Halteres yellow.

Length of body, 7 mm.; wing, 7 mm.

Kamborangah, 3 ♀; Lumu Lumu, 3 ♀.

Most nearly allied to *A. marginata* Edw. (Malaya), differing in the more extensively black pleuræ and absence of black on femora.

***Molophilus albiceps* Edw.**

Kamborangah, 6 ♂, 4 ♀; Lumu Lumu, 2 ♀; Kenokok, 1 ♀.

***Molophilus kinabaluensis* sp. n. (Fig. 11.)**

Almost completely pale yellowish-brown; only tarsi, palpi and antennal flagellum dark brown. Antennæ alike in the two sexes, shorter than thorax; all flagellar segments shortly oval, with verticils of moderate length and without distinct pubescence. *Thorax* dull, but without pruinescence.



Fig 11. *Molophilus kinabaluensis*
sp. n. ♂ hypopygium.

Hypopygium (text fig. 11) with both styles simple, somewhat sword-shaped, one dark and the other pale; tergal process of coxite long, arising near middle; penis long. *Wings* yellowish, with pale hair and veins; rather numerous macrotrichia scattered over the whole wing-membrane; in the distal cells these are in rather irregular single rows, in the basal cells rather more numerous. Venation: *r* its own length beyond fork of *Rs*; stem of cell *R3* rather long, fully twice as long as *r*; *Ax* ending below or immediately before *m-cu*.

Length of body, 2.5—3 mm.; wing, 3.5—4 mm.

Kamborangah, 20 ♂.

Except for the presence of macrotrichia on the wing-membrane, this is a typical *Molophilus*; it does not belong to the genus or subgenus *Dasymolophilus*, which if retained must be based on other characters than the hairy wings.

***Molophilus griseatus* sp. n.**

♂ *Head* brownish, lighter above antennæ, with rather heavy and uniform grey pruinescence. Antennæ about as long as thorax; first five or six segments yellow, remainder dark brown; flagellar segments oval, first few rather swollen, all with dense pubescence which is fully as long as their diameter and with moderately long verticils. Palpi and the very short rostrum black. *Thorax* brown, prothorax and scutellum more yellowish; whole surface rather heavily dusted with pale grey; hairs black. *Abdomen* blackish, except for the ochreous hypopygium. Styles both black, bent at right angles in middle and pointed, with the points directed in opposite directions (dorsally and ventrally); one style much longer than the other, and comparatively less stout; tergal process of coxite short, subterminal. *Legs* dark brown, coxæ rather lighter. *Wings* unmarked; base obscurely yellowish; hair uniformly dark. Cross-vein *r* situated rather more than its own length beyond fork *Rs* and immediately above base of cell *R3*; *Ax* reaching distinctly beyond *m-cu*. Halteres blackish.

Length of body, 2.5—3 mm.; wing, 4 mm.

Kamborangah, 1 ♂.

Related to *M. malayensis* Edw., differing in the uniformly dark costal hair and form of the styles.

***Erioptera (Ilisia) fenestrata* de Meij.**

Marei Parei, 2 ♂.

***Erioptera nigribasis* Edw.**

Lumu Lumu, 1 ♀.

***Erioptera* (s. str.) *cacuminis* Edw.**

Kamborangah, 30 ♂, 17 ♀; Pakka, 35 ♂, 19 ♀; Lumu Lumu, 1 ♂, 3 ♀; Marei Parei, 4 ♂, 1 ♀; Tenompok Pass, 1 ♀.

***Erioptera* (s. str.) *notata* de Meij.**

Kiau, 1 ♀.

***Erioptera* (s. str.) *javanensis* de Meij.**

Kiau, 3 ♀.

***Erioptera (Teleneura) parallela* Brun.**

Kamborangah, 1 ♂.

In this specimen the hypopygium is almost as in *E. fusca* de Meij. and *E. subfusca* Edw., but the species may

be distinct owing to the much lighter colour of the head and thorax. A feature (not heretofore noted) which is common to all the species of this group (including *E. argen-tifrons* Edw.) is that the legs are covered with small but rather broad close-lying scales. This is not the case with *E. nigribasis* Edw., which Alexander also includes in the subgenus *Teleneura*.

Erioptera ? fusca de Meij.

Marei Parei, 1 ♀.

Empeda gracilis de Meij.

Kiau, 1 ♂.

Empeda poiensis Edw.

Kamborangah, 7 ♂, 3 ♀; Lumu Lumu, 1 ♀; Tenompok, 1 ♀.

Empeda suffumata sp. n.

Head blackish, but the colour obscured by heavy grey dust. Palpi and antennæ blackish, the latter short, with short verticils; first few flagellar segments shortly oval, remainder slender. *Thorax* blackish brown, with rather heavy and uniform grey dusting. Anterior pits exactly in line with the foveal, as usual in this genus. *Abdomen* blackish-brown, scarcely dusted, with whitish hair. Hypopygium with outer style wholly blackened, forked near base, outer branch long, curved, pointed, inner branch about two-thirds as long as outer, slightly trifid at tip; inner style bare and pale; tergite very small; parameres not obvious. *Legs* brownish; femora gradually darkened towards tip; no scales. *Wings* with a rather strong and nearly uniform brownish suffusion; stigma dark brown; a dark brown cloud over base of $R_4 + 5$ and $r-m$. Cross-vein well before middle of stigma. Venation normal, much as in the European *E. nubila* Schum. Halteres yellowish.

Length of body, 3—4.5 mm.; wing, 4.5—6.5 mm.

Pakka, 62 ♂, 30 ♀; Kamborangah, 1 ♂.

Differs from allied species (such as *E. poiensis* Edw.) in its larger size and in the clouded cross-vein $r-m$.

As in all other species of *Empeda* I have examined, the pleuræ are completely bare; this seems to afford a good distinction from *Erioptera* s. str., all the species of which, so far as I am aware, have a patch of long erect hair on the ptero-pleura.

Cryptolabis (Baeoura) pubera sp. n.

♀ *Head* brownish, heavily dusted with pale grey. Antennæ dark brown, flagellar segments all elongate-oval to subcylindrical, first four or five with long pubescence (nearly twice as long as the diameter) and each with one

or two long dorsal hairs, remainder without pubescence but with long verticils. Palpi and proboscis yellowish. *Thorax* rather light brown, dusted with grey, more heavily so on pleuræ; mesonotum with long dark hair. *Abdomen* brownish, tergites darker posteriorly. *Legs* (hind leg only remaining) uniformly ochreous, clothed with long and rather dense erect hair. *Wings* only slightly tinted with grey, quite unmarked, with long macrotrichia on all veins. Venation normal. Halteres brownish-ochreous.

Length of body, 5 mm.; wing, 7 mm.

Lumu Lumu, 1 ♀.

This resembles *C. pilipes* Edw. (Java) and *C. trichopoda* Alex. (Formosa) in the very hairy legs, differing from both in the unmarked wings.

Gonomyia (s. str.) hamulata sp. n. (Fig. 12.)

Head mainly blackish, but rostrum orange-yellow; antennæ and palpi wholly black. Antennæ alike in the two sexes; first three or four flagellar segments somewhat swollen, rest very slender, with short verticils. *Thorax* almost entirely dull, only scutellum slightly shining; pronotum yellow as usual; mesonotum dark brownish-grey, scutellum lighter; pleuræ mostly brownish-ochreous, but anepisternite and lower part of sterno-pleura dark. *Abdomen* wholly



Fig. 12. *Gonomyia* (G.) *hamulata*
sp. n. ♂ hypopygium.

dark brown. Hypopygium (text fig. 12): inner style with one very strong black hook, outer style finger-like, without blackened area; aedeagus with a reflexed black hook which is variable in development. *Legs* dark brown, even the coxæ darkened, especially front pair. *Wings* clear, with faint brownish stigma and sometimes a very faint seam over the cord. Venation as in *G. bryanti* Alex. Halteres mainly dark.

Length of body, 4—5 mm.; wing, 5—6.5 mm.

Kamborangah, 1 ♂, 1 ♀; Pakka, 1 ♂, 7 ♀.

In the male from Pakka the hook on the ædeagus is very much smaller than in the type from Kamborangah, but all the other structures are the same. The species is closely allied to *G. bryanti* Alex., differing in the yellow rostrum and the much longer black hook on the inner style.

Gonomyia (Progonomyia) brunnescens Edw.

Lumu Lumu, 1 ♂; Kamborangah, 1 ♂.

Gonomyia (Lipophleps) conjugens White.

Kiau, 1 ♀.

Gonomyia (Lipophleps) robinsoni Edw.

Kiau, 1 ♀.

Gonomyia (Lipophleps) bicolorata Alex., 1930 (*citrocostalis* Edw. 1931).

Kiau, 2 ♀. Alexander's type was a male from Luzon, but his description of the colouring agrees so closely with the type female of *citrocostalis* that there can be little doubt the species are the same.

Rhabdomastix flavidula Edw.

Kabayau, 1 ♀.

Gnophomyia nitens sp. n.

♂ *Head* blackish, dusted all over with dark grey. Antennæ wholly black, twice as long as head and thorax together; first flagellar segment six times as long as broad, following segments each a little shorter; terminal segment much shorter than penultimate and barely twice as long as broad; as is usually the case in this subfamily when the antennæ are lengthened, the pubescence is dense and longer than the diameter of the segments, but the vertical hairs are absent or scarcely distinguishable from the pubescence. Palpi dark brown. *Thorax* wholly black; præscutum and scutum brilliantly shining; scutellum and most of pleuræ rather heavily dusted with grey; anepisternite and pleurotergite appearing dull black from above, slightly shining black when viewed from beneath. *Abdomen* missing. *Legs* rather dark brownish, all coxæ ochreous. *Wings* somewhat smoky; veins moderately dark; no trace of stigma. Macrotrichia of all veins rather long and conspicuous. *R1* long, its terminal section more than half as long as *R2*, and about six times as long as *r*; tip of *R2* not at all upturned; veinlets closing discal cell in transverse alignment; *m-cu* only a little before middle of discal cell; *M4* and *An* equidistant from *Cu* on wing margin. Halteres with stem mainly dark, knob wholly pale yellow.

Length of wing, 7 mm.; antenna, 5 mm.

Kamborangah, 1 ♂.

The combination of shining thorax, long antennæ, yellow halteres and long vein *R1* distinguishes this species from all others of the genus known to me. *G. filiformis* Alex. and *G. macrocera* Alex. (Philippine Is.) also have long antennæ in the male sex, but different thoracic colouring.

***Gnophomyia flaviclava* sp. n. (Fig. 13.)**

Head black, somewhat shining, with slight grey dusting, most noticeable above antennæ. Antennæ entirely black, in both sexes somewhat longer than head and thorax together; flagellar segments fusiform, about three times as long as broad, with short pubescence; verticils about as long as segments. Palpi black. *Thorax* wholly black, with heavy pale grey dust on scutellum and much of pleuræ; mesonotum somewhat shining; a single large dull black spot on anepisternite; pleurotergite black but slightly shining. *Abdomen* black; hypopygium as figured (text fig. 13);



Fig. 13. *Gnophomyia flaviclava*
sp. n. ♂ hypopygium.

cerci of ♀ quite short, under three times as long as their depth at the base. *Legs* black, including all coxæ, which however are heavily grey-dusted. *Wings* somewhat smoky, with dark veins and blackish stigma. Macrotrichia of veins short and inconspicuous. *R1* ending at outer end of stigma, its tip under three times as long as *r*; *m-cu* close to the base of the rather short discal cell. Halteres black, outer half of knob yellow.

Length of body, 4—5 mm.; wing, 4—5 mm.

Kenokok, 1 ♂, 1 ♀.

Distinguished from its rather numerous allies by the structure of the hypopygium. The colour of the halteres is also rather distinctive, several nearly related forms having these organs wholly black.

Trentepohlia (Mongoma) cariniceps End.

Kenokok 1 ♀.

Trentepohlia (Mongoma) fortis Edw.

Kenokok 1 ♀.

Trentepohlia (Mongoma) pennipes O.-S.

Kiau, 1 ♂, 2 ♀; Kabayau 1 ♂, 1 ♀.

Trentepohlia (Mongoma) ? hendersoni Edw.

Marei Parei, 1 ♂, ; Lumu Lumu, 1 ♀.

Trentepohlia (Mongoma) spiculata sp. n.

A large species of the *cariniceps* group, most nearly allied to *T. lutescens* Edw. (North Borneo), with which it agrees in its uniformly orange-brown thorax, stout and uniformly brown legs, with 10—20 short black spines at the base of each femur beneath, but differs as follows:—Head largely black, brownish only towards the nape. Antennal segments (except the first few) each with two long dorsal hairs, of which the proximal one is a little longer than the segment, the distal one nearly twice as long as the segment, but shorter than the single hair of *T. lutescens*. Palpi and labium yellowish. Thorax with the mesonotum wholly dull, only the pleuræ lightly shining. Lobes of mesosternum each with a group of black bristly hairs (in *T. lutescens* the mesosternum is either quite bare, or has a few inconspicuous pale hairs). Abdomen almost entirely dark brown. Wings with the stigma less conspicuous; all veins dark brown except costa, which is rather paler.

Length of body, 11—14 mm.; wing, 11—12 mm.

Kenokok, 1 ♂, 3 ♀.

This is very similar in appearance to *T. cariniceps* End. and *T. fortis* Edw., both of which were also found in the same place. *T. cariniceps* differs in having no femoral spines; *T. fortis* in having only a few such spines, the mesonotum as well as the pleuræ somewhat shining, and many of the wing-veins pale.

Trentepohlia (Mongoma) fimbriata sp. n.

♂ *Head* black, including the short neck; antennæ and palpi also blackish, but labium yellowish. Flagellar segments oval, barely twice as long as broad, without long hairs. *Thorax* uniformly dark brown, mesonotum dull, pleuræ somewhat shining. Mesosternal and supra-alar hairs strong, bristly, black. Præscutum moderately produced over pronotum. *Abdomen* uniformly dark brown. *Legs* (only one middle leg remaining) uniformly dark brown, of moderate length; no femoral spines. *Wings* greyish; stigma faintly darker; all veins dark. Costal fringe long, in region of stigma fully as long as width of

costal cell. Tip of *R1* rather strongly curved up to costa; *r* oblique, longer than first section of *R2* + 3; *R3* rather sinuous; discal cell rather broad, the three middle veinlets closing it subequal in length. Halteres dark.

Length of body, 5 mm.; wing, 6 mm.

Kenokok, 1 ♂.

The unusual length of the costal fringe distinguishes this from allied species.

Trentepohlia (Mongoma) kinabaluensis sp. n.

Head black, including neck. Antennæ with scape dark brown, first few flagellar segments light brownish, remainder darker; no long dorsal hairs. Palpi and labium black. *Thorax* with mesonotum dull ochreous; præscutum with an ill-defined median brown stripe which broadens posteriorly; scutum with two large dark brown areas, scutellum also dark; pleuræ distinctly shining, broadly dark brown above from neck to base of abdomen, lower part of sternopleura also dark. Præscutum considerably produced over pronotum (more so than in the *cariniceps* group). A row of four black bristles above each wing-root; 4—6 black bristly hairs on each lobe of mesosternum. *Abdomen* brown, much darker on lateral margins. *Legs* uniformly brown except for the ochreous coxæ; tips of femora indistinctly lighter; no femoral spines. *Wings* faintly greyish, costal cell more yellowish, all veins dark; stigma large, dark brown; rather broad brown seams over all the transverse veins and at base of *Rs*, also a dark brown cloud round tip of wing, especially towards costa. Venation much as in *T. pennipes* O.—S. Halteres yellow.

Length of body, 8 mm.; wing, 8 mm.

Kamborangah, 1 ♂, 1 ♀; Marei Parei, 2 ♂; Lumu Lumu, 1 ♂, 1 ♀.

Allied to *T. (M) sarawakensis* Edw., which differs chiefly in the uniformly brownish-ochreous thorax and absence of any dark cloud at the tip of the wing.

Trentepohlia (Trentepohlia) bifasciata Edw.

Kiau, 1 ♂, 3 ♀.

Trentepohlia (Trentepohlia) mcgregori Alex. (*nigrogeniculata* Edw.)

Kabayau, 7 ♂, 3 ♀.

Conosia irrorata Wied.

Kenokok, 1 ♀.

Epiphragma insignis v. d. W.

Lumu Lumu, 1 ♂, 1 ♀.

Epiphragma vicina Brun.

Kamborangah, 2 ♂; Lumu Lumu, 2 ♂, 2 ♀.

Limnophila (Dicranophragma) fenestrata Edw.

Kenokok, 1 ♀.

Limnophila (Dicranophragma) maculithorax Edw.

Kiau, 1 ♀.

Limnophila (Ephelia) dulitensis Edw.

Kamborangah, 1 ♂.

This was described from the female only. In the present male the wings are not broadened, and the outer style is rather narrow, ending in a single small point.

Limnophila (Ephelia) concreta sp. n. (Pl. XII, fig. 13).

♂ Closely allied to *E. granulata* Edw. (Sarawak and Malaya), and like that species having the outer style ending in two large curved points, one sharper than the other, but differs as follows:—Præscutum, in addition to rows of tiny dark dots along the interspaces, with a pair of larger dark marks close together at some distance in front of suture, and with a nearly transverse dark streak a little behind each fovea. Outer style with only one large denticle on outer margin. Femora with the whole tip blackened. *Wings* (pl. xii, fig. 13) not quite so broad (though distinctly widened in middle); all the larger dark marks solidly brown; cross-vein in basal cell situate well beyond instead of in a line with the first large spots on costa and hind margin; apex of discal cell scarcely darkened, and spot over cell *M1* quite small; cell *M1* differing in shape, *M1* continuing the direction of *M1*—2 and *M2* strongly curved at base. Knobs of halteres largely blackish except at base.

Length of body, 5 mm.; wing, 6.5 mm.

Marei Parei, 1 ♂.

This is also closely allied to *L. (E.) igorota* (Luzon), differing in thoracic markings and in the black-tipped femora.

Limnophila (Pæcilostola) pendleburyi Edw.

Marei Parei, 1 ♂.

Limnophila (Pæcilostola) guttularis Edw. (Pl. XII, fig. 11).

Kamborangah, 2 ♂; Lumu Lumu, 4 ♂.

In these specimens the wing-spots (pl. xii, fig. 11) are rather larger and more confluent than in the type from Sarawak.

Limnophila (Pæcilostola) pakkana sp. n. (Pl. XII, fig. 12).

♂. Allied to *L. (P.) guttularis* Edw., having very similar colouring of body and legs, markings of wings and

structure of hypopygium, differing as follows:—Antennæ much longer, fully twice as long as thorax; flagellar segments sub-cylindrical, sub-equal in length, quite four times as long as broad, without verticils but with the fine pubescence longer than usual, almost twice as long as diameter of segments. *Wings* (pl. xii, fig. 12) with the spots rather smaller and fainter than in the type of *L. guttularis* (hence much less developed than in the variety of *L. guttularis* recorded above), the last two costal spots, especially, being less conspicuous.

Length of body, 5 mm.; wing, 6.5 mm.

Pakka, 3 ♂; Kamborangah, 1 ♂.

***Pilaria (Eupilaria) albicans* sp. n.**

♂. *Head* blackish. Front fully as broad as one eye. Antennæ quite short, 16-segmented as usual, dark brown except for the first few flagellar segments, which are lighter; segments 4—7 very little longer than broad, 8—16 longer, with longer (but still short) verticils. *Thorax* black, with rather heavy whitish dust over most of the surface; a broad median stripe on præscutum less heavily dusted, but as seen from in front this stripe appears bordered by a silvery-white line; on posterior half of præscutum, behind each of the large, round humeral pits, is a longitudinal shining black area; scutum with a pair of round shining black spots; scutellum and postnotum more heavily white-dusted. *Pleuræ* wholly black, with a large silvery-pollinose area on sternopleura. *Abdomen* with heavy whitish dusting on first segment, remainder brown, without dusting. Hypopygium with outer style of rather peculiar form, broadened subapically and ending in a small hook which is not at all darkened, tergite with a pair of thumb-like projections; two pairs of parameres, one straight and rod-like, the other semi-tubular, rather widened at tip, with an out-turned point. *Legs* with coxæ yellowish; femora light brownish with tips rather broadly black; tibiæ and tarsi dark, on hind legs segments 2 and 3 (perhaps also 4 and 5) whitish; tibial spurs minute. *Wings* nearly clear, with brown veins and stigma. Venation as in *L. opaca* de Meij., with *R*2 very short and turned up at tip, and cell *M*1 absent. Halteres dark.

Length of body, 5 mm.; wing, 6 mm.

Marei Parei, 1 ♂.

This is evidently nearly related to *Limnophila opaca* de Meij., differing in the thoracic ornamentation, which is very distinctive. *Pilaria phaenosoma* Alex. and *P. leucopoda* Alex. (Philippine Is.) also have a similar venation and hypopygium, but very different colouring of the thorax. Whether these species are correctly referred to *Pilaria* appears doubtful.

***Limnophila* (sens. lat.) *ecalcarata* sp. n.**

Head blackish, with light brownish dusting, paler on face and above antennæ; front produced into an obtuse cone, scarcely half as wide as one eye. Antennæ black, not longer than thorax, flagellar segments shortly oval, with short verticils. Palpi black. *Thorax* dull, dark reddish-brown above, paler on pronotal lobes and on pleuræ; an ill-defined blackish stripe on each side from neck to base of abdomen. *Abdomen* blackish above, lighter beneath. Hypopygium with the tergite simple, slightly emarginate in middle; outer style ending in a single blackened, curved point; inner style rather slender; parameres in the form of short, stout, rather blunt hooks; penis quite short. *Legs* very slender, blackish, with coxæ and trochanters ochreous. No trace of tibial spurs. *Wings* uniformly blackish-grey, stigma hardly darker than ground-colour; in shape rather long and narrow, with the pre-arcular area rather longer than usual in this group. All veins with rather conspicuous macrotrichia, but membrane bare. Arcular cross-vein absent. *Sc* ending well beyond end of *Rs*, *Sc2* at its tip; *r* quite three times its own length before tip of *R1*; *Rs* long, more or less angled at base; *R2* + *3* not much longer than first section of *R2*; cell *M1* as long as its stem or longer; *m-cu* just before middle of discal cell. Axillary area small, with slight anal angle. Halteres long and slender, blackish.

Length of body, 5.5—6 mm.; wing, 8—9.5 mm.

Kamborangah, 1 ♂; Lumu Lumu, 1 ♂ 1 ♀.

I know of no close ally of this species in the Oriental fauna, and its position in the genus *Limnophila* is open to question, on account of the absence of tibial spurs and of the arcular cross-vein, characters which are exhibited by the New Zealand group *Heterolimnophila* Alex. The new species may be allied to the European *L. ochracea* Mg., which has a similar hypopygium.

***Eriocera* sp. cf. *morosa* O.-S.**

Kenokok, 1 ♀.

***Ula bifilata* sp. n.**

♂. *Head* dull blackish, without obvious grey dusting (but possibly discoloured); rostrum heavily dusted with grey above, almost bare, with two long hairs at tip. Antennæ and palpi blackish; flagellar segments elongate oval, sub-equal in length, the longest under 3 x 1, each with dense pubescence as long as its diameter and with one long dorsal hair as long as the segment. *Thorax* blackish; mesonotum scarcely shining, but without obvious pruinescence and without trace of stripes; pleuræ with heavy grey dusting on lower half, most obvious as seen from above. *Abdomen* blackish; hypopygium ochreous and rather large, normal in structure except that the penis is produced into two

long slender, curved threads which if straightened out would be twice as long as the coxite. *Legs* with coxæ ochreous, appearing dusted with whitish-grey when viewed from above, middle pair darkened in front; remainder of legs dark brown, femora somewhat paler basally. *Wings* with a rather strong and uniform smoky tinge, scarcely paler basally. Venation much as in the genotype.

Length of body, 5 mm.; wing, 7 mm.

Lumu Lumu, 1 ♂.

Resembles *U. javanica* Alex. more closely than any other Oriental species, but appears to differ from the description in some points, e.g. the black head and grey rostrum. The penis-filaments are not mentioned by Alexander; in *U. bifilata* they are so conspicuous that they could hardly be overlooked.

Nipponomyia novempunctata S.-W., var. ?

Lumu Lumu, 1 ♀. Differs from the type in having no dark seam over *r-m*.

Nipponomyia flavicollis sp. n. (Pl. XII, fig. 14).

Head yellowish, with slight whitish dusting, especially round eyes. *Antennæ* and *palpi* yellowish. *Thorax* light yellowish, with thin whitish dusting on pleuræ and sides of mesonotum. *Præscutum* unmarked; *scutal lobes* mainly dark brown or blackish; *postnotum* also darkened to a variable extent, in the type ♂ almost all black. *Abdomen* light yellowish, with more or less obvious traces of transverse dark bands basally on segments 3—6, most obvious in ♂. *Hypopygium* similar to other species of the genus; *parameres* broad, with a very short apical point; *inner style* with only two strong black spines which are well separated and set at right angles to one another. *Legs* pale yellowish; *tips of femora* and *tibiæ* narrowly blackened, more obviously so in some specimens than in others. *Wings* (pl. xii, fig. 14) with a faint yellowish tinge, veins yellow; *stigma* and *costal cell* slightly deeper yellow; about ten small dark grey spots as in figure. *Halteres* yellow.

Length of body, 12—14 mm.; wing, 12—14 mm.

Pakka, 1 ♂, 3 ♀; Kamborangah, 5 ♀.

Allied to *N. sumatrana* de Meij., differing in colouring of thorax and wings.

Subfamily CYLINDROTOMINAE.

Stibadocera fasciata Edw.

Lumu Lumu, 1 ♂; Kamborangah, 2 ♂.

This was described as a variety of *S. metallica* Alex., but is more probably a distinct species.

Subfamily TIPULINAE.

***Dolichopeza cuneata* Edw.**

Kenokok, 9 ♂, 7 ♀.

***Dolichopeza pallidithorax* de Meij.**

Lumu Lumu, 2 ♂, 1 ♀.

***Dolichopeza* ? *capnora* Alex.**

Lumu Lumu, 1 ♀.

***Dolichopeza infumata* sp. n.**

♂. *Head* brownish-ochreous, rostrum and palpi blackish. Antennæ about as long as thorax, short-haired, scape brownish-ochreous, flagellum blackish; first flagellar segment twice as long as second, last (eleventh) flagellar segment quite short. *Thorax* dull brownish ochreous above, darker on pleuræ and posteriorly; rows of short dark dorso-central hairs present; dark hairs also above wing-roots and on postnotum. *Abdomen* black, including most of hypopygium. Ninth tergite only slightly produced at corners, median area not strongly differentiated, without blackening or marginal teeth, only a small blackened area towards each side; dorsal style broadly finger-like, truncate at tip, dark. *Legs* blackish-brown; trochanters paler; distal half of all tarsi dull whitish. Apparently only one spur on each tibia. *Wings* uniformly dark grey, unmarked, even the stigma scarcely darker than ground-colour. No macrotrichia on membrane, those on veins very short and inconspicuous. *Rs* long, quite half as long again as *m-cu*, slightly curved at base, then straight; *M1* about half as long again as either of the two preceding sections of *M1-2*; cell *M4* much narrowed apically, broad basally; axillary area fairly broad, with distinct anal angle. Halteres with dark brown knob, stem paler.

Length of body, 11 mm.; wing, 15 mm.

Kamborangah, 1 ♂.

This is allied to the Indian *D. obscura* Brun., but is larger, with rather longer *Rs* and simpler ninth tergite. The tarsi in the Indian species also have the distal half whitish, a fact not mentioned by Brunetti.

***Dolichopeza* (*Nesopeza*) *gracilis* de Meij.**

Lumu Lumu, 1 ♀.

This specimen agrees rather closely with de Meijere's description and figure of the type from Java. The markings of the abdomen are characteristic; tergites 2—6 each have a whitish triangle before the middle on each side, the base of the triangle being on the lateral margin of the tergite, also a yellowish spot beyond the middle dorsally. The meron is not conspicuously dark.

Dolichocheza (Nesopeza) major Edw. (Pl. XII, fig. 19).

Kamborangah, 2 ♂, 3 ♀; Lumu Lumu, 2 ♂.

This was described as a variety of *D. gracilis*, but is certainly a distinct species. Apart from the differences mentioned in the original description of the types (from Mt. Murud), there is a striking difference in the ornamentation of the thorax. In *D. gracilis* the præscutum has three dark brown stripes, the median one with a blackish central line, and the scutum two dark brown areas; the prothorax is almost wholly black and the pleural markings inconspicuous. In *D. major* the mesonotum is uniformly light brown and the prothorax largely pale, but the pleuræ have more distinct markings. The abdominal markings are rather obscure, but quite different from *D. gracilis*; tergites 2—6 are mainly brownish, with indications of darker transverse bands in middle and apically.

Dolichocheza (Nesopeza) borneensis Edw.

Lumu Lumu, 8 ♂, 4 ♀.

Described as a variety of the Indian *D. costalis* Brun., this is also almost certainly a distinct species. The male hypopygium is remarkable for having the sternite elongate, appearing as a conspicuous point to the naked eye; tergite with a small median black tooth and a much larger sub-lateral tooth outwardly directed; outer clasper small, finger-like, black. Antennæ of ♂ about half as long as body.

Dolichocheza (Nesopeza) defecta sp. n. (Pl. XII, fig. 17).

♂. *Head* wholly light ochreous, dull; palpi and antennæ not much darkened. Front about half as broad as one eye. Antennæ half as long as body; flagellar segments cylindrical, with short pubescence, each (except first) with a single longish dorsal hair near tip. *Thorax* uniformly brownish-ochreous, dull. *Abdomen* mainly brownish-ochreous, last few segments darker at sides. Hypopygium small, pale; tergite with the median black tooth long, equal to the triangular lateral teeth; sternite not produced; outer style small, narrow, pale. *Legs* (only a middle leg preserved) with femur pale ochreous with narrow blackish tip; tibia pale ochreous on basal two-thirds, whitish on apical-third, but with tip narrowly black; tarsus wholly white. *Wings* (pl. xii, fig. 17) rather broad, with a conspicuous and extensive light brown and white pattern somewhat resembling that of *D. (N.) perpulchra* Edw. (of Sarawak), but the white areas more extensive and the pale brownish ground-colour correspondingly reduced; no dark areas at tips of veins *An* and *Ax*. *Rs* as in *N. perpulchra*, without spur at base; cell *R3* much as in *N. gracilis* and allied species, very wide in middle and contracted at tip;

cell *M1* very wide, *M1* and *M2* both with the tips slightly curved downwards; *M3* or *M4* absent; cell *M4* of equal width throughout. Halteres mainly pale.

Length of body, 8.5 mm.; wing, 10 mm.

Kamborangah, 1 ♂.

The most remarkable feature of this insect is the absence of one of the branches of the media, which may be either *M3* or perhaps more probably *M4*. This however is certainly only a matter of secondary importance, as the species evidently belongs to the *gracilis* group of the subgenus *Nesopeza* and is intermediate between *N. gracilis* and *N. perpulchra*.

***Dolichopeza (Nesopeza) epiphragmoides* sp. n.** (Pl. XII, fig. 18).

♀. *Head* brownish-ochreous, rather darker on nape and rostrum. Front about half as broad as one eye. Palpi dark brown. Antennæ as long as thorax, brownish, first flagellar segment and bases of the next few segments lighter; flagellar segments each (except first) with a single long postmedian dorsal hair, first quite twice as long as second. *Thorax* light brownish, slightly shining above; pteropleurite whitish, pleurotergite dark brown. *Abdomen* brownish, without definite markings. *Legs* missing. *Wings* (pl. xii, fig. 18) with an elaborate and very distinctive pattern (see figure) which is strongly reminiscent of *Epiphragma*. Venation much as in the last species, cell *R3* being wide in middle and much narrowed apically, and one of the branches of *M* lacking. Halteres with pale stem and dark knob.

Length of body, 10 mm.; wing, 9.5 mm.

Lumu Lumu, 1 ♀.

***Dolichopeza (Nesopeza) triguttata* sp. n.** (Pl. XII, fig. 16).

♂. *Head* black, dusted with dark grey; rostrum and palpi black. Front broad. Antennæ black, except for the brownish second segment, not quite half as long as body; flagellar segments cylindrical, with very short pubescence and scarcely any longer hairs, first not much longer than second. *Thorax* blackish, the præscutal stripes indistinctly separated by greyish lines, shoulders obscurely ochreous; hair scanty and pale, postnotum almost bare. *Abdomen* almost black, segments 3—6 lighter and more shining on basal half. Hypopygium black; tergite depressed in middle, with the usual median and sublateral teeth, the latter bluntly rounded; outer claspers short, broad, and infolded. *Legs* (middle pair missing) blackish, including whole of tarsi, only trochanters and bases of femora ochreous. *Wings* (pl. xii, fig. 16) blackish, lighter in middle on posterior half, with three conspicuous whitish areas, one near base of

upper basal cell and extending indefinitely to hind margin, one (the largest) near outer end of upper basal cell and crossing veins *Rs* and *M*, the third (much smaller) before middle of cell *R3*. *Rs* very long (quite four times as long as the short *m-cu*) but without spur near base; *R2* + 3 and *R4* + 5 nearly straight, basal section of *R4* + 5 rather long, straight and oblique; cell *M1* only slightly longer than its stem; cell *M4* of uniform width throughout. Halteres with black knob, stem lighter.

Length of body, 7.5 mm.; wing, 10 mm.

Pakka, 2 ♂, 1 ♀.

Very distinct from other known species by wing-markings. In the female (which is immature and damaged) the antennæ are much shorter and the third pale area of the wing much larger, extending from costa to *M1* + 2.

***Sphæronotus vittatus* sp. n.**

♀. *Head* blackish above and somewhat shining, a small area adjacent to eyes at sides covered with brown pollen; face and a small area above root of antennæ orange. Antennæ with scape orange, flagellum black. Palpi dark brown, distinctly 3-segmented, first two segments each longer than broad, third shorter. *Thorax* almost uniformly ochreous, without obvious stripes, dorsum somewhat shining; a small black dot in middle of pleuræ, and a minute oval black spot immediately above wing-root. *Abdomen* ochreous, with a rectangular black mark on each tergite, not quite reaching base, and leaving sides broadly ochreous, these marks forming an interrupted black dorsal stripe; venter with a similar but narrower stripe. Ovipositor very short, cerci pubescent but chitinated. *Legs* black, femora brownish except at tips. *Wings* light brown, stigma dark brown. Discal cell not pointed at tip (as it is in *S. fasciatus* Edw.); cell *M1* slightly longer than its stem. Halteres blackish.

Length of body, 22 mm.; wing, 18.5 mm.

Lumu Lumu, 5,500 ft., 1 ♀.

Differs from both the other known species (*S. curtispennis*, de Meij., of Sumatra, and *S. fasciatus*, Edw., of Malaya) in the blackish vertex and markings of abdomen.

***Ctenacroscelis festivipennis* sp. n. (Pl. XII, fig. 20).**

♀. *Head* fulvous, somewhat darker above and at sides of rostrum, but without distinct markings. *Nasus* rather long. Palpi dark brown. Antennæ brown, darker apically; flagellum 10-segmented, without long hairs, first three segments subequal, rest gradually shortened, 6—8 slightly shorter than 9 or 10; all segments nearly cylindrical, not enlarged beneath. *Thorax* with fulvous ground colour;

pronotum darkened above; præscutum with four more greyish stripes, outlined with dark brown, inner margins of middle pair of stripes in contact and forming a dark median line; scutum with four greyish areas outlined with dark brown; postnotum slightly darker above than at sides. An ill-defined dark brown area on neck and on upper part of anepisternite, but as usual leaving a light ochreous stripe from prothoracic spiracle to below root of wing. Pleurotergites not lighter than adjoining areas of pleuræ. *Abdomen* ochreous-brown, apical half of tergite 2 and whole of 3—7 somewhat darker. *Legs* brownish-ochreous; femora with a narrow brown preapical ring; last few tarsal segments blackened. First tarsal segment shorter than tibia. *Wings* (pl. xii, fig. 20) largely brown, with darker brown seams over vein *Ax*, *m-cu*, distal part of *Cu*, outer end of discal cell, and base of cell *M1*, and indications of a darker cloud in middle of cell *Cu2*. Stigma pale ochreous, preceded and followed by small whitish areas. A rather large whitish area over arculus. Extensive pale areas in lower half of wings. Cell *M1* with very short stalk; *r* joining *R2* + *3* just before the fork. Halteres ochreous.

Length of body, 31 mm.; wing, 33 mm.

Lumu Lumu, 5,500 ft., 1 ♀.

This is perhaps most nearly allied to *C. punctipennis* Edw. (Sarawak), which differs in having the pale markings of the wings much less extensive, thorax darker, but with conspicuously pale pleurotergites, etc. *C. dohrinianus* End. (Sumatra) is also similar, but has quite distinct wing-markings.

Tipula (Nippotipula) xanthostigma sp. n. (Pl. XII, fig. 21).

♀. Nearly allied to *T. (N.) pulcherrima* Brun. (Western Himalayas), differing as follows:—Size rather smaller. Pronotum rounded (in a paratype of *T. (N.) pulcherrima* in the British Museum it has a conspicuous median longitudinal furrow). Double median stripe of præscutum broader, being distinctly broader instead of narrower than the hairy præscutal interspaces. Femora largely brownish, with two distinct pale rings, one at tip and one some distance before tip, separated by a conspicuous dark brown ring. *Wings* (pl. xii, fig. 21) with an orange centre to stigma, but markings otherwise similar; *r-m* exactly at fork of *Rs*.

Length of body, 25—28 mm.; wing, 18—21 mm.

Lumu Lumu, 5,500, 5 ♀; Marei Parei, 5,000 ft., 1 ♀.

From the Malayan *T. (N.) anastomosa* Edw. this new species is very distinct by the thoracic markings, largely yellowish antennal flagellum, and more extensive wing-markings.

Tipula (Indotipula) kinabaluensis sp. n.

Head dark greyish-brown, with a median black line, and a small suffused blackish spot adjoining each eye a little above antennæ. *Rostrum* ochreous, not obviously darker on sides, but the rather long *nasus* blackish. *Antennæ* in both sexes about as long as thorax; scape ochreous, flagellum mostly dark brown, but with first few segments lighter apically; verticils very long, pubescence short; in ♂ most of the segments are slightly enlarged beneath near their tips, somewhat as in *T. sulaica* Walk., though to a less extent, in ♀ this swelling is not noticeable. *Thorax* with brownish-ochreous ground-colour, dusted over with the same colour; præscutum with four dull dark chocolate-brown stripes which are almost completely fused, leaving a pair of elongate greyish-ochreous triangles on hind margin of præscutum; scutum with two pairs of dark chocolate-brown marks occupying most of the surface; scutellum with a median blackish line; pleuræ dark in middle and also on lower part of sternopleura; lower half of meron also darkened, but not conspicuously. *Abdomen* dark brown, without obvious markings, but second segment and posterior margins of the others lighter. *Hypopygium* with the pair of processes of the tergite entirely black, pointed and finely spinulose; outer style large, broad, rather dark in colour, rounded at tip; sternite as seen in side view with a small peg-like projection. *Legs* rather dark brown, tips of femora and tibiæ black; spurs 0. 0. 2, one spur of hind tibia fairly long, the other very short, perhaps sometimes absent. *Wings* with a strong brown tinge, without any trace of clearer areas before or beyond stigma; costal cell and stigma deeper brown, but with a yellowish tinge. Axillary cell not quite so narrow as in some species of this group, distinctly though very slightly widened in middle. Halteres brownish.

Length of body, 13 mm. (♂)—21 mm. (♀); wing, 18—20 mm.

Kamborangah, 4 ♂; Lumu Lumu, 2 ♂ 1 ♀; Pakka, 1 ♂.

T. kinabaluensis is closely allied to *T. sulaica* Walk. (Sula to Sarawak) and *T. walkeri* Brun. (N. India), all having the ninth tergite of the male similar in form, but differing in the ornamentation of the thorax, darker wings with broader axillary area, etc.

Tipula (Acutipula) quadrinotata Brun.

Kamborangah, 1 ♀; Kenokok, 1 ♀.

Tipula (Formotipula) cinereifrons de Meij. ?

Kenokok, 1 ♂, 1 ♀; Tenompok Pass, 1 ♀.

The hypopygium differs rather notably from that of a male from Malaya in the British Museum, but which (if

either) of these represents the true *T. cinereifrons* must remain undecided for the present.

Tipula (Formotipula) dusun sp. n.

♀. Allied to *T. cinereifrons* de Meij., differing as follows:—Head greenish-grey rather than ash-grey. Second antennal segment more distinctly yellow, contrasting with the black flagellum and first segment. Posterior division of prothorax blackened at sides; area on each side of scutellum also blackened; a small black triangle between præscutum and scutum. Ovipositor differently constructed, with much larger pubescent knobs on tergite. Traces of a median longitudinal dark line on tergites 2—4. Legs rather more slender and yellower, femora not darkened at tips. Wings with a strong brown tinge, stigma scarcely darker than ground colour.

Length of body, 13.5 mm.; wing, 16 mm.

Kenokok, 3,300 ft., 1 ♀.

Tipula (Schummelia) pendleburyi sp. n. (Pl. XII, fig. 22).

♀. Head light brownish, more orange above antennæ. Front without trace of tubercle, about two-thirds as broad as one eye. Rostrum light brownish, with very short nasus. Palpi blackish. Antennæ about as long as thorax; scape orange, flagellum blackish, not distinctly ringed. Thorax rather dark brownish, middle of pronotum, three præscutal stripes and scutellum lighter brown, but pleuræ almost uniformly dark. Postnotum with black hair. Abdomen with first tergite light brownish, second dark brown with a light brown band at base and another beyond middle, remainder light brown with dark brown apical bands, ovipositor light brown. Cerci long and slender. Legs rather light brown; hind coxæ dark; femora not darkened apically. Tibial spurs 1. 2. 2. Wings (pl. xii, fig. 22) with slight brown tinge; stigma blackish; clearer areas before and beyond stigma and over discal cell; broad dark brown seams over *m-cu*, distal part of *Cu* and *Ax*; less conspicuous seams over other veins in apex of wing; a brown cloud filling most of cells *R2* and *R3*, and another over stem of cell *M1* and filling base of this cell; a small clear area at tip of upper basal cell; arculus yellowish. Venation: *Rs* only as long as the small discal cell; *R2* complete; cell *M1* about three times as long as its stem; cell *M4* very long, very narrow apically. Halteres yellow, end of stem and base of knob blackened. Squama with a large clump of hairs.

Length of body, 12 mm.; wing, 12 mm.

Lumu Lumu, 5,500 ft., 2 ♀.

Belongs to the *annulicornis*-group, differing from other somewhat similar species in the markings of the thorax and wings. It is perhaps most nearly allied to *T. klossi* Edw. of Malaya.

Nephrotoma ridleyi Edw.

Kenokok, 1 ♀ ; Kiau, 2 ♀ .

Nephrotoma cinereifrons sp. n.

♀. *Head* heavily dusted with pale grey; underlying integument mostly black above, a small area on nape, the low frontal tubercle, and upper surface of rostrum yellow, sides of rostrum black, nasus less heavily dusted than remainder of head and therefore appearing yellow. Palpi black. Antennæ mainly yellow, flagellar segments faintly darkened at base. *Thorax* uniformly dull orange-yellow. *Abdomen* almost uniformly ochreous, segments 6 and 7 indistinctly darkened; cerci of moderate length, rounded at tip. *Legs* orange-yellow, tibiae and tarsi darkened. *Wings* with slight yellowish tinge, stigma scarcely darker, veins not very dark. Cell *M*₁ rather broadly sessile; fork of *M*₃ + ₄ slightly beyond base of discal cell, which is rather long; *m-cu* joining *M*₄ a little beyond the fork. Halteres ochreous, base of knob darkened.

Length of body, 14 mm.; wing, 15 mm.

Lumu Lumu, 5,500 ft., 1 ♀ .

This very distinct and interesting species has a remarkable superficial resemblance to *Tipula cinereifrons* de Meij.

Nephrotoma whiteheadi sp. n.

♂ ♀. *Head* dull yellow, with a rather large black area on nape, a small black spot adjacent to eye above root of each antenna, and a small black area on upper surface of rostrum, including nasus. Palpi black. Antennæ with scape yellowish, flagellum black; in ♂ slightly longer than head and thorax together, flagellar segments only very slightly enlarged at base beneath. *Thorax* mostly shining, prothorax and scutellum dull. Prothorax yellow above, black at sides. Præscutum with three broad but separate shining black stripes, all distinctly outlined with dull black, middle stripe also divided by a rather broad dull black line; a large subquadrate dull blackish area adjacent to anterior end of each lateral stripe and extending to lateral margin. scutum with two shining black areas, outlined with dull black. Scutellum dull black, with small yellow area at base. Postnotum yellow, black apically; pleurotergites black above. Pleuræ yellow, an indistinctly darker area in middle but no black marks on mesosternum or meron. *Abdomen* ochreous, with tergite 1 black except at sides, 2—5 black apically, 6—8 entirely black. Hypopygium of ♂ largely black; claspers not large, rounded at tips, dark; ninth sternite with numerous long yellow hairs. Ovipositor of ♀ ochreous, cerci rather short, round-tipped. *Legs* with coxæ

ochreous, front and hind pairs more or less blackened at base; femora brownish-ochreous, tibiæ and tarsi darker. *Wings* faintly brownish, in some specimens indistinctly darker apically, especially towards costal margin; stigma dark brown, pubescent; veins dark. Cell *M1* broadly sessile; discal cell rather large and long. Halteres brownish.

Length of body, ♂ 11, ♀ 15 mm.; wing, 13—15 mm.

Lumu Lumu, 1 ♂ 3 ♀; Kamborangah, 2 ♂.

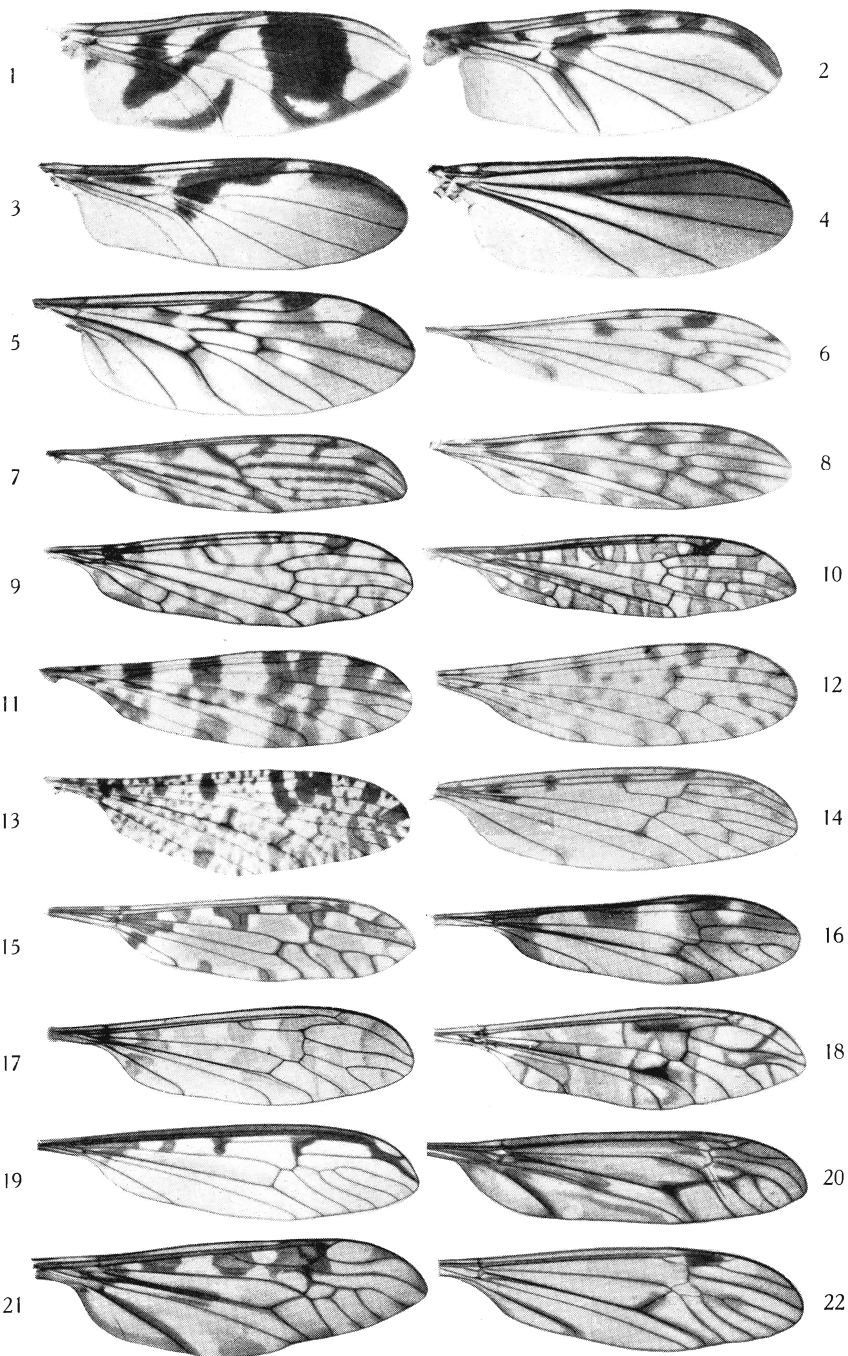
Allied to *N. siamensis* Edw., differing chiefly in the presence of large dull black areas at sides of lateral præscutal stripes.

EXPLANATION OF PLATE XII.

Wings of Nematocera from Mt. Kinabalu.

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- Fig. 1. *Macrocera picturata* sp. n., p. 225.
2. „ *ephemeraeformis* Alex., p. 225.
3. „ *trinubila* sp. n., p. 225.
4. *Eumanota leucura* gen. et sp. n., p. 232.
5. *Anisopus borneanus* sp. n., p. 246.
6. *Limonia chaseni* sp. n., p. 260.
7. „ *kinabaluana* sp. n., p. 266.
8. „ *lateromacula* sp. n., p. 259.
9. „ *paragus* sp. n., p. 267.
10. „ *epiphragmoides* sp. n., p. 268.
11. *Limnophila guttularis* Edw., var., p. 283.
12. „ *pakkana* sp. n., p. 283.
13. „ *concreta* sp. n., p. 283.
14. *Nipponomyia flavicollis* sp. n., p. 286.
15. *Dolichopeza caloptera* Edw. (North Borneo lowlands).*
16. „ *triguttata* sp. n., p. 289.
17. „ *defecta* sp. n., p. 288.
18. „ *epiphragmoides* sp. n., p. 289.
19. „ *major* Edw., p. 288.
20. *Ctenacroscelis festivipennis* sp. n., p. 290.
21. *Tipula xanthostigma* sp. n., p. 291.
22. „ *pendleburyi* sp. n., p. 293.

*Journ. F.M.S. Mus., XVI, 1931, p. 503.



NEMATOCERA FROM MT. KINABALU.