

NOTES ON THE TYPES OF DIPTERA NEMATOCERA (MYCETOPHILIDAE AND TIPULIDAE) DESCRIBED  
BY MR. E. BRUNETTI.

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On his return from India in June 1921 Mr. Brunetti brought with him on loan from the Indian Museum a representative set of all the Nematoceros Diptera (excluding Sciarinae, Cecidomyiidae, Chironomidae and Culicidae) contained in the collections of that institution. Included in the material so borrowed were the types of the great majority of the species described by him since 1908.

The re-examination by Mr. Brunetti and the present writer has brought to light so many points, both in regard to corrections in synonymy and details of structure not noted at the time of description, that we have thought it desirable to bring all these together and publish them in one paper. In the notes which follow, although the present author is of course alone responsible for statements made, it is only right to state that in regard to the Tipulidae the conclusions were arrived at in conjunction with Mr. Brunetti, and that in nearly every case (excepting only some cases of generic location) he is in agreement with the results as here given.

The species are dealt with under the genera and in the chronological order in which they were described by Brunetti. For brevity, "*Rec.*" is used for "*Records of the Indian Museum*," and "*Fauna*" for "*Fauna of British India, Diptera Nematocera*." Where the actual type was not re-examined, comment has as a rule been omitted, because in some cases it appeared that a mistake had been made in identification of the examples which were brought to London to represent the species.

A few additional corrections have been made by Dr. C. P. Alexander (*Insecutor Inscitiae*, i, 1913, pp. 118-120) and adopted by Mr. Brunetti in his later work.

MYCETOPHILIDÆ.

**Macrocera brunnea** (*Fauna*, 53). This differs from all the other species described by Brunetti in having dense macrotrichia on the apical half of the wing. Tip of *R1* much swollen, also the middle part of *Rs*.

**M. elegans** (*Fauna*, 54). The figure is incorrect in showing a cross-vein in cell *Cu1* and in showing *Sc* darkened. The antennæ are longer than in the other species, nearly four times as long as the body.

**M. inconspicua** (*Fauna*, 54). Eyes unusually large, the lateral ocelli touching the eye-margins. Claspers peculiar, with a sharp sinuous blackened tooth about the middle, a pale finger-like projection just beyond it, and one black claw at the tip (not two as described).

**M. ferruginea** (*Fauna*, 55). This is almost certainly the female of *M. inconspicua*.

**Platyura suffusinervis** (*Fauna*, 60). Differs from all the other species described by Brunetti in the form of the antennae, which are not only conspicuously flattened, but have the points of attachment of the short, deep segments much above the middle, as in *Ceroplatus*; the species is however excluded from *Ceroplatus* by its long slender palpi. It also differs from all Brunetti's species except *P. indistincta* in having the pleurotergites distinctly hairy. The fine setae of the tibiae are not arranged in conspicuous rows.

**P. apicipennis** (*Fauna*, 61). This belongs to the group of species (*P. fasciata* Mg. and allies) which have the pleurotergites bare; postnotum pointed, with a few short bristles at its tip; fine tibial setae arranged in conspicuous longitudinal rows; *An* not reaching the wing-margin.

**P. affinis** (*Fauna*, 62). Evidently near *P. apicipennis*, though the type is much damaged and rubbed. Differs in the rather longer antennae (basal flagellar segments quite as long as broad), longer costa (extending nearly half-way from *R4+5* to *M1*), longer *R2+3* and relatively shorter third section of the costa (less than half as long as the fourth).

**P. marginata** (*Fauna*, 62). Only paratype male examined: agrees, with description except that the whole wing-tip is dark. It is probably the male of *P. affinis*. The female mentioned by Brunetti from Naini Tal belongs to another species altogether.

**P. flaviventris** (*Fauna*, 62). Nearly allied to the two preceding, but distinct by the abdominal coloration. The mesonotum should have been described as brownish with three darker stripes, less sharply defined than in *P. affinis*.

**P. vicina** (*Fauna*, 63). Pleurotergites and postnotum bare, but *An* distinctly reaching the wing-margin though faint towards the tip. A slight cloud below the apical half of *Cu2*. Ninth tergite of male trilobed (one of the types is a male).

**P. octosegmentata** (*Fauna*, 64). Pleurotergites and postnotum bare; *An* reaching the margin. Costa not reaching quite half-way from *R4+5* to *M1*.

**P. ruficornis** (*Fauna*, 64). Pleurotergites bare, postnotum with a few small bristles at the tip. *An* abbreviated as are also *M2* and *Cu1*. Costa reaching more than half-way from *R4+5* to *M1*; third costal division quite two-thirds as long as the fourth. The type is from Sylhet, 2.ii.05; the male mentioned from Naini Tal is a different, undescribed species.

**P. indistincta** (*Fauna*, 65). Pleurotergites hairy; postnotum bare and not much produced. *An* faint and not quite reaching the margin. *R2+3* ending quite close to the tip of *R1*. Antennae somewhat flattened, but the segments articulated in the middle. Male claspers simple, ending in a single black spine.

**P. longifurcata** (*Fauna*, 65). Structurally rather similar to *P. vicina*, but ninth tergite of male bilobed, not trilobed.

**P. funerea** (*Fauna*, 65). As pointed out by Brunetti, this is peculiar in having only two ocelli, placed close together as in *Mycomyia*. Pleurotergites and postnotum bare. *An* not quite reaching the margin ; *m-cu* nearly vertical.

**P. flavomarginata** (*Fauna*, 66). Apparently nearly allied to *P. vicina*. Abdomen of type lost.

**P. fumipes** (*Fauna*, 66). Pleurotergites and postnotum bare. *An* reaching the margin close to tip of *Cu2*, *m-cu* continuing the direction of *Cu1a*. *Sc* reaching well beyond the base of *Rs*.

**Isoneuromyia annandalei** (*Fauna*, 67). This is a *Platyura* belonging to the same group as *P. grandis* Brun. and *P. fumipes* Brun.

**I. rufescens** (*Fauna*, 559). Differs especially from *P. annandalei* in having the antennae much less flattened and a trifle longer (not shorter) but evidently belongs to the same group.

**Mycomyia flaviventris** (*Fauna*, 72). The type is a female, not a male. *Sc* ends in *R1* (not free as stated in the key). Fork of *Cu* beyond base of *r-m*. Evidently belongs to the group of *M. trilineata* Zett. Possibly the female of *M. flavithorax* Brun.

**M. bifascipennis** (*Fauna*, 72). The type of this species is also a female ; subgenus *Neoempheria*.

**M. basalis** (*Fauna*, 73) and **M. tinctipennis** (*Fauna*, 74) are both typical members of the subgenus *Neoempheria* with a vein-like fold between *R4+5* and *M1*, and the costa extending well beyond *R4+5*.

**M. ferruginea** (*Fauna*, 74). This is also a *Neoempheria*, although the spurious vein is not well marked, and the costa only extends slightly beyond *R4+5*. The specimen from Kurseong is labelled type, although it agrees better with the description of the second specimen. The figure of the wing is inaccurate in several respects, *e.g.*, in showing *An* complete and in omitting the apical darkening of the wings.

**M. trilineata** (*Fauna*, 75). Belongs to *Mycomyia* s. str., as do all the remaining species. Mid coxa with long spur. Scutellum with four bristles. First segment of front tarsus slightly longer than the tibia. Fork of *Cu* before base of *r-m*. The name is preoccupied by *M. trilineata* Zett., but a substitute is unnecessary as the species appears to be identical with the European *M. winnertzi* Dz.

**M. indefinita** (*Fauna*, 76). Mid coxa with short spur, as in *M. incisurata* Zett. First segment of front tarsus longer than the tibia. A slight dark cloud over *r-m* and the small cell. Fork of *Cu* immediately before the base of *r-m*. Fork of *M* twice as long as its stalk.

**M. indica** (*Fauna*, 76). Mid coxa with long spur. First segment of front tarsus as long as the tibia. Fork of *Cu* well before the base of *r-m*.

**M. flavithorax** (*Fauna*, 77). Structurally identical with the species Dziedzicki has figured as *M. affinis* Staeg., though this is a case of mistaken identification. The colour differences are unimportant, the species being very variable in this respect. The correct name for the species is *M. fimbriata* (Mg.).

**M. curvilinea** (*Fauna*, 77). Mid coxa with short spur, and in other respects resembling *M. incisurata* Zett., though with different hypopygium. Apical (not basal) margins of tergites paler. Fork of *M* as long as its

stalk. The specimen from Darjiling (*Brunetti*) and another from Bhowali (*Imms*), also labelled type, belong to two different, undescribed species.

**Polylepta dubiosa** (*Fauna*, 79). This is nearly allied to the European *P. undulata* Winn., differing in having dense small microtrichia (dot-like under a magnification of 100) as well as macrotrichia on the wings. In *P. undulata* there are no microtrichia. Venation much as in *P. undulata*, but *M1* not interrupted at the base. There are three ocelli, the median one quite distinct.

**P. incerta** (*Fauna*, 79). The type is a male *Mycomyia*, closely related to *M. cinerascens* Zett., but differing slightly in the hypopygium.

**Gnoriste brevirostris** (*Fauna*, 83). The type is a female (not male) *Boletina*. Pleurotergites hairy; postnotum bare. A small brown cloud over the stalk of *M* and base of fork.

**Palæoanaclinia flavohirta** (*Fauna*, 86). A *Boletina*. Pleurotergites bare. *Sc* ends above base of *Rs*; *Sc2* absent. Costa reaching barely a third of the way from *RA+5* to *M1*.

**Greenomyia nigricoxa** (*Fauna*, 87). *Brunetti* in his recent catalogue has sunk this genus under *Leia*, but though it is evidently related to *Leia* I believe it to be quite distinct, chiefly by having the lateral ocelli far removed from the eye-margins, and *Cu1* not detached at the base.

**Odontopoda indica** (*Fauna*, 90). This is an *Anaclinia*, quite close to *A. nemoralis* Mg., differing chiefly in having only a few macrotrichia towards the tip of the wing, mainly in cell *R1*.

**Anomalomyia indica** (*Fauna*, 91). By the position of the ocelli close together on the front, and the absence of a comb on the hind tibia, this is nearer to *Greenomyia* than to *Anomalomyia*, though differing from *Greenomyia* in having the costa produced and *Cu1* detached at the base. From *Acrodicramia*, it differs in the absence of *Sc2* and the comparative shortness of *r-m*, as well as in the position of the ocelli.

**Leia insignis** (*Fauna*, 101). The type is a male, not female, well distinguished by the extraordinarily long and pointed parameres.

**L. nigra** (*Fauna*, 101). This is a *Greenomyia*, differing from *G. nigricoxa* in the black femora and front coxae, and distinctly shorter *Sc*.

**Rhymosia flavolimbata** (*Fauna*, 103). This is not a *Rhymosia*, but belongs to that group of *Leiomyia* (*Leia* Joh.) in which the lateral ocelli are all but in contact with the eyes, *Sc 2* is faint and placed before the middle of *Sc*, the tip of which is also very faint.

**R. genitalis** (*Fauna*, 104). This is a *Trichonta*, belonging to the small atypical group of species which have a fairly strong basal bristle on the hind coxa. Upper clasper long and narrow, with three long bristles at the tip.

**R. albolateralis** (*Fauna*, 104). A true *Rhymosia*. Third segment of front tarsus rather suddenly narrowed towards the tip, with a row of six short blunt spines, fifth very slender, a little longer than fourth, claws barely distinguishable.

**R. annulicornis** (*Fauna*, 105). A *Leiomyia*, nearly related to *L. flavolimbata*, though with very different hypopygium.

**R. humeralis** (*Fauna*, 106). Another *Leiomyia*, related to the last, but again with very different hypopygium.

**Macrobrachius longicosta** (*Fauna*, 109). Type not examined, but the figure of the genitalia raises the suspicion that it may be an *Exechia*.

**Phronia simplex** (*Fauna*, 111). This is really an *Exechia*, related to *E. basilinea*, but distinct. *Rs* straight, *r-m* about twice as long as the stalk of *M*.

**P. semifumata** (*Fauna*, 111). Type not examined, but by figure of genitalia is evidently an *Exechia*.

**Mycetophila cinctiventris** (*Fauna*, 115). The type is a female (not male) *Delopsis*. Ventral bristles of second abdominal segment distinct. Mid-tibial bristles 5 dorsal, 3 external, 4 ventral, 1 internal. A slight but quite distinct dark cloud over *r-m*.

**M. quadrifasciata** (*Fauna*, 115). The chaetotoxy of the mid-tibiae is somewhat unusual: 6 dorsal, 3 external, 3 ventral, 4 internal, also one out of line, at two-thirds of the length of the tibia, between the dorsal and external rows.

**M. suffusa** (*Fauna*, 117). Related to the European *M. czizeki* Landr., the wing being the same. Mid-tibial formula 5.3.2.3.

**M. himalayensis** (*Fauna*, 117). A *Delopsis*, identical with *D. cinctiventris* (Brun.). In some specimens the fifth as well as the fourth abdominal tergite is yellow laterally at the base.

**M. binotata** (*Fauna*, 118). Appears to be only a variety of the European *M. lineola* Mg.; no new name is therefore required, although *M. binotata* has been used before by Haliday.

**Delopsis collaris** (*Fauna*, 119). As this name is preoccupied by *D. (Mycetophila) collaris* Enderlein, I have already renamed it *D. brunettii*. Mid-tibial formula 5.4.3.0, hence quite distinct from *D. cinctiventris*.

**Euryschalis spectralis** (*Fauna*, 560). This is a typical member of the genus *Coelosia*.

#### TIPULIDAE.

**Dicranomyia marmoripennis** (*Fauna*, 369). Identical with *Rhipidia pulchra* de Meij., which apparently belongs to Alexander's subgenus *Arhipidia* of *Rhipidia*.

**D. demarcata** (*Fauna*, 370). Evidently a *Rhipidia* (s. str.), very close to *javanensis* de Meij. Flagellar segments with short necks (♀) and much enlarged ventrally. *Sc* ending a little before middle of *Rs*.

**D. absens** (*Fauna*, 372). Type not brought to London.

**D. saltans** (*Fauna*, 373). These specimens are evidently wrongly determined as Doleschall's species, on account of the venation and the conspicuously darkened tips of the wings. In my opinion they are *D. (Thrypticomylia) apicalis* (Wied.).

**D. fraterna** (*Fauna*, 378). Very close to the European *D. didyma* Mg., differing in the absence of any dark cloud at the tip of the wing.

**D. fascipennis** (*Fauna*, 379). Apparently identical with *D. fullowayi* Alex., probably also, as suggested by Brunetti, with *D. punctulata* de Meij., this last being the oldest name.

**D. subfascipennis** (*Fauna*, 380). Very near *D. fraterna* and the European *D. didyma* Mg., differing from both chiefly in the absence of the black tips to the femora.

**D. ornatipes** (*Fauna*, 380). Not a *Dicranomyia* at all, but a *Gonomyia*, identical with *D. (Lipophleps) pilifera* de Meij.

**D. cinerascens** (*Fauna*, 381). Flagellar segments shortly oval, short-haired. "Rostrum" of hypopygium long, with two rather long and slender spines. *Sc1* ends above base of *Rs*, *Sc2* well before its tip. The dark seam extends along the whole of *Cu*.

**D. delicata** (*Fauna*, 383). Very similar to *D. chorea* Mg., perhaps the same, but female only examined. Flagellar segments shortly oval, short-haired. Stigma grey on the basal part only, otherwise faint. Slight cloud at tip of *Rs*.

**D. flavobrunnea** (*Fauna*, 384). Flagellar segments oval, hairs half as long again as the segments. A ♂ from Chota Nagpur looks the same, except for position of *Cu-a* far before the discal cell. It has two short, widely separated spines on the "rostrum."

**D. fortis** (*Fauna*, 385). Brunetti has evidently mistaken a somewhat abnormal ♀ ovipositor for a ♂ hypopygium. A specimen (paratype) brought to London agrees with the description. Flagellar segments elongate, except the first three or four, long-haired. This is very close to *D. nongkodjadjarensis* de Meij., but has no trace of darkening on the cross-veins.

**D. nigrithorax** (*Fauna*, 385). Close to the European *D. morio*. Type not examined. In a female specimen the apparent 15th antennal segment appears to be only the narrow apical portion of the 14th. *Sc* ending slightly beyond base of *Rs*.

**D. subtessellata** (*Fauna*, 565). Genus *Rhipidia* (s. str.), very near *R. maculata* Mg. Antennae shrivelled in type; as far as can be seen the basal flagellar segments have each two appendages, last two segments simple, previous three each with one short appendage. *Sc* ending just before middle of *Rs* (the most obvious distinction from *R. maculata*). This species has recently been redescribed by Senior-White as *Rhipidia zeylanica*.

**D. bicinctipes** (*Fauna*, 566). Very close to *D. kobusi* de Meij., as determined by Brunetti. Flagellar segments oval, with short necks, dorsal hair not distinctly differentiated. Fleshy lobes of hypopygium elongate. Tibiae with the ground-colour white, not brownish-yellow. Pre-arcular portion of the wing not so elongate as in *Thryptomyia*. *Rs* rather short, *Ax* somewhat sinuous, anal angle faintly indicated.

**D. columbina** (*Fauna*, 567). Very close to *D. tipulipes* Karsch but *R* with two dark areas besides those at the base and tip. The species occurs in Africa as well as India (Brit. Mus. Coll.), and has probably been described under other names.

**D. approximata** (*Fauna*, 567). Almost identical with *D. fortis* Brun. but the wings are transparent, without the brown tinge of *D. fortis*; they are also somewhat narrower in proportion to their length.

**D. innocens** (*Fauna*, 568). Flagellar segments shortly oval, short-haired. Two shortish spines on rostrum of hypopygium. *Sc2* close to tip of *Sc1*. Tip of *R1* turned sharply up at *r*. This is probably

identical with *D. sordida* (Fauna, 382); a paratype ♀ of the latter agrees in all important respects.

**D. bicolor** (Rec. xv, 285). A very distinct species probably better referred to *Limnobia*. The hypopygium is rather remarkable, the fleshy lower clasper carrying a long pointed appendage blackened at its tip, similar in form to the upper clasper but with a blunt ended basal arm. *Sc* ending far beyond base of *Rs*, *Sc2* close to its tip.

**D. prominens** (Rec. xv, 285). *Sc* ending much before the base of *Rs*, almost as far as the length of *Rs*.

**D. niveiapicalis** (Rec. xv, 285). This is not a *Dicranomyia*. In many respects it resembles a *Teucholabis*, and may perhaps be referred to that genus for the present, but on account of the peculiar structure of the antennae and palpi a new genus might well be formed for it. The basal six flagellar segments are almost united into a large cone, with short dense pubescence, remainder (6-8 segments, probably 8 but not easy to count) very slender, with long hairs. Palpi very short, second segment swollen, nearly globular, third and fourth small, together much smaller than the second. Pleura with two broad deep chocolate-brown stripes, the lower one extending from the neck to the base of the abdomen. Tibiæ pure white towards the tips, tarsi mostly snow-white, claws large and simple, empodia present. *Cu1a* and *r-m* at about the same level, well beyond base of discal cell. *Cu2* curved downwards at tip. Alexander's *Limnobia* (?) *teucholabina*, recently described from Fiji, is evidently closely related to this species, though not identical with it.

**D. pictipes** (Rec. xv, 286). Very close to *bicinctipes* Brun., and *kobusi* de Meij., differing from the former in having the mid femora longer and more slender, and the brown cloud over the base of *Rs* much more distinct.

**Ceratostephanus antennatus** (Rec. vi, 272). As already known, this is a *Rhipidia*, nearly allied to *R. maculata* Mg. Apparently distinguishable from *R. subtesselata* (Brun.) by the shorter *Sc*, which ends only very slightly beyond the base of *Rs*, and by the presence of a rather large and distinct grey spot over the base of *Rs* and the tip of *Sc*.

**Limnobia festiva** (Fauna, 400). Seems to be rather a *Dicranomyia* than a *Limnobia*, though the male claspers are small and concealed. Claws with one small sub-basal tooth, empodium small. Wing markings not quite so strong as shown in the figure.

**L. tinctinervis** (Fauna, 401). A *Dicranomyia*, identical with *D. puncticosta* Brun.

**L. indica** (Fauna, 401). On venational characters (the long and rather curved cell *R2+3*, and the condition of the media, cell *M* being distinctly longer than cell 2nd *M2*: or in other words, the anterior instead of the posterior branch of the fourth longitudinal vein being forked) this species seems to be nearer to *Libnotes* than to *Limnobia*. The relationship to *Libnotes* is also indicated by the structure of the hypopygium, which is of the *Dicranomyia* type as in all typical *Libnotes*. *L. indica* is very close to, if not identical with the species described by van der Wulp as *Dicranoptycha signaticollis*.

**L. trimaculata** (Fauna, 402). This is nearly allied to *L. indica*, and like that species should probably also be referred to *Libnotes*. Both

are evidently related to *Libnotes picta* Alex. from Guam, and *L. montivagans* Alex. from Java.

**L. longinervis** (*Fauna*, 403). Certainly a *Libnotes*. In the type the wing-markings are much less conspicuous than is indicated in Brunetti's figure, ground colour pale grey. No markings on pleura. Outer flagellar segments rather elongate, the last twice as long as the penultimate.

**L. centralis** (*Fauna*, 403). Intermediate between *Limnobia* and *Libnotes*, though perhaps with more affinity with the former, since cells *M1* and *2nd M2* are equal, and the hypopygium is of the *Limnobia* type. Very close indeed to *L. nigra*, hypopygium practically identical, but venation differs somewhat; discal cell shorter and broader, and *Rs* longer, almost equalling *R 2+3*.

**L. niveipes** (*Fauna*, 404). Perhaps a true *Limnobia*, but differs in some respects from the typical forms of the genus. Flagellar segments rather elongate oval, without necks, and without long dorsal hairs. Tarsi short, basal half of first segment black, apical half white like the remaining segments. Wings rather narrowed at base, no definite anal angle, *Ax* sinuous near base.

**L. nigra** (*Fauna*, 404). This is identical with the Australian *L. bidentata* Skuse, specimens of which are in the British Museum collection from Queensland (*Bancroft*) and have been compared with Brunetti's type. There is no structural difference. Some of the Australian specimens have a pale area on the sides of the praescutum and on the pleura, but others agree with Brunetti's type in having these parts dark like the rest of the thorax. This is therefore a most interesting case of extremely wide distribution in a small, obscure, and apparently uncommon crane-fly. The species is perhaps better referred to *Libnotes* than to *Limnobia*; at any rate the venation is practically the same as in *Libnotes nigricornis* Alex.

**L. triangularis** (*Fauna*, 406). This is really an *Antocha*, very near *A. unilineata* Brun., but perhaps distinct (legs and stigma darker).

**L. flavocincta** (*Rec.* xv, 289). The yellow colour of the venter of the second specimen, mentioned by Brunetti, is due to its being covered with mites. Front tarsi all dark, mid tarsi somewhat pale at tips only. *Sc* ends beyond the middle of *Rs*. Tip of *R1* turned sharply upwards and equalling *r* in length, a rather long spur continues the direction of *R1*. *Cu1a* at base of discal cell. Wings brownish, stigma oval, dark brown.

**L. marginata** (*Rec.* xv, 290). A true *Limnobia*. Outer flagellar segments rather elongate. Cerci extremely short, though the ninth segment is large.

**L. confinis** (*Rec.* xv, 290). Also a true *Limnobia*. The antennae are remarkable in having one long hair on each oval flagellar segment, as in *Thrypticomysia*. Hypopygium of simple structure. Wings much infuscated, not iridescent.

**L. bipunctata** (*Rec.* xv, 291). Also probably a true *Limnobia*, but identical with *Dicranomyia bicolor*, described on a previous page in the same paper.



**L. tritincta** (Rec. xv, 291). This is certainly a *Libnotes* and not a *Limnobia*; the cell *M1* is distinctly longer than cell *2nd M2*. The other venational detail mentioned by Brunetti (the straight *Rs*) is characteristic of one group only of *Libnotes*, and not of the whole genus as he supposed. The present species appears to be nearly allied to *L. nervosa* de Meij.

**L. longipennis** (Rec. xv, 292). *L. 5-notata* (Rec. xv, 292) and *L. nigrescens* (Rec. xv, 293) are all correctly placed in *Limnobia*. The last two are nearly allied, resembling *L. umbrata* (de Meij.) but with hypopygium of simpler structure. *L. longipennis* is structurally identical with *L. infixa* Walker of New Guinea, of which it is doubtless merely a darker variety.

**L. punctithorax** (Rec. xv, 293). Genus *Libnotes*. Tip of *R 1* turned sharply up to costa, a little shorter than *r*, with which it makes a very obtuse angle. *Rs* straight and rather short, its branches long and curved. Discal cell about twice as long as broad, square at base. Cells *M1* and *2nd M2* equal. *Cu1a* just before middle of discal cell.

**Atypophthalmus holopticus** (Rec. vi, 273). The genus cannot be maintained, but must fall under either *Dicranomyia* or *Limnobia*; de Meijere and Alexander would favour the former, though I incline to the latter. The species is identical with *Dicranomyia umbrata* de Meij.

**Geranomyia genitalis** (Rec. vi, 275). This appears to be identical with *G. fletcheri* Edw.

**G. circipunctata** (*Fauna*, 390). This proves to have a very wide distribution, as it has been redescribed from Java by de Meijere as *G. decemguttata* and by Alexander from Queensland as *G. (Pseudaparosa) venustithorax*.

**G. flaviventris** (Rec. xv, 289). Extremely similar to *G. semistriata*, but fleshy claspers longer.

**Aporosa aurantia** (Rec. xv, 288). An *Elephantomyia*, belonging to the same group as *E. delectata* (Walk.), *E. egregia* de Meij., and *E. fuscomarginata* (End.), being evidently closely allied to the last named. First scapal segment globular, like the second. Flagellum with 12 distinct segments, verticils very long, five times the length of the segments. *Rs* rather short, strongly arched at its base. *R 2+3* strongly arched upwards at its base, then running close to and parallel with *R1*. Cell *Ax* very narrow. All veins very distinct, black.

**Rhamphidia abnormalis** (Rec. xv, 296). This is probably identical with *R. (Eurhamphidia) niveitarsis* Skuse.

**Conithorax** (Rec. xv, 298), as has already been pointed out by Alexander, is a synonym of *Ceratocheilus*. The presence of a corniculus on the front is not, as I formerly supposed, a constant character of this genus. *C. latifrons* (Rec. xv, 299) has no corniculus, and *C. brevifrons* (Rec. xv, 300) has only a very minute one.

**Teucholabis insignis** (*Fauna*, 430). I doubt if this is more than a variety of *T. fenestrata* O.S. The peculiar hypopygium is almost identical in structure, as are the fifth sternites.

**T. biannulata** (*Fauna*, 430). This is not a *Teucholabis* but a *Limnobia*, probably a variety of *L. annulifemur* de Meij., from which it

only differs in having the extreme tips of the femora pale; the hypopygium and wing-markings are identical.

**T. angusticapitis** (*Rec.* xv, 305) is an earlier name for my *T. nocticolor*, described from Sumatra.

**T. ornata** (*Rec.* xv, 305). Scutellum and middle of scutum yellowish. A dark suffusion at tip of *Ax*. Stem of halteres blackish.

**T. ornata** var. **assamensis** (*Rec.* xv, 305) is perhaps more probably a distinct species, as apart from the conspicuous difference in the wing-markings there are small distinctions in the hypopygium and abdominal sternites.

**Gymnastes bistratipennis** (*Rec.* xv, 307). Cross-vein *r* vertical, twice its length from tip of *R1*. *R2* present, oblique, ending in costa more than its own length beyond tip of *R1*.

**G. pennipes** (*Rec.* xv, 308). Very close to *G. flavitibia* Alex., the venation being the same, but tip of wing scarcely darkened, and the first tarsal segment of the middle legs not distinctly pale at the base.

**Molophilus inconspicuus** (*Fauna*, 444). Hypopygium resembling that of the European *M. medius* de Meij., with a single long slender pleural appendage.

**M. assamensis** (*Fauna*, 445). Side pieces of hypopygium with a very long, slender, sinuous apical process, similar to that seen in the Australasian genus *Amphineurus*. The two pairs of claspers each as long as this process, one hairy.

**Erioptera distans** (*Fauna*, 451). The type is not a male, but a female, with a short fleshy ovipositor of peculiar construction. By the short, almost straight vein *Ax* it seems to be nearer *Acyphona* than *Erioptera*.

**E. brevior** (*Fauna*, 452). Brunetti is doubtless correct in identifying this with his *Empeda inconspicua* (*Fauna*, 475), but both names should fall as synonyms of *E. gracilis* de Meij.

**E. parallela** (*Fauna*, 453): A very distinct species on account of the great length of the cells.

**E. subtincta** (*Fauna*, 455). The hypopygium is practically as in *E. notata* de Meij., but the parameres are long, curved and sharply pointed. Probably synonymous with *E. notata*, as a Javan male I have examined agrees in structure and has the palpi brown, not yellow.

**E. flava** (*Fauna*, 455). The name is preoccupied by *E. (Empeda) flava* Schum., but as Brunetti states that his *E. halterata* is the same species, this name may perhaps be used. I have not seen the types of either, but a male selected by Brunetti to represent the species proved to be identical with *E. subtincta*.

**E. genitalis** (*Fauna*, 456). This is a *Molophilus*. The two pairs of claspers are equal in length, with blackened tips, one ending in a sharp hook, the other in an irregular-shaped knob.

**Mesocyphona nigripes** (*Fauna*, 458). This is not a *Mesocyphona* but a *Gonomyia*, perhaps referable to Alexander's subgenus *Progonomyia*. The figure is correct in showing no marginal cross-vein, but *Sc2* is present, just beyond the base of *Rs*. The type is not a male, but a female, with a fleshy ovipositor resembling that of *Erioptera distans* Brun.

**M. gracilis** (*Rec.* xv, 310). This is doubtfully distinct from *M. nigripes*, it is smaller and more slender, but the venation and ovipositor are the same.

**Gonomyia flavomarginata** (*Fauna*, 472). In the paratype males examined the venation is pretty much as in *G. incompleta*, cell *R* 4+5 being almost as conspicuously narrowed as in that species, but *R* 1 distinctly reaching the costa. All the veins are brownish, none conspicuously yellow as in some allied species. Brunetti does not make clear the main difference in colour, which is the presence in this species of a conspicuous whitish stripe on the pleura extending from just above the base of the front coxa to the base of the abdomen. The side pieces of the hypopygium are short, without terminal projection like that of *G. incompleta*, the claspers long, curved, black, and somewhat flattened.

**G. antica** (*Fauna*, 568). This, like *Eriopeta brevior*, is a synonym of *Empeda gracilis* de Meij.

**Lechria nepalensis** (*Rec.* xv, 317). This is exceptionally interesting, as it appears to belong to the genus *Trichoneura*, hitherto only known from two fossil species described by Meunier from Baltic amber. In Brunetti's type *R* 1 apparently ends in the costa, and is slightly indented downwards at *r*, as in the fossil species, though to a less extent. Almost certainly, however, this is not the true interpretation; it is more probable that the apparent tip of *R* 1 is (as Brunetti supposed) really the last section of *R* 2, and the apparent *R* the transverse basal part of *R* 2. We must then suppose that the tip of *R* 1 is atrophied, leaving no trace, and *r* is almost horizontal, simulating the tip of *R* 1. Some support may be lent to this view by the fact that there are no macrotrichia on the part of the vein which is presumed to represent *r*. A comparison with amber specimens of *Trichoneura* in the British Museum strongly confirms this interpretation. *L. nepalensis* agrees closely with the fossil forms in size and habitus, differing only in minor points such as having *Cu* 2 curved downwards at the tip. The venation of *Trichoneura* rather closely resembles that of *Dicranoptycha*, and it is possible that a similar interpretation should be applied to the latter genus.

**Gnophomyia genitalis** (*Fauna*, 490). This is a *Crypteria* (*Neolimnophila*) close to *placida* Mg. The male type has lost its antennae, but the hypopygium is almost as in *placida*, except that the eighth sternite has a dense though short tuft of brownish-yellow hair.

**G. furcata** (*Fauna*, 491). This is an *Adelphomyia*, resembling the European *A. senilis* (Hal.); the wing-tip is slightly but distinctly hairy. Identical with *A.* ("Cladura") *flavescens* (Brun.).

**G. strenua** (*Fauna*, 492). The type of this species was not brought to London, but is evidently a true *Gnophomyia*, probably identical with *G. orientalis* de Meij.

**G. nigra** (*Fauna*, 494). This, in my opinion, is nearer to *Gonomyia* than to *Gnophomyia*, though it is certainly not a typical member of the former genus. I have examined the female recorded by Brunetti from the Nilgiri Hills, and find it identical with *Gonomyia* ("Mesocyphona") *nigripes* (Brun.). Doubtless the type is also the same. It may be noted that Brunetti has reversed his references to his figures of the wings of this and *G. strenua*.

**Cladura flavescens** (Rec. vi, 284). Alexander was correct in supposing that this is not a true *Cladura*. It is in fact an *Adelphomyia*; the wing-tip has a few very evident macrotrichia, and the tibiae have minute but distinct spurs.

**C. interrupta** (Rec. xv, 319). A distinct *Dicranophragma*, with short tibial spurs, cross vein in cell *R*<sub>2</sub>, etc. Very close to *D. pulchripennis* Brun., but *Ax* simple at tip and no dark spot on wing-margin behind tip of *Ax*.

**Paracladura** (Rec. vi, 286). Alexander has sunk this under *Trichocera*, but I believe it is a perfectly good genus, both on details of venation and on a very peculiar tarsal character which is not known in any true Tipulid: the first tarsal segment on all the legs is extremely short, much shorter than the second and only about three times as long as broad, recalling the condition in many Cecidomyiidae and in the Culicid genus *Molchlonyx*. The genus *Paracladura* is further distinguished from *Trichocera* (as correctly pointed out by Brunetti) by the entire absence of tibial spurs.

**Trichocera flava** (*Fauna*, 512) is almost certainly the female of *Paracladura gracilis* Brun., from which it differs only in having the knob of the halteres yellowish instead of dark.

**Rhaphidolabis indica** (*Fauna*, 519). Although I have only examined the female type, I think there can be little doubt that this is identical with *R. sordida* (Brun.).

**Limnophila pallidicoxa** (*Fauna*, 523). This was apparently described from a mixture of species. Of the pair brought to London (not the types) the male is a *Pilaria*, the female a *Pseudolimnophila*.

**L. simplex** (*Fauna*, 523). This is a *Crypteria*, identical with *C. ("Gnophomyia") genitalis* Brun., as already stated by Brunetti.

**L. multipunctata** (*Fauna*, 569). This seems to be a *Pseudolimnophila*. The venation agrees with Alexander's genus, and the usual small anterior mesonotal pits are present; the head is crumpled so that the long neck of *Pseudolimnophila* is not obvious; abdomen broken.

**L. honesta** (Rec. xv, 324). Anterior mesonotal pits present but minute.

**L. claripennis** (Rec. viii, 153). This is a *Crypteria*, very close to if not identical with the genotype, *C. limnophiloides* Bergr. The flagellar cone is normal.

**L. quartarius** (Rec. viii, 154). A *Gnophomyia* (s. str.), very close to *G. strenua* and allies. The male resembles *G. maculipleura* Edw. and *G. fraterna* Edw. in having two large black spots on the pleura; its hypopygium is similar to that of *G. fraterna*, but the parameres are large and rounded, not split. The female mentioned by Brunetti appears to be identical with my *G. nigrescens*; I do not think it belongs to the same species as the type male.

**L. annulipes** (Rec. xv, 324). Subgenus uncertain. *Sc* ending much beyond apex of *Rs*, *Sc*<sub>2</sub> near its tip; *R*<sub>2</sub> a little longer than *R*<sub>2</sub>+*3*, arched at base and curved upwards at tip; *r-m* below base of *R*<sub>2</sub>, scarcely half as long as the basal section of *R*<sub>4</sub>+*5*.

**L. parvicellula** (*Rec.* xv, 325). A *Gonomyia*, probably identical with *G. affinis* Brun., at any rate a male identified by Brunetti as *G. affinis* has the same hypopygial structure, although *Cu1a* is rather nearer the base of the discal cell. *G. bryanti* Alex. (Java) is very similar, perhaps distinguishable by the rather longer and more oblique *R2*.

**L. glabra** (*Rec.* xv, 325). As far as I can see this is identical with *L. palmeri* Alex., described from Java. Perhaps belongs to *Pseudolimnophila*, although the head is rather less narrowed behind than in the genus. Flagellar segments with very long hair, especially on the upper surface, where it is 3-4 times as long as the segments (as in *Pilaria*).

**L. fusca** (*Rec.* xv, 326). A *Pseudolimnophila*. Thorax dull. Claspers simple, equal in length, the outer with slightly hooked tip. Cells longer than in *L. glabra*.

**L. incompleta** (*Rec.* xv, 326). A *Gonomyia*, identical with *G.* (" *Mesocyphona* ") *nigripes* Brun. The specimens are females.

**L. inconsequens** (*Rec.* xv, 326). Subgenus uncertain. First four flagellar segments rather larger than the others. Verticils about as long as the segments. Claspers rather short, outer shorter than inner. Tibial spurs minute.

**L. flavipennis** (*Rec.* xv, 327). I have not seen the type of this species, but from the figure given of the wing it would appear to be a *Tricyphona*.

**L. ornatipennis** (*Rec.* xv, 328). An obvious *Epiphragma*. The figure is correct in showing the usual cross-vein in the costal cell. Distinguished from allied species by the pale legs, the femora being scarcely darkened.

**Dicranophragma pulchripennis** (*Fauna*, 542). A rather remarkable character of this species is that the vein *Ax* is forked near its tip, the posterior branch not reaching the margin.

**D. gracilis** (*Rec.* viii, 156). In this species there is no trace of tibial spurs; this fact, together with the position of *Cu1a* before the discal cell, will exclude it from this genus. Possibly it should be referred to *Cladura*. The antennae are broken, but the first few flagellar segments are preserved. The first is large, conical, perhaps representing a fusion of several as in *Crypteria*.

**Eriocera rufithorax** (*Fauna*, 534). The identity of this with my *E. ctenophoroides* may be confirmed.

**E. aterrima** (*Fauna*, 540). Examination of the type shows that this is wrongly placed in my key to the old-world species of this genus, since *R2* is about five times as long as *R2+3*. It will therefore run down to heading 37, and is distinguished from the other species there included by the following characters: Abdomen entirely black, four posterior cells, tip of *R1* twice as long as *r*, traces of shining bands at the bases of the abdominal segments. By this last character it is evidently close to *E. morosa* O.-S.

**E. nigerrima** (*Fauna*, 571). The abdomen is not wholly dull black, but has broad somewhat shining basal bands on the tergites. The species would therefore be better included under the first division of heading 71 in my key. Quite possibly my *E. robinsoni* may be simply an immature specimen of *E. nigerrima*. A rather remarkable character is that the sternopleura are densely hairy.

**E. nigroapicalis** (*Rec.* xv, 335). This is a *Nephrotoma*, identical with *N. hypocrites* (Brun.). The coloration certainly is remarkable for a *Nephrotoma*, and strongly suggestive of a red and black *Eriocera*.

**E. decorata** (*Rec.* xv, 337). This species is remarkable in having the cross-vein *r* about the middle of  $R2+3$  as correctly shown in the figure. In order to allow for this, to the second part of heading 2 in my key should be added the words, "or else  $R2$  longer than  $R2+3$ ". The small spots of the wings are mostly yellow, only the larger ones white.

**E. caliginosa** (*Rec.* xv, 339). Correctly placed in my key. In the specimen examined there is a small fork to  $M1+2$  in one wing only.

**Stibadocerella pristina** (*Rec.* xv, 283). The vein *Ax* is absent, and the genus therefore antedates de Meijere's *Agastomyia*. The species is close to, but not identical with *A. albitarsis* de M.

**Pselliophora flavofasciata** (*Rec.* xv, 259). Identical structurally with my *Ps. gracilicornis*, which is evidently only a light variety of Brunetti's species.

**Dolichopeza obscura** (*Fauna*, 355). Flagellum of male about as long as head and thorax together. *Rs* absent. All the tarsi (in the type) have the last four segments and the apical fourth of the first segment white.

**D. postica** (*Fauna*, 564). The specimen examined (not the type, but a male from the Garo Hills, Assam) differs from Brunetti's description in having the mesonotum uniformly shining blackish. Antennae about as long as the whole body. *Rs* very short and nearly transverse.  $R2$  absent.

**D. infuscata** (*Fauna*, 565). Flagellum about as long as the head and thorax together. *Rs* horizontal, curved at the base, nearly twice as long as  $R2+3$ .  $R2$  present but faint.

**D. costalis** (*Rec.* xv, 277). Belongs to *Nesopeza*; very close to *N. gracilis* de Meij., but fork cell shorter, etc.

**Nesopeza albitarsis** (*Rec.* xv, 278). Not a *Nesopeza*, perhaps may be referred to *Megistomastix*, since the wing of the type ♀ is precisely as in Alexander's *M. portoricensis*. Brunetti does not mention the antennae of the type male, which I have not seen.

**N. longicornis** (*Rec.* xv, 278). Seems rather a *Dopichopeza* than a *Nesopeza*, though all the genera of this group are poorly characterised. The structure of the male antennae is very distinctive, and suggests *Megistomastix* again. *Rs* horizontal, a little longer than  $R2+3$ ,  $R2$  absent, *M-Cu* fusion very slight, discal cell long and narrow. Hind tibiae wholly white. Clasper forked, one part much thicker than the other.

**N. picticornis** (*Rec.* xv, 279). This is simply a *Tipula* with a somewhat peculiar venation; very near *T. inconspicua* de Meij., but perhaps distinct by the thorax markings.  $R2$  long and oblique, *r-m* very short, almost obliterated, discal cell very small, practically only four-sided (diamond shaped),  $M3$  coming off from it almost at the same point as  $M1+2$ , *Cu-1a* oblique, in slightly more than punctiform contact with the lower corner of the discal cell. Flagellum verticillate. Ninth tergite with blunt median projection.

**Tipula fumifasciata** (*Rec.* vi, 250). Identical with *T. nova* Walker, by comparison of types.

**T. ochripes** (*Rec.* vi, 260). This is close to the Malayan *Ctenacroscelis umbrinus* (Wied.), but differs distinctly in the shape of the flagellar segments, especially in the male.

**T. princeps** (*Fauna*, 306). Belongs to the *fulvipennis* group; resembles *T. shirakii* Edw., but is larger and darker, and with quite different hypopygium. The outer clasper is sharply pointed, with a triangular enlargement just before the middle.

**T. fuscinervis** (*Fauna*, 312). Identical with *T. princeps*. The figure is not very accurate.

**T. splendens** (*Fauna*, 314). In spite of the arched vein *R2*, this is a true *Tipula* and not a *Ctenacroscelis* or *Holorusia*.

**T. himalayensis** (*Fauna*, 315). Brunetti has evidently confused two or more species in his description; in two paratype males from Darjiling examined by the writer (which in general agree well with the description, and are doubtless conspecific with the type) the hypopygium has a very different structure from that shown in Brunetti's figures, which must represent some quite different species. In the form which seems to be the true *T. himalayensis*, the ninth tergite is small and usually almost completely hidden beneath the eighth, outer claspers black, rounded at tip, bent inwards, pleural suture rather distinct, the pleurite conical with a more or less blackened point, this point being sharper in some specimens than others, and the pleurite sometimes bent inwards. The femora vary somewhat in colour; in pale specimens the yellow ring is indistinct.

**T. tessellatipennis** (*Fauna*, 317). The two little median projections of the ninth tergite beset with minute black bristles. Outer claspers broadened and bent in the middle.

**T. quasimarmoratipennis** (*Fauna*, 320). This is apparently identical with the Formosan species subsequently described by me as *T. biserra*.

**T. griseipennis** (*Fauna*, 321). Judging from the description, this must be very close to or perhaps the same as *T. thibetana* de Meij. though there may be differences in the hypopygium.

In Brunetti's species the ninth tergite is of peculiar form: pointed, but for the apical part bent downwards, covered with fine black setae, at the bend a tuft of yellowish hair on each side.

**T. striatipennis** (*Fauna*, 325). The figure is incorrect in showing *R2* complete. It is really abbreviated as in the closely related *T. mutila* Wahlgren of Europe. Matsumura has apparently redescribed this species from Japan as *T. quadrifasciata*.

**T. continuata** (*Fauna*, 328). This is evidently allied to *T. sessilis* Edw. (*Pachyrrhina demarcata* Brun.), differing in the pale central area of the scutellum and in the structure of the hypopygium, which is large, swollen and black, only slightly emarginate apically.

**T. quadrinotata** (*Fauna*, 330). Extremely close to *T. shirakii* Edw., differing almost solely in the shape of the outer claspers, which are more pointed, not square-tipped. The Himalayan female recorded by me as that of *T. shirakii* is doubtless this species, of which the Formosan *T. shirakii* can hardly be more than a variety.

**T. tenuipes** (*Fauna*, 333). The type agrees with that of *T. fulvipennis* Walker (*nec* Deg.). Since Brunetti had previously renamed Walker's species, his name *walkeri* must replace *tenuipes*.

**T. munda** (*Fauna*, 336). By comparison of types, this is the same as *T. vicaria* Walker 1856 (*nec* Walker 1848).

**T. cinctoterminalis** (*Fauna*, 338). The cell *Ax* is rather narrow, much narrower than in *T. munda*, which is otherwise similar.

**T. elegantula** (*Fauna*, 339). Type not examined. The figure of the wing attributed to this species really represents *T. fumifascipennis* Brun. 1918.

**T. imperfecta** (*Rec.* ix, 260). This is my *Brithura conifrons*, which it antedates by three years.

**T. gravelyi** (*Rec.* xv, 264). Synonymous with my *Brithura crassa*.

**T. contigua** (*Rec.* xv, 265). Antennae nearly twice as long as the thorax. Claspers with a short hairy upper lobe and a long curved lower lobe the apical part of which is bare, the tip black. Cell *Ax* extremely narrow.

**T. simillima** (*Rec.* xv, 265). Clasper trilobed, middle lobe the longest, bare, black-tipped, lower lobe more slender, hairy, also black-tipped. Basal half of second and third segments, and the whole of the last two segments of front and middle tarsi blackish, base of second segment only narrowly black in hind legs. White rings on the fore and mid femora duller and not quite so close to tip as in *gracillima*, *Cu2* dark-bordered, not clear as in *gracillima*. Cell *Ax* much narrower than in *gracillima*, but less so than in *contigua*.

**T. fumifascipennis** (*Rec.* xv, 266). Belongs to the *fulvipennis* group; differs from *T. shirakii* and *T. quadrinotata* in the faintness of the dark lateral stripe from the pronotum to the base of the abdomen, also in small details of the hypopygium, the forked apex of the median projection of the ninth tergite is spinose in *shirakii*, hairy in *fumifascipennis*. Also, the basal two-thirds of cell *M* is quite clear in the present species, infuscated in *shirakii*. From *T. jacobsoni* Edw. the most obvious distinction is that the pale area near the tip of cell *M* is only faintly indicated and is immediately instead of some distance before *Cu1a*.

**T. fumicosta** (*Rec.* xv, 266). Another member of the *fulvipennis* group. Probably identical with *T. quadrinotata*, though the male clasper differs slightly in shape from that of the specimens (not the type) of *T. quadrinotata* examined and agrees better with the type of *T. shirakii* Edw.

**T. filicornis** (*Rec.* xv, 267). The structure of the antennae is remarkable, and quite unlike that of any other Oriental species known to me. These organs are longer than the whole body, the flagellar segments with scattered long bristly hairs along their whole length, these hairs being about 5 times as long as the diameter of the segments, apart from these there is a moderately dense erect pubescence 3-4 times as long as the diameter of the segments. Ninth tergite rather long, rounded at tip, hairy. Costal cell slightly but obviously darkened. Cell *Ax* moderately broad.



**T. flavithorax** (*Rec.* xv, 268). The outer clasper is of peculiar shape, being bent at right angles before the middle, the outer portion very slender, and bare, the inner portion hairy. Ninth tergite with a pair of triangular projections.

**T. fasciculata** (*Rec.* xv, 269). The wings of this species are very similar to those of the European *T. vernalis* Mg., but it is quite distinct by the structure of the hypopygium and ovipositor.

**T. brevis** (*Rec.* xv, 270). Identical with *T. reposita* Walker, by comparison of types. The claspers are of very peculiar shape.

**Pachyrrhina demarcata** (*Fauna*, 344). This is a *Tipula*, related to *T. contigua* Brun. Since the name has already been used in *Tipula*, I have suggested the new name *Tipula sessilis* (*Ann. Mag. Nat. Hist.*, ser. 9, Vol. viii, p. 96). In proposing this name I had before me specimens from the Nilgiri Hills which I believed to be *P. demarcata* Brun., but a comparison with the type now shows that these represent a distinct though allied species. The name *sessilis* should be applied to Brunetti's type, which is characterised especially by the ringed flagellum (not all black as stated in Brunetti's description), the mainly yellow legs, and the very long, narrow outer claspers.