

XIII. *Characters of undescribed Neuroptera in the Collection of W. W. Saunders, Esq., F.R.S., &c.* By FRANCIS WALKER, Esq., F.L.S., &c.

[Read August 2nd, 1858.]

Fam. PHRYGANIDÆ.

Genus PHRYGANEA, Linn.

Phryganea divulsa.

Mas.—Cinerea, subtus testacea, antennis fuscis pallido-annulatis, alis anticis fusco-nebulosis, vitta abbreviata interrupta stri-gaque anteriore discalibus nigris albo-notatis.

Male.—Cinereous, testaceous beneath: antennæ brown, with pale rings; fore-wings mottled with brown, with a black discal abbreviated stripe, which is interrupted in the middle, and is marked with white at the end of each of its two parts; a black discal streak in front of the exterior part of the stripe, marked with white at its inner end. This species much resembles *P. grandis*, but may be distinguished by the much mottled interior border of the fore-wings, and by the difference in the black stripe.

Length of the body $7\frac{1}{2}$ lines; of the wings 19 lines.

Haiti.

Genus LIMNOPHILUS, Leach.

Limnophilus griseus, Linn.

A specimen of this species, from Haiti, does not apparently differ from the natives of Europe.

Fam. LEPTOCERIDÆ.

Genus LEPTOCERUS, Leach.

Leptocerus niveistigma.

Fœm.—Nigra, antennis corpore quadruplo longioribus, alis anticis cinereo-subnebulosis stigmatè albo oblongo, posticis nigricante cinereis.

Female.—Black: antennæ rather slender, about four times

longer than the body; fore-wings indistinctly marked with grey; stigma white, oblong; hind wings blackish-grey.

Length of the body 4 lines; of the wings 10 lines.

Brazil.

Leptocerus abjurans.

Mas.—Niger, subtus testaceus, antennis testaceis, fusco-annulatis corpore quadruplo longioribus, alis obscure fuscis cupreo vix nitentibus.

Male.—Black, testaceous beneath: antennæ testaceous, slender, with brown rings, about four times the length of the body; wings dark brown, with an indistinct cupreous tinge; hind-wings a little paler than the fore-wings.

Length of the body 4 lines; of the wings 12 lines.

Brazil.

Leptocerus quadrifurca.

Mas.—Niger, subtus testaceus, antennis fuscis, abdomine lurido, alis anticis fuscis, vittis duabus strigaeque transversa sub-apicali biramosa aureo-tomentosis, alis posticis fuscescente cinereis.

Male.—Black, testaceous beneath; antennæ brown, slender; abdomen lurid; fore-wings brown, with two stripes of gilded tomentum; one costal, the other discal; a gilded transverse sub-apical streak, emitting two branches towards the tip of the wing; hind-wings brownish-cinereous.

Length of the body 4 lines; of the wings 11 lines.

Brazil.

Genus MACRONEMA, Pictet.

Macronema percitans.

Mas.—Nigra, subtus testacea, capite smaragdino, antennis fulvis corpore quadruplo longioribus, thorace vittis quatuor smaragdinis, abdomine lurido fasciis fuscis, alis anticis fuscis, spatio sub-apicali pallido fusco-nebuloso fasciamque fuscam includente, alis posticis cinereis apice fuscescentibus.

Male.—Black, testaceous beneath: head with emerald-green tomentum; antennæ tawny, very slender, somewhat darker towards the tips, about four times the length of the body; thorax with four emerald-green stripes; abdomen lurid, with brown bands; fore-wings brown, paler along the costa, and with a broad,

pale, sub-apical space, which is slightly mottled with brown, and contains an irregular brown, almost interrupted band, which towards the costa is darker than the wing elsewhere; hind wings grey, with brownish tips.

Length of the body $3\frac{1}{2}$ lines; of the wings 10 lines.

Amazon Region.

Genus MUSARNA, n. g.

Mas et Fœm.—Corpus sat gracile. Palpi maxillares pilosi, capitis latitudine breviores; articulus apicalis lanceolatus: palpi labiales breves: antennæ sat graciles; articuli apices versus latiores: pedes nudi; tibiæ posticæ calcaribus apicalibus parvis: alæ amplæ, integræ; anticæ apud costam convexæ, apice rotundatæ.

Male and Female.—Body rather slender. Maxillary palpi pilose, shorter than the breadth of the head; apical joint lanceolate: labial palpi short: antennæ rather slender, a little longer or a little shorter than the body; joints slightly widened towards their tips: legs bare; hind tibiæ with short apical spurs: wings ample, entire: fore-wings more or less convex along the costa, rounded at the tips, moderately or very oblique along the exterior border.

Musarna aperiens.

Fœm.—Nigricans, subtus lurida, antennis basi luridis corpore paullo longioribus, alis longis latiusculis fuscescente cinereis, posticis subpallidioribus.

Female.—Blackish, lurid beneath: antennæ lurid towards the base, a little longer than the body; wings long, rather broad, dark brownish-grey; fore-wings convex along the costa, very oblique along the exterior border; hind-wings a little paler and less tinged with brown than the fore-wings.

Length of the body 8 lines; of the wings 30 lines.

South America.

Musarna interclusa.

Fœm.—Atra, antennis corpore paullo brevioribus, alis anticis nigris longis latiusculis apud medium obscure cinereis, posticis nigricante cinereis.

Female.—Deep black: antennæ a little shorter than the body; fore-wings black, long, rather broad, more convex along the costa than in the preceding species, very oblique along the exterior

border; middle part, except along the costa, dark cinereous; hind-wings blackish-cinereous.

Length of the body 8 lines; of the wings 26 lines.

Brazil.

Musarna claudens.

Fœm.—Nigricans, subtus fulva, antennis fuscis, fulvo-annulatis, alis anticis ferrugineo-fuscis latis vix longis, fasciis duabus incompletis e strigis auratis, posticis nigricante cinereis.

Female.—Blackish, tawny beneath: antennæ brown, with tawny wings, as long as the body; fore-wings ferruginous brown, broad, hardly long, more convex along the costa than in the preceding species, moderately oblique along the exterior border, with two slight incomplete bands, composed of short gilded streaks, the one exterior, the other sub-apical; hind-wings blackish-cinereous.

Length of the body 7 lines; of the wings 22 lines.

Brazil.

Fam. PSYCHOMIDÆ.

Genus CURGIA, n. g.

Fœm.—Corpus nudum: palpi longi, arcuati, decumbentes; articulus 1us brevis; 2us longus, apice unispinosus; 3us 2o brevior; 4us 3i dimidio non longior: antennæ setaceæ, compactæ, corpore paullo longiores: tibiæ posteriores calcaribus duobus longis apicalibus; tibiæ mediæ calcare uno medio; tibiæ posticæ calcaribus duobus mediis; alæ anticæ angustæ.

Female.—Body, legs and wings bare: palpi long, curved, decumbent, much longer than the breadth of the head; 1st joint short; 2nd long, with a spine at its tip; 3rd much shorter than the 2nd; 4th about half the length of the 3rd: antennæ setaceous, a little longer than the body; sutures of the joints hardly visible: posterior tibiæ with two long apical spurs; middle tibiæ with one middle spur; hind tibiæ with two middle spurs: fore-wings narrow; six apical veins; 1st and 2nd forks of one vein, which is a fork of the radial vein; 3rd and 4th forks of one vein, which, and the 5th, are forks of a discal vein; 6th simple.

Curgia braconoides.

Fœm.—Luteo-rufa, palpis, antennis, tibiis tarsisque nigris, alis nigricantibus anticis albido novem-maculatis et bifasciatis.

Female.—Luteous-red: palpi, antennæ, tibiæ and tarsi black; wings blackish; fore-wings with seven whitish spots between the base and the middle, and with two exterior discal whitish spots, which are between two whitish bands; 1st band abbreviated in front; 2nd much abbreviated hindward.

Length of the body $2\frac{1}{2}$ lines; of the wings 6 lines.

Fam. SIALIDÆ.

Genus HERMES, G. R. Gray.

Hermes decemmaculatus.

Testaceous, capite antice fulvo, maculis duabus posticis lateribus elongatis nigris, antennis nigris serratis, prothorace maculis quatuor elongatis lateralibus nigris, alis albido-hyalinis, venis testaceis.

Testaceous: head tawny in front, slightly angular on each side, broader than the prothorax, with an elongated black spot on each side hindward; antennæ black, serrated; prothorax slightly contracted in the middle, with two elongated black spots on each side; mesothorax and metathorax a little broader and much shorter than the prothorax; wings whitish hyaline; veins wholly testaceous.

Length of the body 16 lines; of the wings 42 lines.

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Hermes corripiens.

Testaceous, antennis nigris basi testaceis non serratis, prothorace guttis quatuor lateralibus elongatis nigris, alis albido-hyalinis, venis testaceis, alarum anticarum venulis transversis plus minusve nigris.

Testaceous: head slightly angular on each side, a little broader than the prothorax; antennæ black, simple, testaceous towards the base; prothorax almost linear, with two elongated black dots on each side; the fore pair sometimes almost obsolete; wings whitish hyaline; veins testaceous; fore-wings with the transverse veinlets more or less black. This species may be distinguished from the preceding one by its narrower head, by the more convex costa of the fore-wings, and by the black marked veinlets.

Length of the body 16 lines; of the wings 36—38 lines.

Fam. HEMEROBIDÆ.

Genus MANTISPA, Illiger.

Mantispa compellens.

Fulva, antennis nigris, prothorace tenui cylindrico, abdomine vitta dorsali nigra, pedibus testaceis, femoribus tibiisque anticis fulvis, alis vitreis, stigmatate rufescente, venis nigris. Var. B. Abdomine non vittato.

Tawny: antennæ black; prothorax slender, cylindrical, widening towards the head, longer than the coxæ of the fore-legs; abdomen with a black dorsal stripe; legs testaceous; fore-femora and fore-tibiæ tawny; wings vitreous; stigma reddish; veins black; discal areolets elongated, hexagonal or pentagonal, their two longest sides undulating. Var. B. Abdomen without a stripe; fore-femora and fore-tibiæ testaceous; wings with the veins testaceous towards the base.

Length of the body 7—8 lines; of the wings 12—14 lines.
Brazil, Amazon Region.

Mantispa umbripennis.

Nigra, capite lineis duabus flavis, prothorace lineis tribus luteis, abdominis segmentis flavo-marginatis, pedibus fulvis, anticis nigris flavido-vittatis, alis subluridis, costa apice plagaque postica elongata fuscis, stigmatate venisque nigris.

Black: head with a yellow line on each side of the face; antennæ short, stout, compact; prothorax cylindrical, wider towards the head, with three luteous lines, as long as the fore-coxæ; hind borders of the abdominal segments yellow; legs tawny; fore-legs black, striped with dingy yellow; wings slightly lurid, brown along the costa and at the tips, and with an elongated brown patch on the hind border; stigma and veins black.

Length of the body 5 lines; of the wings 8 lines.
Natal.

Mantispa lurida.

Picea, capite apud oculos flavo, facie flava vittis tribus nigris, antennis ferrugineis robustis, prothorace lineis tribus fasciaque antica flavis, mesothoracis fascia antica lateribus pectoreque flavis, abdomine ferrugineo vitta dorsali picea, lateribus fasciisque ventralibus flavis, pedibus luteo-flavis, anticis piceo-vittatis, alis luridis stigmatate rufescente.

Piceous: head yellow about the eyes; face yellow, with three black stripes; antennæ ferruginous, short, stout, compact; pro-

thorax hardly as long as the fore-coxæ, transversely rugulose, with three yellow lines, wider and with an interrupted yellow band towards the head; mesothorax with a yellow band in front; sides and pectus mostly yellow; abdomen ferruginous, with a piceous dorsal stripe; sides mostly yellow; ventral segments with yellow bands; legs luteous-yellow; fore-legs with piceous stripes; wings lurid; stigma reddish; veins black, tawny at the base and along the costa.

Length of the body 5 lines; of the wings 10 lines.

Genus *VARNIA*, n. g.

Fcem.—Corpus robustum: caput brevissimum: palpi brevissimi: prothorax transversus, sub-quadratus: abdomen crassum, thorace vix duplo longius: pedes simplices, inermes, sat validi: alæ longæ, non latæ, venis venulisque plurimis.

Female.—Body stout, resembling that of *Perla*: head very short, nearly as broad as the prothorax: palpi very short: prothorax sub-quadrate, full twice broader than long; mesothorax somewhat larger than the prothorax, and than the metathorax, which is well developed: abdomen thick, nearly twice longer than the thorax: legs moderately stout, simple, unarmed: wings long, moderately broad, space between the costa and sub-costa with many transverse veinlets, which are most numerous exteriorly; radius emitting several sectors, which are parallel to each other, and are connected by numerous veinlets, and thus form many nearly square areolets; space behind the cubitus with veins and veinlets much like those of the forepart.

Varnia perloides.

Fcem.—Testacea, prothorace vitta strigisque quatuor laterali-bus nigris, mesothorace et metathorace fusco-maculatis, abdomine ferrugineo, alis albidis semihyalinis, venulis transversis nigricante marginatis, venis nigris basi testaceis.

Female.—Testaceous: slightly pilose on the sides of the thorax; prothorax with a black stripe, and with two black transverse streaks on each side; mesothorax and metathorax with a brown spot on each lobe; abdomen ferruginous; wings whitish, semi-hyaline; transverse veinlets with blackish borders; a sub-costal space towards the tip of each wing without transverse veinlets, and accordingly wholly pale; veins black, testaceous towards the base.

Length of the body 10 lines; of the wings 26 lines.

West Australia.

Genus OSMYLUS, Latr.

Osmylus punctipennis.

Mas.—Piceus, pidibus sordide testaceis, femoribus apice nigricantibus, tibiis nigricante fasciatis, alis vitreis purpureo-micantibus, venis viridi-nitentibus, costa setosa, stigmatate testaceo et nigricante, alis anticis fusco-sub-punctatis.

Male.—Piceous: legs dingy testaceous; femora blackish towards the tips; tibiæ with a blackish band; wings vitreous, with very brilliant purple reflections; veins with green reflections; with numerous little bristles like those of *O. chrysops*; costa thickly setose; stigma testaceous, partly blackish; fore-wings with a few brown points hindward.

Length of the body 6 lines; of the wings 24 lines.

Hindustan.

Genus CHRYSOPA, Leach.

Chrysopa ignobilis.

Albida, luteo-univittata, prothorace longiusculo, punctis quatuor lateralibus nigris, mesothorace punctis duobus lateralibus nigris, alis vitreis, venis albis, stigmatate sub-testaceo.

Whitish, with a pale luteous stripe; prothorax rather long, with two black points on each side; mesothorax with a black point on each side; wings quite vitreous; veins white, in structure much like those of *C. septempunctata*, but rather fewer; stigma very slightly testaceous.

Length of the body 5 lines; of the wings 14 lines.

Hindustan.

Chrysopa pubicosta.

Testacea, nigro-notata, capite punctis nigris, antennis basi nigris, alis vitreis, venis albis setulosis, stigmatate sub-testaceo lituris nigricantibus, alis anticis costa valde setulosa, macula basali, lituris duabus posticis strigaque interrupta fuscis.

Testaceous: head with some black points; antennæ black at the base; thorax and abdomen with various black marks; wings vitreous; veins white, rather setulose; stigma slightly testaceous, with some blackish marks; fore-wings with the costa very setulose; space between the costa and the sub-costa very broad towards the base of the wing; areolets behind the radius somewhat irregular; a brown spot near the base, two brown marks near the

hind border, and an interrupted brown streak on the transverse veins in the disk.

Length of the body 6 lines ; of the wings 16 lines.

Hindostan.

Chrysops Mozambica.

Mas.—Lutea, capite supra viridi, prothorace breviusculo latiusculo, margine antico fasciaque bifurcata ferrugineis, mesothorace fasciis duabus angulatis nigris, alis vitreis vix cinerascentibus, venis testaceis nigro-variis, stigmatate longo fuscescente nigricante-notato, alis anticis macula postica nigra.

Male.—Luteous : head with the vertex green ; prothorax rather short and broad, ferruginous in front and with a ferruginous band which is forked on each side ; mesothorax with two angular black bands ; wings vitreous, very slightly greyish, very iridescent ; veins testaceous, slightly setulose, partly black ; stigma long, brownish, with a blackish mark at its interior end ; fore-wings with veins much like those of *C. septempunctata* ; a black spot on the interior border near the base.

Length of the body 5 lines ; of the wings 18 lines.

Mozambique.

Genus APOCHRYSA, Schneider.

Apochrysa beata.

Mas.—Testacea, gracillima, antennis albidis longissimis, abdomine longo, alis vitreis, venis albidis, tuberculo discali exteriori opalino radiis nigris ornato, stigmatate nigricante minimo, alis anticis amplis tuberculo opalino posteriore, posticis puncto marginali nigra.

Male.—Testaceous, very slender : antennæ whitish, very much longer than the fore-wings, and much more than twice the length of the body ; abdomen long ; wings quite vitreous, with brilliant blue reflections ; veins whitish ; costa pubescent ; space between the costa and the sub-costa very broad ; a pearly tubercle with five or six black rays on the exterior part of each disk ; stigma blackish, very small ; fore-wings ample, with six rows of areolets in the disk, and with a pearly black-rayed tubercle in the hind part of the disk ; hind-wings much narrower, with a minute black dot by the interior border near the base.

Length of the body 7 lines ; of the wings 22 lines.

Amazon Region.

Genus DREPANPTERYX, Leach.

Drepanpteryx falculoides.

Fœm.—Fulva, prothorace sub-quadrato, antennis corporis dimidio vix longioribus, alis anticis sub-falcatis cinereo-variis, costa basi dilatata, margine exteriori incisio, lineis duabus obliquis exterioribus e punctis nigricantibus, alis posticis vitreis vix cinerascentibus.

Female.—Tawny: head almost concealed by the prothorax, which is sub-quadrate; antennæ rather stout, very little more than half the length of the body; wings rather narrow; veins testaceous; fore-wings minutely varied with cinereous, sub-falcate, with two slightly concave notches on the exterior border, which is very oblique; costal space abruptly dilated at the base, and with two rows of areolets, much narrower exteriorly; discal veins very numerous; two exterior oblique lines of blackish points; hind-wings vitreous, hardly cinereous except along the costa; discal veins few; costal space narrow.

Length of the body $3\frac{1}{2}$ lines; of the wings 13 lines.

Hindustan.

Genus HEMEROBIUS, Linn.

Hemerobius decisus.

Fœm.—Pallide luteus, capite litura verticali punctisque duobus lateralibus nigris, antennis fulvis, thorace nigricante, alis cinereis, anticis nigricante-cinereo variis, strigis duabus discalibus obliquis nigricantibus, guttis marginalibus pallidis.

Female.—Pale luteous: head with a black mark on the vertex, and with a black point on each side; antennæ tawny, rather short and stout; thorax blackish; abdomen somewhat darker along each side; wings cinereous; fore-wings thickly varied with blackish cinereous; borders with pale dots, which are largest along the costa; costal space very broad towards the base; two oblique blackish streaks in the disk; veins black, very numerous in the disk, where there are two transverse slightly oblique lines of veinlets; hind-wings a little darker along the costa, where the veinlets are very numerous.

Length of the body $4\frac{1}{2}$ lines; of the wings 13 lines.

Hindustan.

Hemerobius setosulus.

Mas.—Testaceous, capite thoraceque nigricantibus, alis vitreis, venis pallidis, alis anticis fascia informi sub-obliqua e lituris fuscis, punctis marginalibus nigris.

Male.—Allied to *H. hirtus*. Testaceous: head and thorax blackish; wings vitreous; veins pale; fore-wings pubescent, or minutely bristly, varied with brown, which forms an irregular slightly oblique band; borders with black points; costa very broad towards the base of the wing; hind-wings a little darker along the costa.

Length of the body 3 lines; of the wings 7 lines.

Hindustan.

Hemerobius Tasmanicæ.

Mas et Fœm.—Testaceous, capite fulvo, fascia vitta punctisque duobus testaceis, thorace lituris fulvis, pedibus albidis, alis angustis sub-vitreis, venis albidis, alis anticis sub-pubescentibus, venis paucis fusco-punctatis.

Male and Female.—Testaceous: head tawny, with a band, a stripe and a point on each side hindward testaceous; thorax with some tawny marks; legs whitish; wings narrow, almost vitreous; veins whitish; fore-wings minutely pubescent; veins rather few, with brown points.

Length of the body 2—2½ lines; of the wings 5—6 lines.

Tasmania.

Genus *BEROTHA*, n. g.

Fœm.—Corpus gracile: caput thorace latius: oculi oblongi; antennæ filiformes, basi approximatae, corporis dimidio paullo longiores, articulis paucis: prothorax sub-quadratus: abdomen compressum, thorace longius: pedes pilosi: alæ angustæ, ciliatæ, sub-falcatae, venulis transversis paucissimis, margine exteriori perobliquo.

Female.—Body slender: head broader than the thorax: eyes oblong: antennæ filiform, approximate at the base, a little more than half the length of the body; joints few: prothorax sub-quadratus: abdomen compressed, longer than the thorax: legs pilose: wings narrow, ciliated, sub-falcate; transverse veinlets very few; exterior border very oblique: fore-wings with the exterior border slightly concave; space between the costa and the sub-costa narrow, its transverse veinlets forked in front.

Berotha insolita.

Fam.—Testacea, capite, thorace pedibusque fusco-notatis, alis vitreis sub-cinerascentibus, stigmatе nigro-fuscescente, venis alarum anticarum albidis fusco-punctatis, venulis transversis nigro-nebulosis.

Female.—Testaceous: head, thorax and legs with minute brown marks; wings vitreous, slightly greyish; stigma brownish, shaded with black; fore-wings with the costal space decreasing in breadth from near the base to the stigma; veins whitish, with brown points, rather numerous; transverse veins clouded with black.

Length of the body 3 lines; of the wings 7 lines.

Hindustan.

Fam. MYRMELEONIDÆ.

Genus MYRMELEON, Linn.

Myrmeleon tigroides.

Mas.—Pallide luteus, capite thoraceque nigro-vittatis, capitis fascia, antennis pedibusque nigris, thorace vittis tribus nigris, abdomine apicem versus nigro, alis fusco-variis, anticis sub-cinereis, posticis albidis.

Male.—Structure of *M. speciosus*. Pale luteous: antennæ and legs black; head and thorax with black hairs and with a black stripe; head with a black band between the eyes and with a piceous mark on each side of the end of the stripe; thorax with whitish hairs hindward, with three black stripes; abdomen long, black towards the tip; basal half thickly clothed with pale hairs; apical half more thinly clothed with shorter black hairs; apical appendages short; fore-wings slightly cinereous, with some brown or blackish marks along the costa and along the interior border, with two brown spots in the exterior part of the disk, and with an irregular brown sub-apical band; a brown slightly ramifying discal stripe extending from the base to nearly half the length; two white elongated marks near the hind border, one interior, the other basal; hind-wings whitish, with three broad irregular brown bands, the first nearly joining a brown streak which proceeds from the base, abbreviated hindward, and having opposite to it a sub-fusiform marginal brown patch, the third including a sub-apical whitish spot.

Length of the body 26 lines; of the wings 51 lines.

Hindustan.

Myrmeleon conicollis.

Ferrugineo-fusca, gracilis, capite lineis flavis, facie flava, palpis longis clavatis, antennis nigris clavatis basi rufescentibus, thorace vittis quatuor flavis, pedibus flavis robustis spinosis, alis longis angustis acuminatis, plagis costalibus liturisque posterioribus fuscis, venis stigmatique albis.

Ferruginous brown, slender: head above with various yellow lines; face and underside yellow; palpi long, slender, with clavate tips; antennæ black, clavate, reddish at the base; thorax with four yellow stripes; abdomen rather shorter than the fore-wings; legs yellow, stout, spinose; spurs as long as the first and second joints of the tarsi; wings long, narrow, slightly angular and acuminate at the tips; veins and stigma white; fore-wings a little broader and hardly shorter than the hind-wings, with four brown costal patches, and with several small brown marks in the disk and along the hind border; hind-wings with three brown costal patches, and with the other marks larger and fewer than those of the fore-wings.

Length of the body 15 lines; of the wings 30 lines.

Amazon Region.

Allied to *M. subdolos*.

This species and the four following agree with *M. immitis* in the structure of the wing-veins, and with them belong to a South American group, which is distinguished by a long slender body, short clavate antennæ and narrow lanceolate wings.

Myrmeleon nigriventris.

Nigricans, gracilis, capitis lituris facieque testaceis, antennis nigricantibus capitatis ferrugineo-lineatis, thorace vittis duabus lateralibus latis lineisque interruptis testaceis, pedibus testaceis validis spinosis, alis angustis acuminatis, stigmatibus albo, venis nigris albo-fasciatis, venis paucis nonnunquam nigro-nebulosis.

Blackish, slender: head testaceous in front and beneath, and with several testaceous marks above; antennæ blackish, capitate, with a ferruginous line above; thorax with slight interrupted testaceous lines, and with a broad testaceous stripe on each side; abdomen longer than the wings in the male, rather shorter in the female; legs testaceous, stout, spinose; wings narrow, acuminate; stigma white, veins black, with white bands; fore-wings with the

veins occasionally clouded with black along the sub-costa and along the middle of the disk.

Length of the body 14—18 lines; of the wings 24—27 lines.

Amazon Region, Colombia.

Myrmeleon pubiventris.

Mas.—Testaceus, gracilis, capite lituris transversis fuscis, antennis ferrugineis capitatis, thorace vittis quatuor fuscis, abdomine longissimo valde pubescente apicem versus fusco, pedibus validis spinosis, alis acuminatis perangustis sub-testaceis, stigmatate pallide fusco, venis fuscis albo-fasciatis.

Male.—Testaceous, slender: head above with transverse brown marks; antennæ ferruginous, capitate; thorax with four brown stripes, which are most regular and complete on the prothorax; abdomen very pubescent, brown towards the tip, much longer than the wings or nearly twice their length; legs short, stout, spinose; wings acuminated, very narrow, with a slight testaceous tinge; stigma pale brown; veins brown, with white bands; hind-wings shorter than the fore-wings.

Length of the body 19—23 lines; of the wings 27 lines.

Amazon Region.

Myrmeleon albidilinea.

Mas.—Ferrugineo-fusca, capitis lineis reticulatis facieque albidis, thorace vittis quatuor albidis, abdomine lineis duabus lateralibus albidis, pedibus testaceis validis spinosis, alis vitreis sub-acuminatis sat angustis, stigmatate albo, venis nigris.

Male.—Ferruginous brown: head whitish in front and beneath; vertex reticulated with whitish lines; antennæ black, capitate; thorax with four whitish stripes, the middle pair broader than the lateral pair, and most regular on the prothorax; abdomen a little longer than the wings, with a whitish line along each side for half the length from the base; legs testaceous, short, stout, spinose; wings rather narrow, slightly acuminated, quite vitreous; stigma white; veins black; hind-wings as long as the fore-wings, but narrower.

Length of the body 15 lines; of the wings 25 lines.

Amazon Region.

Myrmeleon indiges!

Mas.—Testaceus, gracillimus, capite fasciis interruptis nigris,

antennis clavatis nigro-annulatis, thorace fasciis quatuor nigris, abdomine nigro longissimo sub-pubescente fasciis testaceis, pedibus nigro-fasciatis, alis vitreis acuminatis perangustis, stigmatе obsolete, venis nigris.

Male.—Testaceous, very slender: head above with interrupted black bands; antenna clavate, with black rings; thorax with four irregular and partly contiguous black stripes; pectus on each side black, with testaceous dots; abdomen black, slightly pubescent, very much longer than the wings, with about eight testaceous bands; legs short, spinose; tibiæ and tarsi with black bands; wings vitreous, acuminated, very narrow; stigma obsolete; veins black, less numerous than in most species; hind-wings as long as the fore-wings, and hardly narrower.

Length of the body $13\frac{1}{2}$ lines; of the wings 15 lines.

Haiti.

Myrmeleon excogitans.

Mas.—Niger, capite antico, palpis et propectore flavis, antennis capitatis testaceo-annulatis, thorace vittis quinque rufescentibus, pectore rufescente, abdomine breviusculo vittis duabus testaceis, pedibus crassis pilosis spinosis longiusculis ex parte fulvis, alis vitreis longis acuminatis sat angustis, stigmatе nigricante, venis albis nigro-fasciatis, alis posticis brevioribus.

Male.—Black: head reddish above along the eyes, yellow in front and beneath; palpi yellow; antennæ short, capitate, with testaceous rings; prothorax rather long, slightly conical, with five reddish stripes, yellow beneath; mesothorax and metathorax well developed, also striped, but less regularly; pectus reddish; abdomen with two testaceous stripes, much shorter than the wings; legs pilose, spinose, very stout, rather long, partly tawny; spurs as long as the first joint of the tarsi; wings vitreous, long, acuminated, rather narrow; stigma blackish; veins white, mostly with black bands; hind-wings much shorter and a little narrower than the fore-wings.

Length of the body 14 lines; of the wings 32 lines.

This species may be included in a group with *M. feralis*, *M. distinctus* and *M. fundatus*.

Myrmeleon obducens.

Mas.—Nigricans, gracilis, capite flavo supra nigricante fasciis duabus flavescentibus, antennis sub-clavatis annulis flavescentibus, prothorace vittis tribus flavescentibus, mesothorace

et metathorace vittis duabus lateralibus flavis, abdomine alis vix brevior, pedibus testaceis nigro-subnotatis, alis vitreis angustis acuminatis, punctis exterioribus nigricantibus, anticis litura postica interiore nigra.

Male.—Blackish, slender: head above with two slender yellowish bands; face and underside yellow; antennæ sub-clavate, moderately long, with yellowish rings; prothorax with three yellowish stripes, yellow beneath; mesothorax and metathorax with two yellow lateral stripes; abdomen almost as long as the wings; hind borders of the 1st and 2nd segments whitish, of the following segments tawny; legs testaceous, slender, moderately long, slightly marked with black; wings vitreous, narrow, acuminate, with a few blackish points towards the tips; stigma brownish, not distinct; veins mostly pale, minutely ciliated; fore-wings with a black mark near the hind border at somewhat beyond one-third of the length; hind-wings not shorter, but a little narrower than the fore-wings.

Length of the body 14 lines; of the wings 26 lines.

Hindustan.

Myrmeleon incuratus.

Mas.—Niger, gracilis, nitens, capite maculis duabus testaceis, antennis clavatis breviusculis, thorace vittis duabus testaceis, abdomine piceo-pubescente, pedibus fulvis, posticis testaceis fusco-subnotatis, alis vitreis, stigmatibus albidis, venis pallidis.

Male.—Black, slender, shining: head with two testaceous spots on each side above, and with some testaceous points beneath; mouth testaceous; antennæ clavate, rather short; thorax with a testaceous stripe along each side; borders of the segments partly testaceous; abdomen piceous, pubescent, shorter than the wings; legs tawny, slender, not long; hind pair testaceous, slightly marked with brown; wings vitreous, moderately broad, very iridescent; stigma whitish; veins pale, ciliated; hind-wings narrower, but hardly shorter than the fore-wings.

Length of the body 11 lines; of the wings 24 lines.

Natal.

Myrmeleon perplexus.

Mas.—Piceus, gracillimus, capite testaceo, vertice piceo lineis transversis testaceis, antennis capitatis testaceo-annulatis, thorace vittis tribus testaceis, abdomine pubescente, pedibus tes-

taceis, alis vitreis acuminatis perangustis, venis posticis fusco-nebulosis, stigmate nigricante.

Male.—Piceous, very slender: head above with transverse testaceous lines; face and underside testaceous; antennæ short, capitate, with testaceous rings; thorax with three testaceous stripes; the middle one slender; abdomen pubescent, shorter than the wings; legs testaceous, short, slender; wings vitreous, acuminate, very narrow; veins white, with black bands, those along the apical part of the hind border clouded with brown; forewings a little broader, but not longer than the hind-wings; stigma blackish; veins along most of the length of the hind border clouded with brown.

Length of the body 9 lines; of the wings 19 lines.

Hindustan.

Myrmeleon ambiguus.

Fœm.—Niger, gracilis, capite lituris flavis, antennis clavatis testaceo-lineatis, thoracis segmentis testaceo-marginatis, prothorace guttis duabus testaceis, abdomine breviusculo maculis dorsalibus elongatis testaceis, pedibus testaceo-vittatis, alis vitreis angustis, stigmate venisque albis.

Female.—Black, slender: head yellow along the eyes, and with some yellow marks above; antennæ short, clavate, with a testaceous line; thorax with the borders of the segments testaceous; prothorax with a testaceous dot on each side in front; abdomen much shorter than the wings, with an elongated dorsal testaceous spot on each segment; legs rather slender, not long, striped with testaceous; wings vitreous, narrow; stigma white; veins white, fewer than in most species, very minutely ciliated; hind-wings a little narrower and shorter than the fore-wings.

Length of the body 9 lines; of the wings 20 lines.

Myrmeleon contractus.

Mas.—Niger, subtus testaceus punctis nigris, capite testaceo guttis nigris fasciaque antica lata ferruginea, antennis clavatis testaceo-annulatis, thorace vittis duabus latis testaceis nigro-notatis, abdomine brevi fasciis testaceis, pedibus testaceis nigro-fasciatis, alis vitreis obtusis, stigmate venisque albis, alarum anticarum venis nonnullis fusco-nebulosis.

Male.—Black: underside testaceous, with some black points; head testaceous, with several black dots above, and with a broad ferruginous band on the face; antennæ clavate, short, with testa-

ceous rings; thorax with a broad testaceous black marked stripe on each side; abdomen little more than half the length of the wings, with irregular testaceous bands; legs testaceous, short, with a few black bands; wings vitreous, obtuse, moderately broad; stigma white; veins white, slightly ciliated; fore-wings with the veins along the subcosta, and with a few in the disk, clouded with brown; hind-wings a little shorter and narrower than the fore-wings, with one brown dot in the exterior hind part of the disk.

Length of the body 6 lines; of the wings 18 lines.

Hindustan.

Myrmeleon eccentricus.

Mas.—Niger, gracillimus, capitis lituris palpisque testaceis, antennis testaceis longis sub-filiformibus apice nigris, thorace vittis quatuor albido-testaceis, prothorace longissimo, mesothoracis et metathoracis lateribus rufescentibus, abdomine lituris lateralibus ventreque testaceis, pedibus testaceis longis, alis longis acutis vitreis nigricante variis apices versus fuscis, costa apicali subrosea, alis posticis angustioribus longioribus apices versus valde attenuatis.

Male.—Black, very slender: head reticulated with testaceous above, and with a testaceous mark towards the mouth; eyes æneous; palpi testaceous, short; antennæ testaceous, long, slender, hardly thicker towards their tips, which are black; thorax with four slender whitish testaceous stripes; prothorax very long; mesothorax and metathorax reddish on each side; abdomen much shorter than the wings, mostly testaceous beneath, and with some elongated testaceous marks on each side above; legs testaceous, long, slender, with some black points; wings long, acute, quite vitreous, very iridescent, with some black points along the sub-costa and along the hind border, interruptedly brown towards their tips, where the costa is somewhat rosy; veins black; fore-wings moderately broad, with an irregular oblique blackish band near the base, and with two blackish patches; the 1st on the costa, the 2nd on the middle of the hind border, a little beyond the 1st; hind-wings narrower and longer than the fore-wings, much attenuated towards the tips, with an oblique blackish patch on the hind border.

Length of the body 15 lines; of the wings 40 lines.

Natal.

This species, with *M. singularis* and *M. circuiter*, forms a group

which is more remote than any other from the typical character of the genus, and is closely allied to *Chrysopa*.

Myrmeleon insolitus.

Mas.—Testaceous, gracilis, capite atomis fasciisque duabus anticis nigris, antennis sub-clavatis rufescentibus apice nigris, thorace vittis quatuor nigris, prothorace longo, abdomine fasciis latis diffusis nigricantibus, pedibus longis nigro-fasciatis, alis longis angustis vitreis fusco-variis, stigmato albo, venis albis nigro-fasciatis.

Male.—Testaceous, slender: head above minutely speckled with black; face with two black bands; palpi short; antennæ sub-clavate, reddish, with black tips; thorax with four black stripes, which are very broad on the mesothorax, and are almost connected on the metathorax; prothorax long; abdomen shorter than the wings, with broad diffuse blackish bands; legs long, slender, with black bands; spurs as long as the 1st and 2nd joints of the tarsi; wings vitreous, long, narrow, acuminate; stigma white; veins white, with black bands; fore-wings with several various brown marks, and with two exterior brown patches, one on the costa, the other on the hind border; tips brown; hind-wings a little narrower and shorter than the fore-wings; their brown marks fewer.

Length of the body 13 lines; of the wings 29 lines.

Hindustan.

This species approaches closely to the preceding group, but is rather less remote from the usual generic form.

Myrmeleon peculiaris.

Fœm.—Nigricans, gracilis, capite fasciis interruptis testaceis, palpis brevissimis, antennis fulvis longis sub-clavatis apice nigricantibus, thorace vitta testacea, prothorace longo, abdomine ferrugineo basi nigricante, segmentis testaceo-marginatis, pedibus testaceis longissimis nigro-fasciatis, alis vitreis apices versus nigricante fuscis, stigmatate subroseo, alis anticis rotundatis striga postica obliqua nigro-fusca, posticis acuminatis longioribus, maculis quatuor sub-apicalibus albis.

Female.—Blackish, slender: head with interrupted testaceous bands; eyes æneous; palpi very short; antennæ tawny, long, sub-clavate, with blackish tips; thorax with a testaceous stripe, which is dilated and abbreviated hindward; prothorax long; abdo-

men ferruginous, much shorter than the wings, blackish at the base; hind borders of the segments testaceous; legs testaceous, slender, very long, with black bands; spurs as long as the 1st and 2nd joints of the tarsi; wings vitreous, moderately broad; apical third part blackish-brown; stigma pale rosy; veins white, with black bands; fore-wings rounded at the tips, about which the blackish-brown hue is paler and slightly interrupted; an oblique blackish-brown streak on the hind border before the middle; veins slightly clouded along a line in the disk; hind-wings acuminate, longer, but hardly narrower, than the fore-wings; blackish-brown part containing four white spots, two in front and two behind.

Length of the body 12 lines; of the wings 32 lines.

Brazil.

It is allied to *M. gratus*, and represents in America the above-mentioned group, of which *M. circuiter* and *M. singularis* are especially characteristic.

Genus ASCALAPHUS, Fabr.

Ascalaphus leucostigma.

Fœm.—Piceus, nigro-pilosus, capite apud os testaceo, antennis fulvis corporis dimidio non longioribus clava nigra, thorace maculis testaceis, pedibus testaceis, tarsis nigris, alis vitreis longis, stigmatibus albo, venis nigris, alis anticis apud costam fuscis.

Female.—Piceous: head and thorax thinly clothed with black hairs; head testaceous towards the mouth; antennæ tawny, half the length of the body; club black; thorax with some dull testaceous spots; abdomen bare, much shorter than the wings; legs testaceous; tarsi black; wings vitreous, long; stigma white; veins black; fore-wings brown along the costa.

Length of the body 16 lines; of the wings 37 lines.

Allied to *A. contrarius*, *A. loquax* and *A. longus*.

Amazon region.

Ascalaphus unicus.

Mas.—Piceus, capite pilis densis nigris, vertice testaceo, antennis rufis nigro-annulatis basi pilosis apice nigris corpore valde longioribus, thorace vitta latissima testacea, abdomine supra saturate rufo, pedibus ferrugineis, alis anticis vitreis basi fuscescentibus, macula apicali guttisque duabus sub-apicalibus

fuscis, punctis sub-costalibus nigris, posticis cupreo-fuscis macula limpida costali sub-apicali.

Male.—Piceous: head thickly clothed with black hairs, testaceous above; antennæ red, with black rings, almost wholly black towards the tips, pilose towards the base, much longer than the body; thorax pilose, with a very broad testaceous stripe; abdomen deep red above; legs ferruginous; fore-wings vitreous, brownish at the base, with a brown apical spot, and with two brown sub-apical dots, one on the costa, the other on the hind border; a row of sub-costal black points; hind-wings cupreous brown, with a limpid costal sub-apical spot; hind border dilated and forming a rounded angle.

Length of the body 10 lines; of the wings 26 lines.

Allied to *A. subiratus*.

South America.

Ascalaphus sublugens.

Mas.—Piceus, capite pilis densis cinereis, antennis nigris corpore non brevioribus apices versus rufescentibus, abdomine vitta dorsali rufa, pedibus ferrugineis, alis sub-cinerascentibus, venis nigris, alis anticis stigmatate testaceo, alis posticis margine postico plaga sub-apicali punctisque costalibus fuscis, stigmatate nigro.

Male.—Piceous; head thickly clothed with dark cinereous hairs; antennæ black, mostly reddish towards the tips, as long as the body; thorax pilose; abdomen much shorter than the wings, with a red dorsal stripe, which is obsolete towards the tip; legs ferruginous; wings slightly greyish; veins black; fore-wings with a testaceous stigma; hind-wings with brown points along the costa, brown along the hind border, and with a dark brown sub-apical patch; stigma black.

Length of the body 9 lines; of the wings 22 lines.

This species is probably South American, and is allied to *A. Surinamensis*, and to *A. inhonestus*; it also resembles *A. limbatus*.

Ascalaphus intractabilis.

Fœm.—Ferrugineus, robustus, albido-pilosus, antennis nigris corpore vix brevioribus, abdomine breviusculo maculis indistinctis testaceis, femoribus tibiisque posticis testaceis, alis longis vitreis, vitta exteriori interrupta informi.

Female.—Ferruginous, stout: head and thorax clothed with whitish hairs; head clothed with black hairs in front; antennæ

black, nearly as long as the body; abdomen with indistinct testaceous spots, hardly more than half the length of the wings; hind femora and hind tibiæ testaceous; wings long, vitreous, with an interrupted and somewhat diffuse exterior black stripe; stigma black; veins white, partly black.

Length of the body 13 lines; of the wings 42 lines.

West Africa.

Ascalaphus flavilinea.

Fœm.—Niger, capite testaceo, vertice piceo, antennis nigris basi testaceis corpore brevioribus, thorace fasciis duabus anticis interruptis vittisque quatuor flavis, pectore vittis obliquis flavis, abdomine vittis tribus luteis, pedibus flavis, tarsis nigris, alis vitreis, venis stigmatæque nigris, vena sub-costali flava.

Female.—Black: head testaceous, with pale hairs; vertex piceous, with black hairs; antennæ black, testaceous at the base, shorter than the body; thorax with two yellow interrupted bands in front and with four irregular yellow stripes; pectus with oblique yellow stripes on each side; abdomen much shorter than the wings, with three luteous stripes; legs yellow; tarsi black; wings vitreous; veins and stigma black; sub-costal vein yellow.

Length of the body 13 lines; of the wings 34 lines.

Natal.

Ascalaphus decrepitus.

Fœm.—Niger, pilis densis canis, facie testacea, thorace vittis duabus anticis interruptis luteis, abdominis segmentis luteo-marginatis, tibiis flavo-bifasciatis, unguibus rufis, alis vitreis sat angustis, stigmatæ venisque nigris.

Female.—Black: head, thorax, pectus and abdomen at the base thickly clothed with hoary hairs; face testaceous; thorax with an interrupted luteous stripe on each side in front; abdomen with a luteous band on the hind border of each segment; tibiæ with two yellow bands; ungues red; wings vitreous, rather narrow; stigma and veins black.

Length of the body 14 lines; of the wings 32 lines.

Hindustan.

This species and the preceding one belong to the group which also includes *A. tessellatus*, *A. segmentator*, *A. involvens* and *A. sinister*.

Fam. PSOCIDÆ.

Genus Psocus, Fabr.

Psocus reponens.

Niger, niteus, capite testaceo, antennis sub-pubescentibus corpore longioribus, thorace vittis duabus testaceis, pedibus piceis, femoribus fulvis, alis anticis fasciis quatuor fuscis, 3a antice furcata.

Black, shining: head testaceous; antennæ minutely pubescent, longer than the body; thorax with two testaceous stripes; legs piceous; femora mostly tawny; wings vitreous; veins white; fore-wings with four dark brown bands; the first united to the second, and the third to the fourth, by the hind border; the third forked towards the costa.

Length of the body 2 lines; of the wings 6 lines.

South America.

Fam. EPHEMERIDÆ.

Genus EPHEMERA, Lin.

Ephemera dislocans.

Picea, subtus ferruginea, thoracis pectorisque lateribus abdominisque apice testaceo-notatis, setis corpore longioribus, pedibus nigris, femoribus ferrugineo-fasciatis, alis anticis vitreis nigro transverse strigatis.

Piceous, ferruginous beneath: sides of the thorax and of the pectus and tip of the abdomen with some testaceous marks; setæ much longer than the body; legs black; femora with ferruginous bands; wings quite vitreous; fore-wings with regular transverse black marks along the costa, and with irregular transverse black streaks in the disk; transverse veins rather few, mostly clouded with black.

Length of the body 4 lines; of the wings 8 lines.

Cape of Good Hope.

Genus POTAMANTHUS, Pictet.

Potamanthus expectans.

Testaceous, thorace vittis duabus abbreviatis nigris, abdomine lineis quatuor nigris, setis pubescentibus corpore vix brevioribus, alis testaceis, venulis transversis nigris.

Pseudimago.—Testaceous: thorax on each side with a black stripe, which is abbreviated hindward; abdomen with four black

lines; setæ pubescent, nearly as long as the body; wings testaceous; veins testaceous; transverse veinlets black.

Length of the body 5 lines; of the wings 12 lines.

Hindustan.

GENUS PALINGENIA, Burm.

Palingenia continua.

Mas.—Picea, vitta lata albedo-testacea, setis validis corpore longioribus, pedibus ferrugineis, alis sub-cinereis, venis nigris robustis, venulis transversis plurimis distinctissimis.

Male.—Piceous, with a broad whitish testaceous stripe, which extends from the head to the tip of the abdomen: setæ stout, much longer than the body; legs mostly ferruginous; wings greyish; veins black, stout; transverse veins numerous, very distinct.

Length of the body 6 lines; of the wings 12 lines.

Amazon Region.

Palingenia annulifera.

Albedo-testacea, thorace vittis duabus anticis albis, abdomine vittis duabus lateralibus guttisqne dorsalibus nigris, setis albis nigro-annulatis corpore multo longioribus, pedibus albidis nigro-fasciatis, alis vitreis, venis albis, venulis transversis apud costam fusco-nebulosis.

Whitish testaceous: thorax with two white stripes in front; abdomen with a black stripe along each side, and with a minute black dot on the hind border of each segment; the two setæ white, with black rings, very much longer than the body; legs whitish, with some black bands; wings vitreous; veins white; transverse veins towards the costa clouded with brown.

Length of the body 3 lines; of the wings 8 lines.

Hindustan.

GENUS CLÖEON, Leach.

Clöeon debilis.

Fulva, capite nigro, abdomine testaceo, setis pedibusque albis, illis corpore longioribus, alis vitreis, venis albis.

Tawny: head black; abdomen testaceous; setæ and legs white, the former longer than the body; wings quite vitreous; veins white.

Length of the body $2\frac{1}{2}$ lines; of the wings 6 lines.

Hindustan.

Bibliography of the Neuropterida

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