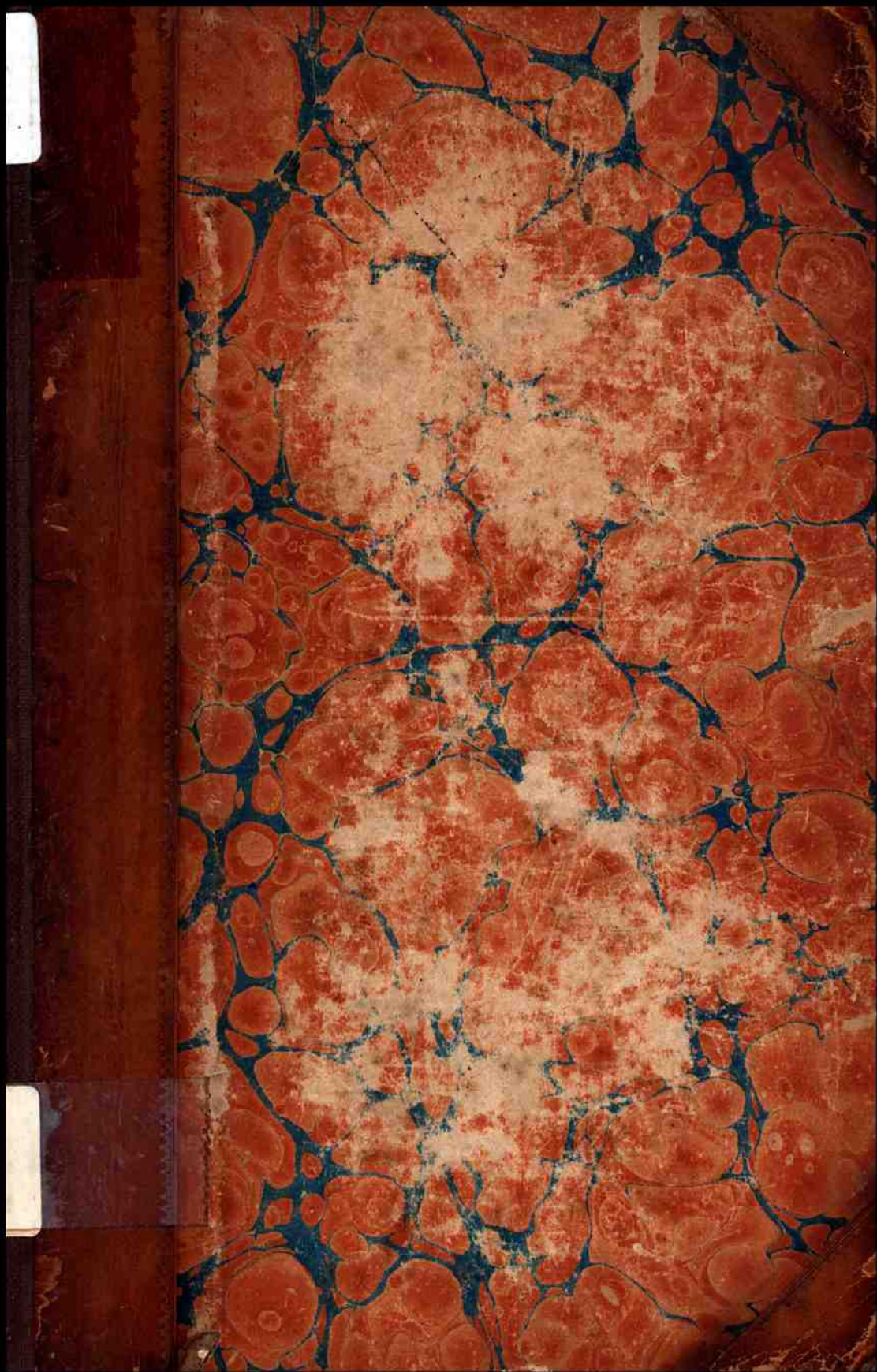




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ILLUSTRATIONS
OF
BRITISH ENTOMOLOGY;

OR, A
Synopsis of Indigenous Insects:

CONTAINING
THEIR GENERIC AND SPECIFIC DISTINCTIONS;

WITH
AN ACCOUNT OF THEIR METAMORPHOSES, TIMES OF
APPEARANCE, LOCALITIES, FOOD, AND ECONOMY,
AS FAR AS PRACTICABLE.

BY JAMES FRANCIS STEPHENS, F.L. AND Z.S.

V. PRESIDENT OF THE ENTOMOLOGICAL SOCIETY OF LONDON, ETC.

EMBELLISHED WITH COLOURED FIGURES OF THE RARER AND
MORE INTERESTING SPECIES.

MANDIBULATA.
VOL. VI.



"In his tam parvis tamque ferè nullis quæ ratio ! quanta vis ! quam inextricabilis perfectio !" — *Plin.*

"Finis Creationis Telluris est gloria DEI, ex opera Naturæ, per Hominem solum." — *Linne.*

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ILLUSTRATIONS[~]

OF

BRITISH ENTOMOLOGY.

ORDER II.—DERMAPTERA, *De Geer.*

Wings very broad, ovate-triangular, with radiating nervures, folded longitudinally and transversely; stigma large, coriaceous, projecting (during repose) beyond the *melytra*, which are short, subquadrate, with a straight suture (as in the Coleoptera), and truncate at the apex. *Body* linear, nine-jointed in the males, seven-jointed in the females, and furnished at the apex with horizontally moveable appendages, more or less curved in the males, and straight in the females. Metamorphosis semicomplete.

Although probably this order is not of equal value with the Coleoptera or Orthoptera, nevertheless I shall still consider it as distinct, as placed in the commencement of the first volume; with the former it agrees in having coriaceous elytra, destitute of nervures, and united by a straight suture; while it differs therefrom in its trophi, in which it agrees with the Orthoptera, but from them its elytra remove it. The order at present consists of a single family, whence its relative value becomes questionable: it was established by Kirby, in the Linnean Transactions, as the suggestion of Leach, but De Geer had previously noticed it, and his name is employed.

FAMILY I.—FORFICULIDÆ *mhi.*

Antennæ filiform, the articulations distinct, variable in number, the basal one most robust, the second smallest, the remainder more or less inconstant in length; *palpi* filiform, with the terminal joint oblong-cylindric; *labrum* rounded, entire; *mandibles* curved, bifid at the apex; *head* scarcely broader than the thorax, flat, porrected; *eyes* slightly prominent; *thorax* somewhat quadrate, flat, especially on the sides; *body* slightly convex above and below, and armed at the tip with forceps; *legs* remote, nearly equidistant and simple, formed for running; *tarsi* triarticulate, the intermediate joint very short, and sometimes bilobed.

The only family of this order is the present; the insects of which it consists are very lively and active; the larva and pupa resembling the imago, excepting that they have only the rudiments of wings, and the anal appendages are less produced; the eggs are white and shining, and are deposited in dung-hills, under clods of earth, &c., and the parent is said to attend them with great care until hatched, when she equally superintends the young larvæ.

The following genera have been distinguished, which may be known by the subjoined concise characters:—

<i>Tarsi articulo</i>	bifido: <i>antennæ articulis</i>	12—14; Alati:	1. FORFICULA.
<i>intermedio</i>	}	Apteri:	2. CHELIDURA.
		simplice: <i>antennæ articulis</i>	{ 10—12: . 3. LABIA.
		20 aut plurimis:	4. LABIDURA.

GENUS I. FORFICULA *Auctorum*.

Antennæ moderate, consisting of from thirteen to fifteen joints, of which the basal one is somewhat robust, but attenuated towards the base, second very short, third nearly as long again as the second, fourth of the same length as the second, the remainder slender, elongate-cylindric, the terminal one being obtuse. *Palpi* moderate, rather slender, the terminal joint a little attenuated towards the apex, which is truncate; *head* somewhat triangular; *thorax* truncate anteriorly, with the angles nearly straight, or rounded posteriorly; *body* glabrous; *wings* ample; *abdomen* in the males with the caudal appendage curved and acuminate at the apex, the base dentate within; in the female nearly straight, and slightly crenulated within; *tarsi* with the intermediate joint bilobed.

The insects of this genus, known by the familiar name of *earwigs*, from their supposed propensity to penetrate into the ear, arising simply from their endeavour to secrete themselves from the light, when accidentally disturbed and falling upon the human head, are extremely vivacious and nimble, but, at least in this country, rarely employ their beautiful wings in flight: they differ from the other genera by having the intermediate joint of the tarsi bilobed, from bearing wings, and in the relative number of articulations of the antennæ; but from the extreme liability of these organs to fracture, owing to the nimbleness of the insects, some of the terminal joints are frequently wanting during the life of the animal.

Sp. 1. *auricularia*. PLATE xxviii. f. 1. forceps.—*Rufa-picea, elytris pallidioribus, pedibus thoracisque marginibus pallide testaceis, capite ferrugineo antice nigricanti, forcipe brevi, semicirculari, testacea apice nigrescenti fæminæ subrecta*. (Long. corp. 6—8½ lin.)





J.O. Westwood del.

London, Published by J. & Stephens, 7. Oct. 1834.

G.E. Whittell sc.





Fo. auricularia. *Linné*.—*Wood*, i. pl. 30.—*Steph. Catal.* i. 299. No. 3299.

Head ferruginous, more or less dusky in front, eyes black; thorax much depressed, black, with pale margins; elytra about one-fourth the length of the abdomen, pale red; abdomen of a rusty-black, or pitchy-red, the margins of the segments sometimes paler; the apex in the males furnished with a pair of abbreviated, somewhat semicircularly curved forceps, armed with a tooth within at the base, meeting at the tip; in the female they are nearly straight, being faintly incurved towards the apex, and very finely crenulated within; in both sexes they are testaceous, with the apex dusky; legs very pale testaceous; in immature specimens nearly white.

The difference in the form of the forceps, exclusively of other distinctions, as shown in the accompanying figures, will enable the reader to understand the species.

Extremely abundant in gardens throughout England, and very injurious to flowers by destroying the petals, to the great annoyance of the floriculturists.

Sp. 2. media. *PLATE xxviii. f. 2. forceps*.—*Capite ferrugineo oculis thoraceque nigris, hoc marginibus elytris pedibusque pallidis, forcipe subelongata tenue, pallida, in femina subincurvata.* (Long. corp. $4\frac{2}{3}$ — $7\frac{1}{2}$ lin.)

Fo. media. *Marsham*.—*Steph. Catal.* i. 299. No. 3300.

Head ferruginous; eyes and thorax black, the margins of the latter broadly pale; elytra, legs, and forceps, very pale, the latter slightly elongate, very slender, not semicircular, and in the females somewhat incurved at the apex; abdomen pale testaceous, dusky on the terminal segment; antennæ pale.

Not common; found in the vicinity of London, and at "Cambridge."—*C. C. Babington, Esq.*

Sp. 3. borealis. *PLATE xxviii. f. 3. forceps*.—*Capite toto ferrugineo, oculis atris, thorace nigro marginibus pallidis, elytris testaceis, abdomine ferrugineo-testaceo, forcipe subelongata subelliptica picea basi pallida, in femina subrecta, apice decussata.* (Long. corp. 7—10 lin.)

Fo. borealis. *Leach MS.*—*Steph. Catal.* i. 299. No. 3301.

Head entirely ferruginous; eyes black; thorax short, black, with the lateral margins broadly pale; elytra dull-testaceous; abdomen rusty-testaceous, somewhat pitchy at the base of each segment, and very finely punctured, the terminal segment broad, very faintly punctured, with an obtuse lateral protuberance, and at the apex two tubercles, with a small fovea between them anteriorly; forceps slightly elongated, the two sides forming somewhat of an elliptic figure, the base pale red, the inside and towards the apex pitchy, at the base within a small tooth; nearly straight, but similarly coloured in the female; legs pale-reddish.

Extremely abundant in some parts of the country, on oaks, espe-



cially at Darenth wood, in June: it also occurs in plenty at Dover, and near Edinburgh. "Berwick upon Tweed."—*C. C. Babington, Esq.*

Sp. 4. forcipata. PLATE xxviii. f. 4.—*Capite toto ferrugineo, oculis atris, thorace pallido vitta longitudinali atra, elytris pallide testaceis, abdomine ferrugineo-testaceo, forcipe elongata paullo incurvata pallida, apice picea, in fœmina subrecta, apice decussata.* (Long. corp. 8—10 lin.)

Fo. forcipata. *Steph. Catal.* i. 299. No. 3302.

Head totally ferruginous; eyes black; thorax pale, with a broad longitudinal streak; elytra pale testaceous; abdomen rusty-testaceous, finely punctured, and with the terminal segment as in *Fo. borealis*, and armed in the male with a pair of very long forceps, which are slightly incurved, armed with a large triangular tooth within rather distinct from the base, of a pale red, with the extreme inner edge and the apex somewhat pitchy; in the female nearly straight, being only a little decussating at the apex; legs very pale, with straight tibiæ.

Less abundant than the last: found at Coombe wood on high trees, and also in the New Forest. "Bath."—*C. C. Babington, Esq.*

GENUS II.—CHELIDURA, Latreille?

Antennæ moderate, twelve-jointed, the basal one stout, the second very minute, third rather slender and longish, the remainder of nearly equal length and form, the terminal one long, a little ovate at the apex. *Palpi* as in *Forficula*; *head* small, rounded-triangular; *thorax* quadrate, depressed; *body* glabrous; *elytra* short, truncate; *wings* none; *abdomen* slightly widened towards the apex, the base with an elongate carina on each side, the apical joint with four tubercles, with a truncate-quadrate projection between the forceps, which are remote at their origin, slightly bent, and have a tooth in the middle of the inner edge in the male; they are nearly straight and simple, but remote in the female.

Not having Latreille's *Familles Naturelles* to refer to, I am not positive that this is really synonymous with his genus *Chelidura*, but I believe that I am correct. I am equally uncertain as to the name of the species, from being unable to obtain a sight of Hagenbach's *Fauna Helv.*, to which Charpentier refers, without describing the insect, but in his observations he notices sufficient to enable me to arrive at the fact. The present genus not only differs from *Forficula* in being totally apterous, but in having the forceps remote at their origin, as in *Labidura*, with a tooth in the middle of the inner edge, and a quadrate appendage to the terminal joint of the abdomen



between them; the number of articulations in the antennæ is fewer than in Forficula, with which genus it agrees in having bilobed tarsi.

Sp. 1. albipennis? PLATE XXVIII. f. 5. forceps.—*Testaceo-pallida fronte nigricante, thoracis medio abdominisque vittâ abbreviata laterali nigris, forcipe elongatâ subrectâ, apicē paullo incurvatâ latera interno dente medio instructâ, in fœmina fere rectâ.* (Long. corp. 4—5 lin.)

Fo. albipennis. *Charpent. Horæ Ent.* 68.—Fo. media. *Hugentbach, Faun. Helv.* p. 16, f. 7?—*Steph. Nomen.* 2d edit. Appendix.—Fo. centralis. *Westwood MS.*

Very pale testaceous, the head rather dusky in front; the middle of the thorax obscurely black; the abdomen with a distinct abbreviated black streak on each side at the base, the segments to which it extends having an elevated line: the forceps are long, not very much bent, being a little incurved at the tip, and on their inner edge bear a single triangular tooth in the middle, and at the base are a little waved: in the female the forceps are very slightly incurved at the extreme tip only; and in both sexes they are entirely pale.

The colours are occasionally a trifle darker in tint.

The only examples I have seen of this very distinct species were taken at "Ashford, Kent, June."—*J. C. Westwood, Esq.*, to whom I am indebted for the insect and the loan of his specimens.

GENUS III.—LABIA, *Leach.*

Antennæ short, rather stout, consisting of from ten to twelve joints, basal one stoutish, second very short, third not so long as the fourth, which is stouter, and exceeds the second in length; remainder gradually increasing in length, somewhat elongate-ovate, and stoutish, the terminal joint shortish and more slender. *Palpi* short, slender, terminal joint truncate pubescent; *head* rounded; *thorax* slightly rounded in front, with all the angles rounded; *body* pubescent; *abdomen* with the caudal appendage in the male slightly incurved, and armed with numerous minute denticulations within, in the female straight and simple; *tarsi* with the intermediate joint simple.

From Forficula the simple intermediate joint of the tarsi, in addition to the dissimilarity of the forceps, as also the fewer joints of the antennæ, distinguish Labia, as the latter character will from Labidura, in addition to other discrepancies—the present genus consists of but one indigenous species, which is extremely active, and flies elegantly in the sunshine, whereas the true Forficulæ very rarely fly, at least in this country.



Sp. 1. minor. *Pubescens, testacea, capite nigricante, ore pallido, thorace fusciscente, elytris pallidis, antennis fuscis apice albidis.* (Long. corp. 3—4 lin.)

Fo. minor. *Linne.*—*La. minor. Samouelle, pl. 4. f. 16.*—*Steph. Catal. i. 299. No. 3303.*

Pubescent; head dusky, rather pale; eyes black; thorax rather fusciscent, finely punctured; elytra very pale, and also very finely punctulated; abdomen reddish, black in the middle, the terminal segment in the male with a ridge, and armed with slightly incurved forceps, which are furnished within with numerous equal denticulations: in the female they are straight and scarcely denticulated; legs pale yellowish.

Very abundant in the spring, throughout the metropolitan district, flying about in gardens and near stables, &c., especially in the vicinity of dung-heaps. “Berwick-on-Tweed.”—*C. C. Babington, Esq.*

GENUS IV.—LABIDURA, *Leach.*

Antennæ rather long and slender, with about twenty-five joints, the basal one stoutish, second minute, third rather longer than the fourth and fifth (which are scarcely longer than the second) united, the five or six following also short and stoutish, but gradually increasing in length and decreasing in breadth; the remainder are slender and elongate, and not very distinctly separated, each articulation being about equal in length to the third. *Palpi* rather long, terminal joint somewhat rounded at the apex; *head* elongate, triangular, wider than the *thorax*, the latter truncate, and with acute angles in front, rounded behind, the disc much depressed; *body* glabrous; *abdomen*, in the males, with the caudal appendage remote at the origin, slightly curved upwards and approximating at the apex, denticulated behind the middle within; in the females approximating at the base, denticulated within from thence nearly to the apex, the tips decussating; *tarsi* pubescent beneath, with the intermediate joint simple.

Exclusively of the form of the forceps, which are remote at their origin, and of the intermediate joints of the tarsi, the numerous abbreviated articulations of the antennæ remove this genus from *Forficula*, as the last character does from *Labia*.

Sp. 1. *gigantea. Ochreo-pallida, supra nigro variegata, ano bidentato, forcipe porrecta unidentata.* (Long. corp. 1 unc. 3—5 lin.)

Fo. *gigantea. Fabricius.*—*Donovan, v. xiv. pl. 500.*—*La. gigantea. Steph. Catal. i. 299. No. 3304.*

Pale, with a reddish or ochreous tinge; eyes black; thorax with two dusky black streaks on the disc, placed obliquely, the margins very pale, the disc with a longitudinal channel; elytra also with an oblique blackish streak;



abdomen with the base of each segment, excepting the terminal one, both above and below, broadly black, and punctured, the terminal one with two short dusky teeth, immaculate and impunctate; forceps slightly rufescent, the apex and tooth dusky; legs and antennæ very pale.

This splendid species has hitherto been found only in the vicinity of Christchurch, where it occurred once in plenty, and numerous examples were secured by the late Rev. W. Bingley, from amongst which I have a fine series. Its native origin is questioned by Mr. Kirby, in his valuable Introduction to Entomology, from the circumstance of other examples not occurring,* but the practical entomologist need scarcely be reminded that various insects which at one season occur in swarms are not to be found subsequently for a long period.

ORDER III.—ORTHOPTERA, *Olivier.*

Wings four, unequal, anterior or elytra coriaceous, reticulated with nervures, more or less incumbent, covering the posterior or true wings, the latter longitudinally folded and ample, with reticulated nervures; mouth mandibulated; *legs* various. Metamorphosis semi-complete.

The insects of this order, which has been but little attended to in this country, are frequently of very large size; they may be known from the Dermaptera by having the elytra more or less lapping over at the apex of the suture, and in having their surface reticulated, the wings themselves are only folded longitudinally; the tibiæ, at least the posterior, are mostly very spinous; the males have the apex of the abdomen frequently armed with two processes, and the females have frequently a long, exserted, ovipositor: the larva and pupa resemble the imago, are very active and voracious, frequently remain above a year before they undergo their final change: their

* In refutation of such an opinion, the sudden appearance of swarms of *Endomychus coccineus* at Coombe wood, in the autumn of 1816, as noticed in vol. iv. p. 399, may be referred to, since which period only one or two stragglers have been there taken; as also the apparent disappearance of *Cucujus Spartii* in the same locality, for which insect, which occurred in profusion there two years since, I sought in vain on the 21st ult.; as well as the myriads of *Thecla W-album* at Ripley in 1827 (now apparently again lost, as I have not seen the insect there since), exclusively of numerous other examples that will immediately suggest themselves to the practical entomologist.



food is various, and like the insects of the preceding order, they will prey upon their own species: the indigenous species appear divisible into the following families, thus concisely distinguished:—

Corpus compressiusculum;

Tarsi 4-articulati; *pectus* laminatum: . . . 1. GRYLLIDÆ.

3-articulati;

Antennæ filiformes, breves; *alæ* simpliciter plicatæ: 2. LOCUSTIDÆ.

setaceæ, elongatæ; *alæ* subulato-complicatæ: 3. ACHETIDÆ.

applanatum, ovale; *tarsi* 5-articulati: . . . 4. BLATTIDÆ.

FAMILY I.—GRYLLIDÆ, Leach.

Tarsi four-jointed; *antennæ* very long, slender and setaceous; *head* large, vertical; forehead convex, sometimes acuminate in front; *eyes* vertical, more or less prominent; *thorax* flat above, the sides rather suddenly deflexed, rounded behind; *body* somewhat compressed, shining, glabrous; *breast* mostly with two oval foliated plates; *elytra* vertical, descending on each side, and often longer than the *abdomen*, the latter compressed with two processes at the apex in the male, and a lengthened compressed ovipositor in the female; *legs* elongate, approximating at the base; four anterior slender; posterior pair very much elongated, with large femora, and spinose slender tibiæ, which are tetragonal.

The insects of this family are nearly all of great bulk, arising principally from the length of their members, the antennæ and posterior legs especially, their body being comparatively short: they are chiefly found in the autumnal months, and frequent hedges by the sides of woods, or grassy places; some of them are very local, and appear to affect chalky regions; others are found on trees: the males of some species make a loud stridulous noise by the friction of the membranous *elytra*: the females have invariably a long exerted ovipositor.

The species of this family have hitherto been associated, at least in this country, under one genus, viz. ACRIDA, but their habit is so various as to call for divisions, and Mr. Curtis is even induced to observe, "it is difficult to find characters that will embrace even the insects that are now included in this genus." I shall, therefore, follow up the plan that has been lately sketched by Latreille and Serville, and endeavour to divide the indigenous species into genera, and which upon a *prima facie* appearance may be thus cursorily characterized:—

Vertex plus minus acuminatus; *oculi* prominuli, exserti:

Elytra brevissima, in fœminis nulla: 1. EPHIPPIGERA.
elongata:

Alæ incompletæ: 3. XIPHIIDION.
perfectæ, amplæ.

Elytris (in masculis) ocellatis; ♀ *ovipositore* incurvo: 4. MECONEMA.

(in utroque sexu) inocellatis; ♀ *ovipositore* recto: 5. PHASGONURA.

obtusus, latus; *oculi* vix prominuli, sessiles.

Elytra plus minus abbreviata: 2. MICROPTERYX.

abdomine longiora: 6. DECTICUS.

GENUS I.—EPHIPPIGERA, Latreille.

Body generally large, stout and heavy, slightly rugose, but rarely smooth; *eyes* small, globose, very prominent; *forehead* gibbous, with a tubercle between the *antennæ*, the latter inserted in a cavity between the tubercle and the eyes, the basal joint very robust, the second also stout, but smaller, the remaining joints very slender; *thorax* rounded above, with the sides somewhat deflexed, scabrous and unequal; *elytra* very short, arched and ocellated in the males; very minute, resembling a roughened scale in the females; *wings* none; *abdomen* with a deep groove beneath and at the apex in the males, with an ascending scale-like bimucronated process; in the females with a moderate, broad, incurved ovipositor; *legs* very slender.

The only indigenous species of this singular genus may be known by the very small size of the incumbent *elytra* in the males, and the almost total absence of these organs in the females, in which sex they are merely represented by a rugose scale; added to which the crown is acuminate and the eyes very prominent; and the apex of the abdomen in the male is furnished with a bimucronated ascending scale below, and of the female with a broad short incurved ovipositor.

Sp. 1. virescens. *Prasinus*, *thorace utrinque lineâ laterali albâ*. (Long. corp. ♂ 5—6 lin.; ovip. inc. 9—10 lin.)

Ac. virescens. *Steph. Catal. p. 300. No. 3309.*—*Barbitistes autumnalis*. *Charp. ?*—Lo. *autumnalis*. *Hagenbach, Symb. Faun. Ins. Helv. 25. fig. 14 ?*

Green, nearly glabrous; *thorax* with a narrow white line on each side, extending from the eyes to the hinder margin; *elytra* in the male rugose, depressed in the middle, and with a smallish ocellus towards the apex; in the female resembling two small semicircular scales of a bright green, and slightly shagreened.

In dried species the rich green fades to a dirty-brown, excepting the *elytra* and *ovipositor* of the female, which retain most of their brilliant tint; the *tibiæ* become reddish, &c.

Not common; found occasionally in August and September at Darenth and Birch woods, and also near Hertford, and in the New Forest and in Dorsetshire.

GENUS II.—MICROPTERYX* *mihi*.

Body moderately stout, glabrous; *eyes* scarcely prominent, sessile; *head* gibbous, front broad, obtuse, rounded; *antennæ* very slender, moderately long, inserted in a cavity between the eyes, the basal joint short and robust, second small; *thorax* somewhat flattened above, the sides suddenly and considerably deflexed, rounded behind, the posterior and lateral margins elevated; *elytra* rather short and incumbent, or longish and deflexed, ocellated in the males, sometimes appearing as a minute scale in the females, at others nearly as ample as in the males; *wings* none, or rudimentary; *abdomen* gibbous beneath, furnished at the apex above with two short acute processes, in the males beneath with two others, and in the females with an incurved ovipositor.

The insects of this genus may be recognized from the foregoing by having the elytra nearly as long as the abdomen, combined with a broad obtuse front, with the eyes scarcely prominent, and sessile: they frequent grassy places, and, from the brevity of their wings, they are found on the ground. Anisoptera, having been previously published, I have employed a new appellation here.

A. *Elytra* abbreviated and incumbent in the males; wanting in the females.

Sp. 1. aptera. *Grisea, capite thoraceque lævibus, lineâ utrinque laterali femoribusque posticis extus vitta longitudinali nigris, elytris maris brevissimis, femina nullis.* (Long. corp. ♂ 7—8; ♀ ovip. incl. 10—12 lin.)

Lo. aptera. *Fabricius*.—Ac. aptera. *Steph. Catal.* 300. No. 3305.

Griseous, or fuscous-brown; head large, smooth, broad, and rounded in front; antennæ longer than the body, testaceous, with the basal joint brown; thorax smooth, subconvex above, with a broad black streak on each side extending from the eyes to the hinder margin; elytra of the male very short, incumbent, the left one with a thickly veined opaque space, and the right one with a round pellucid space; female with two rounded flat scales in lieu of elytra, and both sexes destitute of wings; abdomen yellowish beneath; ovipositor in the female short, falcate, fuscous; posterior femora with a black streak at the base without.

Not common: I have taken it in a wood at Hertford, and also near Darenth in September. I have also obtained it from the New Forest.

* μικρος parvus, πτερον ala.



B. *Elytra* rather elongated in both sexes and deflexed.

Sp. 2. Roeselii. *Viridis vel testacea, thoracis lineâ dorsali postice elevatâ, margine omni thoracis partis deflexo albo seu flavido, abdomine vittis duabus sublateralibus atris, femoribus posticis externè vittâ nigrâ.* (Long. corp. ♂ 6—7 lin.; ♂ ovip. incl. 10—11 lin.)

Lo. Roeselii. *Hagenbach, Symb. Faun. Ins. Helv.* 39. f. 24.—Ac. Kirbii. *Steph. Catal.* 300. No. 3707.

Green or testaceous; thorax with an elevated dorsal line behind, the anterior margin of the deflexed portion white or yellowish, sometimes bright green; elytra horn-coloured, with a yellowish streak on the shoulders; abdomen with two black streaks towards the sides, and posterior femora with one on the outside at the base; ovipositor short and much curved.

This species appears to be very rare in this country. I have hitherto seen, so far as I remember, two examples only, which are in my own collection, and were found in the vicinity of the metropolis in the autumn, I believe at Hampstead.

Sp. 3. brachyptera. *Viridis vel grisea, thoracis lineâ postice elevatâ margine lateris deflexi postico albo, elytris margine antico et postico viridibus, interdum totis griseis, femoribus posticis internè et externè vittâ nigrâ.* (Long. corp. ♂ 5—6; ♀ ovip. incl. 9—11 lin.)

Gry. brachypterus. *Linne.*—Ac. brachyptera. *Steph. Catal.* 300. No. 3306. Ac. Kirbii. *Dale MS.*

Green or griseous; thorax with an elevated dorsal line behind, the hinder edge of its deflexed portion alone white; elytra with the anterior and posterior margins bright green, or entirely griseous in the females; posterior femora with a black streak at the base, both in the outer and inner surfaces, the inner one shortest; ovipositor of the female rather long and straightish.

Not uncommon in the New Forest, and occasionally in the vicinity of the metropolis: I have taken it at Coombe and Darenth woods, and also near Ripley, in July and August.

GENUS III.—XIPHIDION, Latreille.

Body rather slender, glossy; *eyes* prominent, exserted; *head* conspicuously acuminate in front; *antennæ* about thrice the length of the body, very slender, with the basal joint very robust, produced within, the second rather smaller, the other joints considerably attenuated; *thorax* rounded above, with the sides gradually deflexed; *elytra* more or less elongate, nearly or quite as long as the abdomen, ocellated in the males; *wings* small, or rudimentary; *abdomen* somewhat cylindric, with four very short styles at the apex in the males, and two in the females, the latter sex with a short slightly curved, or longish and nearly straight ovipositor.



The elytra are rather longer in this genus than in the insects of the foregoing, in addition to which the forehead is acute, and the eyes prominent and exserted; the wings are very short, but the antennæ are remarkably long and slender.

†Sp. 1. fusca. *Viridis, vertice, thoracis dorso, elytrisque fuscis, his longitudine abdominis, margine exteriore pallido; fæminæ ovipositore recto.* (Long. corp. 5—6 lin.?)

Lo. fusca. *Fabricius*.—Ac. fusca. *Curtis, fol. 82 (!)*—Ac. fusca. *Steph. Catal. 300. No. 3308.*

Green, with the crown, the back of the thorax and the elytra fuscous, the latter as long as the abdomen, and with the outer margin pale; ovipositor of the female straight.

I am not positive whether this species is truly indigenous; Mr. Curtis marks it as being in his collection, but as I know he possesses the following species, which he does not indicate, he may be in error.

Sp. 2. dorsalis. *Viridis aut testacea, striga lata brunnea in dorso verticis thoracisque, elytris corpore dimidio brevibus, antennis longissimis; fæminæ ovipositore subrecto, testaceo.* (Long. corp. 5—7½ lin.)

Lo. dorsalis. *Latr. Hist. Nat. Crust. &c. xi. 133.*—*Charp. Horæ Ent. 112. pl. 2. f. 4.*—Ac. dorsalis. *Steph. Nomen. 2d edit. col. 109.*

Green or testaceous, with a broad brown streak on the back of the crown and of the thorax; elytra half as long as the abdomen, the latter green, with paler rings, or testaceous-yellow; ovipositor in the female rather short, almost straight, being but slightly curved; antennæ very long and slender.

This insect is not unfrequently met with in the New Forest, and in the neighbourhood of London: it occurs towards the end of July or beginning of August. "Cambridge."—*C. C. Babington, Esq.*

GENUS IV.—MECONEMA, *Serville.*

Body rather slender and attenuated; *head* acuminate in front between the antennæ; these organs very long and slender, with the basal joint thick, the second also thickened, but considerably smaller than the first; maxillary *palpi* with the terminal joint rather short, and considerably thickened at the apex, which is truncate; *eyes* very prominent; *thorax* rounded above, and gradually deflexed on each side; *elytra* ample in both sexes, not ocellated in the males; *wings* also ample, as long as the elytra, which extend to the apex of the *abdomen*, this last in the males somewhat truncate, and furnished with two long incurved processes, in the females with a curved



ovipositor ; four anterior legs rather long and slender ; posterior comparatively short.

In this genus the elytra are as long as the abdomen, and in the males are not ocellated, by which character, added to the elongated incurved processes at the apex of the abdomen, and its acuminate forehead, that sex may be recognized, and the female by this last character, combined with the ample wings : one indigenous species only occurs, which frequents trees, and appears in the autumn.

Sp. 1. *varia*. *Flavescens, thorace viridi flavo-lineato, maculisque duabus nigricantibus, elytris viridibus*. (Long. corp. ♂ 7—8 lin.; ♀ ovip. incl. 10—12 lin.)

Lo. *varia*. *Fabricius*.—Gr. *varius*. *Donovan*, v. iii. pl. 79. f. 1.—Ac. *varia*. *Steph. Catal.* 301. No. 3314.

Yellowish, with a greenish tinge ; eyes brownish ; thorax smooth, green, with a yellow dorsal line, and two dusky, or black, spots towards the base, one on each side ; elytra green, with a testaceous streak at the base of the suture ; legs yellow ; tarsi brown.

Common in the autumn in oaks and lime-trees throughout the metropolitan district, especially about Hertford, and at Coombe wood and Ripley.

GENUS V.—PHASGONURA, *Westwood MS.*

Body elongate, stoutish, smooth ; front acuminate between the *antennæ*, the latter longer than the body, with the basal joint very robust and produced within, the second also robust, but much smaller ; the remainder extremely minute, and gradually diminishing in breadth to the apex ; *eyes* large, prominent ; *thorax* depressed above and flattened behind, where it bears an abbreviated ridge, the sides rather suddenly deflexed, the hinder margin rounded and produced ; *elytra* considerably longer than the abdomen, very much deflexed, immaculate, flat at the base of the suture, where in the male is an ocellar process, transparent on the right elytron ; *wings* ample, narrowish, as long as the elytra ; *breast* beneath with two spinous processes, and four elongate lobes ; *abdomen* of the males with four styles at the apex, and of the female with two and an elongate straight acute ovipositor ; *legs* moderate ; hinder femora with a groove beneath ; *tibiæ* spinous, posterior with two distinct rows of minute spines.

The only indigenous species of this genus may be known by having the vertex acuminate, and at the same time the eyes prominent, the elytra in the male much longer than the body, and ocellated at the base, the abdomen furnished at its apex with four short styles, and



in the female with a long, straight, compressed ovipositor; both sexes have two elongate, sharp, spiniform processes on the breast, at the base of the anterior legs, and four other long and obtuse lobes behind.

Sp. 1. *viridissima*. *Viridis, antennis capituli vertice, thorace fascia longitudinali elytrorumque suturâ fusco-ferrugineis, elytris corpore multo longioribus.* (Long. corp. ♂ 1 unc. 9—11 lin.; ♀ ovip. inc. 1 unc. 10 lin.—2 unc. 1 lin.)

Gry. *viridissimus*. *Linné.—Donovan, v. iv. pl. 130.—Ac. viridissima. Steph. Catal. 301. No. 3313.*

Bright grass-green; head shining, yellowish beneath the eyes, the vertex rusty-brown, which colour extends in a rather broad fascia along the back of the thorax, which has an abbreviated ridge behind, and some transverse wrinkles; suture of the elytra, and sometimes the strong longitudinal nervure, rusty-brown or testaceous; the elytra themselves, as also the wings, much longer than the body, and extending in the female to the apex of the ovipositor; abdomen brownish-green, or dusky, sometimes with yellowish wrinkles; ovipositor greenish, with the apex brownish; antennæ with the basal joints green, the rest testaceous; eyes brown; legs generally green.

In some examples the legs are yellowish-brown, with the hinder femora green.

A very common species in most parts of the country, especially in grassy places by the side of woods, and in meadows, towards the end of August and beginning of September. I have frequently taken it in Battersea fields and near Hertford: it also occurs in the New Forest and in Devonshire.

GENUS VI.—DECTICUS, *Serville*.

Body stout and short; forehead broad, very obtuse in front, glabrous; eyes sessile, not prominent; antennæ inserted in a cavity on each side, rather shorter than the body, the two basal joints rather stout, the basal one the most robust; thorax flat above, with a longitudinal central ridge and one on each side, the sides suddenly deflexed, the hinder margin produced and rounded; elytra not much longer than the body, rather suddenly deflexed and maculated; the base at the suture flat, and in the males furnished with an ocellar spot, transparent on the right elytron; wings short, rounded, triplicate; abdomen rather short and stout; in the male with four styles at the apex, in the female with two, and a longish more or less incurved ovipositor; legs nearly as in Phasgonura.

The insects of this genus are shorter, but comparatively more bulky than those of the foregoing, from which they differ in having the head obtuse in front, the eyes sessile, the thorax flat above, and



having three longitudinal ridges; the antennæ are also shorter; the elytra are spotted, and in the males are not very much longer than the abdomen, furnished with an ocellus at the base; the abdomen has in that sex four small styles at the apex, and in the females a longish, more or less recurved ovipositor.

Sp. 1. verrucivorus. *Viridis, elytris abdomine longioribus fusco parvè maculatis vittæque humerali flavâ.* (Long. corp. ♂ 1 unc. 5—7 lin.; ♀ ovip. incl. 1 unc. 7—10 lin.)

Gr. verrucivorus. Linné.—Ac. verrucivora. Steph. Catal. 300. No. 3312.

Bright deep apple green; head with a transverse yellow streak in front; antennæ testaceous, black without; thorax entirely green, with three dorsal ridges; elytra not quite twice the length of the abdomen, with a yellow longitudinal streak at the shoulders, vanishing on the disc, the latter with a row of distinct brownish spots and a few smaller dots, the left elytron, in the male, with a rusty ocellar spot, and the right with a large very transparent one; abdomen with a small black dot on the sides of each segment, or in some examples entirely dusky; legs with a brownish spot at the base of the hinder femora; tibiæ somewhat testaceous.

A very local species: it once occurred in great plenty in a field near Rochester in September, where it was observed by Professor Henslow, to whom I am indebted for fine examples.

†Sp. 2. Bingleii. *Fuscus, viridi tinctus, elytris abdomine longioribus fusco valdè maculatis.* (Long. corp. ♂ 1 unc. 6—8 lin.; ♀ ovip. incl. 2 unc. 1 lin.)

Ac. Bingleii. Dale MS.—Curtis, v. ii. pl. 82.—Ac. Bingleii. Steph. Catal. 300. No. 3311.

“Male brown, tinged with green; head rounded, pale and dull green; thorax of the same colour, slightly carinated, dilated behind; abdomen piceous, edges of the segments pale; elytra pale fuscous, tinged with green, spotted with brown, the central spots the largest, interior margins green towards the base; wings transparent greenish at their base; legs griseous-yellow; posterior thighs green at their base, variegated with brown. Female dull and pale ochreous, variegated with brown; abdomen pale down the back; piceous on the sides with irregular pale margins to the segments; ovipositor slightly recurved, brown, with a rosy tinge.”—Curtis, l. c.

Whether this be truly distinct from the preceding I am not prepared to say; it appears to be so; but, from Charpentier's account, *De verrucivora* appears to be a variable insect:—the above description is extracted from Curtis.

The only examples known of this insect have been taken near Christchurch in the autumn by the late Rev. W. Bingley and Mr. Dale.



Sp. 3. griseus. *Obscurus, thorace tricarinato, carinā mediā anticē abbreviatā, elytris abdomine longioribus, griseo subpellucidis, lineis fuscis albo strigatis.* (Long. corp. ♂ 11—14 lin.; ♀ ovip. incl. 14—16 lin.)

Lo. grisea. *Fabricius*.—*Sowerby B. M. i. pl. 64.*—Ac. grisea. *Steph. Catal. 300. No. 3310.*

Obscure fuscous; head glossy, smooth, somewhat testaceous: eyes linear; thorax above flat, with three ridges, the central one abbreviated in front, and terminating in a furcate groove with a black base, the deflexed lateral lobe is spotted with black, and distinctly edged with pale; elytra longer than the abdomen, of a pellucid griseous tint, each with three longitudinal fuscous streaks, faintly interrupted with transverse white ones; the left elytron in the male with an opaque space, the right with a corresponding very pellucid one; legs greenish-brown; posterior femora with a blackish longitudinal streak in the middle; tibiæ testaceous.

A very local species, and apparently confined to chalky maritime districts; found, not uncommonly, beneath the cliffs at Dover, towards the end of July, and also in the Isle of Wight, and I believe near Southampton. "Dawlish, Devon, August 1829."—*C. C. Babbington, Esq.*

FAMILY II.—LOCUSTIDÆ, *Leach.*

Tarsi three-jointed; *antennæ* short, filiform, sometimes thickened, or capitate, at the apex; *head* perpendicular, forehead descending, generally with a ridge extending backwards; *eyes* ovate, not prominent; *thorax* oblong-subquadrate, sometimes a little narrowed anteriorly, at others produced behind and concealing the wings, its sides equally deflexed; *wings* simply folded, not subulated at the apex; *elytra* vertical, sometimes minute, but mostly as long as the *abdomen*, this last more or less subcylindric, with occasionally a ridge down the back, the apex with four styles; *legs* unequal; anterior short and generally slender; posterior elongated, with their femora ample, and formed for leaping.

The Locustidæ, at least the major portion of the indigenous species, are smaller than the Gryllidæ, and from them they differ in having the antennæ shorter, usually filiform, but occasionally clavate or hooked at the extremity; the elytra are generally longer than the body, though in the less typical genera they become abbreviated or distorted, and the thorax is frequently much produced behind: the majority of the species frequent meadows, &c.: the females have not an exerted ovipositor.

The indigenous genera may be thus briefly known:—



- Antennæ* clavatæ : 9. GOMPHOCEROS.
 filiformes, haud clavatæ.
Thorax postice rotundatus vix productus.
Elytris plerumque longitudine abdominis . 7. LOCUSTA.
 valde abbreviatis : 8. PODISMA.
 postice longe productus : 10. ACRYDIUM.

GENUS VII.—LOCUSTA,* *Leach*.

Antennæ with about twenty-four joints, short, filiform, inserted each in a cavity between the eyes; *head* large, mouth conspicuous; *eyes* ovate, not prominent; *ocelli* three, placed triangularly; *face* tumid, slightly carinated; *thorax* with a central raised line, and mostly with a more or less distinct one on each side, sometimes straight, at others angulated or curved; the lateral portion deflexed, the hinder margin rounded; *elytra* and *wings* generally as long as the *abdomen*. the latter solid, subcylindric, with its back occasionally carinated; the apex in the male recurved, in the female with four horny moveable styles; *legs* slightly pilose, the four anterior placed nearly tetragonally, and short; *tibiæ* all with two rows of spines; posterior legs much longer than the body, robust and formed for leaping; *tarsi* with a small fleshy cushion between the claws.

The insects of this genus, familiarly known by the name *Grasshoppers*, are well distinguished from *Podisma* by having the *elytra* and wings nearly as long as, or longer than, the abdomen; from *Gomphocerus* their slender and simple *antennæ* remove them; and the form

* This is one of those genera—like *Amara*, &c.—alluded to in the Postscript to vol. v. p. 439, which I would, if consistent with the plan of my work, have passed over temporarily, but being compelled to proceed in a given track, I must endeavour to discriminate and describe the species; and I believe that I am correct in asserting that amongst the very numerous collections of indigenous insects that it has fallen to my lot to examine, *not one* has the species of this genus named, or even divided from each other; and, as my own specimens alone have been my guide, it is possible that some species may be omitted, or that, from the peculiarities amongst some of them *in a dried state*, I may have decided improperly in some instances. In reference to one remark in the Postscript above referred to, I have to observe, that my object was not to disparage the accuracy of the *Monographia Apum Angliæ*—far from it—my intention there being merely to show that without the *authentic typical specimens* being at hand, it is not always possible to determine whether other specimens in a different state of perfection are identical therewith, and which is the sense in which Mr. Shuckard intends his remarks, as quoted by me:—and, as regards the insects described in this work from my own collection, I invite a comparison with my specimens, which are open to inspection every Wednesday evening.

of the thorax, as well as the magnitude of the elytra, the greater disproportion in the size of the hinder femora, as also their more remote antennæ, sessile eyes, &c. divide them from *Acrydium*. The indigenous species appear to be either very numerous or subject to great variations; they are very difficult to understand, but the following seem distinct, and to facilitate their examination I have subdivided the genus into sections, as proposed by Zettersted.

A. *Thorax* with a single elevated line.

Sp. 1. *migratoria*. *Thorace anticè subabruptè compresso-angustiori, elytris flavo fuscoque nebulosis, mandibulis cæruleis.* (Long. corp. 1 unc. 6—10 lin.)

Gryllus migratorius. Linné.—Donovan, v. viii. pl. 270.—Lo. *migratoria.* Steph. Catal. 301. No. 3315.

Head glossy, greenish-yellow, punctured, with four raised lines in front between the eyes; the two intermediate ones dusky; mandibles pale blue, with blackish tips; thorax rather abruptly compressed, and narrowed anteriorly, the lateral lobes deflexed, subquadrate, with the angles rounded, the hinder margin produced somewhat angularly in the middle; the back with a sharp ridge, the whole of a livid greenish hue, with a brownish longitudinal line on each side; elytra clouded with pale yellowish and fuscous; legs pale; posterior femora green or bluish beneath, with some obscure brownish clouds without, and a spot within and a belt over the apex bluish; tibiæ reddish, or pale.

Although this insect, "the Migratory Locust," has been taken in several parts of the country, as the vicinity of Nottingham, Packington in Warwickshire, St. James's Park, the neighbourhood of Yarmouth, the coasts of Essex, Kent, and Suffolk, &c., it can scarcely be called indigenous, excepting inasmuch as the individuals arrive in a state of nature in this country, and are not imported; but I believe they do not breed here.

Sp. 2. *stridula*. *Nigricans, elytris nebulosis, alis in utroque sexu rubris, apice nigris.* (Long. corp. 10—12 lin.)

Gr. *stridulus.* Linné.—Stewart (!)—Steph. Catal. 301. No. 3318 note.

Dusky, obscure, head deeply punctured, with the sides rugged; thorax unequal and rugose, with a central ridge and a rather distinct fovea on each side in the middle of the base; elytra either black, clouded with brown, or brown spotted with black, or dusted with brownish; wings red, with the apex broadly black; legs obscure; posterior tibiæ with a pale or whitish belt at the base.

Stewart gives this as British, but as I have never seen an indigenous specimen, I suspect he is mistaken.



Sp. 5. flavipes. *Fusco-brunneus, thorace linea laterali utrinque margineque antico elytrorum viridi-flavis, femoribus posticis subtus sanguineis, tibiis flavis.* (Long. corp. 1 unc. 4—10 lin.)

Gry. flavipes. *Gmelin.—Donovan, v. xi. pl. 391.—Lo. flavipes. Steph. Catal. 301. No. 3316.*

Fuscous brown; head with three indistinct longitudinal yellowish streaks above; thorax tricarinated, the lateral carina slightly curved, edged with greenish-yellow within, and dusky without; elytra fuscous, with a darker streak at the shoulder, and a bright greenish-yellow one on the costa extending to about its middle; wings yellowish at the base, and fuscous at the apex; posterior femora greenish-brown, with their under surface bright blood-red, the base within with a black streak, a cloud of the same on both sides towards the apex, and a ring near the knees; tibiæ bright yellow, with a black ring at the base and apex, and a fainter one towards the base; spines bluish-black.

Variable in colour, some examples being of a brilliant fleshy or purple hue when alive, and in some the latter colour is retained when dried.

Although not an uncommon insect in this country, it would appear, from the silence of Charpentier, Zettersted, and other continental

†Sp. 3. *cærulescens. Grisea, elytris fasciis duabus et apicem versus maculis obscurioribus, alis viridi-cærulescentibus, fascia apici hyalino propiore, arcuatâ, nigrâ, in utroque sexu distinctâ.* (Long. corp. 1 unc. 3—4 lin.)

Gr. *cærulescens. Linné.—Stewart (!)—Lo. cærulescens. Steph. Catal. 301. No. 3317, note.*

Griseous; elytra with two transverse fasciæ, one occupying the base, and some spots towards the apex obscure; wings greenish-blue at the base, the apex clear, and towards the middle a curved black fascia, in both sexes.

This insect is also introduced by Stewart as indigenous, but evidently without authority.

B. Thorax with three elevated lines.

a. With the two outer thoracic lines nearly straight.

†Sp. 4. *grossa. Thorace subtricarinato, carinis lateralibus obsoletis; virescens, elytris margine exteriori anticæ, in utroque sexu, flavo, femoribus posticis subtus sanguineis geniculis nigris.* (Long. corp. 10—12 lin.)

Gry. *grossus. Linné.—Berkenhout (!)—Lo. grossa. Steph. Catal. 301, No. 3319, note.*

Thorax obscurely tricarinated, the lateral ridges obscure; greenish; elytra with the costa, or outer margin, anteriorly yellow in both sexes; hinder femora beneath blood-red, the knees black or dusky.

Berkenhout gives this as British, but I presume improperly, as I have never seen an indigenous example.



entomologists respecting it, that it was peculiar to Britain: it occurs in marshy districts towards the middle of July, and is found in those about Camberwell, Deptford, &c. near London, and in the vicinity of Whittlesea Mere. "In the fens of Cambridgeshire."—*C. C. Babington, Esq.*

Sp. 6. *elegans*. *Capite valde declivi, thorace carinis tribus rectis; mas thoracis dorso rufescente, elytris non coloratis margine antico dilatato, corpore paullo longioribus; femina lineâ atra thoracis, elytris oblongis non dilatatis corpore brevioribus, vittâ albâ ad marginem anticum.* (Long. corp. 8—10 lin.)

Gry. *elegans*. *Charpentier Horæ Ent.* 153.—*Lo. rubroviridatus*. *Steph. Catal.* 302. No. 3325.

Head very much deflexed; thorax with three straight elevated lines, the central one lightest and acute; colour rosy-red, with the sides greenish, or testaceous, sometimes with a black streak accompanying the carinæ; in the male the elytra are horn-colour, and dilated in front; in the female they are oblong, green or testaceous, with a long white streak towards the margin at the base, accompanied by a broad dark one; legs testaceous, with the hinder femora slightly greenish, and obscurely tipped with dusky.

Variable in colour, and in some examples the elytra are very faintly spotted with a dusky tint.

This appears to be a rare species; I found it in the marshes near Whittlesea in July 1833.

Sp. 7. *dorsata*. *Thorace carinis lateralibus subrectis; supra viridis, subtus lateribusque fuscis, pedibus pallidis, geniculis concoloribus.* (Long. corp. 8—10 lin.)

Gry. *dorsatus*. *Zettersted Orth. Suec.* 82.—*Lo. dorsata*. *Steph. Nomen.* 2d edit. *Appendix*.—*Lo. ochropa*. *Steph. Catal.* 301. No. 3322.

Thorax with its lateral ridges nearly straight; head above greenish-testaceous, forehead considerably deflexed; thorax rather narrowed anteriorly, smooth, fuscous, green, between the carina, and on each of the lateral lobes (during life) is a splendid golden, or greenish-gold spot; elytra in the male rather longer than the abdomen, in the female of the same length as it, the inner or dorsal portion green, varying in tint in different individuals, the outer or costal edge dusky or brown; legs dull testaceous, the hinder ones with the knees concolorous, and the tibiæ paler.

Rather variable, some examples having a pale line edged with dusky at the base of the elytra; in others the elytra are pale; the thorax has sometimes a black line on each side, or the prominent colour is rosy: several of these varieties arise from the different states of maturity.

This insect occurs, but not abundantly, in meadows in the vicinity of the metropolis in July.



Sp. 8. *parallela*. *Thorace carinis lateralibus subrectis; supra lateribusque viridis, subtus flavicans, geniculis pedum posticorum nigris, elytris pallidis, unicoloratis.* (Long. corp. 8—10 lin.)

Gry. *parallelus*. *Zettersted Orth. Succ. p. 85.—Steph. Nomen. 2d edit. col. 110.*

Thorax with the lateral ridges nearly straight; head and thorax green, the latter entirely of that tint; elytra in the male rather shorter than the abdomen, dilated and bisinuated on the costa; in the female about half the length; in both sexes entirely green and immaculate; abdomen greenish-brown, with the sides occasionally spotted with black, and the lower surface pale; legs testaceous, with the hinder femora above greenish, beneath yellow, with black knees.

Also found, but not commonly, within the metropolitan district.

Sp. 9. *montana*. *Thorace carinis lateralibus antice nonnihil curvatis; viridis subtus flavida, geniculis posticis nigris; elytris in mare abdominis longitudine, in fœmina tertia parte thorace capiteque longioribus.* (Long. corp. 8—10 lin.)

Gry. *montanus*. *Charpentier Horæ Ent. p. 173.—Lo. montana. Steph. Nomen. 2d edit. col. 110.*

Thorax with the posterior ridges very slightly curved; head rather wide, and, with the thorax, green; elytra in the male as long as the abdomen, in the female abbreviated; in both greenish; in the former sex they are rather broad, and in both the wings are nearly as long as the elytra; beneath the body is yellowish; legs pale testaceous, with the knees of the hinder pair black.

Also slightly variable, some examples having a black streak on each side of the thorax, and others wanting it; and in some females there is a faint yellowish line at the base of the elytra.

Found near Dover, but apparently not common.

Sp. 10. *tricarinata*. *Thorace carinis tribus atris valde elevatis rectis; rosea, elytris fusciscentibus apice nigricantibus, margine antico strigâ pallida liturâque nigricante adnatâ.* (Long. corp. 10 lin.)

Lo. *tricarinata*. *Steph. Catal. 302. No. 3335.*

Head broad, acute; rosy, or flesh-colour, rest of the body the same, with the base and sides of the abdomen dusky; thorax with three strongly elevated straight black ridges, its anterior margin also black; elytra rather shorter than the abdomen, pale fuscous, with the apex dusky; at the base, near the costa, is a long slender whitish streak, adjoining to which on the disc is a broader blackish one; legs entirely flesh-colour, immaculate.

This very distinct insect is apparently very rare: I have one specimen which I caught near London, but I forget its exact locality.



b. *With the lateral carinæ on the thorax more or less curved or angulated.*

1. *Legs* glabrous, or naked.

Sp. 11. *viridula*. *Thoracis carinis lateralibus anticè curvatis; supra viridis, subtus flavicans, elytris fuscis in medio obscuro-maculatis, margine postico pallido aut viridi, in maribus ad apicem latè nigricantibus.* (Long. corp. 8—13 lin.)

Gr. *viridulus*. Linné.—Sowerby *Brit. Misc.* i. pl. 63.—Lo. *viridula*. Steph. *Catal.* 301. No. 3320.

Thorax with its lateral ridges curved anteriorly, and converging towards the head, the latter large, with the face slightly deflexed and protuberant, and of a dullish-green; thorax the same, brighter on the back, the ridges generally pale, and frequently accompanied by a bright deep black streak within; elytra rather longer than the abdomen, of a horn-colour, and nearly pellucid, in the middle are some dusky clouds, and a small white spot towards the apex, the latter fuscous or dusky, and the inner margin pale or greenish; abdomen fuscous, reddish at the apex; posterior femora greenish-red, with a black streak within at the base, and dark knees; tibiæ reddish. Female rather larger, with shorter antennæ, of a brighter green, with the thorax more spotted with black; the elytra narrow, with the posterior margin of a bright green, the apex pellucid.

Both sexes vary a little in colour and slightly in their markings.

One of the most common species of this order, frequenting meadows, fields, grassy places, and hills, &c. in June and July, throughout the metropolitan district, and near Dover, the New Forest, &c.

Sp. 12. *rubicunda*. *Thoracis carinis lateralibus curvatis, anticè valdè appropinquantibus, capite thorace et margine postico elytrorum viridibus, elytris posticè lunulâ obliquâ albidâ, abdominis apice pedibusque rufescentibus.* (Long. corp. 9—11 lin.)

Gr. *rubicundus*. Schæffer.—Lo. *rubicunda*. Steph. *Catal.* 302. No. 3332.

Thorax with its lateral carinæ much curved, and very closely approximating anteriorly; head, thorax, and hinder part of the elytra green; the latter with a whitish lunule towards the apex on the disc; abdomen at the apex above and the legs reddish.

Found in the vicinity of the metropolis; also at Dover, in July.

Sp. 13. *aprica*. *Thoracis carinis lateralibus subcurvatis; viridi-rosea, elytris maris fusciscentibus immaculatis, ad apicem saturatioribus, sæminæ dilutioribus strigâ pallida ad basin costæ, antennis in utroque sexu brevibus.* (Long. corp. 7—9 lin.)

Lo. *aprica*. Steph. *Catal.* 301. No. 3321.



Thorax with its lateral carinæ slightly curved in front, and accompanied by a black line, which sometimes extends to the base, at others is obliterated towards that part; prevailing colour rosy-green, elytra of the male brownish, with the apex darker, the disc immaculate; female much paler, with a slender straight line towards the base of the costa; legs pale greenish-red, with concolorous knees; antennæ in both sexes short, somewhat compressed in the males.

Not common: found in July within the metropolitan district.

Sp. 14. *rufipes*. *Thoracis carinis lateralibus curvatis; fusca, thoracis vittâ mediâ longitudinali testaceâ, elytris posticè rufescentibus, maculâ albâ et plurimis fuscis, ventre anoque sanguineis, pedibus posticis testaceis, geniculis atris.* (Long. corp. 9—11 lin.)

Gry. *rufipes*. Zetterstedt *Orth. Suec.* 90.—Lo. *rosea*. Steph. *Catal.* 302. No. 3328.

Thorax with its lateral ridges curved, but less so than in the preceding species; fuscous; thorax with a longitudinal testaceous streak on the back, and a black line on each side; elytra narrow, fuscous, with the apex somewhat pellucid, the disc with numerous fuscous dots placed in a line, and a distinct white spot placed obliquely; abdomen with the sides and some dorsal spots black, the lower part and apex fine red; posterior legs testaceous, with black knees. Female larger, and of a fulvescent or rosy tint.

Found not commonly in the vicinity of the metropolis in June and July, frequenting fields and meadows.

Sp. 15. *vittata*. *Thoracis carinis lateralibus angulato-curvatis, corporis lateribus pedibusque ferrugineo-luteis, fusco subirroratis, elytris et superiore corporis parte atris.* (Long. corp. 10—12 lin.)

Gry. *bicolor*. Charpentier *Horæ Ent.* p. 161.—Lo. *vittata*. Steph. *Catal.* 302. No. 3327.

Thorax somewhat tetragonal, luteous, black above, with a slight dorsal ridge, and on each side a faintly angulated curved one, head luteous, with the crown black; antennæ fuscous, with the base yellowish; elytra oblong, narrow, very slightly dilated anteriorly in the male, of a dusky or smoky tint, with a more transparent space towards the apex of the disc, on which are occasionally some obscure fuscous clouds; legs luteous, spotted with fuscous; posterior femora with a dusky streak on the outer disc, the inner variegated with fuscous, the lower yellowish; posterior tibiæ reddish or greenish.

Inhabits fields and hedges in June within the metropolitan district.

2. *Legs pilose.*

Sp. 16. *miniata*. *Thorace carinato, abdomine miniaceo, punctis dorsalibus*
MANDIBULATA, VOL. VI., MAY 31st, 1835. D



geminatis nigris, subtus basi virescente, elytris fuliginosis, obscuro-maculatis, maculæque subobliquæ albæ, alis fuliginosis strigâ parvâ ad costam. (Long. corp. 1 unc. 4 lin.)

Gryl. miniatus. Charpentier *Horæ Ent.* p. 162.—Geo. miniata. Steph. *Nomen.* 2d edit. Appendix.

Head reddish, mouth pale, antennæ extending to the back of the thorax, red, with the apex fuscous; thorax red-brown, with three ridges, the two outer ones acutely angled towards the head, and accompanied by a black streak and two transverse sulci; abdomen fine red, with a row of six pair of black dots down the back, the base greenish beneath; legs reddish; posterior femora and tibiæ brighter, with the apex of the last fuscous; elytra dull smoky-brown, with some obscure darker spots, and a whitish somewhat obliquely placed dot towards the apex; in the female they are slightly greenish within and are shorter; wings rounded, broad and smoky, with an oblong black streak at the base of the costa.

I obtained this insect from the Marshamian collection, and know not its locality.

Sp. 17. lineata. *Viridis aut fusca, lineâ thoracis utrinque curvatâ valde elevatâ rosæ, latiore rectam nigram secante, elytris maris fuscis, fæminis margine antico strigâ albidâ signato, in utroque sexu versus apicem lineolâ obliquâ albidâ, pedibus rufis.* (Long. corp. 1 unc. 2—4 lin.)

Gr. lineatus. Panzer.—Lo. lineata. Steph. *Catal.* 302. No. 3323.

Head large, glabrous, fine green or fuscous; vertex somewhat conical, with a curved rosy line extending from the eyes to the base of the thorax, accompanied by a considerably raised ridge, and a broadish deep black streak; on the thorax are also two transverse impressions, and the sides are variegated with testaceous and brown; abdomen reddish above, greenish beneath; elytra fuscous in the males, with the anterior margin dilated; greenish in the female, with a white streak at the base of the costa, and in both sexes a somewhat crescent-shaped whitish spot towards the apex; posterior femora reddish, with an obscure streak on both sides at the base; knees black; tibiæ red, with black-tipped spines.

Not common: found in fields and meadows in the vicinity of London.

Sp. 18. biguttula. *Thoracis carinis lateralibus angulatis; fusca, thorace lineâ utrinque atra, elytris griseis maculis obscurioribus lineolæque obliquæ versus apicem albidâ.* (Long. corp. 10—14 lin.)

Gry. biguttulus. Linné.—Lo. crucigera. Steph. *Catal.* 302. No. 3329.

Head attenuated in the males, rather convex in the females, either dirty-brown, with brighter spots, or pale, with fuscous; thorax with its lateral ridges distinctly, but obtusely, angulated, entirely brown, or dull testaceous,



with a longitudinal black streak on each side, not touching the base, and another towards the base; elytra of the males pale griseous, with fuscous nervures and a few obscure darker spots, the inner margin sometimes faintly greenish or reddish; in the females the same, but the spots more distinct, and occasionally with a slender longitudinal whitish streak at the base of the costa, and an oblique whitish spot near the apex; abdomen dull testaceous, yellowish-green beneath, the sides spotted with black; legs dull testaceous, spotted with fuscous.

Variable: some examples have the carinæ on the thorax whitish, giving the appearance of a cross; others—females—have the basal inner portion of the elytra green, rosy or blood-red; the body (and the back of the thorax) also varies, of similar colours.

Extremely abundant throughout the metropolitan district, in grassy fields and meadows; also on the borders of woods, hedges, or banks, &c., at the end of June and in July.

Sp. 19. mollis. *Thoracis carinis lateralibus sinuato-curvatis; virescens vel gilva, elytris maculis fuscis et apicali albâ obliquâ.* (Long. corp. 8—10 lin.)

Gry. mollis. *Charpentier Horæ Ent.* 164.—Lo. consobrina. *Steph. Catal.* 301. No. 3330.

Thorax with its lateral carinæ with a waved, but not angulated, curve; colour generally of a fine green, with a yellowish tinge, the hinder portion of the elytra of a reddish tinge, rarely greenish; on their disc is an interrupted row of fuscous spots, and a larger whitish one placed obliquely; in the males they are slightly dilated, and the apex is considerably attenuated; legs dull testaceous, clouded with dusky.

Not uncommon within the metropolitan district in June, frequenting meadows, &c.

Sp. 20. hæmorrhoidalis. *Thoracis carinis lateralibus anticè angulatis; fusca, elytris fusco alboque maculatis, margine postico albo, aut viridi, abdominis ultimâ parte (præsertim maris) coccineâ.* (Long. corp. 8—11 lin.)

Gr. hæmorrhoidalis. *Charpentier Horæ Ent.* p. 165.—Lo. obscura. *Steph. Catal.* 302. No. 3334.

Thorax with its lateral carinæ angulated anteriorly; fuscous; head in the males considerably deflexed; thorax red-brown, sometimes green, with a black streak on each side accompanying the carinæ; elytra narrow, scarcely longer than the abdomen, with several dusky spots alternating with pale ones, placed in the middle; the hinder margin is clearer, and of a whitish or green hue, tinted with bluish; in the females the markings are stronger, and the hinder portion is generally of a more or less brilliant white, rarely greenish; this sex has sometimes a broad whitish streak on the head and thorax, extending backwards, to the apex of the elytra, when they are



closed; abdomen black at the base and sides, yellowish beneath, the remainder fine red, with indistinct geminated black dots on the back; legs red-brown; posterior femora with some largish black clouds within; the knees also black; tibiæ reddish, with the spines and a belt at the base black.

Also found in the vicinity of the metropolis and near Dover, in June and July.

Sp. 21. rhomboidea. *Thorace cruciato, carinis lateralibus antice valde angulatis; fusca, elytris cinereis ad apicem pallidioribus, disco seriebus duabus macularum fuscum, pedibus rufescentibus nebulis fuscis.* (Long. corp. 8—11 lin.)

Gr. rhomboideus. Schæffer.—Lo. rhomboidea. Steph. Catal. 302. No. 3324.

Fuscous; thorax cruciated, the lateral carinæ considerably angulated towards the head and greatly approximating; elytra ashy, or brownish, paler towards the apex and the inner margin, with two distinct rows of fuscous spots, one towards the costa, the other on the edge of the back, when the elytra are closed, and the last one of a rhombic form, and most distinct in the female; legs reddish, with fuscous clouds.

Common within the metropolitan district in July, frequenting the borders of woods, hedges, banks, &c. "Caernarvon."—C. C. Babbington, Esq.

Sp. 22. varipes. *Thoracis carinis lateralibus subangulato-curvatis; rufo-fusca, thoracis dorso elytrisq. nigricantibus, his maculâ obsoletissimâ pallidâ, pedibus rufo fusciscentibus nebulis nigricantibus.* (Long. corp. 8—10 lin.)

Lo. varipes. Steph. Catal. 302. No. 3326 and 3331.—Lo. variegata. Steph. Nomen. 2d edit. col. 109 ♀.

Thorax with its lateral carinæ somewhat angularly bent; red-brown; with the back of the thorax and the elytra in both sexes deep dusky-brown, the latter with a faint palish spot on the disc towards the apex; legs reddish-brown, with dusky shades.

Less abundant than the last; found within the metropolitan district in June and July.

Sp. 23. venosus. *Thoracis carinis lateralibus subangulatis; rufo-fusca. thoracis dorso posticè nigricante, elytris fusciscentibus basi saturatioribus, immaculatis, stigmata fusco excepto, nervis rufescentibus.* (Long. corp. 10—12 lin.)

Gr. venosus. Linné?—Lo. venosa. Steph. Catal. 302. No. 3333.

Thorax with the lateral carinæ somewhat angled towards the middle; red-brown, with the back of the thorax behind dusky or blackish; elytra brownish, transparent, darkest at the base, which has sometimes two fuscous streaks, the disc immaculate, the costa with a dark stigma towards



the apex, nervures reddish; legs reddish-brown, slightly varied with fuscous.

Also found, but not commonly, within the metropolitan district, in July, and likewise in Yorkshire.

GENUS VIII.—PODISMA, *Latreille*.

Antennæ filiform, consisting of numerous, cylindric, slightly distinct articulations; *head* obtuse; *eyes* moderate; *ocelli* three; *thorax* carinated, the hinder margin rounded, the sides considerably deflexed; *elytra* very short, or almost wanting; *wings* also small, and inadequate for flight; *abdomen* solid, acuminate behind; *legs* moderate; posterior much longer than the body, their *femora* robust, and formed for leaping; *tibiæ* long, spinous; *tarsi* with a minute fleshy cushion between the claws.

This genus differs chiefly from *Locusta* by having the *elytra* and *wings* so extremely short as to be totally useless for assisting the animal in flight; the form of the *thorax* is also slightly different, the lateral *carinæ* being very faint; the insects also are more robust in proportion than the *Locustæ*, and the *antennæ* are more attenuated, and the body is glabrous, &c.

Sp. 1. pedestris. *Corpore livido incarnato, ventre flavicante, femoribus posticis subtus sanguineis, tibiis cærulescentibus annulo albido.* (Long. corp. 10—12 lin.)

Gry. pedestris. *Linne?*—Lo. pedestus. *Steph. Catal.* 302. No. 3336.

Of a livid flesh-colour, changing to a dirty hue after death; head with a small black streak behind the eyes; thorax slightly narrowed in front, with a distinct dorsal carina and two obsolete lateral ones, accompanied by a black line; the back of the thorax is inclined to brown and the sides to testaceous; abdomen somewhat brownish, with the edges of the segments in the male, and the under portion in both sexes yellow; legs testaceous-brown, with the hinder femora red beneath, and their *tibiæ* bluish, with a pale ring and pale spines, the apex of the latter brownish.

Scarce, but found occasionally at the end of July within the metropolitan district.

GENUS IX. GOMPHOCERUS, *Leach*.

Antennæ rather long, slender at the base, consisting of numerous indistinct articulations, the apex more or less dilated, and, in the typical species, forming a spoon-shaped cavity; *head* rather attenuated, and with a shallow groove in front; *eyes* ovate, rather large; *ocelli* three; *thorax* elongate,



truncate in front, rounded behind, tricarinated, the lateral carinæ more or less angulated, the sides considerably and suddenly deflexed; *elytra* and *wings* ample, the former with the costa dilated in the males; *abdomen* solid, attenuated to the apex; *legs* moderate; posterior considerably elongated, their femora robust, compressed and formed for leaping; *tibiæ* slender, spinose; *tarsi* with a small cushion between the claws.

The elongate clavate antennæ of the insects of this genus at once point out their distinction from the other genera of this family, especially in the typical species, in which their apex is very considerably expanded and is hollowed out in form of a spoon, with a slight acute point at the end: in the other species this character is less apparent, but abundantly distinct from *Locusta* and *Podisma*; and from *Acrydium* also, from which its elongate elytra and short thorax—rounded behind—remove it: the species are rather of small size, and appear to frequent dry and sandy heaths.

Sp. 1. rufus. PLATE xxviii. f. 6.—*Thorace cruciato, corpore brunneo-griseo, elytris griseis, abdomine subtus virescente-flavo, femoribus posticis subtus tibiisque rufis.* (Long. corp. 11—14 lin.)

Gry. rufus. Linné.—*Donovan, v. xvi. pl. 482.*—Go. Sowerbii. *Steph. Catal.* 302. No. 3337.

Above griseous-brown, sometimes varied with yellowish; head beneath yellowish; thorax with a black streak on each side; elytra in the male longer than the abdomen, dilated beyond the middle, immaculate, fuscous, but paler and more transparent on the hinder portion of the dilated costa; in the females nearly as long as the abdomen, and with a few dusky spots towards the hinder margin; abdomen beneath yellowish, above dusky at the base; legs reddish; anterior tibiæ yellowish; posterior red; posterior femora reddish-brown, red beneath, the base within with a dusky streak; antennæ longer in the male than in the female, the apex expanded and spoon-shaped, dusky, with the extreme tip, which is acute, white.

Slightly variable: in some examples the thorax has a white streak on each side within the black one.

Rather a local insect; found occasionally in abundance in the fields near the Red House, Battersea, in July and August.

Sp. 2. biguttatus. *Thorace cruciato; rufescente-fuscus, albido maculatus, ano rufo, elytris griseis serie longitudinali macularum fuscarum, lineolæque versus apicem albis.* (Long. corp. 6—10 lin.)

Gryl. biguttatus. *Charpentier Horæ Ent. p. 166.*—Gom. biguttulus. *Steph. Catal.* 302. No. 3339.—Gyl. biguttulus. *Donovan, v. iii. pl. 79. f. 2.*

Red-brown, spotted with whitish; head with a black line behind the eyes; thorax with the lateral carinæ strongly angulated, and whitish, with a black



line on each side; elytra griseous, with a longitudinal row of quadrate fuscous spots, interrupted towards the apex with a distinct white one; abdomen with the sides and base above black, the apex red; legs testaceous; posterior femora of a duller hue, with brownish spots, beneath greenish-yellow; knees black; tibiæ red, with the extreme apex fuscous.

Variable: in some examples there is a broad straight yellow streak extending from the crown to the base of the elytra; in others there is a similar mark, accompanied by two other paler ones, along the ridge of the elytra; again, in some, the posterior femora are immaculate.

An extremely abundant insect on dry and sandy heaths throughout the metropolitan district, in July and August. "Carnarvon and Cambridge."—*C. C. Babington, Esq.*

Sp. 3. *elegans*. *Thorace cruciato; atro-fuscus, albo maculatus, ano lutescente, elytris pallide griseis, seriebus duabus longitudinalibus macularum fuscæ, lineolæque versus apicem alba, femoribus posticis albo fasciatis.* (Long. corp. 10—12 lin.)

Go. *elegans*. *Steph. Catal.* 302. No. 3338.—*Gr. rufus, var. guttatus. Zetterstedt Orth. Suec.* 101?

Deep-brown, spotted with white; thorax with the lateral carinæ acutely angulated, and whitish, with a clear white dot at the base of each, with a black spot adjoining, and a second within the angle on each side; elytra pale griseous, with two rows of large quadrate deep fuscous spots on each, one in the middle of the disc, interrupted by a white dot, the other towards the suture, and, when the elytra are closed, placed on the back; anterior legs dull testaceous, with brown clouds; posterior femora dull testaceous, with yellowish and fuscous clouds without, and two white fasciæ towards the apex within; tibiæ yellowish-white, with the apex brownish.

Apparently a scarce species: it occurs on Ripley and Cobham Heaths in July.

Sp. 4. *ericetarius*. *Thorace cruciato; rufescens, ano pallidiore, thorace utrinque vittâ nigra, elytris pallidis serie longitudinali macularum fuscæ, tibiis ferrugineis, apice fuscescentibus.* (Long. corp. 6—9 lin.)

Go. *ericetarius*. *Leach MS.*—*Gom. ericetarius. Steph. Catal.* 302. No. 3342.

Reddish, or flesh-colour; thorax with the lateral carinæ strongly angled, pale, with an adjoining black streak on each side; elytra pale, with a single central longitudinal row of indistinct fuscous spots; abdomen dusky, with the apex pale; legs testaceous; hinder femora dusky, with brown clouds; tibiæ ferruginous, with the extreme apex brownish.

Also found on heaths like its congeners, and not uncommon in the vicinity of the metropolis in July.



Sp. 5. calidoniensis. *Thorace cruciato, rufescens, ano pallido; abdomine supra nigro, elytris griseo-fuscis immaculatis; geniculis posticis fuscis.* (Long. corp. 7—8 lin.)

Gen. calidoniensis. *Leach MS.—Steph. Catal. 302. No. 3341.*

Reddish; thorax immaculate, with the lateral carinæ considerably angulated and palish; elytra griseous-brown, immaculate, with two faint palish clouds on the disc; abdomen black above, with the apex reddish; legs pale testaceous, the hinder femora with some dusky clouds, and the knees also dusky; tibiæ testaceous.

Taken in the island of Iona, and in other parts of Scotland, by Dr. Leach, in July.

Sp. 6. apricarius. *Thorace tricarinato, carinis lateralibus angulatis; viridifuscus, thorace utrinque lineâ atrâ, elytris pallidis, in mare immaculatis, in femina maculis fuscis, antennis thorace duplo longioribus, subcompressis.* (Long. corp. 8—10 lin.)

Gryll. apricarius. *Zetterstedt Orth. Succ. p. 91.—Go. apricarius. Steph. Nomen. 2d edit. col. 110.*

Thorax tricarinated, the lateral carinæ angulated; of a greenish-brown, with a black streak on each side of the thorax; elytra pale, immaculate in the male, and spotted with brown in the female; legs testaceous-brown, with the knees concolorous; posterior tibiæ pale; the hinder femora with an oblique distinct black line; antennæ rather long and somewhat compressed; fuscous, with the base testaceous.

Rare in England: inhabits the metropolitan district in the autumn.

†Sp. 7. sibiricus. *Thorace gibboso; griseo-nebulosus, elytris hyalinis, femoribus posticis griseo nigroque maculatis, subtus flavis; tibiis anticis in maribus ovato-clavatis, crassis.* (Long. corp. $8\frac{1}{2}$ —10 lin.)

Gryll. sibiricus. *Linné.—Go. sibiricus. Steph. Catal. 302. No. 3343.*

Obscure griseous-brown, slightly clouded; thorax gibbous, faintly carinated; elytra hyaline; posterior femora spotted with griseous and black, yellow beneath; anterior tibiæ in the male ovate-clavate, thickened, simple in the female.

This singular insect is in Mr. Hope's rich collection: taken on the hills near Netley.

GENUS X.—ACRYDIUM, *Fabricius.*

Antennæ filiform, short, somewhat approximating, inserted beneath the eyes, consisting of about fourteen or sixteen articulations; *head* acuminate in



front; *eyes* globose, slightly prominent; *ocelli* three; *mouth* placed in a hollow in front of the sternum; *forehead* with a grooved keel; *thorax* carinated, its hinder margin produced to, or beyond, the extremity of the abdomen, and terminating in a point; *elytra* extremely short, appearing distorted, and resembling oval scales; *wings* sometimes ample, at others rudimentary; *abdomen* solid, conical, without an exerted ovipositor; *legs* glabrous, anterior short, posterior longer than the body, with the femora robust, and formed for leaping; *tibiæ* spinulose, anterior with some spines at the apex only; *tarsi* without a cushion between the claws.

The Acrydia are well known by their elongated prothorax, which in one of the species extends backwards beyond the apex of the abdomen, and in the others reaches almost to its extremity; exclusively of this prominent character, however, they may be distinguished with facility by their minute elytra, and by the absence of the pulvilli, or foot-cushions, between the claws; their wings consist of many longitudinal folds, and their costal edge is broadly coriaceous. As to the number of species which are indigenous I am utterly at a loss to define them, as far too much uncertainty exists upon that point: prior to the appearance of my Catalogue it was supposed that there were four species found in Britain, but in the Catalogue I was induced to sink two and add one, thereby leaving only three; since that time Mr. Curtis has published on the genus, and thinks there may be four species—one new; but, long anterior to the publication of my Catalogue, Zetterstedt, in his Orthoptera Suecica (1821)—a work I have only recently seen—described as different no less than eighteen, all of which I possess; which Charpentier, in his Horæ Entomologica (1825) reduces to two, considering Zetterstedt's first six species as one, and the other twelve as another. More recently, Serville (in 1831) has made about eight species, corresponding with specimens found in this country. In the face, therefore, of such conflicting opinions amongst authors who have expressly devoted themselves to the study of the Orthoptera, viz. Zetterstedt, Charpentier, and Serville, it would be ridiculous for me to attempt the solution of the question, especially as I have scarcely attended to the peculiarities of the genus beyond the occasional capture of some of the more conspicuous varieties: I shall, therefore, merely introduce as species those given in the second edition of my Nomenclature, adding, from Zetterstedt, brief characters of the assumed varieties, so far as I possess them.

MANDIBULATA, VOL. VI., 31ST MAY, 1835.

E



A. *Thorax* with the keel slightly elevated, the produced hinder portion extending beyond the abdomen; *wings* ample; *stature* narrow.

Sp. 1. *subulatum*. *Obscure testaceo-fuscum, tibiis pallidis fusco-maculatis, corpore angustato, prothorace posticè productà ultra apicem abdominis.* (Long. corp. 4—8 lin.)

Gryl. *subulatus*. *Linne.*—Ac. *subulatum*. *Steph. Catal.* 302. No. 3344.—*Curtis, v. x. pl.* 439.

Dull testaceous-brown, minutely shagreened; body slender, thorax produced behind beyond the apex of the abdomen, rather abruptly narrowed at the base, and somewhat linear behind; tibiæ pale, spotted with brown; wings ample.

Var. β . Ac. *pallescent*. *Zett. O. S.* 109.—Ac. *bipunctatum*. *Panzer, v. f.* 18. Tet. *Panzeri*. *Serville Encl. v. x. p.* 599. No. 2.—Fuscous, with the base of the antennæ, the crown and the back of the thorax, nearly entirely dull ochreous; on the latter beneath the angle of the shoulders is a somewhat lunate-triangular black spot; posterior femora testaceous.

Var. γ . Ac. *marginatum*. *Zett. O. S.* 110.—Griseous-brown, with the base of the antennæ, the lateral ridges of the thorax, and a longitudinal streak on the hinder femora without, yellow.

Var. δ . Ac. *humerales*. *Zett. O. S.* 111.—Fuscous or griseous; thorax in the middle with a large transverse whitish blotch, and a black triangular spot on each side beneath the shoulders; posterior femora with a testaceous band.

Var. ϵ . Ac. *dorsata*. *Zett. O. S.* 112.—Dull-brown, with a broad whitish-yellow streak on the central keel of the thorax, and on each side an abbreviated waved longitudinal black line.

Var. ζ . Ac. *bimaculatum*. *Zett. O. S.* 114.—Brown; thorax with an oblique yellow patch on the angle of the shoulder, and terminated beneath by a somewhat triangular black spot.

In addition to these, various intermediate varieties occur both in colour and markings.

Not uncommon from the early spring till towards the end of autumn in certain situations; frequent in Battersea fields; also at Ripley, Hertford, Darenth and Coombe woods, the vicinity of Whittlesea Mere, the New Forest, &c.

B. *Thorax* with its dorsal keel considerably elevated; its produced hinder portion not so long as the abdomen; *wings* moderate or abbreviated; *stature* robust.

Sp. 2. *bipunctatum*. *Corpus robustum, rufescenti-testaceum aut fuscum, sæpè variegatum, thorace in medio utrinque maculâ obliquâ nigra; alis elongatis.* (Long. corp. $3\frac{1}{2}$ —6 lin.)



Gryl. bipunctatus. Linné.—*Ac. bipunctatum.* *Steph. Catal.* 303. No. 3345.

Wings ample, as long as the produced apex of the thorax; body robust, generally reddish-testaceous or brown, and occasionally variegated with griseous or ochreous; thorax with two more or less distinct black spots, placed obliquely a little behind the shoulders; legs reddish-testaceous, or griseous, a little clouded with brown occasionally.

No two examples are found precisely alike: the following varieties have been described as distinct by Zetterstedt and others:—

Var. β . *Ac. laterale.* Zetter. *O. S.* 118.—Fuscous, with the head dusky, thorax reddish, the deflexed lateral lobes yellow, the back on both sides with an oblique black spot.

Var. γ . *Ac. ephippium.* Zetter. *O. S.* 118.—Reddish, the thorax with a broad ochreous humeral fascia, terminated in front by a small streak-like spot, and behind by two ordinary black spots.

Var. δ . *Ac. binotatum.* Zetter. *O. S.* 119.—Variegated with ashy and brown, the elevated keel on the thorax testaceous, with a white patch on both sides, terminated anteriorly and posteriorly as in var. γ .

Var. ϵ . *Ac. cristatum.* Zetter. *O. S.* 120.—Griseous-brown, with the carinæ on the front and vertex, and the central one of the thorax yellow; the thorax spotted as usual.

Var. ζ . *Ac. vittatum.* Zetter. *O. S.* 121.—Fuscous, variegated with griseous, the crown and central thoracic keel yellow, the disc of the thorax with an abbreviated waved longitudinal black line, on each side.

Var. η . *Ac. zonatum.* Zetter. *O. S.* 124.—Dusky-black, with a broad waved white band on the thorax, in which are two very obscure dusky spots, and a flexuous fascia on the outer edge of the femora whitish.

Var. θ . *Ac. obscurum.* Zetter. *O. S.* 125.—Brown, or dusky-black; thorax, on both sides, with an oblique black spot, with a triangular white one towards the head; the hinder femora with a pale streak without.

Var. ι . *Ac. ochraceum.* Zetter. *O. S.* 124.—Fuscous, with the legs variegated with testaceous; above ochreous; the thorax with the deflexed lobes brown or pitchy, the disc on each side with a lateral triangular black spot.

Var. κ . *Ac. hieroglyphicum.* Zetter. *O. S.* 125.—Fuscous, spotted with testaceous; thorax with four rather distinct black ziczac streaks and dots, placed irregularly; the deflexed lateral lobes with the apex testaceous.

Var. λ . *Ac. scriptum.* Zetter. *O. S.* 126.—Fuscous or ashy; back of the thorax on each side anteriorly with a black incurved crescent-like line, and behind this the ordinary spot, having a slight tooth behind, and thus becoming bifid; on the hinder portion are some brown streaks and spots disposed somewhat in lines.



Var. μ . *Ac. variegatum*. Zetter. O. S. 127.—Variegated with ashy, fuscous, and black; thorax as in var. α ; the hinder femora with a whitish fascia on the outer edge.

Numerous intermediate varieties occur; and I suspect that *Ac. nigricans* is referrible to this species.

Frequents nearly the same places as the preceding species, and during the entire summer, appearing towards the end of spring, and continuing till the autumn.

Sp. 3. *nigricans*. *Corpus subrobustum; atrum vel fuscum, sæpe variegatum, thorace utrinque macula triangulari atra; alis abbreviatis*. (Long. corp. 4—6 lin.)

Ac. nigricans. Sowerby B. M. v. i. pl. 74.—*Ac. brevipenne*. Steph. Catal. 303. No. 3346.

Body somewhat robust; deep black or dusky, sometimes variegated; thorax behind slightly exceeding the abdomen in length, with a more or less distinct triangular black spot on each side behind the middle; wings abbreviated.

Almost all the varieties described under *Ac. bipunctatum* occur in this species, which appears chiefly to differ by having the thorax longer, and the wings shorter and very small.

Taken at Hertford, Ripley, in Battersea fields, Hants, &c., throughout the summer.

FAMILY III.—ACHETIDÆ, Leach.

Tarsi three-jointed; *antennæ* elongate, setaceous; *head* large; crown convex; *eyes* ovate; *ocelli* two or three; *thorax* truncate in front, and receiving the head, which is inserted nearly to the eyes; *elytra* horizontally incumbent, with the sides suddenly deflexed, with an acute ridge at the angle, the disc veined, and dissimilar in the sexes; *body* elongate; *breast* without laminated appendages; *wings* considerably folded longitudinally, and terminating in a kind of subulated tail; *abdomen* cylindric, with two exarticulate, setaceous, elongate, villose processes. or styles; *legs* rather stout, especially the posterior, and their *femora*; the hinder *tibiæ* spinose, robust; *tarsi* without foot cushions between the claws.

This is a limited family, and embraces only three indigenous genera, which are no less remarkable from their aspect and habit than from the singularity of their form and manners, as more particularly detailed under their respective genera: from the Locustidæ (which have three-jointed tarsi) their elongate setaceous antennæ,



exclusively of their robust bodies, their horizontally incumbent elytra, elongate subulate wings, semicylindric thorax—which is destitute of carinæ—elongate caudal appendages to the abdomen, &c. manifestly remove them, in addition to their habits. In some instances the females have an exserted ovipositor, and in all cases the elytra differ in the sexes.

The indigenous species are divisible into the following genera, which may be thus hastily distinguished:—

- Pedes antici dilatati; thorax ovatus:* 11. GRYLLOTALPA.
simplices, haud dilatati;
Thorax transversus; antennæ remotæ: 12. ACHETA.
elongato-quadratus; antennæ appropinquantes: . 13. ÆCANTHUS.

GENUS XI.—GRYLLOTALPA, Ray.

Antennæ inserted before the eyes, shorter than the body, setaceous, consisting of upwards of sixty indistinct articulations; *head* somewhat conic, nutant; *eyes* exserted, small; *ocelli* two, minute; *thorax* subovate and somewhat cylindric; *elytra* abbreviated, partially incumbent on each other, with the humeral portion deflexed, veined; areolets dissimilar in the sexes; *wings* ample; *abdomen* robust, flat below, furnished at its apex, in both sexes, with a setaceous pilose process on each side; the female without an exserted ovipositor; *legs* stout, compressed, anterior formed for digging, their *femora* beneath with a sharp compressed tooth at the base, and the *tibiæ* palmate, the apex divided vertically into robust teeth;* the *tarsi* compressed and trigonate, inserted on the side of the tibia; intermediate *legs* moderate; posterior with rather long and thickened *femora*, and the four hinder *tibiæ* short and armed with spines towards the apex.

The insects of this singular genus, known by the name of “*Mole-crickets*,” may be instantly recognized by their extraordinary palmated anterior legs, which do not unaptly represent the fore-feet of the animal whence their peculiar appellation is derived: they are amongst the largest of the indigenous insects; they subsist on the roots of plants, and are said to be very destructive in some gardens: the female deposits her eggs in a large oval cell, to the amount of

* Mr. Curtis says four, but that is a *specific* difference, not a *generic* character; inasmuch as *Gryll. didactyla* (a South American species), which is sometimes improperly placed in English collections, is furnished with two teeth only at the apex of the tibiæ.

300: they are round, and of a shining yellowish-brown, and are excluded in about three or four weeks.

The sexes, as pointed out by Zetterstedt in his Orthoptera Succica in 1821, differ in the neuration of the elytra, as do the other genera of the family to which the mole-crickets appertain: they rarely fly, and the male makes a not unpleasant chirping sound by the friction of its elytra: they burrow with great rapidity by means of their strong anterior legs.

Sp. 1. vulgaris. *Tomentosa, supra fusca, subtus ferrugineo-flavescens, tibiis anticis quadridentatis, alis elytris duplo longioribus.* (Long. corp. 1 unc. 10 lin.—2 unc. 3 lin.)

Gry. gryllotalpa. *Linné.*—Gryllot. vulgaris. *Steph. Catal.* 303. No. 3347.—*Curtis, v. x. pl.* 456: an elegant figure.

Above brown, beneath testaceous, or rusty-yellowish, entirely clothed with a fine velvety pile: margins of thorax fulvous; elytra dull whitish-yellow, or ashy, with the costa and base brownish, and the nervures dark likewise; wings whitish, slightly iridescent, with the costa, a longitudinal streak through the disc, and the anterior nervures, brown; anterior tibiæ furnished exteriorly with four teeth; of a pitchy hue, the tibiæ themselves being of a chestnut hue.

The sexes, as stated by Zetterstedt in 1821, differ in the neuration of the elytra, the disc in the male being more closely reticulated with nervures, and during repose, in this sex, the right elytron laps over the left.

This insect is not very abundant, but still cannot be considered rare, at least in the south of England; it frequents meadows, fields, boggy places, the rich mould of garden grounds, &c.: the female, towards the beginning of May, forms her cell about six inches beneath the surface, in which she deposits her eggs, and the young are hatched in less than a month, and do not assume their final state till about the end of the succeeding May: they occur in many places within the metropolitan district, and I have taken them near Ripley; they are also found in Devonshire and Cornwall: it has been supposed to be the cause of the "Will o' the wisp," but I think erroneously, as those specimens that I have kept alive have shown no appearances of phosphorescence; and the effects of electro-chemical phenomena are amply sufficient to account for the one in question, which, like many other natural events, appears to have been enveloped in mystery, from the proneness of mankind to hazard theoretical opinions.



GENUS XII.—ACHETA, *Fabricius*.

Antennæ inserted close to the eyes, remote at their base, consisting of upwards of 100 articulations, and longer than the body; *head* large, rounded, somewhat transverse; *eyes* lateral, slightly exserted; *ocelli* three, rather obsolete; *thorax* transverse-quadrate, flat above; *elytra* flat, horizontally incumbent, irregularly veined in the males, and abruptly inflexed towards the humeral angle; *wings* ample, or wanting; *abdomen* rather stout and short, its apex with two slender elongate pilose styles, and in the female with a long porrected ovipositor; anterior *legs* short and simple; posterior nearly as long as the body, with their *femora* thickened, the *knees* swollen, and the *tibiæ*, with a double row of moveable spines.

Unlike the *Gryllotalpæ*, these insects have the anterior legs very slender, and not materially dissimilar to the second pair; but the hinder pair are elongated, and have incrassated femora, as in the *Locustæ*: the head is very broad, and the antennæ are remote at their origin; the thorax is short and transverse; the females have a long exserted ovipositor: the eggs are deposited either in a cell under the surface of the earth, or in holes in old kitchen walls; in constructing which they are assisted by their powerful jaws: the eggs are hatched in about a fortnight or three weeks, and the imago (at least in the domestic species) appears in about three or four months: all the species are remarkable for their loud chirping noise.

Sp. 1. *campestris*. *Niger, nitidus, capite thorace majore, elytris griseo-fuscis, nigro-reticulatis, ad basin et externè dilutioribus, obscuro-flavescentibus, femoribus posticis suprâ sanguineis.* (Long. corp. 1 unc. 4—8 lin.)

Gryl. campestris. *Linné.*—*Sowerby B. M. v. i. pl. 64.*—*Ac. campestris*. *Steph. Catal. 303. No. 3348.*

Robust; deep shining black; head larger than the thorax, the latter nearly twice as broad as long, rather widest in front; *elytra* griseous-brown, irregularly reticulated with black nervures; the base and inner side palest, or dull yellowish; wings small, much shorter than the *elytra* in the male, but longer in the female; posterior femora beneath blood-red at the base.

The ovipositor in the female is nearly as long as the abdomen, and ascends; and the *elytra* are deep black and regularly reticulated.

This is a rare species, at least, I would rather say, is but seldom captured, on account of its extreme shyness; but I am inclined to believe that it is far from uncommon in several parts of the south of England: it has been found in the vicinity of London and at Windsor, in the New Forest, Devonshire, Cornwall, &c., but I



believe not towards the north ; on the continent it does not occur beyond the latitude of York : it is found in June and July, frequenting holes in dry soils, the male making a very loud chirping by day as well as by night.

Sp. 2. *sylvestris*. *Apterus, ochreo-ferrugineus, capite atro orbitis maculæque frontali ochreis, thoracis disco pallido minutim nigro punctato, elytris brevissimis piceis*. (Long. corp. 9—11 lin.)

Ac. *sylvestris*. *Fabricius*.—*Steph. Catal.* 303. No. 3349.—*Curtis, v. vii. pl.* 293.

Apterous ; rusty-ochreous ; head black, shining, with the orbits of the eyes and a patch on the face pale tawny, or ochreous ; thorax black, slightly pilose, the disc spotted with black ; elytra about two-thirds the length of the abdomen, pitchy, with the principal nervure and the base pale ; abdomen black, with two pilose styles at the apex ; legs variegated with black.

Female with the elytra very short, dirty-ochreous, with the sides and nervures pitchy.

I obtained this insect above twenty years since from Mr. D. Byder, who *discovered* it in the New Forest, in the vicinity of Lyndhurst, the second year that he found the indigenous Cicada ; since that period it has been again found in the same neighbourhood, and I obtained many specimens from a collector, whom I employed in the years 1820 and 1821, from the vicinity of Brockenhurst ; also in the New Forest.

Sp. 3. *domesticus*. *Cinereo-glaucus, glaber, thorace posticè truncato, alis elytris longioribus*. (Long. corp. 9—14 lin.)

Gryl. *domesticus*. *Linné*.—*Donovan, v. xi. pl.* 409.—Ac. *domesticus*. *Steph. Catal.* 303. No. 3350.

Shining glaucous ash, scarcely tomentose ; head pitchy-black, very glossy, with whitish transverse lines ; thorax truncate in front and behind, with a fine dorsal channel ; the disc slightly pilose, and with three triangular blackish spots ; elytra scarcely so long as the abdomen, in the male with a large pellucid space, in which the nervures run very irregularly, the apex alone reticulated as usual, as the entire disc is in the female ; wings whitish, with the costa and a streak near the apex brownish ; abdominal styles pale and pilose ; ovipositor of the female about half the length of the body, somewhat clavate at the apex ; legs pilose ; posterior femora very glossy within.

This, which is the “*domestic cricket*” that most persons have heard, though few have seen, occurs in plenty in kitchens, bake-houses, and in other warm situations, existing positively within a few inches of the fiercest domestic fires ; it is very impatient of cold ; is



fond of all sorts of kitchen refuse, crumbs of bread, yeast, &c.; also of milk, broth, water, wet linen, woollen stockings, &c., in which last it will frequently gnaw holes, while they are also not uncommonly found drowned in vessels of beer and the like: when numerous, they are very destructive, as, by means of their powerful mandibles, they burrow away the mortar from between the bricks, and thus at times open a communication from one house to another: although very active, they rarely fly; except when they wish to change their residence: it is said that they may be extirpated from situations where they are troublesome by making a loud noise, or by the introduction of *Ac. campestris*, but in this country this latter remedy cannot readily be adopted, from the rarity of the insect just alluded to.

GENUS XIII.—ÆCANTHUS, *Serville*.

Antennæ approximating at the base, setaceous, longer than the body; *head* oblong-ovate, deflexed; *palpi* four, terminal joint cylindric; *mandibles* stoutish, bi- or tridentate at the apex; *eyes* oblong; *thorax* somewhat convex above, of an elongate-quadrate form, and a little deflexed behind; *elytra* incumbent, longer than the abdomen, oval, with numerous impressed striæ, and three distinct decussating ones; *wings* rounded, without a tail; *abdomen* oblong, furnished at the apex, in the males, with elongate styles, and in the females with a filiform ovipositor, which is nearly straight, being but slightly recurved at its apex; *legs* long and rather slender, posterior longest, the *femora* simple, the *tarsi* with two rows of minute spines.

One indigenous species only is known of this curious genus, which differs from the foregoing in having the antennæ approximating at the base, the thorax somewhat longer; the elytra larger, and exceeding the abdomen in length, the latter being oblong, and furnished at the apex, in the females, with a very long ovipositor.

†Sp. 1. *Italicus*. *Virescente-albidus, oculis atris, elytris hyalinis, abdomine subdiaphano*. (Long. corp. 9 lin.)

Ac. Italicus. *Fabricius*.—*Steph. Catal.* 303. No. 3351.—*Aphelomera Italica*. *Steph. Nomen*. 2d edit. col. 111.

Of a greenish-white, with black eyes; abdomen oblong, whitish, diaphanous; elytra hyaline, somewhat yellowish towards the apex; wings transparent white; legs also diaphanous white.

Of this singular insect I have seen one imperfect example only, which was taken by my late friend Mr. Haworth, near Halvergate in Norfolk, many years since, and is now in Mr. Westwood's cabinet.

MANDIBULATA, VOL. VI., 30TH JUNE, 1835.

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FAMILY IV.—BLATTIDÆ, *Stephens*.

Body broad and flat, oval; *antennæ* very long and setaceous, consisting of from 50 to 150 minute articulations; *head* somewhat triangular, often concealed beneath the front of the thorax; *maxillary palpi* elongate, with the terminal joint somewhat securiform; *eyes* kidney-shaped; *ocelli* obsolete; *thorax* rounded, nearly transverse, margined; *elytra* lapping over on the inner margin, the apex slightly gaping, as long as the wings, and frequently longer than the *abdomen*, the latter flat above, convex beneath, terminated at the apex with two jointed moveable processes, and occasionally also with two inarticulate styles; *legs* compressed, formed for running; *tibiæ* very spinous, the spines moveable; *tarsi* five-jointed.

The disagreeable insects comprised in this family, called "*Cockroaches*," differ from the true Orthoptera by having the tarsi five-jointed; the body also is ovate, depressed, the head concealed beneath the front of the thorax, the legs all formed alike, compressed, with very spinous tibiæ, the spines themselves being moveable; the apex of the abdomen is furnished with two porrect articulated processes, in addition to two styles that are frequently present; the sexes chiefly differ in the number of segments to the abdomen, being

GENUS XIV.—BLABERUS, *Serville*.

Antennæ moderate; *head* nutant; *thorax* with its anterior margin rounded and entire, completely concealing the head; *elytra* gradually rounded on the lateral margin, and not suddenly narrowed towards the apex, the disc with a curved stria; *body* elongate, ovate, glabrous; *abdomen* with its terminal segment moderate and unarmed, but furnished with the usual appendages; *legs* rather moderate in length; *tibiæ* with long spines without; *tarsi* with the basal and terminal joints elongate, the intermediate stout, and each of equal length; the *claws* without any cushion between them.

The want of a cushion between the claws is a leading mark of the separation of this genus from the other assumed indigenous ones of this family, to which other characters might be added, as the relative proportions in the joints of the tarsi, &c.

†Sp. 1. giganteus. *Lividus*, *thoracis clypeo maculâ quadratâ fuscâ*. (Long. corp. 2 unc. 1—2 lin.)

Bl. gigantea. *Linné*.—*Pantologia* (!)—*Shaw*, *General Zoology*, v. vi. pl. 41 (!) *Steph. Catal.* 303. No. 3352, note.

Livid: thorax with a large fuscous spot on its disc.

In the *Pantologia* (article *Blatta*) this large insect is stated to be British, but



eight in the males, and six or seven in the females, and the last sex has the terminal segment sometimes keeled: the eggs of these insects are compound, that is, they are enclosed in an oblong case,

I believe that it is a native of South America and the West Indies: certain it is that specimens have been found in England, as in Mr. Beck's cabinet are several examples which he found in the West India Docks; but it is evident from that they have no pretensions to be considered British. In Shaw's General Zoology, it is supposed, by a quotation from Mouffett, that a specimen once occurred in the tower of a church at Peterborough, but the vagueness of the description renders the story improbable.

GENUS XV.—BLATTA, *Auctorum*.

Antennæ glabrous, very long, inserted in an excavation near the eyes; *head* nutant, nearly concealed beneath the anterior margin of the thorax; *eyes* depressed; *thorax* rounded in front, slightly waved behind; *elytra* with a shallow curved channel towards the base, the apex sometimes truncate; males with wings, females generally destitute thereof, and in some instances wanting *elytra*; *body* glabrous and shining, of a soft consistence, much depressed above; *abdomen* in the males furnished at the apex with two articulated processes and two styles; *legs* slender, long, especially the posterior; the hinder *femora* and all the *tibiæ* armed with spines, the former below and the latter on the outside; *tarsi* with the basal joint as long as all the others united; *claws* with a more or less evident puvillus, or cushion, between them.

From the preceding genus these insects may be known by having a cushion between the claws, exclusively of other differences; and from *Ectobius* they differ not only by having the basal joints of the tarsus as long as the four remaining joints, the femora more or less spinose beneath, but in being of a much larger size, &c.; they are most voracious insects, and devour all kind of animal and vegetable substances that they can obtain: they are extremely destructive in kitchens, bakehouses, on board ship, &c.: they are probably the most active of insects, running from the light, which they detest, when suddenly disturbed, with inconceivable velocity; they are, consequently nocturnal insects, and the common species, *Bl. orientalis*, abounds so in some underground apartments in London, as literally to cover the floor, within a few minutes after the lights are extinguished.

Sp. 1. Maderæ. *Fusca, thorace elytrisque lividis fusco variegatis*. (Long. corp. 1 unc. 6—10 lin.)

Bl. Maderæ. *Fabricius*.—*Donovan*, v. xiii. pl. 457 (!)—*Steph. Catal.* 304. No. 3354, note.

having a ridge on one side, whence the young larvæ escape. The indigenous species are divisible into the following genera :—

<i>Pulvilli intra ungues nulli :</i>		14. <i>BLABERUS</i> .
conspicui :		
<i>Tarsorum art. basali reliquis longiori :</i>		15. <i>BLATTA</i> .
breviori :		16. <i>ECTOBIUS</i> .

Head greenish-brown; antennæ dusky; thorax livid, with irregular fuscous spots; elytra also livid, elegantly veined longitudinally, and thickly adorned from before the middle with raised transverse lines, placed somewhat irregularly; these lines are broadly fuscous, and produce a variegated appearance; the base is plain in colour, but is ornamented with a longitudinal fuscous streak on the angle of the elytra, and a curved one extending to the suture, before the middle; the body beneath and legs are slightly testaceous.

This fine insect, which is a native of Madeira and the adjoining islands, has been frequently taken in London, but like the other species of the genus is not indigenous.

Sp. 2. *Americana*. *Ferruginea, thoracis clypeo posticè fasciâ exalbida, elytris alisque abdomine longioribus, apice rotundatis*. (Long. corp. 1 unc. 5—8 lin.)

Bl. *Americana*. Linné.—Shaw, *Gen. Zool.* v. vi. pl. 41 (!)—*Steph. Catal.* 304. No. 3355, note.

Ferruginous; head with a whitish spot on each side between the antennæ; eyes dusky; thorax with a waved whitish fascia on the hinder margin (which is a little sinuated), sometimes emitting a branch on each side, which extends round the entire margin, and a second in the middle, forming a longitudinal streak, and united to the other two on the anterior edge, leaving only two large ferruginous spots on the disc; elytra of a brownish tinge, prettily veined, and with the interstices transversely strigose; the apex rounded; abdomen paler, with the terminal segment rounded in the male, and glabrous, carinated and pilose in the female, its apex furnished with two processes of about fourteen joints, and also the usual styles; legs pale testaceous; femora and tibiæ with dusky spines.

Found occasionally in warehouses and outbuildings, by the side of the Thames, especially below London Bridge; it is a native of America, and has evidently been brought into this country, and is consequently not an indigenous production.

Sp. 3. *orientalis*. *Ferrugineo-fusca, thorace concolore, elytris alisque abdomine brevioribus, apice subtruncatis; fœmina aptera elytrorum rudimento*. (Long. corp. 8—14 lin.)

Bl. *orientalis*. Linné.—Wood, *Gen.* v. i. pl. 31.—*Steph. Catal.* 304. No. 3353, note.



GENUS XVI.—ECTOBIUS, *Westwood*.

Antennæ glabrous, very slender; *head* nutant; *thorax* rounded in front, and concealing the head, slightly produced in the middle behind; *eyes* small; *elytra* in the males as long as the abdomen, with a single curved channel towards the base; *wings* generally complete in both sexes; *body* oblong, more or less depressed above, mostly glabrous, sometimes slightly pubescent above; *abdomen* of the males furnished at the apex with two jointed processes only, but destitute of styles; in the female the terminal segment is not carinated beneath; *legs* moderate, posterior rather the longest; *femora* rarely with spines beneath; *tibiæ* with spines on the outer edge; *tarsi* with the three basal joints gradually diminishing in length, the basal one not so long as the four others united; *claws* without a cushion between them.

This genus embraces all the truly indigenous species of "Cockroach," though probably the first two of those, hereafter given, may have been introduced as there surmised: they differ not only in their smaller size and paler tints from *Blatta*, but from having the tarsi dissimilar in the proportions of the joints, the basal one being shorter than the remainder united; the males are not furnished with styles at the apex of the abdomen, and both sexes are generally winged: all but the first two occur beneath the bark of trees.

Rusty-brown, somewhat obscure; head with a white dot between the eyes on each side; thorax immaculate; elytra abbreviated in the male, truncate at the apex, longitudinally veined and transversely strigose, as in the preceding species; wings small, whitish, with the costa fuscous; female without wings, and with the rudiments only of elytra; abdomen and appendages as in *Bl. Americana*: legs ferruginous, with concolorous spines; tarsi testaceous; pulvilli (or cushions) minute.

Like the foregoing insect this has been introduced into this country, and is not, therefore, an aboriginal native: it occurs, however, in houses, especially in London and in maritime commercial towns, in utter profusion, swarming by myriads in some of the underground apartments of the metropolis: it is a native of India, and has not only been introduced into this country through the aid of commerce, but into most other European ones; it appears not to have reached Sweden till about a century back (1734 or 1739), having been introduced from Russia; but it has been known in Britain twice as long, being common in wine cellars in London "*Londini apud nos in cellis vinarijs*," according to Mouffett, whose "*Theatrum*" was published in 1634.



Sp. 1. *germanicus*. *Lividus*, *antennis articulo basali excepto, oculis, thoracisque lineis duabus parallelis, nigris*. (Long. corp. 9—10 lin.)

Bl. *germanica*. Linné.—Donovan, v. x. pl. 341.—Steph. Catal. 304. No. 3356.

Head yellow, with a dusky streak between the eyes, the latter black; antennæ, except the basal joint, which is yellow, the same; thorax livid, very glossy, with two longitudinal parallel black lines, neither touching the anterior nor posterior margins; scutellum and elytra livid, immaculate, the nervures single in the middle of the costa, furcate towards the apex, and reticulated on the inner margin; wings whitish at the base, the apex and nervures dusky; abdomen yellow, with the region of the stigmata dusky or pitchy; legs yellow, immaculate; femora beneath and tibiæ on the outside with concolorous spines.

It is extremely doubtful whether this insect be really indigenous: I feel inclined to decide against its admission, as it appears to be confined, at least in this country, to dwellings and warehouses; and it unquestionably occurs, not uncommonly, in merchant vessels: it is said to inhabit the woods of India; but it occurs in various parts of Europe: in England it has been found about and in London, Portsmouth, Plymouth, &c.

Sp. 2. *pallens*. *Pallide-testaceus, nitidus, thorace flavo-testaceo lurido, toto immaculato, oculis atris*. (Long. corp. $8\frac{1}{2}$ lin.)

Bl. *pallens*. Steph. Catal. 304. No. 3357.—Bl. *lucida*. Hagenb. Symb. Faun. Helv. 18. f. 9?

Above pale-testaceous, and shining; beneath of a paler hue, and immaculate; thorax very glossy, and of a fine testaceous-yellow, also immaculate; eyes deep black; legs pale testaceous, with the femora beneath and the tibiæ on the outside armed with concolorous spines.

Charpentier considers this insect (that is, if it be synonymous with Bl. *lucida* of Hagenbach) to be a variety of the foregoing; but its jet black eyes, and totally immaculate glossy thorax, appear to form sufficient characters of distinction: however, upon this point I am uncertain, having only my own dried specimen to assist me: it nevertheless appears to differ in form.

My example of this insect was taken near London.

Sp. 3. *lapponicus*. PLATE xxviii. f. 7.—*Elongato-ovatus, postice attenuatus, flavescens, thoracis disco maris, elytrorum atomis abdomineque in utroque sexu, nigris, pedibus piceis aut flavis*. (Long. corp. 7—8 lin.)

Bl. *lapponica*. Linné.—Steph. Catal. 304. No. 3358.

Elongate-ovate, attenuated behind; yellowish; head black, with the crown brownish; antennæ also black; thorax smooth, black, with the lateral margins broadly, and the anterior and posterior narrowly, pellucid yellow;



elytra longer than the abdomen, pellucid-yellow, thickly sprinkled with numerous minute dusky atoms, and with a few larger spots disposed longitudinally; wings slightly brownish; abdomen black, with the lateral margins yellow; femora slightly spined; legs posteriorly with the tibiæ and tarsi frequently paler, and the tips of the latter dusky or blackish. The female is rather less, shorter and paler, head obscure; base of the antennæ sometimes pale; thorax with the disc testaceous, the margins yellow; elytra scarcely as long as the abdomen, with the spots rather more distinct than in the male; abdomen broadish, pitchy or black, with the sides and margins of the segments yellow; legs yellow, with the apex of the tarsi, the claws and pulvilli black.

This appears to be a rare species in England: I once (in July 1827) took a pair in a wood near Albury in Surrey, and obtained it in the same season from the vicinity of Lyndhurst; and I do not remember to have seen other specimens elsewhere.

Sp. 4. *perspicillaris*. *Ovatus, flavescens, thoracis disco testaceo, elytris atomis, abdomineque supra fuscis, antennis pallidis*. (Long. corp. 6—7 lin.)

Bl. *perspicillaris*. *Fuesly* ?—*Steph. Catal.* 304. No. 3359.

Ovate, yellowish; thorax with the disc testaceous, the margins pellucid yellow; elytra with some distinct dusky spots disposed longitudinally, and numerous blackish atoms on the surface; abdomen above fuscous, with pale lateral margins, beneath blackish; legs pale yellowish-pitchy, with the knees paler; femora with a few spines within; wings fuscous, darkest at the apex.

Of this insect (which is supposed by Charpentier to be a variety of *Ec. lapponicus*) I have two examples—one taken in the neighbourhood of Lyndhurst; the other I obtained from the Marshamian collection.

Sp. 5. *Panzeri*. *Elongatus, pallide-ochraceo-flavescens, thoracis disco testaceo fusco, elytris pallidis lateribus membranaceo-pellucidis, disco ferè immaculato, antennis pedibusque piceis*. (Long. corp. 5—6 lin.)

Bl. *Panzeri*. *Steph. Catal.* 304. No. 3360.—Bl. *germanica*. *Panzer Faun. Germ.* ii. f. 16.

Slightly elongate, or elliptic; of a pale ochreous yellow; head dusky; mouth pale; thorax with its disc testaceous-brown, sometimes a little blackish, the margins pale and pellucid; elytra also pale, the lateral margins pellucid brownish-yellow, the disc with a few minute brownish atoms; abdomen beneath pitchy, above pale testaceous-brown; legs pale pitchy, the femora palest and without spines; antennæ also pitchy.

Found not uncommonly on the coast of Devonshire, near Kings-



bridge and Plymouth; also in Cornwall and in the New Forest, in June.

Sp. 6. *nigripes*. *Elongatus, ochraceo-flavescens, thoracis disco antennis pedibusque nigris, tarsorum articulo basali coxisque albidis*. (Long. corp. 6 lin.)

Bl. *nigripes*. *Steph. Catal.* 304. No. 3361.

Elongate-ovate, or elliptic; ochreous-yellow, with a brownish tinge; head, antennæ, and eyes, black; thorax with its disc black, the margins pale testaceous and pellucid; elytra pale yellowish-brown, or ochreous, with some remote, somewhat indistinct, darker atoms on the disc, especially towards the apex; abdomen black beneath, dark brownish-ochre above, with a black streak on each side; legs black, with the coxæ pale ochreous, the base of the tarsi whitish; femora without spines.

This species also occurs, in June, in the New Forest, about Lyndhurst, and I believe also in Dorsetshire.

Sp. 7. *lividus*. *Brevis, latus, ovatus, pallide testaceo-flavus, immaculatus, oculis atris; abdominis basi nigro*. (Long. corp. 5—6 lin.)

Bl. *livida*. *Fabricius*.—*Samouelle, pl. 4. f. 17*.—*Steph. Catal.* 304. No. 3362.

Rather broad and short, ovate; pale testaceous-yellow; the head and centre of the thorax brighter; eyes deep-black; elytra pale immaculate; breast and abdomen beneath also very pale, the latter above black, with the sides, apex, and a fine margin to each segment, pale testaceous-yellow; legs very pale ochreous; femora with a few spines within; tarsi at the apex and claws dusky.

This species occurs beneath the bark of trees at Darent and Birch woods in June, and I rather think in the vicinity of Dover.

Sp. 8. *pallidus*? *Brevis, sublatus, ovatus, pallide testaceo-brunneus, oculis atris, pleuris, abdominis lateribus infra, basi que supra nigris, elytris maculis aliquot brunneis*. (Long. corp. 4—5 lin.)

Bl. *pallida*. *Olivier*?—*Steph. Catal.* 304. No. 3363.

Short, rather broad and ovate; of a pale testaceous-brown; eyes deep black; thorax glossy, sometimes faintly varied with brownish atoms; elytra paler, also with some faint brownish atoms, and three or four rather conspicuous brownish spots; pleuræ, base of the abdomen, and a lateral streak on each side beneath black; legs very pale; femora with a few spines beneath.

I have received this insect from Devonshire, and it has occurred in the New Forest in June.



ORDER IV.—NEUROPTERA.

Wings all membranaceous and reticulated, with numerous areolets, generally four, rarely two, or wanting; *eyes* usually large; *ocelli* two or three; *mouth* various; *prothorax* distinct, ample; *scapulæ* and *parapleuræ* parallel and oblique. Metamorphoses various: larva with six articulate legs, and with strong horny mandibles.

The contents of this order are so extremely various and diversified, as almost to preclude the possibility of drawing up a concise set of characters, that shall embrace every species that legitimately belongs thereto: in some the wings are four in number and alike, and the posterior ones (occasionally) actually exceed the anterior in bulk; while in other groups they are not only dissimilar to the anterior, in reticulation, &c., but they actually become so much diminished, as in some genera (*Cloëon*, *Cænis*, &c.) to disappear; while again in other genera (*Boreus*, *Atropos*, &c.) all the wings are wanting. If we select other characters, the same discrepancy is observable—the antennæ, for instance, in *Ascalaphus*, a foreign genus, are longer than the body and clavate, while in the gigantic *Libellulæ* they are so short and slender, especially at the tip, as to be scarcely visible; again, in these last insects the mandibles, and in fact all the oral organs, are strongly developed, while in the *Ephemeridæ* they almost totally disappear, the rudiments of a labrum and palpi only being evident: in fine, there appears scarcely an organ but what undergoes the extreme of variation in this Protean order.

If the structure of these insects is so diversified, their habits are no less so: some of them in the primary stages inhabit the water, others live on trees, beneath bark, &c., but most of them appear to be carnivorous: again, in metamorphoses, there is as much diversity, as more particularly noticed under the respective families, and in one group (*Ephemeridæ*) a sort of quadruple metamorphosis takes place.

From the extremely variable contents of this order, it becomes necessary to subdivide it into various groups before treating of their contents: I shall therefore proceed to notice the first of the indigenous ones, in which one of the genera (*Boreus*) approaches nearest to the *Orthoptera*.

SECTION I.—PANORPINA.

Head produced in front in form of a rostrum, or beak, at the apex of which

MANDIBULATA, VOL. VI., JUNE 30TH, 1835.

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the trophi are placed; the latter variable in the different genera; *antennæ* setaceous, inserted between the eyes, and somewhat approximating, composed of numerous articulations, the basal one being largest, the remainder generally distinct: *head* transverse; *eyes* prominent; *thorax* with the anterior segment occasionally very short, but sometimes ample; *wings* sometimes wanting, or four, either uniform in appearance, or very dissimilar; *body* elongate-conic, or subcylindric; *legs* generally long and slender; *tarsi* long, five-jointed, slender. Metamorphosis unknown.

This family contains only two British genera, thus distinguished:

<i>Alæ</i> 4, subsimiles, incumbentes, reticulatæ:	.	.	.	2. PANORPIDÆ.
nullæ, aut rudimentes:	.	.	.	1. BOREIDÆ.

FAMILY I.—BOREIDÆ *miki*.

Wings none, or only rudimentary; *ocelli* wanting; *prothorax*, or collar, ample; *abdomen* obtuse at the apex in the males; furnished with an ovipositor in the females.

The ample prothorax, combined with the almost total absence of wings, obtusely terminated abdomen in the males, as well as the presence of a peculiar ovipositor in the females, sufficiently indicate the distinctions of this family, which consists only of one indigenous genus.

GENUS I.—BOREUS, *Latreille*.

Antennæ approximating at the base, rather long, filiform, composed of more than twenty joints, the basal one of which is broad and the terminal conic; *head* nutant; *thorax* ample, its first segment or *prothorax* large and uneven; the two following, or *meso-* and *meta-thorax* short, each furnished in the males with a pair of slender *wings*, above half the length of the abdomen, and resembling an awl, the apex recurved and ciliated; and in the females with a pair of short scale-like appendages; *abdomen* robust, cylindric, and obtuse at the apex in the males; somewhat acuminate at the apex in the females, and furnished with a triarticulate ovipositor, having a bilobed valve beneath; *legs* long and slender, simple in both sexes.

The characters of this genus are sufficiently indicated in the observations appended to the family Boreidæ, so that it is unnecessary to repeat them: the only British species is found in the winter season under moss, stones, &c., and appears to be rather extensively distributed: its metamorphoses are unknown.

Sp. 1. *hyemalis*. *Fuscus, subæneo lucidus, rostro, ovipositore pedibusque ochreis.* (Long. corp. 2—3½ lin.)

Pan. *hyemalis*. *Linne.*—Bo. *hyemalis*. *Curtis, v. iii. pl. 118.—Steph. Catal. 304. No. 3364.*

Fuscous, with a bronzed tinge; head and eyes black, the former bronzed; rostrum pale ochreous, with the tip brown; prothorax dusky; meso- and meta-thorax ochreous; abdomen with the edges of the segments palish; the ovipositor ochreous, with a dusky tip; legs pale ochreous, with the terminal joint of the tarsi black at the apex; antennæ blackish, with the base pale.

The wings are pale ochreous-brown in the male.

This is a very local insect: it was first taken by Dr. Leach near Costessy in Norfolk, and subsequently, rather in abundance, by the Messrs. Walker, near Southgate; and last winter, in the vicinity of Nottingham, by R. Bakewell, Esq., to whom I am indebted for specimens.

FAMILY II.—PANORPIDÆ, *Leach.*

Wings four, ample, reticulated, incumbent during the repose of the animal, though slightly extended in form of a long triangle; *ocelli* distinct; *prothorax* short, resembling the *collar* of the Hymenoptera; *abdomen* generally elongate and attenuated to the apex, sometimes furnished with a cheliform appendage in the males, but never with an ovipositor in the females.

Of this family the metamorphoses are likewise unknown; and from the Boreidæ it differs in having ample wings, combined with a very short prothorax, distinct ocelli, an elongate tapering abdomen; furnished at the base in the males (at least in the British genus) with forceps, and without an exerted ovipositor in the females.

GENUS II.—PANORPA *Auctorum.*

Antennæ approximating at the base, long, slender, inserted between the eyes, composed of numerous articulations, setaceous; *head* vertical; *palpi* subequal, filiform; *ocelli* three, disposed in a triangle on the front, the two hinder ones largest; *body* elongate, narrow; *thorax* short, the anterior segment small; the two posterior producing large elongate reticulated equal *wings*, of an ovate-elliptic form, and resembling each other; *abdomen* conic, furnished at the apex in the males with a claw-like appendage, or forceps, and in the female with a simple hook; *legs* long, slender; *tibiæ* with spurs at the apex; *tarsi* with short denticulated *claws*, between which is a spongy pulvillus.

The presence of ample incumbent reticulated wings, and distinct ocelli, sufficiently characterizes the only indigenous genus of this family; to which may be added the forcipated tail of the male, elongate-attenuated abdomen of the females, exclusively of other less evident external differences. The transformations are unknown.

Sp. 1. communis. *Nigra, alis hyalinis, venis fasciâ apiceque fuscis, costâ obscure testaceâ; thorace maculis pedibusque testaceis.* (Exp. Alar. 1 unc. 1—5 lin.)

Pa. communis. *Linné.—Leach, Zool. Misc. v. ii. pl. 94. f. 1.—Steph. Catal. 305. No. 3365.*

Black; thorax with a row of livid or testaceous spots on the back, arranged longitudinally; rostrum reddish; wings hyaline, with the nervures, an irregular fascia towards the apex, with the tip itself, and a few scattered spots, dark fuscous; the costa dull testaceous; three or four terminal joints of the abdomen reddish; legs dull testaceous.

Slightly variable in size, and a little so in the disposition of the spots on the wings; but in all the varieties, the fascia on the wings (behind the middle) is very evident.

Extremely abundant, during the summer, in hedges by the sides of woods, meadows, &c. throughout the metropolitan district; also common in other parts of the country.

Sp. 2. affinis. *Nigra, alis hyalinis, venis maculis apiceque fuscis, costâ obscure testaceâ, thorace maculis pedibusque testaceis.* (Exp. Alar. 11—16 lin.)

Pan. affinis. *Leach, Zool. Misc. v. ii. pl. 94. f. 2.—Steph. Catal. 305. No. 3366.*

Black; rostrum and apex of the abdomen reddish; thorax with some yellowish or testaceous dorsal spots, placed longitudinally; wings hyaline, with the nervures, and numerous scattered spots and the extreme apex fuscous; legs testaceous.

The generally smaller size of this species, in addition to the difference in the maculation of the wings, sufficiently points out its distinction from the foregoing.

Also a very common insect, within the metropolitan district, occurring rather earlier in the season, but continuing throughout the summer: likewise found in other parts of the country.

Sp. 3. apicalis. *Nigra, alis hyalinis, immaculatis, apice fusco solo excepto, venis fusciscentibus, pedibus piceis.* (Exp. Alar. 9—10 lin.)

Pa. apicalis. *Steph. Catal. 305. No. 3367.*

Black; rostrum and apex of the abdomen reddish; thorax immaculate; wings



the same, with the extreme apex alone fuscous, the nervures slightly brownish, and the costa faintly testaceous; legs pitchy.

This insect is much smaller than either of the other species, and may be known by having the extreme tips alone of all the wings deep fuscous.

I possess a pair of this species that occurred in the vicinity of London; one at Darenth wood, in June.

Sp. 4. borealis. *Nigra, rostro, abdominis apice pedibusque piceis, alis hyalinis venis maculâque costali fusciscentibus.* (Exp. Alar. $9\frac{1}{2}$ lin.)

Pan. borealis. *Steph. Nomen. 2d edit. col. 112.*

Black; rostrum, apex of the abdomen, and the legs pitchy; thorax with some obscure testaceous spots; wings hyaline, with the nervures, and a spot on the costa, towards the apex, brownish.

This may probably be a variety of the following species.

Found in the neighbourhood of Edinburgh.

Sp. 5. germanica. *Nigra, rostro, abdominis apice pedibusque rufis, alis hyalinis subnebulosis, maculâ costali conspicua fuscâ.* (Exp. Alar. 9—13 lin.)

Pan. germanica. *Linné.—Steph. Catal. 305. No. 3368.*

Black; rostrum, apex of the abdomen and legs red or reddish; thorax with a dorsal row of testaceous or yellowish spots; wings hyaline, obscurely clouded with fuscous, with a conspicuous spot of the same towards the apex of the costa, and some darker clouds near the hinder margin, or tip of the wing.

As in the other species of this genus, some examples are more clouded with fuscous, on the wings, than others.

Much less abundant, at least within the metropolitan district, than either *P. communis* or *P. affinis*: it occurs, however, not uncommonly, especially in the New Forest, in the months of June and July.

SECTION II.—ANISOPTERA, *Leach.*

Antennæ short, subulated; *mandibles* obsolete or wanting; *wings* erected during repose, anterior generally elongated, of a somewhat triangular form, with the hinder margin rounded, and considerably larger than the posterior, which in some cases are totally wanting; *abdomen* furnished at its apex with two or three setæ or filaments, variable in length, according to the species; *legs* various; anterior elongated, porrected; intermediate and posterior short; *tarsi* with four joints. Metamorphosis quadruple.

The insects comprehended in this division of Neuroptera are remarkable for several peculiarities, both of structure and of habit, as



more particularly detailed in the notice of the only family in which they are embraced: it may, however, be here remarked that they may be known by their minute antennæ, porrected anterior legs, the filamentous appendages to the abdomen, and by the great dissimilarity in the size of the two pair of wings, the second, or posterior, being sometimes entirely absent; again, the insects are nearly, or totally in some instances, destitute of a mouth, and the eyes are usually very large.

FAMILY III.—EPHEMERIDÆ, *Leach*.

Antennæ inserted on the inner margin of the eyes, triarticulate, the two basal joints very short and thickened, the third long, and resembling a slender tapering bristle; *mouth* wanting? *body* elongate, soft; *head* as wide as the thorax, transverse; *eyes* large, suboval, united on the forehead in the males; *ocelli* three, placed triangularly; *thorax* subcylindric; *wings* two or four; *abdomen* elongate-conic, with two or three very long setæ, or filaments, at the apex, composed of numerous joints, and two or three shorter setaceous ones (also jointed) beneath; *legs* slender, anterior remote from the others, inserted, to appearance, beneath the head, much longer than the others, their femora thickened, the intermediate and anterior pairs with the femora less robust; all the tibiæ simple, and forming at first sight, as it were, the basal joint of the tarsi, being gradually attenuated from the base, the *tarsi* consisting of a few cylindric articulations, of which the first is shortest, and the terminal one is furnished with two unequal membranous compressed *claws*, the smallest having a horny tooth at the apex, and the other being broader and obtuse. The metamorphosis is quadruple, inasmuch as the insect is furnished with wings, enveloped in an outer case, which is ultimately slipped off before the true imago is declared.

The insects of this family, as previously alluded to, are remarkable for undergoing a quadruple metamorphosis, as, in addition to the ordinary states of egg, larva, pupa, and imago, there is an intermediate one to the last two, inasmuch as a sort of representative of the imago is produced after the pupa, but which has to undergo a further ecdysis, or shedding of its skin, before the true insect appears: in this state the insect is capable of flying, the true wings being encased in a delicate membrane, which is cast very expeditiously, when sufficiently mature: in this operation a slit is made on the back, through which the insect forces itself, and gradually withdraws its body, limbs, and wings, leaving its exuvium, exactly corresponding with its previous form, excepting that portion which enveloped the wings,



and which is rolled up into a mass on each side of the thorax: in the first three states these insects inhabit the water, and upon their emersion from the pupa they become inhabitants of the air; their life is of short duration, but nevertheless some of the species exist for a considerable period, as noticed under *Cloeon dipterum*: the larvæ vary slightly in structure, according to the genera, those of the true *Ephemera* and of *Baetis* having exerted respiratory organs along both sides of the body.

The indigenous genera may be thus distinguished:—

Alæ quatuor, posticis distinctis:

<i>Cauda triseta:</i>	.	.	.	.	.	3. EPHEMERA.
<i>biseta:</i>	.	.	.	.	.	5. BAETIS.

duæ, posticis nullis, aut vix conspicuis:

<i>Cauda triseta:</i>	.	.	.	.	.	4. CÆNIS.
<i>biseta:</i>	.	.	.	.	.	6. CLOEON.

GENUS III.—EPHEMERA *Auctorum*.

Head small, emarginate in front; *eyes* rather large, ovate, united on the crown in the males, somewhat remote in the females; *thorax* not very stout, elongate-ovate; *wings* four, anterior much longer than the abdomen, somewhat lanceolate, more or less reticulated, the costa slightly waved, posterior very small, ovate-triangular; *abdomen* as long again as the thorax, slightly tapering at the apex, and terminated by three very long filaments, of which the central one is shortest in the males; *legs* rather long and slender.

The species of this genus are probably more numerous than I have indicated, as the account of them is entirely made up from those that are contained in my own cabinets, other collections thereof not being *named* or divided into species: it is therefore fair to conclude, that if among the more conspicuous long genera I occasionally lack specimens, such is the case in this genus, which may be known by having four wings and three filaments, or setæ, at the apex of the abdomen.

A. The transverse nervures of the wings very distinct, giving the wings a strongly reticulated appearance.

Sp. 1. *vulgata*. *Obscure-fusca, abdomine lutescente, alis fuscescentibus, fusco reticulatis et maculatis, costâ anticarum pallide fuscâ, pedibus pallidis obscure nebulosis.* (Exp. Alar. 1 unc. 2—4 lin.;—Long. corp. 6—7½ lin.; 1. setarum 1 unc. 3—4 lin.)

Ep. *vulgata*. *Linnc.*—*Wood*, v. ii. pl. 47.—*Steph. Catal.* 305. No. 3369.

Dull fuscous; anterior portion of the thorax yellowish, with a brighter stripe of the same colour on each side before the wings, the latter hyaline, the anterior suffused with pale fuscous, excepting towards the inner portion of the base, the costa of a rather darker hue, nervures fuscous, the transverse ones edged with the same, producing a variegated appearance; towards the base is a small irregular fuscous cloud, and about the middle, near the costa, is an interrupted waved fascia of the same hue; posterior wings fuscous towards the apex, and with a spot of brown in the centre; abdomen fuscous, varied with yellowish, or with the basal and terminal joints dusky, and the remainder ochreous-yellow, with brownish edges to the stigmata; legs pale, anterior with the femora, and the others clouded with, fuscous.

Rather variable in the spotting of the wings, some examples being more clouded than others.

This insect—the *May-fly*—sometimes occurs in great abundance in the vicinity of the metropolis, especially on the banks of the New River and of the Lea, near Hackney and at Hertford, towards the end of May, flying about, with the peculiar vacillating motion of the family, in the afternoon in myriads, and again towards evening.

Sp. 2. *cognata*. *Fusco-ferruginea, abdomine pallidiore, marginibus segmentorum albis, alis hyalinis subluteo-fuscis, nervis maculisque fuscis, pedibus rufescentibus, geniculis fuscis*. (Exp. Alar. 1 unc. 6—7 lin. :—Long. corp. 8—9 lin.; l. setar. 8—9 lin.)

Eph. *cognata*. *Steph. Catal.* 305. No. 3370.—Eph. *vulgata*. *Donovan, v. iv. pl.* 128 ?

Rusty-brown; collar anteriorly and a stripe before the wings pale yellowish-white; wings hyaline, of a somewhat yellowish-, or luteous-brownish, with the nervures, especially the transverse ones, fuscous, two or three conspicuous brown spots about the middle towards the costa, and one near the base; abdomen of a pale reddish-ochre, with the apex dusky, and the margins of the segments whitish; beneath on each segment are two oblique fuscous lines, and another on each side; legs reddish, with the knees and tips of the tibiae and tarsi dusky.

The great dissimilarity in the proportions of the parts, as well as the difference in colouring, sufficiently point out the propriety of establishing this as a species. Not having an opportunity of reconsulting Donovan's figure at present, I have placed a query to the reference.

Also found in the neighbourhood of London, about the beginning of June, but apparently rare.

Sp. 3. *Stigma*. *Piceo-fusca, abdomine pallidiore, pedibus setisque luridis, immaculatis, alis hyalinis pallide lutescentibus, haud maculatis, anticarum costâ ad*



apicem luteo-fuscescente. (Exp. Alar. 11 lin.:—Long. corp. $4\frac{1}{2}$ lin.; 1. setar. $8\frac{1}{2}$ lin.)

Eph. Stigma. *Steph. Catal.* 305. No. 3371.

Pitchy-brown; thorax in front and abdomen paler, or of a rusty tinge; legs and setæ, or filaments, lurid, and not spotted; wings hyaline, of a pale yellowish hue and immaculate, the anterior with the costa at the apex luteous-brown.

I have a single example of this insect, of which I know not the locality.

Sp. 4. *talcosa. Piceo-fusca, abdominis apice pedibus setisque luridis, alis hyalinis immaculatis.* (Exp. Alar. 10 lin.:—Long. corp. $4\frac{1}{2}$ lin.; 1. setar. 7 lin.)

Eph. *talcosa. Mus. Marsham.—Steph. Catal.* 305. No. 3372.

Pitchy-brown, immaculate, with the apex of the abdomen and the legs lurid; filaments the same, but paler; wings transparent, immaculate, nervures very pale ochreous-brown, the costal ones slightly yellowish, and the costa itself towards the apex of a luteous-brown hue.

Of this species—which I obtained from the Marshamian collection—I am ignorant of its locality.

Sp. 5. *lutea. Lutea, oculis marginibusque segmentorum abdominis nigris, alis hyalinis, albis, immaculatis, setis nigro punctatis.* (Exp. Alar. 10 lin.:—Long. corp. 4 lin.; 1. setar. 6 lin.)

Eph. *lutea. Linné.—Steph. Catal.* 305. No. 3373.

Luteous; eyes and margins of the abdominal segments black; legs pale luteous, immaculate; filaments also pale luteous, rather closely dotted with black; wings very clear and transparent white and immaculate, with the nervures slightly luteous, the costal ones brightest.

Found, but not commonly, within the metropolitan district, in June.

Sp. 6. *marginata. Nigra, alis hyalicis albis, margine exteriore fusco.* (Exp. Alar. 10 lin.:—Long. corp. 4 lin.—long. set. 5 lin.)

Eph. *marginata. Linné.—Shaw Gen. Zool. v. vi. pl. 81, fig. inf.?*—*Steph. Catal.* 305. No. 3374.

Black; abdomen brownish, with darker rings; wings hyaline white, with the costa fuscous; legs pale; filaments spotted with black, with long articulations.

Found in the vicinity of the metropolis in June, apparently rare.
MANDIBULATA, VOL. VI., 30TH APRIL, 1836. H

B. With the transverse nervures of the wings indistinct.

Sp. 7. submarginata. *Rufo-picea, pedibus pallidioribus, geniculis posticis nigricantibus, alis hyalinis, costâ subochraceâ.* (Exp. Alar. $9\frac{1}{2}$ lin.; Long. corp. 4 lin.; 1. set. 2 lin.)

Eph. submarginata. *Steph. Catal.* 305. No. 3375.

Reddish pitch colour, glossy; eyes and ocelli black; legs very pale pitchy-red, posterior pair with blackish knees; filaments pale ferruginous; wings clear and spotless, anterior pair with the costa slightly ochraceous.

Found in the vicinity of London.

Sp. 8. dispar. *Piceo-nigra, abdominis basi pedibusque pallide rufo-piceis, setis luridis fusco subannulatis.* (Exp. Alar. $9-9\frac{1}{2}$ lin.; long. corp. $4\frac{1}{2}$ lin.; 1. set. 4 lin.)

Eph. dispar. *Steph. Catal.* 305. No. 3376.

Pitchy-black, shining: abdomen pale reddish, pitchy at the base, with the sides paler, and marked with an indistinct row of dots, the apex blackish; legs pale rusty-piceous; filaments long, lurid, obscurely annulated with fuscous; the joints short; wings transparent; anterior with the costa slightly yellowish.

Pseudimago with the wings fuscous, the nervures, especially the transverse ones, darker, producing a pale spotted appearance.

Not uncommon within the metropolitan district in July.

Sp. 9. fusca. *Obscure picea, vertice et basi pedum anteriorum ferrugineis, pedibus posterioribus ochraceis, setis luridis fusco punctatis.* (Exp. Alar. 7—8 lin.; long. corp. $2\frac{1}{4}-2\frac{1}{2}$ lin.; 1. set. $3\frac{1}{2}-4$ lin.)

Eph. fusca. *Curtis, Phil. Mag.* 1834—Eph. nigricanus. *Steph. Catal.* 305. No. 3377.

Obscure pitchy, crown and base of the anterior legs ferruginous, two hinder pair ochreous; filaments pale lurid, dotted with fuscous; the joints long; wings transparent.

Found at Hertford in June.

Sp. 10. diluta. *Pallide rufo-ferruginea, abdomine nigricante, pedibus pallidis, alis hyalinis costâ concolore.* (Exp. Alar. 9 lin.; long. corp. 4 lin.; 1. set. 3 lin.)

Eph. diluta. *Steph. Catal.* 305. No. 3378.

Shining, pale rusty-red; abdomen dusky, the apex and the margins of the segments reddish; legs pale ochreous; filaments lurid, immaculate; wings transparent, with the costa concolorous.

Inhabits the neighbourhood of London.



Sp. 11. apicalis. *Fusco-ferruginea, nitida, abdominis basi pallida, pedibus ochraceo-ferrugineis, alis hyalinis.* (Exp. Alar. 8 lin.; long. corp. $3\frac{1}{2}$ lin.; 1. set. 5 lin.)

Eph. apicalis. *Steph. Catal.* 305. No. 3379.

Rusty-brown, shining; thorax very glossy; abdomen pale, with the margins of the segments and its apex rusty-brown; filaments pale lurid, immaculate, with long joints; legs pale ochreous; wings transparent, costa faintly yellowish.

Also found near London.

Sp. 12. rufescens. *Pallide rufo-fulva, subnitida, pedibus rufescentibus posterioribus pallidioribus, setis luridis fusco maculatis, alis hyalinis costa flavescente.* (Exp. Alar. $8-9\frac{1}{2}$ lin.; long. corp. $3\frac{1}{2}-4$ lin.; 1. set. $4-5$ lin.)

Eph. rufescens. *Steph. Catal.* 305. No. 3380.

Pale tawny-red, slightly shining; abdomen dusky-red; legs reddish, two hinder pair paler; filaments lurid, spotted with fuscous, the joints short; wings transparent, costa yellowish.

Abundant throughout the metropolitan district at the end of June and beginning of July.

Sp. 13. rosea. *Pallide rosea, subnitida, pedibus pallidioribus, setis luridis, fusco maculatis; alis hyalinis basi summa et costa dilute roseis.* (Exp. Alar. $7-8\frac{1}{2}$ lin.; Long. corp. $3-4$ lin.; 1. set. $4-4\frac{1}{2}$ lin.)

Eph. rosea. *Steph. Catal.* 306. No. 3383.

Pale rose colour, slightly shining; legs very pale rosy, anterior pair darkest; filaments pale lurid, spotted with fuscous; wings hyaline, with the extreme base and the costa pale rose colour.

Found near Hertford in June: not very common.

Sp. 14. helvipes. *Piceo-nigra obscura, pedibus helvolis, setis pallide luridis, immaculatis, alis hyalinis.* (Exp. Alar. 9 lin.; long. corp. 4 lin.; 1. set. 3 lin.)

Eph. helvipes. *Steph. Catal.* 306. No. 3382.

Dull pitchy-black, thorax slightly shining; legs pale red, with a rosy tinge; filaments pale lurid, immaculate, joints short; wings narrow, transparent, costa slightly tinted with yellowish.

Also taken near Hertford: apparently rare.

Sp. 15. dubia. *Fusca subnitida, abdominis basi pedibusque pallidis, setis pallide luridis, immaculatis, alis hyalinis, costâ subflavescente.* (Exp. Alar. 7 lin.; long. corp. $2\frac{1}{2}$ lin.; 1. set. 3 lin.)

Eph. dubia. *Steph. Catal.* 305. No. 3381.



Fuscous, slightly shining; abdomen pale, the apical segments and the margins of the central ones dusky-brown; legs pale; filaments pale lurid, immaculate, joints short; wings transparent, costa faintly yellowish.

Found within the metropolitan district.

Sp. 16. minor. *Obscure fusca, segmentorum marginibus rufescentibus, pedibus pallidis, alis angustis hyalinis costâ concolore.* (Exp. Alar. $5\frac{1}{2}$ lin.; long. corp. 2 lin.; 1. set. 3 lin.)

Eph. minor. *Steph. Nomen. 2d edit. Appendix.*

Slender, dull fuscous; segments of the abdomen with their margins slightly reddish; legs very pale; filaments lurid, immaculate; wings narrow, transparent, costa concolorous.

Taken at South Lambeth, in June.

GENUS IV.—CÆNIS *mihi*.

Head broad, short: *eyes* small, remote, rounded: *thorax* large, ovate: *wings* two, short, broad, with numerous longitudinal nervures, and two or three transverse ones near the costa: *abdomen* about as long as the thorax, obtuse at the apex, and terminated by three filaments of very variable length in the respective species: *anterior legs* in the male long, their femora thickened, tibiæ and tarsi slender, four hinder pair short, rather slender.

This genus is readily known by the brevity of its wings and abdomen, the latter not exceeding the length of the thorax, and scarcely extending beyond the outer anal edge of the expanded wings; its apex is, however, furnished with three setæ, or filaments, by which character alone it may be distinguished from the two following genera. The species appear to be rather scarce, or are very local.

A. With the *filaments* several times longer than the body:—CÆNIS *mihi*.

Sp. 1. macrura. PLATE XXIX. f. 1.—*Fusco-nigra, abdomine piceo, pedibus piceo-fuscis, alis hyalinis costâ fusca, setis longissimis.* (Exp. Alar. $4\frac{1}{2}$ lin.; Long. corp. $1\frac{3}{4}$ lin.; 1. set. 7 lin.)

N. G. macrura. *Steph. Catal. 306. No. 3385*—Cæn^{is} macrura. *Steph. Nomen. 2d edit. col. 112.*

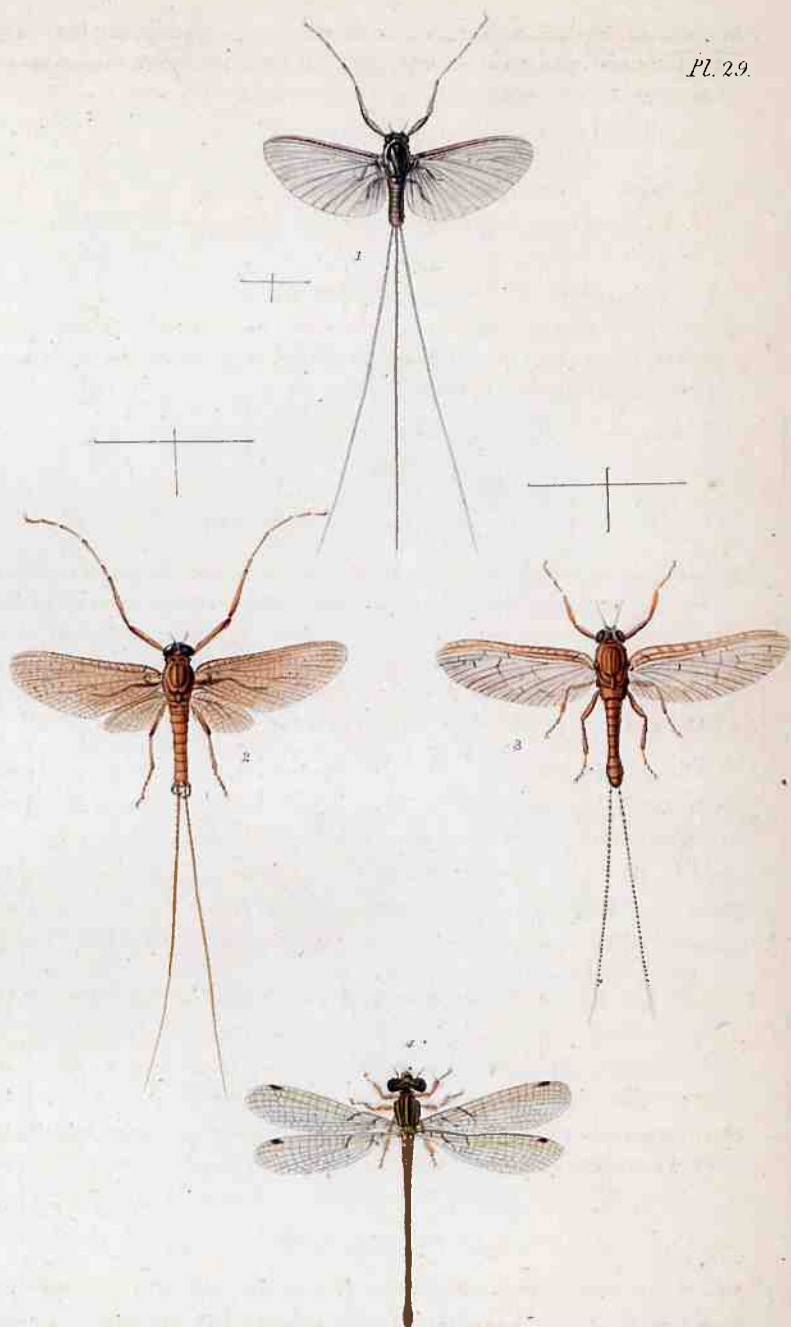
†Sp. 17. vespertina. *Nigra, alis posticis albis.*

Eph. vespertina. *Linné.—Berkenhout (!)—Steph. Catal. 306. No. 3384.*

Amongst the smaller species of the genus (family) with the entire body, and the anterior wings black; the posterior wings white.

Probably the pseudimago of one of the foregoing species.





J.D. Watwood del.

G.E. Wiggstaff sc.

London. Published by J.F. Stanger, Nov. 1. 1834.





Deep brown-black, slightly shining; abdomen pitchy; filaments nearly four times as long as the body, pale fuscous, faintly dotted with fuscous, articulations long; legs pitchy-brown; wings transparent; costa, especially towards the base, fuscous.

Taken in the vicinity of London, in June.

Sp. 2. dimidiata. *Piceo-nigra, abdomine pallido, pedibus ochraceis, alis lacteis costâ fuscâ.* (Exp. Alar. $3\frac{1}{2}$ lin.; Long. corp. $1\frac{1}{2}$ lin.; l. set. 4 lin.)

Cæ. dimidiata. *Steph. Nomen. 2d edit. Appendix.*—Br. minimus. *Curtis, Phil. Mag.* 1834?

Pitchy-black, shining; abdomen pale; legs ochreous; setæ long and pale; wings milk-white, costa fuscous.

Taken near London; and in Norfolk?

B. With the *filaments* scarcely longer than the body, or shorter, stout at the base:—BRACHYCERCUS, *Curtis*.

Sp. 3. brevicauda. *Piceo-fusca, abdomine pedibusque pallidis, alis albidis, costâ fuscâ, setis brevibus.* (Exp. Alar. $4-4\frac{1}{2}$ lin.; Long. corp. $1\frac{7}{8}-2$ lin.; l. set. $\frac{3}{4}$ lin.)

Eph. brevicauda. *Fabrieius.*—N. G. brevicauda. *Steph. Catal.* 306. No. 3386.

Pitchy-brown, or black, slightly shining; abdomen pale, its base fuscous; filaments about half its length, and, with the legs, pale; anterior femora dusky; wings whitish, transparent, the costal nervures fuscous.

Found near London, in June; and near Cambridge and Whittlesea Mere, in July 1833.

†Sp. 4. Harrisella. *Pallida, alis hyalinis, costâ concolore.* (Exp. Alar. 6 lin.; Long. corp. $2\frac{1}{2}$ lin.? l. set. 1 lin.?)

Br. Harrisellus. *Curtis, Phil. Mag.* 1834.—Ephemeron. *Harris, Exp. pl. vi. f. 3.*—Cæ. Harrisella. *Steph. Nomen. 2d edit. Appendix.*

Pale: wings "deadish-white," transparent; costa concolorous.

Harris says the *expansion* of this insect is about half an inch: Curtis that it is five lines long. I have never seen a specimen corresponding with Harris's figure, but, if his dimensions are correct, the other must be erroneous: this latter appears to have been arrived at by measuring the lower figure in Harris's plate, which represents the insect in a sitting position.

Found by Harris in a window, in London.

Sp. 5. pennata. *Thorace lato fusco ferrugineo, abdomine pedibusque albidis, oculis atris, setis brevibus pennatis.* (Exp. Alar. 5 lin.; Long. corp. $2-2\frac{1}{2}$ lin.; l. set. 1 lin.)

N. G. pennata. *Steph. Catal.* 306. No. 3387.



Rusty-brown: eyes black; thorax broad, ovate, glossy; abdomen pale; setæ short, pale, pilose; legs very pale; wings whitish, costa somewhat fuscous.

Pseudimago with ashy, ciliated, wings.

Taken in June, at Hertford.

Sp. 6. chironomiformis. *Ochracea nitida, oculis nigris, pedibus pallidis, alis lacteis, costa fusca.* (Exp. Alar. 5 lin.; Long. corp. $2\frac{1}{2}$ lin.; l. set. 1 lin.)

Br. chironomiformis. *Curtis, Phil. Mag.* 1834.—Cæ. chironomiformis. *Steph. Nomen. 2d edit. Appendix.*

Shining, ochreous: eyes black; legs whitish; wings milk-white, costa fuscous.

Found near London; and at Bath, by C. C. Babington, Esq.

Sp. 7. interrupta. *Atra nitida, abdomine pallido, strigis 2-bus dorsalibus atris interruptis, pedibus fuscis, alis fuscescentibus, costa saturatiore.* (Exp. Alar. $4\frac{1}{2}$ lin.; Long. corp. 2 lin.; l. set. $\frac{3}{4}$ lin.)

Cæ. interrupta. *Steph. Nomen. 2d edit. Appendix.*

Deep glossy black: abdomen pale, with an interrupted black streak on each side down the back; filaments and legs fuscescent; wings also fuscescent, with the costa darker.

Found at Whittlesea Mere, in July 1833.

GENUS V.—BAËTIS, Leach.

Head large, transverse, hemispherical: *eyes* large, united on the crown in the males, remote in the females: *thorax* ovate, stout: *wings* four, anterior long, narrow, obtuse, considerably reticulated, costa slightly varied; posterior small, somewhat ovate: *abdomen* moderately long, rather tapering, furnished at its apex with two filaments: anterior *legs* long, with the femora compressed; four hinder ones short; *claws* dissimilar.

The insects contained in this genus may be readily known by having two filaments only at the apex of the abdomen, and at the same time being furnished with two pair of wings: it is probably a more numerous genus than I have indicated, but the species of this family are so extremely fragile, and are so susceptible of injury, that they are difficult to investigate satisfactorily, after having been long preserved in cabinets, and unfortunately several of my old specimens were injured by the damp, several years back, at South Lambeth.

A. *Wings* very distinctly and rather thickly reticulated.

Sp. 1. *dispar*. *Pallide castanea, abdominis segmentorum marginibus brunneis, alis hyalinis, costa flavescente ante apicem fuscescente.* (Exp. Alar. 14 lin.; Long. corp. $5\frac{1}{2}$ —6 lin.; 1. set. 16—17 lin.)

Ba. *dispar*. *Curtis, v. xi. pl. 484.—Steph. Nomen. 2d edit. Appendix.*

“Pale castaneous: eyes and disc of thorax sometimes much darker in the male; segments of the abdomen with the margins brown, filaments more than twice as long as the insect; tibiæ, excepting the anterior pair, ochreous towards the apex; tarsi fuscous; wings transparent, anterior pale yellow at the base in the male, as well as the costal margin, which is pale brown towards the apex, nervures of the same colour.

“The wings in the pseudimago—a term employed by Mr. Curtis—have all the nervures suffused with fuscous, and the costa not darker than the rest of the wing.”—*Curtis, l. c.*

Found, but rarely, in the vicinity of London, in June: also taken in the north of England.

Sp. 2. *venosa*. *Obscure fusca, alis albis, nervuris fuscis.* (Exp. Alar. 15 lin.; Long. corp. 6 lin.; 1. set. 8 lin.)

Eph. *venosa*. *Fabricius.—Ba. venosa. Steph. Catal. 366. No. 3389.*

Dull fuscous: wings broad, white, with fuscous nervures.

Probably a variety of the foregoing species; but the wings are much broader, and the filaments shorter.

Found near London, in June.

Sp. 3. *longicauda*. *Ochraceo-lutea, pedibus pallidioribus, geniculis abdominisque segmentorum marginibus fuscis, setis longissimis.* (Exp. Alar. 14 lin.; Long. corp. $5\frac{1}{2}$ lin.; 1. set. $14\frac{1}{2}$ lin.)

Ba. *caudata*. *Steph. Catal. 366. No. 3388.*

Pale luteous-ochre: eyes fuscous; thorax glossy; abdomen pale ochreous at the base, the apex darker, the segments edged with fuscous; filaments considerably above twice the length of the insect, pale ochreous, with faint fuscous spots; legs pale ochreous, tips of femora fuscescent; wings transparent, with the costa and nervures yellowish.

Pseudimago?—Ba. *mellea*. *Curtis, Phil. Mag. 1834.*

“Bright ochreous: eyes black; segment of abdomen edged with brown, with a trigonate brown mark on the back of each, and the spiracles forming a double row of black dots down each side; filaments longer than the insect, dotted with brown; wings pale yellow, costa a little darker, nervures yellow and brown.”—*Curtis, l. c.*

Taken near Heftford, towards the middle of June.



Sp. 4. costalis. *Pallide castanea, thoracis lateribus abdominis apice et pedibus ochraceis, alis hyalinis, costa flavescente.* (Exp. Alar. $13\frac{1}{2}$ lin.; Long. corp. 5 lin.; 1. set. 9 lin.)

Ba. costalis. *Curtis, Phil. Mag.* 1834.—*Steph. Nomen. 2d edit. Appendix.*

Slender, pale chestnut, with the sides of the thorax, tip of the abdomen, and the legs ochreous; joints of the tarsi fuscous at their articulations; filaments very long, pale yellow, each joint tipped with black; wings transparent, anterior with the costa dirty-yellowish.

Also found in June, near Hertford.

Sp. 5. subfusca. *Obscure castanea, abdomine fuscicante, segmentorum marginibus saturatioribus, alis subflavescentibus costa concolore stigmata subochracea.* (Exp. Alar. 11 lin.; Long. corp. $4\frac{1}{2}$ lin.; 1. set. 7 lin.)

Ba. subfusca. *Steph. Catal.* 306. No. 3390.

Dull chestnut: eyes and abdomen brownish, the latter with the margins of the segments fuscous; legs dull ochreous; filaments dusky, each joint with a darker spot at the tip; wings faintly suffused with yellowish, the costa towards the apex darker; nervures luteous.

Found in June, at Hertford.

Sp. 6. elegans. *Ochraceo-flava, abdomine pallide subcastaneo, tarsorum articularum apicibus niger alis subflavescentibus, costâ saturatiore.* (Exp. Alar. $13\frac{1}{2}$ lin.; Long. corp. $4\frac{1}{2}$ lin.; 1. set. 8 lin.)

Ba. flavescens. *Steph. Catal.* 306. No. 3391.—Ba. elegans. *Curtis, Phil. Mag.* 1834.

Bright ochreous yellow: abdomen palish chestnut; filaments pale, the tips of the joints fuscous; legs very pale ochreous; the tarsi with the apex of each joint blackish; wings iridescent, pale ochreous-yellow, costa darker, especially towards the apex, forming a stigmoid spot.

Taken within the metropolitan district.

Sp. 7. semicolorata. *PLATE XXIX. f. 2.—Fulvescente-ochracea, abdominis segmentorum marginibus brunneis, alis flavesciente-brunneis, anticis apice hyalino.* (Exp. Alar. 11—12 lin.; Long. corp. $3-3\frac{1}{2}$ lin.; 1. set. 13 lin.)

Ba. basalis. *Steph. Catal.* 306. No. 3392.—Ba. semicolorata. *Curtis, Phil. Mag.* 1834.

Tawny-ochreous: thorax sometimes varied with a darker hue; abdomen paler, the edges of its segments brown or dusky; legs pale; knees and tarsi brown; filaments long and slender, pale, with the tips of the joints darker; wings pale brownish-yellow, the anterior with the tips transparent and colourless; nervures all yellowish-brown.

Found in the neighbourhood of London: not very common.

Sp. 8. *lateralis*. *Picea, thorace maculâ aurantiacâ, abdomine ferrugineo lateribus pallidis, alis hyalinis, nervuris 3-bus costalibus carneis*. (Exp. Alar. 8—9 lin.; Long. corp. $5\frac{1}{2}$ — $3\frac{3}{4}$ lin.; 1. set. 7 lin.)

Ba. *phæopa*. *Steph. Catal.* 306. No. 3394.—Ba. *lateralis*. *Curtis, Phil. Mag.* 1834.

“Piceous, shining, an orange spot before the wings; abdomen dull ferruginous, the sides paler, with the spiracles piceous; filaments very long; wings with the three costal nervures rosy or ferruginous; legs lurid, excepting the anterior, which are ochreous at the base.”—*Curtis, l. c.*

Taken, in June, within the metropolitan district.

Sp. 9. *obscura*. *Piceo-rufa, abdomine pallidiore, setis luridis fusco annulatis, alis hyalinis costâ subochraceâ*. (Exp. Alar. $7\frac{1}{2}$ lin.; Long. corp. $3\frac{1}{2}$ lin.; 1. set. 6 lin.)

Ba. *obscura*. *Steph. Catal.* 306. No. 3395.

Dull pitchy-red: abdomen paler, its filaments lurid, long, the joints tipped with fuscous; legs pale lurid; wings hyaline, costa somewhat ochreous, the nervures brownish.

Found at Hertford, &c. in June and July.

Sp. 10. *carnea*. *Incarnata, abdomine saturatiore, setis immaculatis, alis elongatis, hyalinis, costâ subroseâ, nervuris subbrunneis*. (Exp. Alar. $8\frac{1}{2}$ lin.; Long. corp. $3\frac{1}{2}$ lin.; 1. set. $6\frac{1}{2}$ lin.)

Ba. *carnea*. *Curtis, Phil. Mag.* 1834.—*Steph. Nomen.* 2d edit. *Appendix*.

“Ochreous, with a pink tinge; abdomen darker; filaments twice as long as the insect, pale, unspotted; wings elongated, with the costa slightly tinged, nervures reddish-brown.”—*Curtis, l. c.*

Also found within the metropolitan district, in June and July.

B. *Wings faintly reticulated.*

Sp. 11. *striata*. *Fusca, abdomine albo maris pellucido, fæminæ opaco rufescente, alis hyalinis, nervuris subfuscis*. (Exp. Alar. 4 lin.; Long. corp. 3 lin.; 1. set. 5 lin.)

Eph. *striata*. *Linné*.—Ba. *striata*. *Steph. Catal.* 306. No. 3393.

Fuscous: abdomen white, pellucid in the male, opaque and somewhat reddish in the female; filaments short, immaculate; legs lurid; wings hyaline, longitudinal nervures rather brownish.

Found occasionally within the metropolitan district, in June.

Sp. 12. *bioculata*. *Ochraceo-lutea, abdominis medio albo diaphano, apice subfusco, pedibus niveis, setis longioribus, albis, fusco punctatis*. (Exp. Alar. $6\frac{1}{2}$ — $7\frac{1}{2}$ lin.; Long. corp. $3\frac{1}{2}$ lin.; 1. set. 3 lin.)

MANDIBULATA, VOL. VI., 15TH JUNE, 1836.

1



Eph. bioculata. *Linne.*—Ba. bioculata. *Steph. Catal.* 306. No. 3399.

Ochreous-yellow: head with two largish luteous tubercles; thorax clouded with brownish; abdomen with the basal segment brownish; abdomen with the basal segment brownish, the four following white and pellucid, the remainder brownish; legs white; filaments also white, faintly spotted with fuscous, and much longer than the body; wings hyaline, faintly reticulated.

Pseudimago pale ochreous, legs paler; wings brownish.

The silence of Linnæus as to the number of wings possessed by this species is fair presumption that it has four, as he expressly states "*alis duabus*" where there are but two only; and, as the above insect agrees in the main with the Linnæan definition, I consider his insect to be a Baetis.

Found abundantly near Hertford, in June and July.

Sp. 13. fuscata. *Fusca, abdominis medio pedibusque pallidis, setis brevibus.* (Exp. Alar. 6—7 lin.; Long. corp. 3—3½ lin.; 1. set. 4 lin.)

Eph. fuscata. *Linne.*—Ba. fuscata. *Steph. Catal.* 306. No. 3398.

Fuscous, shining: abdomen with the basal segment fuscous, the four following pale or whitish, the remainder fuscous; filaments shorter than the body, white, immaculate; legs pale, claws fuscous; wings hyaline, immaculate.

Inhabits the vicinity of London, in June.

Sp. 14. culiciformis. *Nigricans, abdomine fusco, pedibus pallidis, alis immaculatis.* (Exp. Alar. 6—7 lin.; Long. corp. 3 lin.; 1. set. 6 lin.)

Eph. culiciformis. *Linne.*—Ba. culiciformis. *Steph. Catal.* 306. No. 3397.

Blackish, shining: abdomen fuscous; filaments as long as the body, pale lurid, immaculate; legs pale; wings hyaline.

Pseudimago pale reddish-ochre; wings yellowish-brown.

Not uncommon in the metropolitan district, especially near Hertford, in June and July.

Sp. 15. horaria? *Fusca, abdomine cinerascens, segmentorum marginibus albis, pedibus pallidis, alis hyalinis, costâ nigricante.* (Exp. Alar. 6—7 lin.; Long. corp. 3 lin.; 1. set. 4 lin.)

Eph. horaria. *Linne?*—Ba. horaria. *Steph. Catal.* 306. No. 3396.

Fuscous, shining: abdomen ashy, with the edge of the segments white; filaments as long as the body, pale; legs also pale; wings hyaline, costa dusky.

Not common: found near Hertford, in July.

Sp. 16. verna. *Pallide ferruginea, thorace piceo, ochraceo maculato, setis pallidis, fusco punctatis, pedibus obscuris.* (Exp. Alar. 7—8 lin.; Long. corp. 3½ lin.; 1. set. 7 lin.)



Ba. vernus. *Curtis, Phil. Mag.* 1834.—*Steph. Nomen. 2d edit. Appendix.*

"Pale ferruginous: head and thorax piceous above, with an ochreous dot on each side the collar, and several beneath the wings; filaments twice as long as the insect, pale and dotted; legs dirty ochre; wings (hyaline) with the costa tinged."—*Curtis, l. c.*

Taken in May and June, near London.

Sp. 17. autumnalis. *Pallide brunnea, thoracis lateribus ochraceis, setis longissimis pallidis, pedibus luridis.* (Exp. Alar. 6—7 lin.; Long. corp. 2—2½ lin.; l. set. 5½ lin.)

Ba. autumnalis. *Curtis, Phil. Mag.* 1834.—*Steph. Nomen. 2d edit. Appendix.*

"Pale castaneous-brown; margin of eyes and sides of thorax ochreous; filaments thrice as long as the insect, whitish; legs pale lurid; wings with the anterior margin slightly tinged. Pseudimago more ochreous."—*Curtis, l. c.*

Also found near London, in July.

Sp. 18. cingulata. *Gracilis, fusca, abdominis segmentorum marginibus pedibusque posterioribus luridis, alis hyalinis.* (Exp. Alar. 7—8 lin.; Long. corp. 3½ lin.; l. set. 3¼ lin.)

Ba. cingulata. *Steph. Catal.* 306. No. 3401.

Slender, fuscous, shining; abdomen with the margins of the segments livid; filaments pale livid, scarcely so long as the insect, and faintly dotted with brown; anterior legs fuscous, four posterior ones livid; wings hyaline, rather narrow.

Taken near Hertford, in June.

GENUS VI.—CLOEON, *Leach.*

Head small, somewhat transverse, hemispherical: *eyes* moderate, remote, lateral: *thorax* ovate, convex, robust: *wings* two, elongate, rounded at the apex, with numerous longitudinal nervures, and a few transverse ones; posterior pair wanting: *abdomen* rather long, attenuated to the apex, which is furnished with two, more or less elongated, filaments: *legs* slender, anterior pair frequently elongated, their femora occasionally thickened: *claws* unequal.

†Sp. 19. nigra. *Nigra, pedibus pallidioribus, alis nigricantibus, posticis minimis*
Eph. nigra. Linné.—Ba. nigra. *Steph. Catal.* 306. No. 3400.

Size of a gnat: black; legs palish; wings blackish, posterior ones very small; all with the hinder margin somewhat fringed.

A pseudimago, but of what species I am not aware.

This genus differs from the preceding one by possessing one pair of wings only (the anterior), and from the other two genera of this family by having two filaments only at the apex of the abdomen; the wings are generally furnished with but few transverse nervures, and are mostly of very delicate structure, and the insects are usually of pale yellowish or ochreous tints.

Sp. 1. dipterum. PLATE XXIX. f. 3.—*Pallide rufescente-griseum, segmentorum marginibus fuscescentibus, alis hyalinis, costa flavescence-brunnea, albo marmorata, setis fusco punctatis.* (Exp. Alar. 8—10 lin.; Long. corp. $3\frac{1}{2}$ —4 lin.; l. set. 6—7 lin.)

Eph. diptera. Linné.—Cl. dipterum. Steph. Catal. 306. No. 3402.

Pale reddish griseous: the edges of the abdominal segments brownish, filaments as long again as the insect, closely dotted with fuscous; legs pale ochreous, anterior femora lurid; wings hyaline, faintly tinged with yellowish, costa broadly brownish yellow, marbled with irregular white dots.

Pseudimago ashy-ochreous, with the wings fuscescent and ciliated, the costa dusky.

Abundant throughout the metropolitan district from the end of May, and at intervals during the summer: it is, for an insect of this family, tenacious of life, as I have twice kept individuals alive above three weeks.

Sp. 2. ochraceum. *Pallide rufo-ochraceum, pedibus pallidioribus, alis hyalinis costâ concolore, setis pallidis fusco subpunctatis.* (Exp. Alar. 6 lin.; Long. corp. 3 lin.; l. set. 2 lin.)

Cl. ochraceum. Steph. Catal. 307. No. 3403.

Pale reddish-ochreous: eyes dusky; legs very pale ochreous; filaments pale, very faintly, but closely, dotted with pale fuscous; wings hyaline, costa concolorous.

Taken near Hertford, in June.

Sp. 3. hyalinatum. *Incarnatum, pedibus pallidioribus, alis hyalinis, nervuris obsoletissimis.* (Exp. Alar. $5\frac{1}{2}$ — $6\frac{1}{2}$ lin.; Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; l. set. $3\frac{1}{2}$ lin.)

Cl. hyalinatum. Steph. Catal. 307. No. 3405.

Pale flesh-colour: thorax with two fainter lines; legs pale flesh-colour; filaments as long as the insect, whitish, with a tint of red, and faintly dotted with fuscous; wings long and narrow, very clear and transparent, colourless; nervures extremely faint.

Pseudimago pale ochreous, with the wings above brownish-yellow.

Not uncommon throughout the metropolitan district; also found near Dover and in Devonshire, in June and the beginning of July.



Sp. 4. albipenne? *Nigrum, abdominis basi pallido, apice fusco, pedibus pallidis geniculis nigricantibus; alis hyalinis.* (Exp. Alar. $5\frac{1}{2}$ lin.; Long. corp. 3 lin.; 1. set. 4 lin.)

Cl. dorsale. *Steph. Catal.* 307. No. 3406.—Ep. albipennis. *Fabricius, E. S.* ii. 70?

Black: abdomen pale at the base and diaphanous, the apex fuscous; filaments very long, white, faintly dotted with fuscous; legs pale, the tips of the femora dusky; wings hyaline, colourless.

Not uncommon near Hertford, in June, and occasionally found in other parts of the metropolitan district.

Sp. 5. unicolore. *Rufescente-ochraceum, pedibus pallidioribus, setis albis immaculatis, alis hyalinis, costâ versus apicem brunnescente.* (Exp. Alar. 8 lin.; Long. corp. 4 lin.; 1. set. 4 lin.)

Cl. obscurum. *Steph. Catal.* 307. No. 3404.—Cl. unicolore. *Curtis, Phil. Mag.* 1834.

Reddish ochre: filaments pale; legs pale ochreous; wings hyaline, nervures reddish ochre; costa pale brown towards the tip.

Taken in June, near Hertford.

Sp. 6. cognatum. *Piceo-rufum, abdominis basi pallidior, pedibus setisque luridis, his fusco punctatis, alis hyalinis.* (Exp. Alar. $9\frac{1}{2}$ lin.; Long. corp. 4 lin.; 1. set. 3 lin.)

Cl. cognatum. *Steph. Catal.* 307. No. 3407.

Shining pale pitchy-red: eyes dusky; abdomen rather palish towards the base, the apex darker, filaments about the length of the insect, pale livid, irregularly dotted with fuscous; wings hyaline, the nervures very pale, the three costal ones tinted with rose-colour.

Found near London, in June.

Sp. 7. dimidiatum. *Castaneo-brunneum, collaris lateribus puncto ochraceo, pedibus stramineis.* (Exp. Alar. $7-8\frac{1}{2}$ lin.; Long. corp. $3-4$ lin.; 1. set. $6-7$ lin.)

Cl. consobrinum. *Steph. Catal.* 307. No. 3408.—Ba. dimidiatum. *Curtis, Phil. Mag.* 1834.

Chestnut-brown: collar with an ochreous dot on each side; abdomen banded with ochre, especially at the base; filaments very long, white, more or less minutely dotted with fuscous and black; legs pale straw-colour; wings hyaline, colourless, with very faint nervures.

Pseudimago ashy-brown, with fainter rings at the base of the abdomen; wings pale fuscous, with the costal nervures darker.

Found near London, in June; at Hertford, Dover, &c.



Sp. 8. *Virgo*. *Pallidum, oculis nigris, femoribus anticis versus apicem obscuris, alis hyalinis.* (Exp. Alar. 5 lin.; Long. corp. 2 lin.; l. set. 3 lin.)

Eph. *Virgo*. *Olivier*.—Cl. *Virgo*. *Steph. Catal.* 307. No. 3409.

Pale: eyes black; filaments longer than the body, immaculate; legs pale, anterior pair moderate, their femora obscure towards the apex; wings hyaline, colourless.

Inhabits the vicinity of London, in June.

SECTION III.—LIBELLULINA, *Mac Leay*.

Antennæ short, awl-shaped, inserted between the eyes, consisting of from five to seven joints, the two basal ones mostly largest, the remainder forming a hair-like style: *mouth* ample: *mandibles* powerful, horny, robust, 3-gonate, more or less dentate: *maxillæ* crustaceous, compressed, strong: *head* large, hemispheric or transverse: *eyes* very large: *ocelli* three, placed triangularly, or in a straight line: *wings* equal, or the posterior pair sometimes the largest, all very thickly reticulated, placed erect (during repose), or extended horizontally: *abdomen* very long, cylindric, or slightly clavate, sometimes depressed, not furnished with setæ at the apex, but in the males with forcipated or lamellated appendages: *legs* short, inflexed anteriorly: *tibiæ* angulated, ciliated: *tarsi* 3-jointed, cylindric. Metamorphosis triple.

This section comprises a race of insects no less distinguished by their pre-eminent voracity than by their gigantic stature; some of the species being amongst the largest of the indigenous insects. The larvæ and pupa are aquatic, and somewhat resemble the perfect insect, except in wanting wings; they subsist upon other insects, and are extremely voracious; their oral organs are in part combined into a sort of mask, concealing the face, and with which they are enabled to seize their prey with great facility.

They may be divided into the two following families, thus cursorily distinguished:—

<i>Caput transversum (alæ erectæ):</i>	.	.	.	.	1. AGRIONIDÆ.
hemisphæricum (alæ horizontaliter extensæ):	.	.	.	.	2. LIBELLULIDÆ.

FAMILY I.—AGRIONIDÆ, *Leach*.

Head transverse, much broader than the thorax, not vesicular above: *eyes* remote, semiglobose: *ocelli* placed in a triangle: *wings* erect, narrow: *abdomen* linear-cylindric, slender, and sometimes very long; of the males occasionally with a forcipated appendage at the apex.

The larvæ and pupæ are long and slender, rather gradually attenuated to the

apex of the abdomen, which is terminated by three broad, somewhat elliptic plates: the mask is flat, with the upper edge of the mentum in some terminating in a point, or forked in others.

The indigenous species are comprehended in the following genera, thus distinguished by external characters:—

<i>Alæ membranaceæ; stigmata rhomboidea:</i>	.	.	.	7. AGRION.
oblongo-quadrata:	.	.	.	8. LESTES.
coriaceo-membranaceæ, <i>stigmata</i> nullâ:	.	.	.	9. CALEPTERYX.

GENUS VII.—AGRION, *Leach.*

Wings very narrow, thin and membranaceous, composed of numerous areolets, the major portion of which are tetragonal and quadrate, the fourth longitudinal nervure not angulated towards the apex: *stigma* rhomboidal: *abdomen* very slender, linear, its apex in the males not furnished with forceps, but with from two to six short appendages, of variable form: of the female simple. Mask of the larva with a single projection on the upper edge of the mentum.

This genus differs conspicuously from *Lestes* in the structure of its wings, and may be readily distinguished therefrom by the following characters, viz. that the majority of the areolets are 4-angled and nearly quadrate, there being usually but one, or at the most two, rows on the hinder margin and apex, that are 5-angular; the stigma also is rhomboidal: the species are much smaller than those of the following genus, the head narrower in proportion, the body more cylindric and linear, and in the males destitute of forceps; though in one species the caudal appendage is curved and somewhat forcipated, but that may be known from *Lestes* by the wings and by having the posterior tibiæ dilated.

A. Four posterior *tibiæ* not dilated (*caudal appendage* of the males not incurved).

Sp. 1. rubellum. PLATE xxix. f. 4.—*Rufescens, capite postice et thorace supra fusco-æneis, abdomine maris rubro, femina nigro, basi rubro, pedibus rubris.*
(Long. corp. 1 unc. 2—3 lin.; Exp. Alar. 1 unc. 5—6 lin.)

Ag. rubellum. *Vander Linden.*—*Ag. rufipes.* *Steph. Catal.* 307. No. 3410.

Head above and behind, and the thorax above, brownish-brass, beneath reddish or greenish; abdomen bright red, immaculate; legs pale red; wings with a pale fuscous stigma. Female with the abdomen black, the two basal and the terminal segments, and a line beneath the others, red.

The wings are sometimes suffused with pale yellow.

Found in June near Brockenhurst, and in other parts of the New



Forest not uncommonly; and occasionally within the metropolitan district.

Sp. 2. xanthopterum. *Rubra, macula verticis lineâ dorsali thoracis abdomineque supra, segmento antepenultimo excepto, viridi-æneis, alis flavescentibus.* (Long. corp. 1 unc. $3\frac{1}{2}$ lin.; Exp. Alar. 1 unc. 7 lin.)

Ag. xanthopterum. *Steph. Nomen. 2d edit. col. 113.*

Head pale red, with a black transverse streak on the labrum and another on the clypeus, crown with a large rhombic blackish-green-brassy patch; thorax bright pale red, with a narrow dorsal brassy-green streak; abdomen pale red, the basal segment with an irregular blackish streak above, the five following brassy-green above, the next wholly red, the remainder brassy above; legs red, with a brassy streak on the anterior edge of the four anterior femora and tibiæ; wings pale yellowish, with a fuscous stigma.

Taken near London, in June.

Sp. 3. elegans. *Atro-æneum, puncto rotundo post oculum utrumque, lineâ longitudinali utrinque in thorace cæruleis, viridibus aut flavidis, collaris margine postico in medio cornuto, segmento antepenultimo cæruleo.* (Long. corp. 1 unc. 3—4 lin.; Exp. Alar. 1 unc. 5— $6\frac{1}{2}$ lin.)

Ag. elegans. *Van Linden.—Ag. zonata. Steph. Catal. 307. No. 3411.*

Brassy-black, bluish beneath; on each side the head, behind the eyes, above, is a round blue or yellowish spot; thorax with a longitudinal blue line on each side; abdomen with the antepenultimate segment blue, the penultimate with two elevated tubercles; legs pale, black above; wings white; stigma anteriorly pale, posteriorly black. Female with the abdomen stouter, fuscous, the antepenultimate segment less evidently blue, or with two dots only of that colour, and its terminal segment destitute of the tubercles; wings with a white or bluish stigma; collar, in both sexes, with the hinder margin reflexed, and armed with a short horn in the middle.

In some examples the thorax is pale reddish or yellowish, with a narrow dorsal streak of brassy black.

Abundant, during June and July, within the metropolitan district.

Sp. 4. ezonatum. *Fusco-æneum, subtus flavidum, thoracis lineâ utrinque longitudinali lateribusque cæruleis, collaris margine postico rotundato.* (Long. corp. 1 unc. 2 lin.; Exp. Alar. 1 unc. 6 lin.)

Ag. ezonata. *Steph. Catal. 307. No. 3412.*

Brown-brassy, yellowish beneath; labrum with a transverse black streak; collar rounded behind; thorax with a slender blue line on each side, and the sides themselves also blue, gradually shaded into yellowish; abdomen with the base and sides bluish, beneath yellowish; the basal segments



above with an irregular brassy-black streak, thickened posteriorly; legs pale, femora with a black patch towards the apex anteriorly; wings white, stigma pale fuscous.

Also found near London, in June, but rarely.

Sp. 5. Puella. *Azureum, nigro-æneo pictum, collari æneo, undique azureo marginato et punctis 2-bus ad latera azureis, margine postico profundè bisinuato.* (Long. corp. 15—16½ lin.; Exp. Alar. 19—20 lin.)

Li. Puella. *Linné.*—Li. lucifugus. *Harris, Exp. pl. xxix. f. 5, 6 ?—Ag. Puella. Steph. Catal. 307. No. 3413.*

Azure, varied with æneous, paler in the female: collar somewhat quadrate, deeply bisinuated behind; brassy-black, edged with azure, and with a spot of the same on each side; thorax of the male with four broad brassy-black streaks, nearly united behind, so as to form an azure mark, resembling !, when viewed laterally; of the female with narrow brassy streaks, not united behind; abdomen with brassy-black markings above on a blue ground, the 2d segment with furcate brassy spots, pointing anteriorly, and always united behind with the dark margin, beneath all the segments are whitish-sulphur; male with six caudal appendages, female with two; in this sex the 2d segment bears a trilobate spot; legs in both sexes blue, with the outer edge of the femora and inner one of the tibiæ black.

Rare in England: it has occurred, in June, near London.

Sp. 6. furcatum. *Azureum, æneo pictum, collari æneo undique azureo marginato punctisque 2-bus ad latera azureis, margine postico levitèr bisinuato.* (Long. corp. 15½—16 lin.; Exp. Alar. 18—19 lin.)

Ag. furcatum. *Charpentier, Horæ Ent. p. 48.*—Ag. cingulata. *Steph. Catal. 307. No. 3414.*

Azure, paler in the female, with brassy markings; collar nearly quadrate, slightly bisinuated behind, brassy-black, edged with azure, and a dot of the same on each side; thorax nearly as in Ag. Puella, but the azure streaks broader, and never forming a mark of ! in the males; abdomen above marked and the segments bordered with brassy-black, the 2d segment with a horse-shoe shaped brassy spot, opening forwards, angulated behind, and never united to the margin of the segment; beneath pale azure; caudal appendages four, and two in the female, in which sex the abdomen wants the azure colour; legs as in the foregoing species.

Extremely abundant during the summer, within the metropolitan district: found also in the New Forest, and at Dover, Whittlesea Mere, &c.

Sp. 7. hastulatum. *Azureum, æneo pictum, collari nigro-æneo undique azureo marginato, margine postico recto, in medio perpaullulum producto.* (Exp. Alar. 18—19 lin.; Long. corp. 15½—16 lin.)

MANDIBULATA, VOL. VI., 15TH JUNE, 1836.

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Ag. hastulatum. *Charpentier, Horæ Ent. p. 20.—Steph. Nomen. 2d edit. col. 113.*

Azure: face with two transverse black-brassy streaks; crown and occiput bronzed, the latter with two large spots, square in the male, yellowish in the female, sometimes united by a faint line; collar brassy-black, bordered with azure or yellowish, its hinder margin very slightly produced in the middle; thorax azure, yellow in the female, the back and a lateral line in both sexes brassy; male with the abdomen azure, the 1st segment with a transverse brassy dot at the base, 2nd with short longitudinal lines of the same on the sides at the base, and a spear-shaped spot behind; the 3rd to 6th segments have increasing brassy margins, the two following are wholly azure, the terminal one black, with the sides azure; its hinder margin is deeply cut out, and is furnished with four appendages. Female yellowish, or greenish, varied with brassy-black, the two basal segments each with a large spot of this colour, that of the 2nd emitting a lateral twig; the remaining segments are brassy above, with a short transverse yellow line at the base of each; legs whitish, black without.

Found, not commonly, near London, in June.

Sp. 8. *annulare.* *Azureum, æneo pictum, collari nigro-æneo flavido marginato: margine postico subreflexo et bisinuato, abdomine cingulis flavidis.* (Long. corp. 16 lin.; Exp. Alar. 19 lin.)

Ag. annularis. *Leach MSS.—Steph. Catal. 307. No. 3415.*

Azure, varied with brassy; face yellowish, with two transverse black streaks; crown and occiput brassy-black, the latter with a triangular yellowish spot on each side; collar rather short, edged with yellowish, its hinder margin faintly reflexed and a little varied; thorax brassy-black, with five azure streaks; abdomen brassy-green, the extremity of each segment with a yellowish ring; legs ochreous, with a black line above.

Abundant within the metropolitan district in June.

Sp. 9. *rufescens.* *Pallide rufa, thorace lineis 3-bus atro-æneis, pedibus rufescentibus extus nigris, abdomine maris rufo segmentis nigro marginatis, fœminæ supra æneo subtus luteo-rufo, pallide marginatis.* (Long. corp. 15—16 lin.; Exp. Alar. 20—21 lin.)

Ag. rufescens. *Leach MSS.—Steph. Catal. 307. No. 3416.*

Head reddish, pale beneath; labrum with a black streak, crown and occiput black, the latter with two red dots behind the eyes; thorax pale red, with a broad brassy-black line in the middle, and a very narrow one on each side, faintly edged with whitish without; abdomen pale red, each segment broadly tipped with brassy-black, and the three last segments nearly all of that colour, the last segment deeply excised; legs pale red, black without; legs hyaline, stigma pale. Female with the abdomen brassy above, the sides and beneath reddish, each segment with a narrow pale reddish border.



Not very uncommon, in the neighbourhood of the metropolis, in June.

Sp. 10. minium. *Sanguineo-minium, atro-æneo pictum, pedibus nigris.* (Long. corp. 14—17 lin.; Exp. Alar. 20—23 lin.)

Ag. minium. *Charpentier, Horæ Ent. p. 13.*—Ag. sanguinea. *Steph. Catal. 307. No. 3417.*

Blood-red: head brassy-black above, greenish beneath, reddish in front, with two black streaks; eyes red; thorax brassy-black above, with a red or luteous streak on each side, the sides themselves luteous, with two black stripes; abdomen with its first segment black, five next red, with the hinder margin black, 7th red, brassy in the middle, two following brassy, red at the apex, 10th red, with two brassy dots; appendage black; legs black, coxæ luteous. Female with the abdomen having a brassy-black dorsal line from the base of the 2nd to the tip of the 6th segment, dilated on the apex of each segment, the three following segments brassy-black, the edge of the 9th being red.

Extremely abundant throughout the metropolitan district, during the month of June; also found in other parts of the country, as at Dover, in Devonshire, the New Forest, &c.

Sp. 11. fulvipes. *Sanguineum, nigro-æneo pictum, pedibus rufo-fulvis.* (Long. corp. 17 lin.; Exp. Alar. 24 lin.)

Ag. fulvipes. *Steph. Nomen. 2d edit. col. 113.*

Head brassy, front red, with two black streaks; thorax brassy above, with a slightly interrupted yellowish-red streak on each side, the sides themselves and beneath reddish-yellow, with brassy sutures; abdomen blood-red, the five basal segments each with two transverse brassy streaks at the apex, the remainder brassy above, with the sides and apex red; legs tawny-red; wings hyaline, stigma pale red.

Sometimes all but the two basal segments of the abdomen are brassy above.

Taken at Coombe wood, and near Ripley, in June.

Sp. 12. Chloridion. *Supra æneum, subtus flavescens, abdomine superne leviter subtus et in ultimis segmentis totis cæruleo pulveratis; fœminæ thoracis dorso lineâ pictâ utrinque abbreviatâ punctoque adjacentē flavo.* (Long. corp. 16½ lin.; Exp. Alar. 23 lin.)

Ag. Chloridion. *Charpentier, Horæ Ent. p. 14.*—Ag. Lincolnensis. *Steph. Catal. 307. No. 3418.*

Head large; front yellowish, very hairy, mouth black above; crown brassy-brown; eyes very large, anterior yellow, above rusty or red; collar unequal, moderately rounded behind, brassy-brown, sides yellow; thorax brassy above, the sides and space between the wings yellow; abdomen deep



brassy-green above, beneath yellow, slightly dusted with blue, the two terminal segments wholly blue; the margins black; the last segments deeply excised, furnished with four appendages; legs black, whitish within; wings hyaline, stigma whitish, black in adults. Female with the eyes rusty-luteous, the collar with the hinder margin reflexed, and deeply bisinuated, forming an acute yellow prominence in the middle; thorax brassy above, with an interrupted streak on each side, resembling a ! in form, the sides and beneath sulphur-yellow; abdomen brassy, its sides and below bright yellow, sometimes dusted with whitish; legs yellow, with a black streak without.

The adult males have the back of the head, the space between the wings, &c. more or less dusted with blue.

Found in Lincolnshire, in June.

B. Four posterior *tibiæ* dilated (*caudal appendage* of the males curved, and resembling forceps).

Sp. 13. platypoda. *Albidum, thorace strigis 5 longitudinalibus fusco-æneis, abdomine cæruleo aut lacteo, segmentis atro-æneo marginatis punctisque binis notatis, tibiis 4 posterioribus dilatatis.* (Long. corp. 16—17 lin.; Exp. Alar. 22—24 lin.)

Ag. platypoda. *Van. Linden, p. 37.—Ag. corea. Steph. Catal. 307. No. 3419.*

Head whitish, behind yellowish or blue, with a streak in front, and a broader one between the eyes, which are very remote, black; collar rough; thorax whitish or bluish, with a broad central black streak (sometimes divided by a narrow pale one down the back), and two narrow ones on each side, somewhat interrupted anteriorly; abdomen bluish, the 2nd segment with three black spots, the four next with a longitudinal line, and the rest with two lines; the proportions varying in different examples; legs whitish, the four hinder *tibiæ* with a broadly dilated white membrane, edged with black hairs; wings hyaline, stigma rusty. Female reddish when the male is blue, and with a black streak on the two basal segments of the abdomen.

Var. β . Ag. albicans. *Leach MSS.*—With the abdomen white, each of the six anterior segments with a double black spot near the tip, and the extreme edge also black, the remaining segments with two black streaks.

Apparently not very abundant, or rather local, as it occurs somewhat plentifully in Walsham meadows, near Ripley, in July; also found in the New Forest and in Devonshire.

GENUS VIII.—LESTES, *Leach*.

Wings narrow, thin and membranaceous, composed of numerous small areolets, the greater portion of which (especially towards the apex) are pentagonal, the fourth longitudinal nervure angulated; *stigma* oblong,



rather large: *abdomen* slender, nearly linear, being a little dilated at the apex, which in the males is furnished with semicircular appendages, of the female with simple ones; *wings* half expanded (as in *Smerinthus*) during repose. Mask of the larvæ with a double projection on the upper edge of the mentum.

From *Agrion* the species of this genus are distinguished with facility by the areolets of the wings being more numerous, and by the greater portion of them towards the apex, especially on the margins, being either pentagonal or polygonal, rarely quadrangular, the fourth longitudinal nervure being much angulated in numerous zigzags; the stigma is oblong, and the males are distinguished by having the apex of the abdomen armed with curved forceps; yet, regardless of these obvious distinctions, these insects, as well as those of the preceding genus, were long considered as constituting *one species* only, and are thus considered in the latest works of the celebrated Latreille, although the discrepancies of the two genera were pointed out by Leach in 1810!!

Sp. 1. *viridis*. *Supra lateribusque viridi-ænea, nitens, subtus flavescens, pedibus luteis supra atris, stigmatè rufo.* (Long. corp. 17—18 lin.; Exp. Alar. 20—21 lin.)

Ag. *viridis*. *Van. Linden, p. 36.—Le. sponsa. Steph. Catal. 308. No. 3420.*

Head bright brassy-green; mouth and beneath yellow; tips of the mandibles black; collar brassy-green, with the sides and a dorsal line yellow in the females; thorax above bright grassy-green, with three slender longitudinal yellow lines, the sides and space between the wings luteous-yellow; abdomen above and on the sides rich brassy-green, beneath yellowish, the extreme edge of most of the basal segments also yellowish; upper caudal appendage in the male luteous, the tip fuscous; lower fuscous; legs luteous, black above; wings with a red or fuscous stigma.

Some examples are of a brighter and richer green than others, while some are bronzed.

Not uncommon in the New Forest in June and July; also found near Wanstead in Essex, and in the vicinity of Ripley, and in Suffolk.

Sp. 2. *Nympha. Supra lateribusque viridi-ænea, nitens, subtus flavescens, pedibus rufescentibus supra atris, thoracis lateribus utrinque lineâ nigrâ, stigmatè atro.* (Long. corp. 17—18 lin.; Exp. Alar. 20—21½ lin.)

Le. *Nympha. Kirby MSS.—Steph. Catal. 308. No. 3421.*

Head bright brassy-green or bronzed above, the mouth and beneath yellowish; thorax also brassy-green above, with three fine yellowish streaks, the sides



yellowish, each with a single irregular black streak; space between the wings dull luteous; abdomen above and on the sides brassy-green, beneath luteous; caudal appendages of the males fuscous, pale at the base; legs reddish, black above; wings with a black or fuscous stigma.

Probably a mere variety of the foregoing insect.

Found with the preceding insect.

Sp. 3. forcipula. *Supra lateribusque viridi-ænea, nitens, abdomine subtus flavescente, thoracis lateribus maris cæruleo pulveratis, fœminæ luteis, pedibus atris.* (Long. corp. 18—19 lin.; Exp. Alar. 21—22 lin.)

Ag. forcipula. *Charpentier, Horæ Ent. p. 6.*—Le. autumnalis. *Steph. Catal. 308. No. 3422.*

Head dull brassy-green, the mouth yellowish; tips of the mandibles black; collar with a yellowish margin behind; thorax above dull brassy-green, with three faint yellowish streaks, the sides and space between the wings covered with a fine blue bloom, on a dusky ground; abdomen brassy-green above, yellowish below, the terminal segments with a blue bloom; caudal appendages of the males black, sometimes luteous at the base; legs black, occasionally yellowish beneath, especially at the base; wings with a black or fuscous stigma. The female has the sides of the thorax luteous, without the blue gloss.

Found abundantly in some of the marshy districts in the vicinity of the Thames, especially about Plaistow in Essex; also taken in the New Forest, in Devonshire, near Ripley, &c.

GENUS IX.—CALEPTERYX, *Leach.*

Wings coloured, broadish, of a coriaceous texture, composed of very numerous rectangular and polygonal areolets, which are very small and irregular on the margins; the longitudinal nervures also numerous and recurved towards the inner margin at the apex: *stigma* in the males wholly obliterated, in the females formed by a curve in the nervure, and thickened: *head* very broad, tumid in front, and very pilose: *eyes* large, globose: *collar* unequal: *thorax* ample, with a strong dorsal ridge: *abdomen* very long, cylindric, somewhat linear, a little swollen at the apex, which last, in the males, is furnished with curved appendages. Mask of larva with a triangular excision at the tip, terminating in two points.

These insects may be known from those of the two preceding genera by the greater width of their wings, which are moreover very thickly reticulated, and composed of very numerous areolets, of various forms, though the majority are rectangular: they are mostly adorned with bright colours, and in the males wholly destitute of



stigmata, which mark in the females is indicated by a white patch in a small wave towards the apex of the second costal nervure: the abdomen of the male is furnished at its tip with a curved appendage.

Sp. 1. Virgo. *Viridi-aut cœruleo-anea, sericea, ore ventreque nigris, abdominis apice subtus luteo; alis angustioribus.* (Long. corp. 21—22 lin.; Exp. Alar. 28—32 lin.)

Le. Virgo. *Linne.*—Ca. Virgo. *Steph. Catal.* 308. No. 3423.—Li. splendeo. *Harris, Exp. pl.* xxx. f. 4 ♂, 5 ♀.

Above of a rich silky-green or brassy-blue, occasionally coppery; mouth and under parts deep black; legs black; abdomen at its apex beneath luteous, and sometimes with a faint line of that hue on each side beneath; anal appendages black, the lower ones luteous at the base beneath. Wings variable.

Var. α. Male: wings hyaline, with a broad central transverse bluish-green, or brownish fascia.

Var. β. Male: wings deep blue-black, the base hyaline, and apex slightly fuscous.

Var. γ. Male and female: wings entirely brownish.

Var. δ. Female: wings greenish, with a minute whitish stigma, or nearly immaculate.

Var. ε. Female: anterior wings greenish-hyaline, posterior fuscous; all with a white stigma.

The clypeus has sometimes a minute yellow dot; and in some females a round spot of the same is found on the front, near each eye.

A common species throughout the metropolitan district, during the early summer months.

Sp. 2. Ludoviciana. *Viridi-aut cœruleo-anea, sericea, ore abdominisque apice subtus luteis, alis subattenuatis.* (Long. corp. 22—23 lin.; Exp. Alar. 29—32 lin.)

Ca. Ludoviciana. *Leach MSS.*—*Steph. Catal.* 308. No. 3424.

Above bright silky-green, brassy-blue or coppery; mouth more or less clear luteous, or yellowish; under parts black, except the apex of the abdomen, which is luteous; legs black; anal appendages the same, with the base of the lower ones yellowish. Wings broadish and long, variable in colour.

Var. α. Male: wings wholly of a rich deep blue-black.

Var. β. Male: wings deep blue-black, with the apex hyaline.

Var. γ. Male and female with the wings wholly fuscous; in the latter sex with distinct white stigmata.

Also a common species throughout the metropolitan district: found also in the New Forest and in Devonshire.



Sp. 3. xanthostoma? *Supra viridi-ænea, sericea, ore abdominisque lateribus luteis, pectore flavido picto, alis angustioribus, virescentibus, posticis apice fuscis.* (Long. corp. 22 lin.; Exp. Alar. 28 lin.)

Ag. xanthostoma. *Charpentier, H. E. 5?*—Ca. xanthostoma. *Steph. Nomen. 2d edit. Appendix.*

Above bright silky brassy-green; mouth and sides of the abdomen dull luteous, the three last segments of the latter with a bright testaceous streak; appendages and legs black, these last long and slender; breast varied with yellowish; wings narrow, anterior wholly brownish-green, with greenish nervures, posterior brownish-green, with the apical half brown, all with a white stigma.

Apparently uncommon: my specimens occurred in the vicinity of the metropolis in June, I believe at Darenth wood.

Sp. 4. anceps. *Supra viridi-ænea, sericea, subtus atra, labro medio, antennarum basi, abdominisque apice subtus flavis, alis latiusculis, areolis numerosissimis minutissimisque.* (Long. corp. 2 unc.; Exp. Alar. 2 unc. 8 lin.)

Cal. anceps. *Steph. Nomen. 2d edit. Appendix.*

Above fine silky brassy-green, beneath black; middle of the labrum and base of the antennæ bright yellow; tip of the abdomen beneath dull yellow; appendages fuscous, black at the apex; legs black; wings broad, wholly of an uniform pale brown, with extremely numerous palish nervures, reducing the areolets to about one-third the size of those in the ordinary species.

It is with some reluctance I give this as a new species, but the extraordinary neururation of the wings demands such a proceeding.

Found at Coombe wood, in June.

FAMILY II.—LIBELLULIDÆ, *Leach.*

Head hemispheric; *ocelli* placed in a line, or in a triangle, on a vesicle: *eyes* very large, mostly contiguous, sometimes remote: *wings*, during repose, placed horizontally, and rather ample: *abdomen* cylindric, or clavate, sometimes depressed, or compressed, rarely thickened in the middle; of the males with a forcipated appendage: *claws* toothed.

The larvæ and pupæ have the body short, and furnished at its extremity with five appendages, which form an acute or subtruncate tail; the mask is arched or flattish, and the upper edge of the anterior terminates in two serratures, occasionally furnished with a moveable hook at the tip.

The indigenous species were divided into the following genera by Leach in 1810; but the continental writers do not appear to recognise more than the two largest groups:—



Ocelli 3-bus in lineâ transversa positis.

Oculus supra contiguus: *abdomine* elongato cylindrico.

Alis acuminatis; *stigmatibus* elongatis: . 10. ANAX.

obtus's; *stigmatibus* oblongis: . 11. ÆSHNA.

vix contiguus; *abdomine* clavatis: . 12. CORDULEGASTER.

remotis: . 13. GOMPHUS.

3-bus in triangulo sitis:

Capite et *thorace* metallicis: . 14. CORDULIA.

haud metallicis: . 15. LIBELLULA.

GENUS X.—ANAX, *Leach*.

Labium with its middle lobe transverse, somewhat ovate-quadrate, tumid, divided by a longitudinal impression into two parts, its apex deeply emarginate; lateral lobes not encircling the central one, furnished with a moveable acuminate process, which rests on the upper edge of the inner lobe: *mandibles* with long denticulations: *labrum* slightly emarginate: *head* semiglobose, its front very prominent, somewhat acute and vesicular: *ocelli* placed in a line upon a slight elevation: *eyes* contiguous: *abdomen* elongate-cylindric, its basal segment tumid, third coarctate; the apex of the male with three appendages, the lower one truncate, of the female with two lanceolated ones: *wings* long, slender, somewhat acute at the apex; *stigma* very long and narrow; the hinder margin of the posterior pair rounded in both sexes.

Exclusively of slight variations in the trophi, &c. the only indigenous species of this beautiful genus differs from *Anax* in that both sexes have the hinder margin of the posterior wings rounded within; the abdomen is not clavate, and its anal appendages are long in both sexes.

Sp. 1. *formosa*. *Thorace* azureo aut virescente immaculato, *abdomine* strigâ dorsali angulosâ nigra, *pedibus* nigris, *basi* rufis. (Long. corp. 3 unc. 1—2 lin.; Exp. Alar. 4 unc.—4 unc. 2 lin.)

Æshna formosa. *Van. Linden* 20.—*An. Imperator*. *Steph. Catal.* 268. No. 3455.

Head azure, luteous beneath, mouth fuscous; eyes green, yellow behind; thorax immaculate azure or greenish, dorsal sutures blackish; space between the wings azure, with black sutures; abdomen with the basal segment tumid, third attenuated, the first greenish, the remainder pale azure, with the margins and a continuous irregular band reaching to the apex black; anal appendages fuscous, legs black, femora reddish at the base; wings hyaline, costal nervures and a few of the transverse ones yellowish, remainder black; stigma oblong, fuscous.

Female with the abdomen fuscous at the base, the hinder margin of the first

MANDIBULATA, VOL. VI., JUNE 15TH, 1836.

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segment luteous. In my specimens the wings are brownish, with the costal nervure reddish.

Not uncommon, in June and July, in several parts of the country, especially in the New Forest; also taken on Wandsworth and Wimbledon commons, near Hertford and Epping; likewise occasionally at Arno's Grove, near Southgate.

GENUS XI.—ÆSHNA, *Fabricius*.

Labium nearly as in *Anax*, its central lobe not so deeply emarginate on its margin, and the moveable process at the apex of the two lateral ones longer, more slender, and acute: *labrum* tumid, deeply notched: *mandibles* acutely dentate: *head* semiglobose, its front prominent and vesicular: *eyes* contiguous: *ocelli* placed in a line upon a small linear vesicle: *abdomen* elongate-cylindric, the basal segment slightly tumid, the third rather coarctate; the apex furnished in the males with three appendages, of variable form, the upper ones elongate, and in the females with two mostly lanceolate: *wings* ample, rather obtusely rounded at the apex, stigma generally oblong; the inner margin of the hinder pair produced into a more or less acute angle in the males, rounded in the females.

In this genus the males are distinguished from *Anax* by having the inner margin of the posterior wings more or less angulated, and sometimes a little waved in the males, but rounded in the females; both sexes differ in having the anal appendages somewhat dissimilar, and also the trophi: the species are usually of large size: the abdomen is not clavate in either sex.

†*Sp. 1. rufescens. Rufa, thorace fasciis utrinque duabus luteis, abdomine nigro lineato, 2-do segmento macula triangulari baseos luteâ, alis flavescentibus, membranulâ accessoriâ magnâ, nigricante.* (Long. corp. 2 unc. 3—7 lin.; Exp. Alar. 3 unc. 4—8 lin.)

Æsh. rufescens. Van. Linden, p. 27.—Æsh. Dalii. Steph. Catal. 308. No. 3426. Æs. chrysophthalmus. Charpentier, H. E. 33.

Pale red, or lutescent; tip of the mandibles and line on the crown brown; eyes greenish; thorax dusky-red, with 2 oblique luteous streaks on each side, and a yellow raised dot at the base of each wing; abdomen with the basal segment immaculate, second with a triangular spot at the base, and a transverse line on each side luteous; following to the antepenultimate with a longitudinal central line, a transverse one anteriorly, and one or more abbreviated ones behind black, the two succeeding with the longitudinal one ashy, the last immaculate; the sides of all with a fuscous dot; anal appendages fuscous, upper pair lanceolate; legs black, rusty at the base; wings yellowish, with rusty stigma.

Female larger, the yellow triangular spot on the second segment of the abdomen larger.

This is the only species of this family I do not possess, and Mr. Newman—to whom I am much indebted for localities of the Libellulinæ—states that it is “not uncommon at Yarmouth.” It likewise occurs at Whittlesea Mere, and at Halvergate, which last is no great distance, I believe, from Yarmouth.

Sp. 2. *grandis*. *Rufa, thorace fasciis utrinque 2-bus luteis, abdomine maris maculis cæruleis luteisque, fæminæ luteis, membranula accessoriâ mediocri, albidâ.* (Long. corp. 2 unc. 7—8 lin.; Exp. Alar. 3 unc. 10 lin.—4 unc.)

Li. *grandis*. *Linne.—Donovan, x. pl. 337. f. 2.—Æsh. grandis. Steph. Catal. 308. No. 3427.*

Lutescent or reddish: head rusty, with a fuscous spot on the crown; wings bluish; thorax red, with two oblique bright luteous fasciæ on each side, and an elevated blue dot at the base of each wing; abdomen pale red, basal segment immaculate, second with a lateral spot at the base on each side, and two transverse dorsal streaks luteous, with two blue dots behind; six following with two transverse luteous streaks, and a blue dot on each side at the base, remainder immaculate; appendages red, lanceolate, pilose within; legs red; wings yellowish, stigma red. Female with the spots on the abdomen, and the hinder margin of the segments luteous.

Abundant, during the summer and autumn, in the vicinity of London, especially in Copenhagen-fields and about the Croydon Canal, at Hertford, Ripley, &c.; in the New Forest, and in Devonshire.

Sp. 3. *maculatissima*. *Fusca, thorace strigis 2-bus dorsalibus et fasciis 3-bus obliquis in utroque latere viridi-luteis, abdomine maculatissimo.* (Long. corp. 2 unc. 9—10 lin.; Exp. Alar. 3 unc. 6—7 lin.)

Æsh. *maculatissima*. *Steph. Catal. 416. No. 3428.—Li. grandis. Donovan, v. v. pl. 166.*

Brown or reddish; face yellowish-green, mouth brown; spot on the crown black; eyes bright blue-green (brown after death), behind black, with a white dot; thorax with two broad greenish streaks above, and three oblique, somewhat confluent, ones on the side, interrupted in the middle; behind the dorsal streaks are two transverse spots, and beneath these two dots, all greenish; abdomen with a dorsal line, and the edges of each segment black, the basal segment has a double spot behind, and another on each side luteous-green, the second an oblong triangular patch, an interrupted transverse streak in the middle, a dorsal spot behind, and others on the sides, of the same hue; the next six have a double spot of the same on each side at the base, two smaller ones before the middle on the back, and

two longer ones on the hinder margin, the 9th and 10th are black at the base, greenish at the apex, and want the dorsal line; caudal appendages fuscous, with a pale streak, the upper pair waved within, mucronated and incurved, the lower acuminate; legs black; wings transparent, or faintly yellowish, stigma fuscous. Female differs slightly in the spotting of the abdomen, and the apical appendage is shorter and lanceolate.

Wings sometimes fuscous; especially at the tip, and the legs occasionally reddish at the base.

A very abundant species throughout the metropolitan district, during the summer: found also at Leominster, Godalming, Coventry, &c. and in Devonshire, the New Forest, and Suffolk.

Sp. 4. *Juncea. Fuscescens, thorace supra maculis 2-bus angustis et fasciis 2-abus lateralibus flavidis, abdomine maculatissimo, alis hyalinis membranulâ accessoria nigricante.* (Long. corp. 2 unc. 8—9 lin.; Exp. Alar. 3 unc. 2—3 lin.)

Li. *Juncea. Linne?*—Æsh. *Juncea. Steph. Catal. 309. No. 3429.*

Fuscous or reddish; face luteous; crown with a black T; thorax with two narrow yellowish dark streaks, and two broader ones on each side; abdomen spotted, the intermediate segments each with a double bluish spot on each side at the base, two at the apex above and two on the disc, towards the base; anal appendages fuscous, the lower one acuminate; legs pale; wings fuscous; accessory membrane dusky.

Probably a variety of the following species, to which it is closely allied.

Rare: found in the vicinity of Whittlesea Mere, in July.

Sp. 5. *mixta. Viridescens, thorace supra maculis 2-bus parvis obsoletis et strigis 2-bus lateribus luteis, abdomine maculatissimo, alis hyalinis, stigmate ferrugineo, membranulâ accessoriâ cinereâ anticâ albâ.* (Long. corp. 2 unc. 8—9 lin.; Exp. Alar. 3 unc. 2—5 lin.)

Æsh. *mixta. Latreille.—Steph. Catal. 416. No. 3430.—Li. Coluberculus. Harris, pl. xxvii. f. 1 ♂.*

Head greenish, above luteous, with a black patch on the forehead; eyes blue; thorax fuscous, with two small luteous spots above, and two broad oblique fasciæ on each of the sides; abdomen brown, banded with black, the basal segment with a yellow spot on each side, second with a small triangular spot at the base, and a transverse medial line on each side, of the same hue, posteriorly and on the sides blue, with a luteous spot on each side, and the hinder margin black, six following with a transverse bluish line on the back, two spots behind, and two or three on the sides at the base; anal appendages fuscous, pilose on the inner edge, and slightly attenuated towards the base, lower one rusty and acuminate; legs black, with the base of the femora red; wings hyaline, stigma rather long and rusty; accessory membrane ashy, the base white. Female with the eyes greenish, the spots on the



abdomen green, the second segment with two dots behind ; wings slightly yellowish.

Not a common species : taken occasionally, in July, near London, about Ripley, and at Godalming and Epping.

Sp. 6. *affinis*. *Thorace supra brunneo, maculis 2-bus luteis, lateribus luteis nigro lineatis; abdomine fusco maculis cæruleis (mas) aut olivaceo, maculis luteis (fœmina)*. (Long. corp. 2 unc. 6 lin. ; Exp. Alar. 3 unc. 2 lin.)

Æsh. *affinis*. *Van. Linden, p. 24.—Steph. Nomen. 2d edit. Appendix.*

Head bluish, with a black patch on the crown resembling the letter T ; mouth fuscous ; eyes blue ; thorax above brown, with two luteous spots in front, the sides luteous, with three black lines, the middle one shortest ; abdomen with the basal segment black, with its sides luteous, and a blue marginal spot behind, second blue, with an irregular black spot on each side, seven following blue in front, with a 4-angular black dorsal spot, gradually broader and shorter on the hinder ones, black posteriorly, with four blue dots, nearly united on the anterior segments, 9th and 10th black, the former with four, and the latter with two, blue spots ; anal appendages fuscous, upper pair lanceolate ; legs black, anterior femora yellow beneath at the base ; wings hyaline, stigma rusty. Female with the abdomen olive, the basal segment with a luteous spot behind, 2nd with an oblong spot in the middle, a transverse line, and two dots behind also luteous, five next each with a horizontal and a transverse line black, and two yellow dots, three last black, the 8th with four, 9th with two, and 10th with one luteous spot.

Also a rather uncommon species, or at least apparently so : found at Deptford, Godalming, near Southgate and Hertford, in July.

Sp. 7. *vernalis*. *Fusca, thorace lineis aut maculis 2-abus luteis, abdomine maculis numerosis, cæruleis (mas) aut luteis (fœmina), alis maris hyalinis, fœminæ flavescentibus, stigmatæ perlongo, lineari, luteo*. (Long. corp. 2 unc. 1 lin. ; Exp. Alar. 2 unc. 9—10 lin.)

Æsh. *teretiuscula*. *Leach MSS.—Steph. Catal. 309. No. 3431.—Æsh. vernalis. Van. Linden. 21.*

Fuscous : head luteous, face whitish ; crown behind and two transverse frontal lines black or fuscous ; eyes blue, brown after death ; thorax very pilose, sometimes reddish, with two dorsal spots, occasionally minute, and on each side three oblique fasciæ, the central one narrowest and interrupted ; abdomen pilose, the basal segment with a blue spot in the middle, the seven following with two short transverse blue streaks towards the base, and two large blue spots on the hinder margin of each, and also with three blue blotches on each side ; the two last segments with two blue spots above and two on each side ; anal appendages elongate, the apex of the upper pair three-sided, the inner edge pilose, the lower pair truncate and short ; legs black ; wings hyaline, stigma ferruginous ; accessory membrane



snow-white. The female has only two small luteous spots on the thorax, which are sometimes wholly wanting, and the thorax itself is red; the spots on the abdomen are luteous, and the lower anal appendages are wanting; the wings are yellowish, especially at the base and towards the costa: in one of my specimens they are very bright.

Not very uncommon: found within the metropolitan district in June at Hertford, Epping, &c.; also in the New Forest and in Devonshire.

GENUS XII.—CORDULEGASTER, *Leach*.

Labium with its middle lobe flat, not transverse, somewhat rounded-quadrate, with a faint longitudinal ridge, its edge with a very deep notch, its lobes with an acute tooth: lateral lobes moderate, somewhat acuminate at the apex and furnished with a long moveable process: *labrum* tumid, with a deep marginal notch: *mandibles* acutely dentate: *head* semiglobose-transverse: *forehead* very tumid and pilose: *eyes* scarcely contiguous: *ocelli* placed in a curved transverse line, in a depression: *body* pilose: *abdomen* glabrous, elongate, clavate: its apex in the males furnished with four short acute appendages; in the females, with two very long ones: *wings* rather short and narrowish, the inner margin of the hinder pair obtusely angulated in the males, and rounded in the females.

This genus differs from the preceding, not only in having the abdomen clavate in both sexes, but in the structure of the labium, the central lobe of which is very deeply notched, with its two lobes armed with a short acute tooth; the posterior wings of the male are strongly angulated on the inner margin, but rounded in the female; the anal appendage is very short in the male, but long and acuminate in the female; again the eyes are scarcely contiguous.

Sp. 1. *annulatus*. *Niger, flavomaculatus, thorace strigis dorsalibus flavis duabus, tribusque utrinque lateribus media tenuiore, abdomine maculis cingulisque flavis*. (Long. corp. 2 unc. 10 lin.—3 unc.; Exp. Alar. 3 unc. 6—8 lin.)

Æsh. annulata. Latreille.—*Co. annulatus. Steph. Catal.* 309. No. 3432.—*Li. Boltoni. Donovan, v. xii. pl.* 430.

Head yellow, with a black spot on the crown, which has a yellow crest; mandibles and a transverse line on the face above the labrum black, the extreme base of the last, and a faint descending medial line also black; eyes brown, with a white streak behind; collar spotted with yellow; thorax black, with two oblique yellow dorsal stripes, and three lateral ones, the intermediate one narrow, and sometimes interrupted; at the base of each wing is a yellow dot, and sometimes one on the thorax, between the dorsal and lateral stripes; abdomen black, the basal segment with the sides, the



2d with the base and hinder margin, and the five next with a broad transverse fascia in the middle, slightly interrupted down the back, and two narrow lunate spots on the margin yellow, or luteous, the two last segments black, with a small yellow dot on the lateral base of the penultimate; anal appendages black; legs black; wings hyaline, or slightly fuscous, stigma black. Female similar, excepting in the anal appendages and form of the posterior wings.

Widely distributed, though rarely found within the metropolitan district: it has occurred, in July, near Godalming, and in abundance in the New Forest; also at Worcester, Colebrook Dale, in Devonshire, Somerset, Cornwall, Yorkshire, amongst the lakes in the north of England, and near Edinburgh, and Loch Lomond, and Loch Katrine.

GENUS XIII.—GOMPHUS, *Leach*.

Labium with its central lobe transverse-subquadrate, the upper margin curved and entire, its lateral lobes small, somewhat ovate, armed at the apex with a long moveable process: *labrum* slightly emarginate: *mandibles* deeply toothed: *head* pilose, somewhat semiglobose-transverse, *front* tumid; *eyes* remote: *ocelli*, placed in a curved line: *collar* distinct: *thorax* and base of the *abdomen* pilose, the latter with the 3rd segment attenuated, its apex clavate, and furnished in the males with four short appendages, and two processes in the females: *wings* moderate, rather acute at the apex, the hinder pair in the males with a deep notch and acute angle, in the females rounded: accessory membrane, in both sexes, minute.

The remote eyes of the insects of this genus at once point out a ready distinction from the other genera of this family, exclusively of which the abdomen is clavate, furnished with rather short anal processes in both sexes; the posterior wings angulated on the inner margin in the males, but rounded in the females; the middle lobe of the labium has its upper edge entire, and the species are mostly of small size.

Sp. 1. *forcipatus*? *Thorace nigro, characteribus flavis, abdomine nigro, lineâ dorsali tenui, ultima 3-iâ segmentâ abdominaliâ non attingente, maculisque lateralibus flavis, appendicibus pedibusque atris.* (Long. corp. 1 unc. 9—10½ lin.; Exp. Alar. 2 unc. 5—6 lin.)

Li. *forcipata*. *Linne?*—*Donovan, v. xii. pl. 423.*—Go. vulgatissimus. *Steph. Catal. 309. No. 3433.*

Front yellow, with three transverse black streaks, dilated in the middle, and rarely confluent; eyes cinereous; thorax yellow, with six black lines above,



two being dorsal, and two on each side in pairs; abdomen black above, the basal segment with a triangular blotch, the 2d with a trilobed spot, and the five next with a narrow line, yellow, the three terminal segments silky-black above; on the sides all are spotted with yellow, and the 1st, 2d, and penultimate segments are entirely yellow; caudal appendages black, upper pair straight, with the apex mucronated, lower somewhat curved; legs wholly black, or with a small yellow dot at the base of the anterior femora; wings hyaline, stigma livid; anal angle deeply notched. Female similarly coloured; caudal appendages very short.

Taken occasionally at Coombe wood, in July and August, and in the vicinity of Dartford, and other places within the metropolitan district; also at Dinmore Hill, Herefordshire, but rarely in this locality.

Sp. 2. *flavipes*. PLATE XXX. f. 1.—*Thorace nigro, characteribus flavis, abdomine nigro, linea dorsali tenui usque ad ultimum segmentum abdominale ducta, maculisque lateribus flavis, appendicibus nigris basi flavis, pedibus flavis, nigro lineatis.* (Long. corp. 1 unc. 10 lin.; Exp. Alar. 2 unc. 6 lin.)

Æsch. *flavipes*. Charpentier, *Horæ Ent.* p. 24.—Go. *pulchellus*. Steph. *Catal.* 309. No. 3434.

Front yellow, with a single transverse black line; eyes ashy; thorax greenish-yellow, with three nearly equidistant black streaks, on each side of which the two inner ones are united anteriorly, and all posteriorly, leaving a greenish mark on the back resembling a Roman T, and two oval patches on the disc; abdomen black, the sides with a nearly continuous yellow streak, and the back of all but the last segment with a yellow line; the 7th to 9th segments have a narrow yellow edge, and the 10th is black, with a minute yellow spot at the base; caudal appendages alike, and equally diverging, the upper pair gradually tapering to an acute point, all black with the base yellow; legs yellow, above black; wings hyaline, stigma rather long and fuscous, anal angle slightly waved.

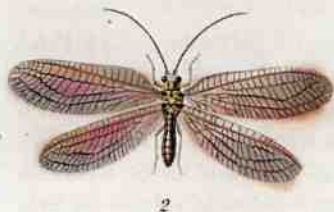
The only example of this beautiful insect I have hitherto seen I captured about three miles west of Hastings, on the 5th of August, 1818.

GENUS XIV.—CORDULIA, Leach.

Labium tumid, its middle lobe small, transverse-semicircular, the lateral lobes ample, transverse-quadrate, surrounding the central one, and notched at the base of the inner edge: *labrum* with a slight notch on its margin: *head* large, semiglobose: *forehead* much swollen, and vesicular: *eyes* contiguous in front: *ocelli* three, placed in a triangle on a small vesicle: *thorax* pilose: *body* metallic: *abdomen* somewhat clavate; anal appendages of the



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J.O. Westwood Del.

C.E. Wagstaff sc.

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males rather short: *wings* moderate, posterior pair of the male with the inner margin angulated, of the female rounded; *stigma* rather short.

The beautiful insects comprised in this genus, or at least the indigenous species thereof, may be known from *Libellula* by having the prevalent colour of a rich metallic hue; they differ in the form both of the labium and labrum, and in other minor particulars; the males have the hinder wings angulated on the inner margin, and the females rounded: these insects, as well as the *Libellulæ*, are distinguished from all the foregoing genera of this family by having the intermediate lamella of the labium small, and surrounded by the lateral ones.

Sp. 1. *ænea*. *Viridi-ænea, nitida, abdominis basi subtus luteo, stigmatè atro vel fusco, appendice anali inferiori maris bifurcata*. (Long. corp. 1 unc. 10—11 lin.; Exp. Alar. 2 unc. 8—9 lin.)

Li. *ænea*. Linné.—Donovan, v. xii. pl. 415.—Cor. *ænea*. Steph. Catal. 309. No. 3435.

Brassy-green and shining: mouth fuscous, labium luteous; eyes green; thorax with a pale reddish pile; abdomen above brassy-green, the sides at the base and margin of the 2nd segment dull tawny; anal appendages brassy, upper pair somewhat cylindric, lower deeply bifurcate, the apex of each notched; legs black; wings hyaline, the extreme base sometimes orange; stigma black or fuscous, rarely ferruginous. Female with the margin of the 2nd abdominal segment luteous, the anal appendages short, and the wings sometimes flavescent.

Not very uncommon in several places within the metropolitan district towards the end of May or the beginning of June: I have seen it in plenty in Woodford in Essex, and it also occurs at Epping, and near Godalming, rather abundantly.

Sp. 2. *metallica*. *Viridi-ænea, nitida, abdominis medio incrassato, appendicibus analibus maris simplicibus acuminatis, alis lutescentibus, stigmatè luteo*. (Long. corp. 1 unc. 11 lin.; Exp. Alar. 2 unc. 9—10 lin.)

Li. *metallica*. Van. Linden, p. 18.—Cor. *metallica*. Steph. Nomen. 2d edit. col. 114.

Brassy-green, shining; head with a curved frontal fascia, the labium and base of the labrum luteous; eyes green, reddish above; thorax with a red down; abdomen with the edge of the 2nd segment, a dot on each side and a lateral stripe, and with a spot on each side of the base of the 3rd, luteous; anal appendages short, acute, lower pair shortest and triangular; legs black, anterior femora luteous at the base; wings lutescent, stigma luteous.

Female with the hinder and lateral margins, and a dot on each side of the

MANDIRULATA, VOL. VI., 15TH JUNE, 1836. M

two basal segments of the abdomen luteous, the antepenultimate one beneath with an acuminate process.

Rare in England: it has been found within the metropolitan district in June.

Sp. 3. *Curtisii*. *Æneo-viridis, nitida, abdomine compresso, lineâ interruptâ dorsali luteâ, appendicibus analibus maris superioribus incurvatis, pilosis, inferioribus brevibus emarginatis.* (Long. corp. 2 unc.—2 unc. 1½ lin.; Exp. Alar. 2 unc. 10 lin.—3 unc.)

Co. *Curtisii*. *Dale (Loudon's Mag. v. vi. p. 180.)—Cor. compressa. Steph. Catal. 309. No. 3436.*

Brassy-green, shining; mouth below and streak on the labrum luteous; eyes greenish; thorax clothed with pale down, its extreme apex and two indeterminate spots towards the base of the wings reddish; abdomen clavate, the two basal segments with a narrow luteous streak, the 3rd to the 7th with an interrupted dorsal line, and the 8th with a spot at the base luteous, 9th immaculate, 10th with a luteous patch; anal appendages moderate, upper pair pilose and incurved, lower pair shorter, emarginate; legs black; wings hyaline. Female of a brighter green, the abdomen compressed and carinated, the dorsal streak broader, and the margins of the 3rd, 4th, and 5th segments luteous; wings flavescent, with a black stigma.

I believe the only locality for this insect to be the New Forest, in the vicinity of Brockenhurst, where it occurs in June and July.

GENUS XV.—LIBELLULA *Auctorum*.

Labium tumid, its middle lobe small, transverse-semicircular, faintly produced in the middle, lateral lobes very ample, transverse-quadrate, truncate at the apex, and surrounding the inner lobe: *labrum* entire: *head* large, semi-globose: *forehead* vesicular and pilose: *eyes* contiguous, or nearly so, in front: *ocelli* three, placed in a triangle on a distinct vesicle: *thorax* ample, pilose: *body* not metallic: *abdomen* of variable form, rarely clavate, its anal appendages moderate, or short: *wings* ample; posterior pair rounded on the inner margin in both sexes; stigma generally oblong.

As mentioned under *Cordulia*, this genus differs in the form of the labium and labrum, and in general by having the abdomen more or less depressed, rarely clavate; the posterior wings are rounded on the inner margin in both sexes: the genus probably requires subdivision, for the insects belonging to section D. differ considerably from the others, both in size and in general form.



A. *Abdomen depressed and dilated*:—*PLATETRUM*, Newman.

Sp. 1. *depressa*. *Abdomine lato, depresso, maculis lateralibus luteis, alis anticis macula oblongâ baseos posticis 3-angulari fuscis, membranula accessoriâ alba.* (Long. corp. 1 unc. 8—9 lin.; Exp. Alar. 2 unc. 10 lin.—3 unc.)

Li. *depressa*. Linné.—Donovan, v. i. p. xxiv. ♀. v. iii. pl. 81. ♂.—Steph. Catal. 310. No. 3445.

Head fuscous; thorax reddish-brown, palest above, with two longitudinal whitish streaks; abdomen frequently blue above, sometimes brown or testaceous, more or less of the intermediate segments with a rounded yellow spot on the sides; anal appendages small and black; wings hyaline, stigma black; anterior pair with an oblong fuscous spot, veined with deep tawny; posterior pair with a similar spot of a triangular form; accessory membrane white; legs black; femora red. Female with the thoracic streaks lutescent, the abdomen generally of an olivaceous tinge, with most of the segments bearing a luteous spot on the sides, and the three last with a black dorsal line.

Very abundant, throughout the metropolitan district, from the end of May; taken also in the New Forest and near Dover; in Devonshire, Cambridgeshire, Norfolk, Suffolk, &c.

Sp. 2. *conspurcata*. *Abdomine depresso, supra cærulescente (mas), aut rufo, stigma dorsali nigra (fœmina), alis omnibus strigâ marginali flavâ, posticis lineâ et macula 3-angulari baseos fuscis, membranulâ accessoriâ nigricante.* (Long. corp. 1 unc. 7—8 lin.; Exp. Alar. 2 unc. 7—9 lin.)

Li. *conspurcata*. Fabricius.—Sowerby, Brit. Mis. v. i. pl. 46.—Steph. Catal. 309. No. 3443.

Head and thorax fuscous; abdomen above bluish, with the base and apex fuscous; anal appendages curved; legs black; wings hyaline, with an indeterminate yellow or pale orange streak from the base to beyond the middle, tip fuscous; stigma black; the anterior have a faint line at the base, the posterior a similar line and a triangular blotch fuscous, the latter is reticulated with bright tawny; accessory membrane dusky. Female pale rufous, the abdomen with a black dorsal line from the 4th to the 9th segments, increasing in width on the hinder margin of each segment; legs black, femora red.

The wings have sometimes a large blackish spot at the extreme tip, and at others are wholly destitute thereof, and intermediate grades occur: in some examples the wings are almost entirely yellow.

Found, though not very commonly, in the marshes about Bermondsey and Deptford, in June, but abundant in the neighbourhood of Norwich.

B. Abdomen conical and pointed :—LEPTETRUM, Newman.

Sp. 3. quadrimaculata. *Rufa, abdomine apice late nigro, alis basi croceis omnibus macula cubitali et stigmate nigris, posticis macula 3-angulari baseos fuscâ, membranulâ accessoriâ albâ.* (Long. corp. 1 unc. 10—11 lin.; Exp. Alar. 2 unc. 10 lin.—3 unc.)

Li. 4-maculata. *Linne.—Donovan, v. xi. p. 407.—Steph. Catal. 310. No. 3444.*

Head lutescent, with a streak in front adjoining the eyes, and the edge of the labrum black; eyes fuscous, greenish beneath; thorax above dull red, with two irregular approximating black streaks on the sides, which last are luteous; abdomen also dull red or flavescent; the basal segment, the apex of the 5th, and the remainder black, the 4th to the 8th with a luteous spot on each side; anal appendages black, upper pair clavate, lower acute; legs black; wings hyaline, saffron-coloured at the base, with a spot in the middle of the costa, and the stigma black or fuscous, the hinder pair with a large somewhat triangular fuscous patch, reticulated with yellow.

The costal spot varies in size, and is sometimes a little ocellated, and at others nearly wanting.

Found at Muswell Hill, not uncommonly, in June and July, and abundant near Godalming and Epping; also at Whittlesea Mere, &c.

Sp. 4. prænubila. *Rufo-fusca, abdominis lateribus luteo maculatis, alis omnibus strigâ abbreviatâ crocâ nebulisque duabus costam attingentibus, posticis maculâ magna 3-angulari fuscâ; membranulâ accessoriâ albidâ.* (Long. corp. 1 unc. 11 lin.; Exp. Alar. 3 unc. 1—2 lin.)

Li. prænubila. *Ent. Mag. (Newman) v. i. p. 416.—Steph. Nomen. 2d edit. Appendix.*

Head brown, with two yellow spots behind the eyes; abdomen brown, slightly attenuated, the five or six intermediate segments with a luteous spot on each side; wings as in Li. 4-maculata, but the central spot is surrounded by a brown cloud, and from the stigma a transverse fascia of the same colour extends sometimes completely across the wings, at others but a short distance, and at times nearly obliterated; legs black.

Whether this be really a distinct species I am not prepared to affirm; but its characters appear sufficiently distinct to constitute one; it is rather larger, and its abdomen is less pilose and broader at its extremity than in Li. 4-maculata, of which it is generally considered to be a variety.

Abundant about Epping and Godalming; also taken in Burwash fen, Cambridgeshire, in the beginning of July.

C. Abdomen laterally parallel :—ORTHETRUM, Newman.

Sp. 5. bimaculata? *Testacea, nigro maculata, alis flavescentibus, ad marginem*



crassiorē fulvescentibus, posticis baseos maculæ magnâ fuscâ. (Long. corp. 2 unc. 3—4 lin.; Exp. Alar. 3 unc. 2—3 lin.)

Li. bimaculata. *Charpentier, Horæ Ent. p. 45 ?—Steph. Nomen. 2d edit. col. 115.*

Head fulvous; mouth flavescens, dusky above; thorax dull testaceous, with dusky streaks and clouds; abdomen testaceous, with a broad irregular fuscous stripe down the back; anal appendages black, lower one short and emarginate, of the female somewhat cylindric and divergent; legs black, with the base of the femora fulvous; wings yellowish, with a pale tawny streak from the base to beyond the middle, the posterior pair with a large triangular fuscous spot, with saffron nervures at the base; stigma black.

The anterior wings have sometimes two longitudinal fuscous streaks at the base.

Taken in the neighbourhood of Whittlesea Mere, in June.

Sp. 6. cancellata. *Abdomine supra cinereo-cærulescens, apice nigro* (mas), *aut olivaceo strigâ utrinque longitudinali nigra* (fœmina); *alis hyalinis, stigmatē nigro.* (Long. corp. 1 unc. 10 lin.; Exp. Alar. 3 unc. 1—2 lin.)

Li. cancellata. *Linné.—Donovan, v. xiv. pl. 472.—Steph. Catal. 309. No. 3442.*

Head ashy; mouth brown; eyes green; thorax olivaceous above, with two short black humeral streaks on both sides, the sides pale, with an olivaceous oblique line, edged with two black ones; breast dusted with whitish; abdomen depressed, gibbous at the base, ashy-blue, with the sides at the base, the tip of the 6th segment, and the remainder black; 3rd with a transverse line, and also, with the four next, a dorsal black line; beneath the 3rd to 6th segments have two oblong pale spots; anal appendages black, with an ashy tip, lower pair acute; legs black; wings hyaline; stigma black; accessory membrane fuscous. Female olivaceous; thorax with two abbreviated dorsal streaks, and another on each side black; abdomen with the margins of the segments, and an irregular longitudinal line on each side, composed of dark streaks, black; legs black; femora red, with a black line.

The male has sometimes a luteous spot on each side of each intermediate abdominal segment; and the lateral line on the abdomen of the female is occasionally very broad.

Not uncommon in the marshes in the vicinity of Crayford and Dartford, in June; and abundant in the neighbourhood of the Croydon Canal, near Oak-of-honour wood, Peckham.

Sp. 7. cærulescens. *Cinereo-fusca abdomine cærulescente* (mas) *aut rufescens* (fœmina), *thorace strigis 2-bus pallidis, alis hyalinis, stigmatē fusco aut brunneo, membranulâ accessoriâ albâ.* (Long. corp. 1 unc. 4—6½ lin.; Exp. Alar. 2 unc. 3—7 lin.)

Li. cærulescens. *Fabricius, Supp. 285.—Li. Donovan. Leach.—Steph. Catal. 309. No. 3441.—Li. biguttata. Donovan, v. xiii. pl. 449.*



Face luteous; eyes greenish; thorax ashy-brown or bluish, with two pale dorsal streaks; abdomen somewhat depressed, with a longitudinal dorsal line, a transverse one on the 2nd and 3rd segments, and a double posterior spot from the 3rd to the 8th inclusive, and all the margins, black; beneath and base of the femora olivaceous, rest of the legs black; wings hyaline, stigma fuscous or brown; accessory membrane white. Female reddish, with the thoracic and abdominal markings as in the male, but the abdomen has often in addition an indistinct longitudinal streak on each side.

Both sexes are sometimes found reddish, with the legs pale; probably immature; the wings are occasionally yellowish, with a pale luteous stigma, or slightly fuscous, with a black stigma in the male.

Found, not uncommonly, within the metropolitan district, in June, particularly in the vicinity of Godalming; found also in the west of England.

D. *Abdomen laterally compressed*:—*SYMPETRUM*, Newman.

Sp. 8. *Scotica*. *Alarum stigmatum pedibusque nigris*: mas *purpureo-nigra, maculis flavis, alis hyalinis*; fœmina *olivacea, maculis flavis, subtus nigra; alis hyalinis basi flavis*. (Long. corp. 1 unc. 1 lin.; Exp. Alar. 1 unc. 6—7 lin.)

Li. *Scotica*. Leach.—Donovan, v. xv. pl. 523.—Steph. *Catal.* 309. No. 3440.

Head purplish-black; sides of the labium and lower part of the face yellow; eyes greenish; thorax purplish-black, with two oblique yellow stripes on the sides, and some spots of the same hue; abdomen purplish-black, with some irregular spots at the base, and one on each side at the base of the 8th and 9th segments dull yellow; legs black; wings hyaline, with a black stigma. Female olivaceous, or reddish; head yellow, with a black patch in the middle of the labium and another on the forehead; thorax marked with yellow as in the male; abdomen with the lower half and the 8th and 9th segments black, the latter each with two yellow spots at the base, as in the male; wings hyaline, slightly stained with saffron at the base, especially the posterior pair.

The legs are occasionally pale, with a black streak above.

Not uncommon in the north of England, but very abundant in Scotland; found in the neighbourhood of New Lanark in plenty; also in the Isle of Arran, &c.

Sp. 9. *pallidistigma*. *Alarum stigmatum pallido; flavescens, thoracis lateribus nigro flavoque mixtis, abdomine supra rufescens, subtus nigro, pedibus pallide-rufis extis nigro lineatis*: fœmina *alis basi flavescens*. (Long. corp. 1 unc. 3 lin.; Exp. Alar. 1 unc. 10 lin.)

Li. *pallidistigma*. Steph. *Nomen*. 2d edit. *Appendix*.

Head yellowish, with the face yellow and a black frontal line; eyes pale



greenish; thorax lutescent, with a fuscous dorsal line, and the sides with irregular yellow streaks, and black zigzag lines; abdomen yellowish, the lower half of each segment black, the 8th and 9th black, with a yellow spot, the margins of all with a fine black line; legs pale red, black exteriorly; wings hyaline, those of the female, especially the hinder pair, 'yellowish at the base; stigma rather long, pale brown in the male, yellow in the female.

Taken in the New Forest, in June.

Sp. 10. *rufostigma*. *Alis sordide hyalinis basi croceis, stigmatē rufō, pedibus nigris: maris corpore rufō; fœminæ olivaceo lineâ dorsali nigrâ.* (Long. corp. 1 unc. 4—5 lin.; Exp. Alar. 2 unc. 10 lin.—2 unc.)

Li. *rufostigma*. *Ent. Mag. (Newman) v. i. p. 512.—Steph. Nomen. 2d edit. Appendix.*

Male fine yellowish-red; sides of the thorax yellowish, with irregular oblique black streaks; abdomen with a blackish line beneath; legs black, the anterior femora sometimes yellowish at the base; wings hyaline, stained throughout with brown, with a saffron-coloured spot at the base, largest on the posterior pair; stigma red, brightest in the males. Female differs in being olivaceous, the sides of the thorax of a brighter yellow, varied with oblique black lines; abdomen with the three or four terminal segments having a black dorsal line, and the sides of the others occasionally blackish.

Abundant in various places within the metropolitan district, in the summer and beginning of autumn, especially at Birch wood, Coombe, &c. Found also in the New Forest and in Devonshire.

Sp. 11. *angustipennis*. *Olivacea, alis hyalinis basi croceis, stigmatē atro, pedibus nigris, femorum basi luteis, thoracis lateribus flavis nigro lineatis.* (Long. corp. 1 unc. 3 lin.; Exp. Alar. 2 unc. 1 lin.)

Li. *angustipennis*. *Steph. Nomen. 2d edit. Appendix.*

Face yellow; forehead with a dusky streak; eyes greenish; thorax olivaceous, the sides yellow, with oblique irregular black lines, the disc with a black T; abdomen olivaceous, the terminal segments with a faint oblique black streak on each, and the three last with a black dorsal line; legs black, with the base of all the femora luteous; wings long and narrow, perfectly hyaline, the base of each with an irregular saffron-coloured patch; stigma deep black.

Found in June, near London.

Sp. 12. *vulgata*. *Mas rufescens: fœmina olivacea, alis sordide hyalinis basi vix croceis, stigmatē infumato, femoribus tibiisque flavis, lineis nigris, tarsis nigris.* (Long. corp. 1 unc. 4—7½ lin.; Exp. Alar. 2 unc. 1—4 lin.)

Li. *vulgata*. *Linné.—Donovan, v. x. pl. 337.—Steph. Catal. 309. No. 3437.*

Male dull red; thorax yellowish on the sides, with irregular oblique black



lines; abdomen with a slender black line on each side, some faint dots of the same towards the hinder margin of each of some of the posterior segments, and two dorsal spots at the base of the 8th and 9th segments; legs yellow, with slender black lines; tarsi black; wings hyaline, sometimes deeply stained with fuscous, the base concolorous, or very faintly tinged, especially the females, with yellowish; stigma smoky-brown, or pale red, sometimes yellow. Female olivaceous; thorax as in the male; abdomen with an interrupted black streak on the sides, and sometimes a dorsal stripe of the same on the 8th and 9th segments.

The wings are sometimes deeply suffused with brown; at others perfectly hyaline.

Very abundant, throughout the metropolitan district, in July and August; taken also near Dover, in the New Forest, Devonshire, &c.

Sp. 13. *basalis*. *Flavescens, alis basi et marginibus costalibus croceo tenuiter suffusis, stigmatibus subinfusato, pedibus nigris, femoribus anticis subtus flavis.* (Long. corp. 1 unc. 3—4 lin.; Exp. Alar. 1 unc. 11 lin.—2 unc. 1 lin.)

Li. *basalis*. *Steph. Catal.* 309. No. 3439.

Dull yellow; thorax of an olivaceous tint, its sides of a brightish yellow, with irregular oblique black lines; abdomen with a faint black dorsal line, and on the posterior segments a distinct lateral one, composed of irregular black spots; legs black, the anterior femora beneath yellow, their coxæ and trochanters pale straw-colour; wings hyaline, stained with pale saffron-colour at the base and along the costal margin, especially the hinder pair; stigma pale smoke-coloured, or flavescent.

Found, in June and July, at Colney Hatch, apparently not very common; also at Deptford once.

Sp. 14. *flaveola*. *Flavescens, pedibus nigris, extus flavo lineatis, alis hyalinis aut flavescentibus basi, posticarum præsertim, læte croceis, stigmatibus flavo.* (Long. corp. 1 unc. 4—5 lin.; Exp. Alar. 2 unc.—2 unc. 3 lin.)

Li. *flaveola*. *Linne.—Steph. Catal.* 309. No. 3437.

Reddish-yellow; thorax of a brighter hue on the sides, especially beneath, and faintly streaked with black; abdomen black beneath and on the lower part of the sides, the base of the 1st segment also black; legs black, with a yellow line externally on the femora and tibiæ; tarsi black; wings hyaline, or slightly yellowish, anterior with a saffron-coloured blotch at the base, and in the females with another near the centre of the upper margin; posterior wings with a large blotch of the same colour at the base, extending completely across the wing, and occupying above one quarter of the surface; stigma opaque straw-coloured, or brownish.

Rare near London; more abundant in Scotland; it also occurs near Whittlesea Mere.

SECTION IV.—TERMITINA, *Mac Leay*.

Antennæ long and filiform, or setaceous, sometimes moniliform, composed of numerous joints, the basal one largest, occasionally clavate: *mandibles* dentate: *head* transverse; *forehead*, or *clypeus*, sometimes tumid: *eyes* more or less prominent, semiglobose and lateral: *thorax* with its anterior segment, or *collar*, generally long, occasionally very long; its other segments variable: *wings* in the typical genera nearly alike, with two central approximating longitudinal nervures, the costal portion usually with numerous transverse nervures, which are occasionally bifid, and sometimes united by longitudinal ones, the other portions mostly with numerous longitudinal nervures, more or less united by transverse ones placed obliquely; in the other genera the two pair of wings are dissimilar, with four very distinct irregularly waved longitudinal nervures, and occasionally one or two transverse ones: *abdomen* long and slender, in one genus furnished at the apex, of the females, with an elongated, curved, ovipositor: *legs* simple: *tarsi* with 5, or 4, joints.

The insects included in this section—which may be divided into families by the few external characters given below—although considerably diversified in appearance, appear to agree sufficiently to form one group, discrepant from the other Neuroptera; but they are evidently divisible into two subordinate groups, the Psocidæ differing from the others in the shorter neck, swollen forehead, and singularly nerved wings, the hinder pair of which are in general much smaller than the anterior; and sometimes all the wings are wanting.

<i>Tarsi</i> articularis 4; <i>collum</i> valde elongatum:	4. RAPHIDIIDÆ.
5; <i>collum</i> subelongatum, aut breve:	
<i>Antennæ</i> clavatæ:	1. MYRMELEONIDÆ.
haud clavatæ:	
<i>Alæ</i> plus minus reticulatæ:	2. HEMEROBIDÆ.
venosæ, vix reticulatæ:	3. PSOCIDÆ.

FAMILY I.—MYRMELEONIDÆ, *Leach*.

Antennæ thicker towards the extremities, inserted between the eyes, many-jointed, the tip compressed: *palpi* six: *body* elongate: *head* transverse: *eyes* semiglobose, prominent: *ocelli* wanting: *thorax* elongate, somewhat cylindric-ovate: *collar* narrow, small; *mesothorax* ample: *wings* equal, open, deflexed, nervose, somewhat elongate-trigonal, costa straight, inner margin curved: *abdomen* cylindric, apex of the males biappendiculate: *legs* short, stoutish: *tarsi* 5-jointed, the first and last joints longest: *claws* two, MANDIBULATA, VOL. VI., JUNE 15TH, 1836. N

FAMILY II.—HEMEROBIDÆ, *Leach*.

Antennæ filiform or setaceous, inserted between the eyes, elongate, composed of very numerous and very short articulations, the basal one being stoutest; *palpi* four, maxillary longest, 5-jointed; labial 3-articulate: *body* elongate, soft: *head* trigonate, inflexed vertically: *eyes* prominent, semiglobose; forehead elevated: *wings* equal, ample, deflexed, very much reticulated, costa distinct: *abdomen* elongate, compressed, subcylindric, somewhat falcate: *legs* slender: *tarsi* short, 5-jointed, articulations entire: *claws* two, small.

The insects of this family, or at least their larvæ, have been called *Aphis-Lions*, from preying upon Aphidæ: they are, in general appearance, much allied to those of the preceding family, but are rather more elongate; they do not, however, conceal themselves in a sandy pit, but clothe themselves with the skins of their prey, and hide

strong, elongate, acute. Larva terrestrial; mandibles very stout and porrect, armed within with strong teeth; abdomen large, acute: pupa folliculate and quiescent.

The type of this family having been introduced by error into the British list, it is necessary for me to notice it: the only genus that has been thus introduced is

GENUS XVI.—MYRMELEON, *Auctorum*.

Antennæ gradually thickened towards the extremities, curved, not longer than the thorax, the articulations transverse; club ovate, furnished at its apex with a small hook: *labial palpi* with the terminal joint incrassate-fusiform, subulated at the apex: *eyes* entire: *abdomen* very long, linear.

The insects of this genus are known by the name *Ant Lions*, from the peculiar habits of their larvæ: these reside in sandy districts, and form a conical pit in the sand, at the bottom of which they bury themselves, leaving only their large jaws exposed and expanded, ready to seize the first unfortunate ant, or other insect, that may fall therein, upon which they prey: they change in a silky follicle into pupæ, and the perfect insect frequents similar districts with the larvæ, and preys also upon insects.

+Sp. 1. formicarium. *Alis hyalinis, fusco-maculatis, stigmatibusque nonnullis albidis.* (Long. corp. 10 lin.; Exp. Alar. 2 unc. 8—10 lin.)

Myr. formicarium. *Linnc.—Barbut (!)—Steph. Catal. 310. No. 3446, note.*

Wings hyaline, spotted with fuscous, apex acute; stigma and some anastomoses whitish; clypeus with a fuscous dot; collar with a dorsal line round its edges, and the margins of the abdominal segments reddish-yellow.

Erroneously introduced as British by Barbut.



amongst lichen, &c. on trees, from which, by means of their clothing, they are not easily discerned: the perfect insects frequent weeds and gardens, and are easily known by their ample wings, which are very beautifully reticulated, and in general highly iridescent: their eggs are deposited on leaves, or the stems of trees, upon a more or less lengthened footstalk, somewhat resembling a thin pin stuck thereon.

The indigenous species may be divided into the following genera, thus cursorily distinguished by external characters:—

<i>Ocelli</i> 3, frontales. per triangulum dispositi: . . .	17. OSMYLUS.
nulli:	
<i>Alis</i> anticis postice excisis: . . .	18. DREPANEPTERYX.
integris, aut rotundatis:	
<i>Antennæ</i> articulis cylindricis: . . .	19. CHIRYSOPA.
moniliformes: . . .	20. HEMEROBIUS.

GENUS XVII.—OSMYLUS, Latreille.

Antennæ short, moniliform: *labium* with its apex straight, transverse, margined, the margin linear and somewhat cleft in the middle: *labrum* round: *head* transverse, *forehead* tumid: *eyes* moderate: *ocelli* three, placed in a triangle, and approximating: *collar* very distinct, elongate-cylindric, rounded in front, much narrower than the *thorax*, which is short, produced a little in the middle behind: *metathorax* tubercular: *wings* long, pilose, depressed when at rest; somewhat lanceolate, and faintly acute on the hinder margin, rather closely nerved, the nervures bifid on the margins, and forming rhomboid or polygonal areolets on the disc; the costa of the anterior pair slightly dilated and rounded.

From the other genera of this family the present may be known by having three distinct ocelli, placed in a triangle and approximating; they also differ in other external points, as in the short moniliform antennæ, the acute spotted wings, the reticulations of which likewise differ, &c.

Sp. 1. maculatus. *Fuscus, capite pedibusque testaceis, alis hyalinis, anticis, limbo præsertim, costaque posticarum fusco maculatis.* (Long. corp. $4\frac{1}{2}$ — $5\frac{1}{2}$ lin.; Exp. Alar. 1 unc. 6—10 lin.)

He. maculatus. *Fabricius.*—Os. maculatus. *Leach.*—*Samouelle, pl. 7. f. 4.*—*Steph. Catal. 310. No. 3447.*

Head bright testaceous or fulvous; thorax and abdomen fuscous; legs dull testaceous; wings hyaline, anterior pair with several deep fuscous spots on the disc, numerous larger ones on the costa and on the inner margin, and

some of a fainter hue on the hinder margin ; posterior pair with the costal edge irregularly spotted and marked with fuscous.

The fuscous markings on the wings vary considerably : in some examples the wings are very much spotted, especially on the inner margin ; in others nearly, or quite, immaculate ; others have the lower pair with a deep brown central dot.

Rather a local species, but found in great abundance in some places, especially on the margins of a brook on the side of a copse near Colney Hatch, in June ; also found near Halifax and Warwick.

GENUS XVIII.—DREPANEPTERYX, *Leach.*

Antennæ rather shorter than the body, placed a little remotely, stoutish, moniliform, the basal joint very robust : *palpi* unequal ; *maxillary* long and slender, the terminal joint subfusiform, acute ; *labial* very short : *labrum* rounded on its outer edge : *head* transverse : *eyes* moderate, prominent : *ocelli* wanting : *collar* ample : *thorax* broad : *wings* broad, deflexed during repose, scarcely pubescent ; anterior pair with very numerous dichotomising nervures, united by two longitudinal series on the costal area, and three somewhat irregularly-placed oblique series on the disc, exclusively of the pair common to all the family ; much dilated and rounded at the base, the apex recurved ; the hinder margin deeply excised, and, with the recurved apex, forming an acute hook, the base of the inner margin with a mucronated process ; posterior pair shorter, with fewer nervures, somewhat lanceolate-acute, the hinder margin waved : *abdomen* compressed : *legs* long and slender.

This singular-looking genus is very conspicuous from the form of its anterior wings, which are irregularly excised and somewhat falcate on the hinder margin ; they are considerably reticulated, and differ much from those of the two following genera, especially on the costal edge of the anterior wings, as may be seen by comparing the figures in pl. xxxiii. f. 1, and pl. xxx. f. 3 and 4. One indigenous species only is known.

Sp. 1. *Phalænoides*. PLATE xxxiii. f. 1.—*Testacea, corpore saturatiore, alis anticis strigis 2-bus obliquis punctoque fuscis, maculâque triangulari marginali albâ.* (Long. corp. 5 lin. ; Exp. Alar. 15 lin.)

He. *Phalænoides*. *Linnc.*—Dr. *Phalænoides*. *Steph. Catal.* 310. No. 3448.

Testaceous, body darker ; eyes black ; anterior wings of a reddish testaceous, with numerous irregular and not very distinct darker transverse streaks, producing, with the nervures (which are darkish), a reticulated appearance,



a fuscous dot towards the base, and two oblique somewhat repanded streaks towards the apex, the first terminating on the inner edge with a small triangular white spot; the inner and hinder margins are umbre-coloured, on the latter interrupted with whitish; posterior wings rather pale, especially towards the base.

Also a local insect: I am indebted to Mr. Little for the first communication thereof; he found it at Raehills in Scotland, and Mr. Walker has taken it near New Lanark.

GENUS XIX.—CHRYSOPA, *Leach*.

Antennæ as long as, or longer than, the body, filiform, the articulations oblong and cylindric, the basal one very large: *labium* very large, orbicular, entire: *labrum* transverse, with a central marginal notch: *head* short: *eyes* very globose, prominent (brilliant during life): *ocelli* wanting: *collar* somewhat quadrate, nearly as wide as the head: *thorax* broad, rounded in front: *wings* deflexed during repose, iridescent, glabrous, long and narrowish, somewhat elliptical: *costa* with transverse simple nervures only; inner portion with numerous reticulations, forming three rows of areolets on the disc, and the transverse nervures mostly bifid on the margins: *legs* short, slender, and simple.

The insects of this genus may be known by the extreme brilliancy of their beautiful globose eyes, which are of rich golden tints during life, thence called *golden-eyes*, but which fade after death to a greenish- or purplish-brown; but, exclusively of this distinction, the very different neuration of the wings, the structure of the antennæ and trophi, well distinguish them: they have very delicate wings, upon the surface of which the most brilliant iridescent tints are produced by varying the direction of the light; though these fine outward blandishments are sadly contrasted with the fetid odour that is evolved from the insects when handled.

Sp. 1. *fulviceps*. PLATE xxx. f. 2.—*Niger, capite fulvo, collare et thorace ochraceis lateribus nigro maculatis, pedibus pallidis*. (Long. corp. 5 lin.; Exp. Alar. 1 unc. 6—7 lin.)

Ch. *fulviceps*. *Steph. Catal.* 310. No. 3449.

Head bright fulvous; eyes black; collar ochreous, with a faint black spot on each side; thorax also ochreous, irregularly spotted, or varied with black on the sides; abdomen fuscous, with a lateral line, and the apex beneath ochreous; legs pale; wings with pale fuscous nervures, and a very faint, fuscous, and elongated stigma towards the apex of the costa.

The outer longitudinal nervure is sometimes pale yellowish-green.



A local insect, found in the vicinity of Windsor; also in the New Forest and in Devonshire, in June and July; also, but very rarely, at Darenth wood.

Sp. 2. capitata. *Piceo-testacea, capite fulvescente pedibus pallide testaceis, alis hyalinis, nervis stigmatæque pallide fuscis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 1 unc. 2—4 lin.)

He. capitata. *Fabricius*.—Ch. capitata. *Steph. Catal.* 310. No. 3450.

Pitchy-testaceous: head fulvous; antennæ black; eyes greenish; thorax pitchy, its anterior portion, or collar, testaceous; wings hyaline, very highly iridescent, with the nervures and costal stigma pale fuscous.

Taken in Devonshire and in the New Forest, but not common, in June; also near Hertford and Ripley.

Sp. 3. reticulata. *Viridis, capite thoraceque nigro punctatis, abdominis dorso ventreque nigris, alis subcærulescenti-viridibus nervis transversalibus nigrescentibus.* (Long. corp. 4—5 lin.; Exp. Alar. 10—14 lin.)

Ch. reticulata. *Leach*—*Steph. Catal.* 310. No. 3451.—He. chrysops. *Wood*, ii. pl. 49.

Head luteous-green, with various simple and united black spots and marks; palpi varied with black; collar bluish-green, with black spots on the sides; thorax yellowish-green, irregularly marked with black on the sides; abdomen also yellowish-green on the sides and margins of the segments, the back and under surface black; legs green; tarsi reddish; antennæ reddish, the basal joint black beneath, the apex dusky; wings faint bluish-green, with the nervures of a darker tint, most of the transverse ones dusky or blackish.

Not uncommon in woods and woody places, during the month of June, as at Coombe and Darenth woods, near Hertford, Ripley, Dover, the New Forest, &c.

Sp. 4. maculata. *Luteo-viridis thoracis lateribus segmentorumque abdominis basi nigris, capite nigro maculato, alis subabbreviatis, apice rotundato.* (Long. corp. 3 lin.; Exp. Alar. 10 lin.)

Ch. maculata. *Steph. Catal.* 311. No. 3452.

Luteous-greenish: head with two spots on the labrum, one surrounding each antennæ, and uniting behind on the forehead, and one behind each eye black; thorax with its sides irregularly varied with black, approaching to spots on those of the meso- and metathorax; wings short, rounded at the apex, pale green, with pale fuscous nervures, and a faint brownish stigma; abdomen with the base of the segments black; legs pale; antennæ reddish, with fuscous rings.

Taken, in June, at Darenth wood.

Sp. 5. abbreviata. *Late viridis, puncto ad basin antennarum et alarum singulorum utro, capite lutescente-viride, punctis munitissimis atris, alis abbreviatis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. $5\frac{1}{2}$ —10 lin.)

Ch. abbreviata. *Curtis, v. xi. pl. 520.—Steph. Nomen. 2d edit. Appendix.—*

Ch. viridis. *Curtis, Guide?*

Bright green: antennæ dull ochreous; the basal joint with a black dot above; head lutescent-green, with a minute black dot between the antennæ, two blackish streaks at the base, two dots on the crown behind the antennæ also black; wings rather short, ovate, finely iridescent, with a black dot at the base of each, the nervures and stigma bright green, the former producing black lines, and those of the costa blackish towards the longitudinal common rib; abdomen green, clothed with fine blackish hairs; legs pale green; tarsi ochreous.

Taken near Dover and in Devonshire; also on the coasts of South Wales and Lancashire, and near Yarmouth, in June and July.

Sp. 6. immaculata. *Tota late viridis, immaculata, alis abbreviatis, nervis viridibus, antennis palpisque rufescentibus.* (Long. corp. 3—4 lin.; Exp. Alar. 9—12 lin.)

Ch. immaculata. *Steph. Catal. 311. No. 3453.*

Head, thorax, and abdomen wholly of a fine bright green, immaculate; wings short and ovate, rich pale green, and strongly iridescent, the nervures entirely pale green, and producing green hairs; legs pale green, with the tarsi reddish; antennæ and palpi pale reddish, immaculate.

It is possible that this may be a less mature state of Ch. abbreviata, which it greatly resembles in form.

Found near London, in June, not very common.

Sp. 7. carnea. *Flavescente-incarnata, abdominis dorso rufo punctato, antennis pedibusque flavis, alis abbreviatis nervis rufescentibus.* (Long. corp. 4— $4\frac{1}{2}$ lin.; Exp. Alar. $11\frac{1}{2}$ —12 lin.)

Ch. carnea. *Steph. Nomen. 2d edit. Appendix.*

Head bright rosy-red, or flesh-colour, immaculate; mouth and palpi yellow; collar and thorax also rosy-red, the anterior edge of the latter, and its sides, as also those of the metathorax, and all beneath, yellow; abdomen rosy or flesh-colour, yellow beneath, the edges of the segments above, especially down the back, red; legs pale yellow; antennæ the same, with the basal joint; wings short and ovate, beautifully iridescent, the nervures and stigma reddish.

Taken, in June, near London, and in Scotland.

Sp. 8. ventralis. *Virescens, capite thoraceque nigro punctatis, abdomine viridi-*



lutescente, ventre piceo aut atro, alis subabbreviatis nervis partim fusciscentibus. (Long. corp. 4—5 lin.; Exp. Alar. 14—16 lin.)

Ch. punctifrons. *Steph. Catal.* 311. No. 3454.—Ch. ventralis. *Curtis, f.* 520.

Head pale yellowish-green, with a black dot between the antennæ, another before each eye, one or two on each side of the collar, two on the back of the thorax, and one on each side between the wings; abdomen pale greenish, with its under side, excepting the apical segment, pitchy or black, the margins of the segments occasionally greenish; legs pale griseous; wings rather short, and outer nervures partially dusky, with pale hairs; antennæ brownish, pale at the base, with a blackish ring on the tip of the basal joint.

The spots on the collar and thorax are sometimes wanting.

Abundant at Darenth wood, at the end of June; also found near Hertford, Ripley, and Dover.

Sp. 9. alba. *Virescente-alba, alis subabbreviatis rotundatis, nervis subfuscentibus, oculis viridi-æneis.* (Long. corp. 4 lin.; Exp. Alar. 12 lin.)

He. albus. *Linne.*—Ch. alba. *Steph. Catal.* 311. No. 3455.

Greenish-white, immaculate: legs and antennæ pale; wings rather short and rounded at the apex, the nervures very pale fusciscent; eyes golden-green.

Taken, in June, in the neighbourhood of London; also in the New Forest.

Sp. 10. angustipennis. *Pallide-viridis, immaeulata, alis subelongatis, angustioribus, apice rotundato, nervis virescentibus.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 12—15 lin.)

Ch. angustipennis. *Steph. Nomen. 2d edit. col.* 115.—Ch. angusta. *Steph. Catal.* 311. No. 3457.

Very pale green, immaculate; the back with a paler longitudinal streak: eyes moderate, golden; wings rather long and narrow, the apex rounded, the nervures greenish, with some of the transverse costal ones a little fusciscent towards the mid-rib.

The metathorax has sometimes a rounded brown blotch on each side of the base of the hinder wings.

Found, in June, near London.

Sp. 11. affinis. *Luteo-virescens, metathorace nigro nebuloso, alis subacuminatis viridibus, nervis concoloribus.* (Long. corp. $3\frac{1}{2}$ —4 $\frac{1}{2}$ lin.; Exp. Alar. 12—14 lin.)

Ch. affinis. *Steph. Catal.* 311. No. 3456.

Yellowish-green; head and collar and metathorax immaculate, the latter with some faint blackish clouds, approaching in some specimens to black; wings rather long, somewhat acuminate, pale green, with the nervures of the same hue; the legs and antennæ greenish; eyes brassy.

Not uncommon near London; also found at Dover, and in Devonshire, in June.

Sp. 12. Perla. *Luteo-viridis, alis elongatis, apice acuminato, hyalinis, viridibus, venis subconcoloribus.* (Long. corp. 5—6 lin.; Exp. Alar. 14—21 lin.)

He. Perla. Linné.—Donovan, v. viii. pl. 277. f. 2.—Ch. Perla. Steph. Catal. 311. No. 3458.

Luteous- or yellowish-green, immaculate; antennæ rather fuscous; eyes golden; wings rather long, the apex a little acuminate, hyaline, pale whitish-green, with the nervures and stigma of a darker green.

In some examples the metathorax is slightly clouded with fuscous.

Very abundant in gardens, shrubberies, orchards, &c. during the summer, not only near London, but throughout the south of England; found also near Edinburgh.

Sp. 13. subfalcata. *Luteo-viridis, immaculata, alis elongatis attenuatis, apice acuto, subfalcato, venis virescentibus.* (Long. corp. $6\frac{1}{2}$ —7 lin.; Exp. Alar. 14—16 lin.)

Ch. subfalcata. Steph. Nomen. 2d edit. col. 115.

Pale luteous-green, immaculate, but the base of the abdominal segments is brownish; wings elongate, very narrow and attenuated, with the apex acute, pale greenish, with rather darker nervures and stigma; legs and antennæ pale; eyes brassy.

Taken, but not commonly, near London, in June.

GENUS XX.—HEMEROBIOUS *Auctorum.*

Antennæ nearly as long as the body, moniliform, the two basal joints largest, the terminal ones transverse: *labrum* transverse, rounded on its margin: *palpi* with the terminal joint elongate, fusiform-acute: *head* short, transverse: *eyes* small, prominent: *ocelli* wanting: *collar* rather narrower than the *thorax*, which is as wide as the head: *wings* deflexed during repose, pubescent, in general with very numerous longitudinal nervures, many of which are bifid on the margin, and a few transverse ones, all more or less pubescent: *abdomen* moderate, slender: *legs* slender; posterior *tibiæ* sometimes dilated.

The insects of this genus differ from *Chrysopa* in having the antennæ short and moniliform, the wings abbreviated, broad, and rather closely furnished with fine longitudinal nervures, in addition to which are a few transverse ones, varying in number in several of the species, being numerous in some, and very few in others; those of the last set differ also in having the nervures stronger and less

MANDIBULATA, VOL. VI., 30TH JUNE, 1836.

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pilose, and will probably, ere long, be divided as a distinct genus from the others: the species are very much allied, but, from the difference in neuration, may be easily distinguished from each other.

A. *Anterior wings* with the costal nervures chiefly furcate: discoidal nervures mostly arising from the inner longitudinal rib.

a. Longitudinal nervures, *except the first, united on the disc by two or more transverse ones.*

Sp. 1. *hirtus*. *Flavescens, oculis abdomineque fuscis, alis anticis subochraceis, obsolete fusco reticulatis, fasciisque duabus saturatoribus.* (Long. corp. 5—6 lin.; Exp. Alar. 8—10 lin.)

He. *hirtus*. *Linne.*—*Donovan*, v. iv. pl. 113. f. 1, 2.—*Steph. Catal.* 311. No. 3459.

Head yellowish or ochreous; eyes fuscous; thorax yellowish; abdomen fuscous; legs pale; anterior wings with the nervures pale fuscous, the transverse ones—of which there are two complete rows—deeper fuscous, forming two oblique streaks of that hue across the wings, in addition to which are some fainter waved streaks and blotches, especially on the inner edge towards the apex, and two or three longitudinal ones; the posterior wings paler, with a faint fuscous margin.

Abundant in woods within the metropolitan district, especially at Coombe and Darenth, in June and July; also found in Scotland.

Sp. 2. *angulatus*. *Testaceo-flavescens, antennis nigro annulatis, alis abbreviatis nervis (transversis præsertim) fuscis, fasciâ angulatâ saturatiore.* (Long. corp. 4—6 lin.; Exp. Alar. 7—9 lin.)

He. *angulatus*. *Steph. Catal.* 312. No. 3479.

Head, thorax, and abdomen testaceous-yellow; eyes fuscous; legs pale testaceous; wings short, yellowish, anterior with the nervures, especially the transverse ones—of which there are three rows—fuscous, in addition to which is an angulated darker fascia towards the apex, and on the inner edge are some fuscous clouds; posterior wings hyaline, with pale brownish nervures; antennæ pale testaceous, with black rings.

Apparently rare; found near London, in June, and in Scotland.

b. *Second longitudinal nervure free: not receiving any transverse one near its origin.*

Sp. 3. *concinuus*. *PLATE xxx. f. 3.—Rufescente-ochraceus, metathorace abdomineque piceis, oculis atris, alis lutescentibus, nervis pallidioribus nigro punctatis.* (Long. corp. $3\frac{1}{2}$ — $4\frac{1}{4}$ lin.; Exp. Alar. 9—11 lin.)

He. *concinuus*. *Steph. Catal.* 311. No. 3460.



Head and thorax bright reddish-ochre; metathorax and abdomen pitchy; legs and antennæ pale ochreous; eyes black; anterior wings very pale lutescent, the nervures paler, dotted with fuscous or black, the transverse ones mostly fuscous, the inner and hinder margin more or less clouded with fuscous; posterior pair pale, with the nervures immaculate, all with a darkish elongate stigma.

Found in July at Ripley, and also at South Lambeth; taken likewise near Edinburgh.

Sp. 4. *fuscus*. *Fuscus, fronte, thoracis dorso, antennis pedibusque ochraceo-flavis, alis fuscescentibus, nervis saturatioribus albo punctatis, clypeo nitidissimo.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 8— $9\frac{1}{2}$ lin.)

He. *fuscus*. *Leach MSS.—Steph. Catal. 311. No. 3461.*

Fuscous: face extremely glossy and blackish; forehead, back of the collar, and of the thorax, ochreous-yellow, the yellow dash becoming attenuated on the metathorax; legs and antennæ wholly pale ochreous-yellow; wings brownish, anterior with a few clouds, and the transverse nervures fuscous, the other nervures fuscous, dotted with white; posterior wings paler, more hyaline and iridescent, immaculate.

Common in woody places, about London, in June and July.

Sp. 5. *nebulosus*. *Ochraceo-pallidus, collaris thoracisque lateribus fuscis, antennis fusco annulatis, alis albidis, opalinis, anticis fusco nebulosis, nervis fuscis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 8—9 lin.)

He. *nebulosus*. *Steph. Catal. 311. No. 3462.*

Pale ochreous: head glossy in front; eyes black; sides of the collar and of the thorax fuscous; wings pale hyaline, opaline; anterior with the nervures fuscous, remotely dotted with whitish, the transverse ones, and several irregular blotches and clouds on the inner margin fuscous; posterior immaculate; abdomen pale ochreous; legs yellowish; antennæ yellowish, with fuscous rings.

Also common in the neighbourhood of London, and taken occasionally in Scotland.

Sp. 6. *subnebulosus*. *Pallidus, clypeo, et thoracis lateribus piceo-rufis, alis albidis, anticarum margine interno subnebuloso, nervis albidis fusco punctatis.* (Long. corp. 3 lin.; Exp. Alar. 9 lin.)

He. *subnebulosus*. *Steph. Catal. 311. No. 3463.*

Pale: clypeus very glossy and pitchy-red; abdomen pale, its sides slightly testaceous; legs pale, tips of the tarsi fuscous; wings whitish, iridescent; anterior with several faint flavescent clouds on the inner margins, and the nervures whitish, with remote fuscous dots; posterior immaculate; anterior pale ochreous.

Taken in June near London; not very uncommon.



Sp. 7. Humuli. *Pallide ochraceus, alis hyolinis punctis fuscis sparsis, antennis fusco alboque annulatis, pedibus pallidis.* (Long. corp. 4 lin.; Exp. Alar. 5—7 lin.)

He. Humuli. *Linne.—Steph. Catal.* 416. No. 3465.

Pale ochreous: eyes bluish-brass; antennæ pale, with fuscous or black rings; abdomen with a faint row of dusky spots on each side above; legs pale; wings hyaline, sparingly marked with obscure fuscous dots.

Found abundantly in the neighbourhood of Darenth wood, in June.

Sp. 8. obscurus. *Fusco-ochraceus, thoracis luteribus fuscis; alis abbreviatis pallide fusciscentibus, venis subsaturatioribus obsoletissime albido punctatis.* (Long. corp. 2½ lin.; Exp. Alar. 6 lin.)

He. obscurus. *Leach MSS.—Steph. Catal.* 311. No. 3473.

Fusco-ochreous: antennæ ochreous, annulated with fuscous; eyes fusciscent; thorax with its sides fuscous; abdomen fuscous, palish on the edges of the segments and on the back; legs palish; wings rather short, fusciscent; anterior with very obscure and numerous darker shades, the nervures fuscous, with very indistinct whitish dots; posterior pair with the nervures fusciscent and immaculate.

Found in woods, near London, in June, and in Scotland.

Sp. 9. fasciatus. *Niger, capite thoraceque flavis lituris fuscis, alis albidis, anticis fasciis 3-bus atomisque numerosis nigricantibus.* (Long. corp. 2½ lin.; Exp. Alar. 6½ lin.)

He. fasciatus. *Fabricius.—Steph. Catal.* 312. No. 3478.

Black: head and thorax yellow, with deep fuscous markings, especially on the sides; wings pale opaline white, the anterior pair with numerous fusciscent atoms, and three oblique, somewhat interrupted, blackish streaks, the terminal one on the margin; posterior immaculate; legs fuscous.

Found, but rarely, in the vicinity of Ripley, in June.

c. Second and third longitudinal nervures free.

Sp. 10. nervosus. *Nigricans, vertice thoracisque dorso flavicantibus, alis variegatis, nervis albo punctatis.* (Long. corp. 4—5 lin.; Exp. Alar. 6—8 lin.)

He. nervosus. *Fabricius.—Steph. Catal.* 311. No. 3464.

Head dusky, its crown yellowish; eyes black; antennæ yellowish, with dusky wings; thorax black, with the back yellowish; abdomen black; legs yellowish; wings with numerous fuscous dots and points; nervures dotted with black and white.

Not uncommon, in the vicinity of London, in June, in gardens and plantations.



Sp. 11. perelegans. *Piceus, fronte thoracisque dorso testaceis, antennis fulvis fusco annulatis, alis fuscis concinne albo variegatis et punctatis.* (Long. corp. 3 lin.; Exp. Alar. 7 lin.)

He. perelegans. *Steph. Nomen. 2d edit. Appendix.*

Deep glossy piceous: the clypeus, forehead, and a line down the middle of the thorax testaceous; eyes deep fuscous; legs pale testaceous; antennæ dull fulvous, with fuscous annulations; wings hyaline, deep fuscous, with darker nervures, the surface very prettily varied with numerous zigzag white streaks and larger marginal blotches, with an irregular band of the same, following the course of the transverse nervures, which are broadly suffused with fuscous.

Of this beautiful insect I possess one specimen only, which I believe was taken in the New Forest.

Sp. 12. marginatus. *Pallide ochraceus, oculis nigris, alis albis, nervis transversalibus, nebulisque aliquot ad marginem internum fuscis.* (Long. corp. 3½ lin.; Exp. Alar. 9¼ lin.)

He. marginatus. *Steph. Nomen. 2d edit. col. 115.*

Pale ochreous: clypeus slightly glossy; eyes black; abdomen fuscous on the back; wings very hyaline, white and iridescent, anterior with the transverse nervures, a few irregular and very remote portions of the longitudinal ones, and numerous larger irregular clouds on the inner margin fuscous; posterior wings white; legs pale.

Found near Newcastle and Edinburgh, in July.

Sp. 13. lutescens. *Flavescens, alis albis fusco-substrigosis.* (Long. corp. 2¼ lin.; Exp. Alar. 6—7¼ lin.)

He. lutescens. *Fabricius.—Steph. Catal. 311. No. 3466.*

Antennæ, head, thorax, and abdomen yellowish, immaculate; legs also yellowish, but paler; wings whitish, with an opaline tinge, with very indistinct fuscous streaks, and obscure dots of the same on the nervures.

Not uncommon, about Dover and Brighton, in June and July; found also near London, and in the New Forest.

Sp. 14. affinis. *Pallide ochraceus, thoracis lateribus abdomineque nigricantibus, segmentorum marginibus albidis, alis albidis anticis dorso fusco subnebuloso, venis pallidis.* (Long. corp. 2—3 lin.; Exp. Alar. 6—7¼ lin.)

He affinis. *Leach MSS.—Steph. Catal. 311. No. 3467.*

Pale ochreous, with a luteous tinge on the head and collar, the sides of the latter and of the thorax blackish; abdomen blackish or fuscous, especially beneath, with the margins of the segments broadly pale; legs pale; antennæ immaculate; wings whitish opaline, the anterior faintly clouded with fuscous



on the inner (or dorsal) margin, and very obscurely so towards the apex; nervures white, with very faint, remote, fuscous dots; posterior wings immaculate, with whitish nervures.

Common in the woods within the metropolitan district, especially at Darenth, Coombe, and Colney Hatch, in June, and in the west of England.

Sp. 15. *memoralis*. *Pallide ochraceus, collaris lateribus, oculisque nigricantibus, abdomine piceo-nigro, segmentorum marginibus pallidis, alis albidis anticis fasciis 2-bus obscuris fusciscentibus.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $6\frac{1}{2}$ — $7\frac{1}{2}$ lin.)

He. *memoralis*. *Leach MSS.—Steph. Catal. 311. No. 3468.*

Pale ochreous: antennæ rather long, not annulated; eyes black; collar with its lateral margins blackish; thorax somewhat piceous on the sides; abdomen pitchy, with the segments broadly edged with pale ochreous; legs pale; wings opaline-white, anterior with two very faint fuscous bands towards the apex, approximating towards the inner margin, which, with the hinder one, is very faintly clouded with the same colour; nervures white, with a few very remote fuscous dots; posterior pair immaculate, with pale nervures.

Var. β . He. *obsoletus*. *Steph. Catal. 311. No. 3469.*—This variety differs by having the transverse fasciæ very indistinct: the insect is also of a paler hue—probably immature.

Also not uncommon, about London, in June and July.

Sp. 16. *paganus*. *Lutescens, antennis pedibusque pallidis, alis albis, anticis obscure subfasciatis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 6 — $7\frac{3}{4}$ lin.)

He. *paganus*. *Linne.—Steph. Catal. 311. No. 3470.*

Pale lutescent: eyes black; antennæ and legs pale; wings white, with a golden tinge; anterior with some obscure transverse fuscous streaks towards the apex, the nervures faintly dotted with fuscous; posterior immaculate.

Found within the metropolitan district, in June, not common.

Sp. 17. *apicalis*. *Rufo-ochraceus, thoracis lateribus abdomineque piceis, pedibus pallidis, alis opalinis, anticis, apice præsertim, fusco nebulosis, venis fusciscentibus albo punctatis.* (Long. corp. 2 — $2\frac{1}{2}$ lin.; Exp. Alar. 6 — 7 lin.)

He. *apicalis*. *Steph. Catal. 311. No. 3471.*

Ochreous-red: antennæ rather short, not annulated; eyes black; sides of collar and thorax pitchy; abdomen pitchy, the margins of the segments slightly pale; legs pale; wings opaline, anterior clouded, especially at the tip, with pale fuscous; nervures fuscous, with remote white dots; posterior



pair also faintly clouded with fuscous at the tip, the nervures immaculate and pale.

Found at Coombe and Darenth woods, in June.

Sp. 18. punctatus. *Ochraceo-rufus, collaris lateribus piceis, oculis brunneis, alis opalinis, anticis venis longitudinalibus albis, fuscescente punctatis, transversalibus fuscis immaculatis.* (Long. corp. 2 lin.; Exp. Alar. $6\frac{1}{4}$ lin.)

He. punctatus. *Leach MSS.—Steph. Catal. 311. No. 3472.*

Ochreous-red, the back of the thorax pale; the sides of the collar pitchy, fuscescent towards the head; abdomen with its sides also slightly pitchy; legs pale; eyes brown; antennæ short, slender, and not annulated; wings rather narrow, opaline, immaculate; anterior with the longitudinal nervures whitish, minutely, but regularly, dotted with fuscous, the transverse ones wholly fuscous; posterior pair immaculate.

Taken, in June, near Dover, and in Devonshire.

Sp. 19. subfasciatus. *Pallide ochraceus, thoracis lateribus, abdominisque dorso fuscis, alis attenuatis, opalinis, anticis fasciis interruptis transversis atomisque fuscis.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

He. subfasciatus. *Steph. Catal. 312. No. 3474.*

Pale ochreous: antennæ very pale and immaculate; eyes greenish; sides of the thorax and back of the abdomen, especially towards the apex, fuscous, the edges of the segments palish; legs pale; wings long and narrow, opaline, the anterior with pale nervures, thickly dotted with fuscous, most of the transverse ones, and some short irregular transverse streaks fuscous; posterior wings paler, longitudinal nervures pale, transverse ones fuscous.

Also taken in June, near London.

Sp. 20. irroratus. *Ochraceo-rufus, antennis fusco annulatis, alis opalinis, anticis crebre fusco irroratis, posticis immaculatis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $6\frac{1}{2}$ — $7\frac{1}{4}$ lin.)

He. irroratus. *Leach MSS.—Steph. Catal. 312. No. 3475.*

Ochreous-red, the sides of the thorax brighter; eyes brownish; antennæ rather long, each joint with a fuscous ring; abdomen immaculate; legs pale, with the tips of the tarsi fuscous; wings opaline, rather narrow, the nervures whitish, thickly dotted with fuscous, and the transverse ones, especially those towards the apex, wholly of that colour; posterior wings paler, with whitish immaculate nervures.

Not uncommon, in woods and shrubby places, within the metropolitan district; also taken near Dover, and in Devonshire.

Sp. 21. Pini. *Testaceus, pedibus pallidioribus, abdomine nigro aut piceo, antennis fusco annulatis, alis hyalinis, anticis fusco-lutescentibus margine*



postico saturatiore, punctis fasciisque abbreviatis fuscis. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $6\frac{1}{2}$ — $7\frac{1}{2}$ lin.)

He. Pini. *Leach MSS.—Steph. Catal.* 312. No. 3476.

Head and thorax bright testaceous; eyes black; antennæ testaceous, with fuscous rings; legs pale testaceous; wings hyaline, anterior lutescent-brown, with the hinder margin and tip of the inner darker, the disc with numerous fuscous clouds, and some abbreviated darker irregular fasciæ; nervures fuscous, with darker dots, the spaces between their bifid apex on the hinder margin whitish; posterior wings opaline, slightly fuscous towards the apex, the nervures palish, the transverse ones fuscous.

Abundant in pine groves, especially near Hertford and Ripley, in June and July; found also in Scotland.

Sp. 22. *Stigma. Testaceus, pedibus pallidioribus, abdomine piceo, antennis fusco annulatis, alis hyalinis, fusco-lutescentibus, stigmatibus rufo-fusco, nervis fuscis albido punctatis.* (Long. corp. 3 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

He. *Stigma. Steph. Catal.* 312. No. 3477.

Testaceous: eyes black; antennæ rather long, annulated with fuscous; abdomen pitchy; legs pale testaceous; wings rather long and narrow, the apex rounded, anterior lutescent-brown, with darker nervures, the latter remotely dotted with whitish; stigma fuscous, posterior paler immaculate, the nervures and stigma rather fuscous.

Taken in June, near Ripley.

Sp. 23. *crispus. Testaceus, thorace lateribus abdomineque saturatioribus, alis opalinis, angustis, anticis fusciscentibus maculatis, nervis transversalibus fuscis, posticis immaculatis.* (Long. corp. 2 lin.; Exp. Alar. 6 lin.)

He. *crispus. Curtis?—Steph. Catal.* 312. No. 3482.

Testaceous, with the sides of the thorax and the abdomen darker or slightly pitchy; eyes pale brown; antennæ long, faintly annulated with fuscous; wings hyaline, opaline, rather long and narrow, the anterior with numerous, more or less distinct, pale brown clouds and dots, partially disposed in oblique fasciæ; nervures fuscous, with irregular darker and paler dots; posterior wings paler, the hinder margin slightly fuscous; nervures fuscous, immaculate; legs pale testaceous.

Found in June, within the metropolitan district.

Sp. 24. *pallidus. Ochraceo-pallidus, collaris abdominisque lateribus piceis, alis hyalinis costâ nervisque punctatis fusciscentibus.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

He. *pallidus. Steph. Catal.* 312. No. 3480.

Head pale testaceous, with a pitchy dot beneath each eye, the latter brown:



collar pale ochreous, with the sides pitchy; thorax pale ochreous; abdomen the same, with a pitchy streak along each side; legs pale ochreous; wings abbreviated, hyaline, and iridescent, the costa and nervures brownish, the latter with remote palish dots; posterior wings rather paler.

Found at Hertford, in July.

d. Longitudinal nervures all united by two or more transverse ones, placed irregularly.

Sp. 25. *variegatus*. *Fuscus, alis albo hyalinis, fusco maculatis et subfasciatis nervisque punctatis, antennis ochreo-rufis, pedibus pallidis.* (Long. corp. 2—2½ lin.; Exp. Alar. 5—6 lin.)

He. *variegatus*. *Fabricius*.—*Steph. Catal.* 312. No. 3481.

Deep fuscous: head very glossy in front; antennæ and palpi reddish-ochre; legs pale; wings hyaline, white and iridescent, anterior with several large blotches of deep fuscous, especially towards the inner margin and the apex, sometimes disposed in one or two oblique transverse fasciæ; nervures fuscescent, with large fuscous spots; posterior wings paler and more transparent, with three or four distinct fuscescent clouds on the margin towards the apex.

A variable and beautiful species: in some examples the abdomen has an ochreous stripe down the back; others have the wings very slightly spotted in the direction of the nervures; in some the fuscous clouds are united in distinct transverse fasciæ, while in others they are placed irregularly, and are not united.

Common, in June and July, in woods about London, as at Darenth, Coombe, Birch wood, &c.; also in Devonshire, Dorsetshire, the New Forest, Scotland, &c.

†Sp. 26. *fimbriatus*. *Piceus, thoracis dorso maculisque ochraceis, alis subochraceis, fimbria subinterrupta fuscescente.* (Long. corp. 2½ lin.; Exp. Alar. 5 lin.)

He. *fimbriatus*. *Curtis, v. v. pl.* 202.—*Steph. Catal.* 312. No. 3485.

Pitchy: thorax with a dorsal line and a spot on each side ochreous, meta-thorax varied with the same; abdomen somewhat ferruginous at the base; legs dull ochre; femora, especially the posterior, pitchy; base of the hinder tibiæ and tips of all the tarsi the same; wings somewhat ochreous, iridescent, bordered with fuscous; anterior spotted with fuscous, and the nervures dotted with brown; posterior with a short fuscous streak on the costal edge.

“Daddingston Loch, July.”—*Curtis, l. c.*

B. *Anterior wings* with the costal nervures furcate, with two discoidal nervures only arising from the inner longitudinal rib.

Sp. 27. *elegans*. *Atro-piceus, nitidus, abdomine rufo-piceo, pedibus pallidis,*
MANDIBULATA, VOL. VI., JUNE 30TH, 1836. P



alis abbreviatis, fusco-hyalinis, anticis albo perlepidè irroratis, nervis fuscis, immaculatis. (Long. corp. $1\frac{3}{4}$ — $2\frac{1}{4}$ lin.; Exp. Alar. $4\frac{3}{4}$ — $5\frac{1}{2}$ lin.)

He. elegans. *Steph. Catal.* 312. No. 3483.

Head deep shining black: palpi and antennæ pitchy-black; thorax the same and glossy; abdomen pitchy-red; legs pale; wings short, hyaline, fuscous; anterior with immaculate darker nervures, the spaces between them very prettily and thickly irrorated with white or clear dots; posterior immaculate, more transparent and iridescent.

Taken, but not very commonly, within the metropolitan district, at Coombe and Darenth woods, &c. in June.

Sp. 28. Marshami. *Piceus, nitidus, abdomine pallidiore, alis abbreviatis, rotundatis, fusco-hyalinis, anticis concinè albo punctatis, fasciisque 2-bus fuscescentibus, nervis fuscis immaculatis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

He. Marshami. *Steph. Catal.* 312. No. 3484.

Pitchy and shining: antennæ short and stout, pitchy-black, with the base pale; abdomen pitchy-testaceous; legs pale testaceous; wings short and rounded, hyaline, fuscous, posterior palest, with the margin dusky; anterior with the nervures fuscous, the transverse ones surrounded by a cloud of the same, and forming two bands; the spaces between prettily marked with very numerous small transparent, or white, dots.

From the Marshamian collection: I am not aware of its locality.

C. *Anterior wings* with the costal nervures simple, few in number; discoidal nervures not arising from the longitudinal rib, but running nearly parallel thereto from their origin at the base.

Sp. 29. fuscatus. *PLATE xxx. f. 4.—Niger, alis fusco hyalinis, nitidissimis, nervis atro-fuscis, pedibus testaceis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 5 — $5\frac{1}{2}$ lin.)

He. fuscatus. *Fabricius.—Steph. Catal.* 312. No. 3486.

Deep black: head and thorax immaculate; mouth obscure testaceous; legs testaceous, with the femora more or less obscure; wings hyaline, very glossy, deep fuscous and immaculate, the nervures darker.

Found, not uncommonly, at Hertford and Ripley, in June and July.

Sp. 30. nitidulus. *Testaceus, alis cinereo-hyalinis, nitidulis, nervis obscurioribus, pedibus pallidis, antennis fuscis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 5 — $5\frac{1}{2}$ lin.)

He. nitidulus. *Fabricius.—Steph. Catal.* 312. No. 3487.

Head testaceous; eyes brown-black; thorax and abdomen testaceous-immaculate; legs pale; antennæ as long as the body, fuscous; wings ashy-



hyaline, or slightly fuscous, with rather darker nervures, and somewhat glossy, immaculate.

Taken within the metropolitan district, in June and July, not common.

Sp. 31. *confinis*. *Testaceo-fuscus, alis fuscescente-hyalinis immaculatis, nitidis, pedibus testaceis, antennis piceis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

He. *confinis*. *Steph. Catal.* 312. No. 3488.

Testaceous-brown: eyes black; antennæ rather short and pitchy; legs testaceous; wings hyaline, slightly fuscous, shining and immaculate, with pale fuscous nervures.

Also found within the metropolitan district, in June, but rarely.

FAMILY III.—PSOCIDÆ, *Leach*.

Antennæ rather long and slender, filiform, or setaceous, the articulations either few in number and very indistinct, or numerous and somewhat moniliform: *palpi* two or four, labial sometimes wanting: *collar* very small: *thorax* a little tubercular: *wings* four, or wanting, anterior ample, elongate, with a few irregular longitudinal nervures, and a few transverse ones; posterior pair usually small: *legs* simple: *tarsi* with two, three, or five joints: *body* soft.

As formerly mentioned, the insects of this family differ considerably in habit from the others of this section; their antennæ are much elongated, the collar very small, the wings narrow and elongate, with but few irregular, waved, and radiating nervures, and one or two transverse ones; the posterior wings are usually much smaller than the anterior, and the insects are of small size: they are found on the trunks of trees, old walls, amongst lichens, &c. during the summer, and are very active: their larvæ are active, and have considerable resemblance to the perfect insect, except in being destitute of wings. The indigenous species may be thus divided into genera:

Alati; <i>tarsi</i> articulis 5-que:	.	.	.	.	.	21. CONIOPTERYX.
<i>articulis</i> 2-bus:	.	.	.	.	.	22. PSOCUS.
Apteri; <i>tarsi</i> articulis 3-bus:	.	.	.	.	.	23. ATROPOS.

GENUS XXI.—CONIOPTERYX, *Leach*.

Antennæ long and filiform, composed of from 20 to 40 pubescent, somewhat moniliform, distinct articulations: *labrum* semicircular, slightly concave before: *maxillary palpi* long, porrect, forming a kind of beak, 5-jointed:

labial 3-articulate, the terminal joint large, ovate, compressed: *head* orbicular, *forehead* depressed: *eyes* remote, ovate: *collar* distinct; *thorax* gibbous, tuberculated: *wings* deflexed, rounded, covered with a mealy powder; anterior ample, larger than the posterior, which are occasionally small; all with three discoidal areolets: *abdomen* short, elongate-ovate: *legs* moderate: *tarsi* 5-jointed. Larva ovate, conic, with short setose antennæ and legs.

The insects of this genus at first sight resemble certain Homoptera, especially the genus *Aleyrodes*, amongst, and near, which I had placed the only three species that I have seen, the third of which differs from the others in having the posterior wings much smaller than the others: the genus was first characterized by Curtis, but I had previously indicated it, having placed it amongst those families that I stated in a note in Part II. of my Catalogue, p. 361. I had not properly investigated: the larvæ, according to the observations of Mr. Haliday, resemble those of *Hemerobius*, and are broad, ovate, acute, with short antennæ, &c. and are probably aphidivous: the imago differs from the *Psoci* in having the antennæ distinctly multiarticulate, the wings, &c. covered with powder, and the tarsi 5-jointed.

Sp. 1. *Tineiformis*. *Margaritaceo-cinerea*, *opaca*, *abdomine* *rufo-ochraceo*, *antennis* *haud corpore longitudinis*, *alis posticis mediocribus*. (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. $2\frac{3}{4}$ lin.)

Aley. dubia. *Steph. Catal.* ii. 367. No. 9979.—Con. *tineiformis*. *Curtis, f.* 528.

“Dead pearly grey, powdered: antennæ not longer than the body, containing about 25 joints; superior (anterior) wings very ample; inferior (posterior) small; abdomen ochreous.”—*Curtis, l. c.*

Abundant, in June, in lanes near Hertford and Ripley, in fir groves; also taken in Norfolk, the New Forest, Dorsetshire, and near Dover.

Sp. 2. *Aleyrodiformis*. *Margaritaceo-alba*, *opaca*, *abdomine* *piceo*, *antennis corpore longioribus*, *alis posticis mediocribus*. (Long. corp. 1 lin.; Exp. Alar. 4 lin.)

Aley. gigantea. *Steph. Catal.* ii. 367. No. 9978.

Dead pearly white, powdered; antennæ piceous, rather longer than the body, with about 30 joints; anterior wings ample; posterior rather small; abdomen pitchy; legs pale, with the knees pitchy.

Found, in July, 1827, near Ripley.



Sp. 3. Psociformis. *Margaritaceo-alba, opaca, abdomine concolore, antennis corpore multo longioribus, alis posticis parvis.* (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. 4 lin.)

N. G. (1437) Pinicola. *Steph. Catal.* ii. 367. No. 9974.—Co. Psociformis. *Curtis, v. xi. pl. 528.*

“Dead pearly white; antennæ twice as long as the body, composed of nearly 40 joints, subochreous; superior (anterior) wings very ample, and distinctly iridescent; inferior (posterior) small.”—*Curtis, l. c.*

Taken amongst firs, in June, at Ripley; found also in Norfolk and in Scotland.

GENUS XXII.—PSOCUS, Latreille.

Antennæ rather long and slightly pilose, setaceous, consisting of about 10 cylindric articulations, the two basal ones short and thick, the remainder elongate and indistinctly seen: *labrum* transverse-quadrate, rounded laterally and in front: *maxillary palpi* porrect, 4-articulate, the terminal joint largest, ovate-cylindric: *labial* minute: *head* large, trigonate-ovate; *forehead* very convex: *eyes* semiglobose, prominent, distinct: *ocelli* three: *collar* minute: *thorax* ample, with impressed lines: *wings* deflexed, hyaline, nervose; anterior rather largest, elongate-subovate, with a distinct stigma towards the apex; posterior smaller and less nervose: *abdomen* short, sessile, ovate-conic: *legs* rather long: *tarsi* with two short joints. Larva resembling the imago, but apterous: pupa with rudiments of wings.

The Psoci are known by having the antennæ long, and composed of few elongate indistinct articulations, and slightly pilose in the males: the clypeus is very prominent; the body soft; wings four, hyaline, and not covered with powder; the tarsi biarticulate, &c. The species are very numerous, and I think it probable there are many more than are herein indicated, as I have scarcely captured a single example since the publication of my Catalogue, now seven years ago: they differ slightly in the neuration of the wings, and may be divided into sections in accordance therewith.

A. *Anterior wings* with a somewhat quadrate transverse discoidal areolet.

a. First nervure of *anterior wings* deeply bifurcate.

1. *Wings* variegated; *nervures* rather indistinct.

▪ *Antennæ* very pilose.

Sp. 1. pilicornis. *Niger, alis anticis maculis nebulisque nigricantibus, antennis longe pilosis.* (Long. corp. 1 lin.; Exp. Alar. $3\frac{1}{2}$ —4 lin.)

Ps. pilicornis. *Latreille.*—*Steph. Catal.* ii. 416. No. 3489.

Black: antennæ very pilose; anterior wings spotted and clouded with dusky; nervures fuscous, with a dot of that colour at the apex of each on the hinder margin; posterior immaculate; legs pale.

Apparently not very common; taken near London, and in Suffolk.

Sp. 2. *pivicornis*. *Niger, alis anticis albo fuscoque variis, antennis piceis*. (Long. corp. 1 lin.; Exp. Alar. $3\frac{1}{2}$ —4 lin.)

Ps. *pivicornis*. *Fabricius*.—*Steph. Catal.* 312. No. 3490.

Black: abdomen pitchy; antennæ hairy and pitchy; anterior wings variegated with fuscous and white; posterior hyaline, immaculate; legs pale. Female with the antennæ simple.

Common in the vicinity of London, in June, on trunks of trees, &c.

•• Antennæ scarcely pilose, or naked.

Sp. 3. *fasciatus*. *Capite thoraceque flavis, lituris fuscis, abdomine nigro, alis anticis hyalinis, fasciis 3-bus atomisque numerosis nigris*. (Long. corp. 1— $1\frac{1}{4}$ lin.; Exp. Alar. 4— $4\frac{1}{2}$ lin.)

Ps. *fasciatus*. *Fabricius*.—*Steph. Catal.* 312. No. 3491.

Antennæ black, slightly pilose; head and thorax yellow, with fuscous markings; abdomen black; wings hyaline, anterior with three black stripes, the 1st before the middle, the 2nd behind, and the hinder one on the margin, and numerous minute fuscous dots, with a larger one on the inner edge towards the base; posterior immaculate.

Also common in the neighbourhood of London, in woods, &c. during the summer, and in Suffolk.

Sp. 4. *variegatus*. *Niger, fronte, thorace supra, abdomineque ochraceis, alis anticis nigricantibus atomis albis*. (Long. corp. 1 lin.; Exp. Alar. $3\frac{1}{2}$ — $4\frac{1}{4}$ lin.)

Ps. *variegatus*. *Latreille*.—*Steph. Catal.* 415. No. 3492.

Black: forehead, upper part of the thorax, and the abdomen pale ochreous-yellow; anterior wings blackish, with numerous minute white dots.

Found, less abundantly than the last, within the metropolitan district, in June: taken also in Suffolk.

Sp. 5. *atomarius*. *Piceus, capite flavo, oculis nigris, pedibus pallidis, alis anticis fuscis atomis albis, stigmatibus semiflavo*. (Long. corp. $1\frac{1}{4}$ lin.; Exp. Alar. 4 lin.)

Ps. *atomarius*. *Steph. Catal.* 312. No. 3493.

Pitchy: head yellow; eyes black; anterior wings fuscous, with minute white



dots; stigma fuscous, its basal half yellow; hinder immaculate; legs pale, with the knees yellow; antennæ pale, and very slightly pilose in the male.

Taken in June, near London.

Sp. 6. *maculatus*. *Piceus, pedibus antennisque pallidis; alis anticis hyalinis maculis distantibus fuscis sparsis.* (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. 4 lin.)

Ps. *maculatus*. *Steph. Catal.* 311. No. 3456.

Pitchy, with an ochreous hue; eyes black; antennæ and legs pale; wings hyaline, with the chief portion of the nervures, the apical half of the stigma, and several remote spots, fuscous, the hinder margin also fuscous.

Also taken near London, in June.

Sp. 7. *subfasciatus*. *Ochraceus, capite thoraceque nigro variegatis, abdomine piceo, pedibus pallidis alis anticis hyalinis fasciis 2-bus maculisque variis fuscis.* (Long. corp. 1 lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Ps. *subfasciatus*. *Steph. Nomen.* 2d edit. col. 116.—Ps. *obsoletus*. *Steph. Catal.* 312. No. 3495.

Ochreous: head and thorax varied with black, the sutures yellow; abdomen pitchy; legs pale; anterior wings hyaline, stained with yellow, with the nervures and two oblique interrupted fasciæ, and some dots on the hinder margin fuscous; posterior hyaline, immaculate.

Found within the metropolitan district, in June.

2. *Wings not variegated; nervures distinct.*

* Discoidal areolet closed by one of the radiating nervures.

Sp. 8. *lineatus*. *Ochraceus, brunneo maculatus, capite lineis rufo-brunneis, alis anticis basi nigro fasciato.* (Long. corp. $1\frac{1}{4}$ — $1\frac{3}{4}$ lin.; Exp. Alar. $5\frac{1}{2}$ —7 lin.)

Ps. *lineatus*. *Latreille.*—*Steph. Catal.* 416. No. 3496.

Pale ochreous, spotted with brown; head with several red-brown longitudinal streaks; anterior wings with an oblique black streak at the base within; nervures and stigma pale fuscous.

The anterior wings have occasionally one or two fuscous clouds towards the apex.

Very common on trunks of trees, &c. in woods within the metropolitan district: also taken in Suffolk.

Sp. 9. *nebulosus*. *Ochraceus, capite brunneo lineato, ocellis et maculis thoracis nigris, abdomine piceo, pedibus pallidis, alis anticis hyalinis venis nebulisque aliquot fuscis.* (Long. corp. 1 — $1\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ — $6\frac{1}{2}$ lin.)

Ps. *nebulosus*. *Kirby? MSS.*—*Steph. Catal.* 312. No. 3497.

Pale ochreous: mouth, eyes, ocelli, and some spots on the thorax black; head with longitudinal brown lines; abdomen pitchy; legs pale; anterior wings



hyaline, the nervures fuscous, with broad clouds of the same connected therewith, and forming a radiated appearance at the apex; stigma pale fuscous; posterior pair immaculate, fuscous, with darker nervures.

Also common within the metropolitan district, in June and July, and in Suffolk.

Sp. 10. similis. *Nigricans, abdomine pedibusque piceis, antennis nigris, alis immaculatis anticis fuscescentibus venis fuscis, posticis subhyalinis.* (Long. corp. 1—1½ lin.; Exp. Alar. 4½—6 lin.)

Ps. similis. Kirby? MSS.—Steph. Catal. 312. No. 3498.

Blackish: sutures of the thorax and metathorax ochreous or yellowish; abdomen pitchy; legs brownish; antennæ black; wings immaculate, anterior brownish, with a golden gloss and darker brown nervures, the latter interrupted with white between the stigma and the inner edge, forming a waved fascia; stigma fuscous, posterior slightly brownish.

Not uncommon in the vicinity of London, in the summer.

Sp. 11. bifasciatus. *Flavo nigroque variegatus, alis anticis fuscis 2-bus transversalibus punctoque nigris.* (Long. corp. 1—1½ lin.; Exp. Alar. 3½—4½ lin.)

Ps. bifasciatus. Latreille.—Steph. Catal. 416. No. 3499.

Varied with yellow and black: anterior wings with two transverse streaks and a stronger marginal dot, or a stigma, black; antennæ and legs ochreous.

Common near London, in June and July; also in Suffolk.

Sp. 12. contaminatus. *Piceus, nigro variegatus, antennis pedibusque brunneis, alis anticis fuscis 2-bus transversalibus versus basin stigmatique brunneis.* (Long. corp. 1½ lin.; Exp. Alar. 4 lin.)

Ps. contaminatus. Kirby? MSS.—Steph. Catal. 313. No. 3500.

Pitchy, variegated with black: antennæ and legs pitchy-brown; wings hyaline, anterior with a faint brown transverse streak at the base, and another stronger one before the middle; stigma and nervures fuscous, posterior immaculate, with pale fuscous nervures.

Found also near London, and in Suffolk.

Sp. 13. megastigmus. *Ochraceus, capite brunneo lineato, thorace fusco nebuloso, alis hyalinis, anticis fasciâ obsoletâ mediâ, maculâ, stigmatique magno, fuscis.* (Long. corp. 1½ lin.; Exp. Alar. 4 lin.)

Ps. megastigmus. Steph. Nomen. 2d edit. col. 116.

Ochreous: head with short longitudinal brown lines in front; eyes large, black; thorax clouded with fuscous; abdomen pitchy, with the edges of the segments ochreous; legs pale; wings hyaline, anterior with a very faint transverse fascia, a spot between it and the base of the stigmata



(which are very large) fuscous, the basal portion of the latter paler; nervures pale fuscous; posterior immaculate.

Taken in June, near London.

Sp. 14. *subnebulosus*. *Ochraceus, nigro variegatus, antennis pedibusque pallidis, alis hyalinis, anticis nebulis fusciscentibus*. (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. 2 lin.)

Ps. *subnebulosus*. *Steph. Nomen. 2d edit. col. 116.*

Ochreous: eyes and spot on the crown black; thorax varied with black; abdomen with its apex black; legs and antennæ pale; wings hyaline, anterior pair with faint fuscous clouds, the nervures and stigma also fuscous, but darker; posterior immaculate.

Found at Hertford, in June.

** Discoidal areolet open towards the inner apex.

Sp. 15. *longicornis*. *Niger, ore pedibusque pallidis, antennis longioribus fuscis, alis anticis hyalinis stigmatibus fusco*. (Long. corp. $1-1\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}-5\frac{1}{4}$ lin.)

Ps. *longicornis*. *Fabricius.—Steph. Catal. 313. No. 3501.*

Black: thorax and abdomen immaculate; mouth pale; legs wholly pale; wings hyaline, with the nervures and stigma fuscous; antennæ rather long and fuscous, immaculate.

The head is sometimes ochreous in front.

Abundant in June, within the metropolitan district: also found in Suffolk.

Sp. 16. *immunis*. *Fuscus, flavo variegatus, pedibus antennarumque basi luteo-ochraceis, alis hyalinis, stigmatibus subfusco*. (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

Ps. *immunis*. *Kirby MSS.—Steph. Catal. 313. No. 3502.*

Head yellow, dotted with fuscous above, the front streaked with pale brown, clypeus in the middle and tips of the mandibles dusky; eyes prominent, brown; thorax fuscous, the sutures and under part yellow; abdomen fuscous, the edges of the segments and two dots at the apex yellow; legs luteous-ochre, tarsi dusky; wings hyaline, nervures very faint; stigma fuscous: antennæ somewhat ochreous, the apex dusky.

Found in July near London, and in Suffolk.

Sp. 17. *venosus*. *Ochraceo-rufus, capite thoraceque fusco punctatis, pedibus pallidis, antennis fuscis, articulo basali luteo, alis limpidis nervis fusciscentibus*. (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Ps. *venosus*. *Steph. Nomen. 2d edit. col. 116.*

MANDIBULATA, VOL. VI., AUGUST 15TH, 1836.

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Ochreous-red: tips of palpi fuscous; forehead with a fuscous streak, and a paler cloud on the crown; eyes fuscous; thorax with three fuscous spots in front, and two on the metathorax; abdomen immaculate; legs pale, tips of tarsi black; wings limpid, faintly tinged with yellowish; nervures slightly fuscous; stigma hyaline; antennæ fuscous, the basal joint luteous.

Also taken near London, and at Ripley and Hertford, in June and July.

Sp. 18. *vittatus*. *Atro-fuscus, abdomine piceo, pedibus antennarumque basi pallidis, alis anticis vitta lata fusca, nervis saturatioribus.* (Long. corp. 1—1½ lin.; Exp. Alar. 3—3½ lin.)

Ps. *vittatus*. Kirby MSS.—Steph. Catal. 313. No. 3503.

Deep shining fuscous: abdomen pitchy; legs pale yellowish; tarsi fuscous above; wings fuscous-hyaline, anterior with a broad longitudinal darker fuscous streak from the base to the apex, branching off to the stigma, which is hyaline; nervures dark fuscous, paler towards the margin; posterior wings with the costa pale; antennæ fuscous, with the base within pale or yellowish.

Immature specimens have the head and thorax, as well as the abdomen, pitchy, or red, and the vitta on the wings somewhat flavescent-brown, with a golden tinge.

Also found at Ripley and Hertford, in the summer, and at Dover, &c. abundantly.

Sp. 19. *ochropterus*. *Pallide ochraceus, abdomine rufo, capite thoraceque fusco punctatis, pedibus flavis, alis subochraceis, venis fuscis.* (Long. corp. ¾—1 lin.; Exp. Alar. 2½—3½ lin.)

Ps. *ochropterus*. Kirby MSS.—Steph. Catal. 313. No. 3504.

Pale ochreous: head and thorax spotted with fuscous; abdomen pale red; legs pale ochreous yellow; wings hyaline, slightly tinged with ochreous, the nervures, especially the inner one of the anterior wings, fuscous; antennæ pale, the tip fuscous.

Taken in July at Ripley, and in Suffolk.

Sp. 20. *flavidum*. *Capite thoraceque ochraceo-rufis, oculis atris, abdomine flavo, pedibus pallidis, alis hyalinis, subfuscis nervis saturatioribus.* (Long. corp. ¾ lin.; Exp. Alar. 2½—3 lin.)

Ps. *flavidum*. Kirby MSS.—Steph. Catal. 313. No. 3505.

Head and thorax above pale ochreous-red, immaculate, beneath yellow; eyes black; abdomen sulphur-yellow; legs pale; wings hyaline, slightly fuscous, with the nervures darker; antennæ pale, a little fuscous at the apex above.

Also taken near London, and in Suffolk.



Sp. 21. *flavicans*. *Niger*, *collare*, *abdomineque flavis*. (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. 3 lin.)

He. *flavicans*. *Linné*.—Ps. *flavicans*. *Steph. Catal.* 313. No. 3506.

Head black; neck yellow; thorax blackish; abdomen ovate, yellow; legs blackish; wings hyaline, with obscure branching nervures; antennæ black.

Found near London; also at Hertford and in Suffolk, in July.

Sp. 22. *obsoletus*. *Pallide rufo-ochraceus*, *capite postice*, *abdomineque macula dorsali*, *atris*, *alis obscure fusciscentibus*, *nervis tenuibus saturatioribusque*. (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. $2\frac{1}{2}$ lin.)

Ps. *obsoletus*. *Steph. Catal.* 313. No. 3507.

Pale ochreous-red: mouth yellow; head behind black; thorax immaculate; abdomen somewhat yellowish-red, with a large patch of black on the back; legs very pale ochre; wings obscurely fusciscent, with very slender darker nervures; stigma pale flavescent-brown; antennæ pale testaceous, with dusky hairs.

Found in July, near London.

Sp. 23. *hyalinus*. *Fusco-piceus*, *pedibus pallidioribus*, *abdominis basi ochraceo-flavâ*, *alis hyalinis*, *limpidis*, *stigmatè fusco*. (Long. corp. 1 lin.; Exp. Alar. 3 lin.)

Ps. *hyalinus*. *Steph. Catal.* 313. No. 3508.

Head pitchy-brown, clypeus and mouth paler; eyes black; thorax pitchy-red, immaculate; abdomen above pitchy-brown, with the base ochreous-yellow, beneath pale pitchy-red; legs rufo-piceous, with the tibiæ palest; wings hyaline, limpid, nervures and stigma fuscous; antennæ short, pitchy-brown, palest at the base.

Taken in June, near London.

Sp. 24. *bipunctatus*. *Flavo nigroque varius*, *alis anticis maculis 2-bus nigricantibus*. (Long. corp. $\frac{3}{4}$ — $1\frac{1}{4}$ lin.; Exp. Alar. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.)

He. *bipunctatus*. *Linné*.—Ps. *bipunctatus*. *Steph. Catal.* 313. No. 3509.

Varied with black and yellow, greenish during life; wings hyaline, with fuscous nervures, anterior with the stigma blackish, and a spot of the same towards the base of the inner margin.

Found occasionally within the metropolitan district, and in Suffolk, in the summer.

Sp. 25. *sexpunctatus*. *Fuscus*: *alis anticis maculis fuscis punctisque 6 distinctis*. (Long. corp. $\frac{3}{4}$ —1 lin.; Exp. Alar. $2\frac{1}{4}$ —3 lin.)

He. *sexpunctatus*. *Linné*.—Ps. *sexpunctatus*. *Steph. Catal.* 313. No. 3510.

Fuscous: wings hyaline, with a golden tint; anterior with fuscous clouds or

spots, and six distinct blackish dots, disposed somewhat semicircularly towards the outer base of the wings; posterior immaculate.

Also taken near London, and in Suffolk.

Sp. 26. quadrimaculatus. *Nigro flavoque varius, alis anticis maculis 4 brunneis.* (Long. corp. 1 lin.; Exp. Alar. 3 lin.)

Ps. quadrimaculatus. *Latreille.*—*Steph. Catal.* 313. No. 3512.

Varied with black and pale yellow; wings hyaline, anterior with four brown spots; antennæ pitchy.

Not uncommon within the metropolitan district, where it occurs in the summer.

Sp. 27. striatulus. *Fuscus, flavo maculatus, alis hyalinis, anticis fusco striatis.* (Long. corp. 1 lin.; Exp. Alar. 3 lin.)

Ps. striatulus. *Fabricius.*—*Steph. Catal.* 313. No. 3511.

Head yellow, mouth and eyes fuscous; thorax fuscous; breast yellow; abdomen fuscous, the sides ochreous; legs pale yellow; anterior wings hyaline, with fuscous nervures; posterior immaculate; antennæ fuscous.

Found in the summer near London.

Sp. 28. flaviceps. *Fuscus, capite, pedibusque ochraceo-flavis, antennis rufopiceis, alis hyalinis nebulis obscuris subfuscescentibus.* (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. $2\frac{1}{2}$ lin.)

Ps. flaviceps. *Steph. Catal.* 313. No. 3513.

Head pale ochreous-yellow; eyes black; thorax and abdomen fuscous, the edges of the segments a little palish; legs pale ochreous yellow: antennæ short, deep pitchy-red; wings hyaline, with pale fuscous nervures and obscure fuscescent clouds between them.

Taken at Ripley, in June.

Sp. 29. subocellatus. *Niger, albido variegatus, antennis brevibus, alis hyalinis maculis aliquot subocellatis nervisque fuscescentibus.* (Long. corp. $\frac{3}{4}$ —1 lin.; Exp. Alar. $2\frac{1}{2}$ —3 lin.)

Ps. subocellatus. *Steph. Nomen.* 2d edit. Appendix.

Black: head and thorax varied with whitish; a lateral streak and the extreme edges of the segments of the abdomen also whitish; legs pale, knees fuscescent; wings hyaline, anterior with the nervures pale fuscous; each areolet with a fuscous spot on a pale ground, producing an ocellated appearance; antennæ rather short.

Found at Hertford and Ripley, and in other places within the metropolitan district, in June and July.



b. First nervure of anterior wings trifurcate.

Sp. 30. immaculatus. *Pallide ochraceus, oculis atris, antennis longioribus fuscescentibus, pedibus pallidis, alis limpidis, nervis tenuibus stigmatique fuscescentibus.* (Long. corp. 1—1½ lin.; Exp. Alar. 4—5 lin.)

Ps. immaculatus. *Kirby MSS—Steph. Catal. 313. No. 3514.*

Very pale ochreous, immaculate; eyes deep black; legs pale, with the tarsi fuscescent; antennæ rather long and brownish, the basal joint pale; wings longish and narrow, limpid, nervures very slender, and pale fuscescent; stigma also fuscescent, but very pale.

Found in June near London; also at Ripley and in Suffolk.

Sp. 31. rufescens. *Rufescente-flavus, capite thoraceque nigro maculatis, abdominis dorso subpiceo, pedibus ochraceo-pallidis, antennis longioribus, alis limpidis, stigmathe concolor e.* (Long. corp. 1½ lin.; Exp. Alar. 4½ lin.)

Ps. rufescens. *Steph. Catal. 313. No. 3515.*

Reddish-yellow: crown with a dusky spot, and thorax with three blackish ones; abdomen above somewhat pitchy; legs pale ochreous; antennæ rather long and fuscous, with the basal joint pale; wings long and limpid, stigma concolorous; nervures very slender and brownish.

Taken at Hertford in June.

Sp. 32. flavescens. *Ochraceo-flavus, immaculatus, oculis atris, antennis longioribus fuscis, pedibus pallide flavescens, alis limpidis, stigmathe subfuscescente, venis tenuissimis fuscescentibus.* (Long. corp. 1½ lin.; Exp. Alar. 4½ lin.)

Ps. flavescens. *Steph. Nomen. 2d edit. col. 116.*

Pale ochreous-yellow, immaculate; eyes black; legs pale yellowish; antennæ rather long and fuscous, the basal joints palish; wings limpid, with the stigma slightly fuscescent, nervures very slender, and pale fuscescent.

Found at Ripley and Hertford, and other places within the metropolitan district, during the summer.

Sp. 33. quadripunctatus. *Niger, antennis abdomine pedibusque pallidis, alis hyalinis, anticis basi punctis 4 atris, apice fusco radiatis.* (Long. corp. ¾—1 lin.; Exp. Alar. 2½—3½ lin.)

Ps. 4-punctatus. *Fabricius—Steph. Catal. 313. No. 3516.*

Head and thorax black, immaculate; abdomen, legs, and antennæ pale; wings hyaline, anterior with four distinct large black spots at the base, three of which are on the inner margin, and one towards the disc, the apex with radiating fuscous streaks, posterior immaculate.

In immature specimens the head and thorax are pale pitchy-red.

Very abundant on trunks of trees, throughout the metropolitan district, during the summer; found also in Suffolk and near Dover.



Sp. 34. subpunctatus. *Pallide rufus, oculis atris, antennis pedibusque pallidis, alis subflavescentibus nebulis aliquot obscuris nervisque fuscescentibus.* (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. $2\frac{3}{4}$ lin.)

Ps. subpunctatus. *Steph. Catal.* 313. No. 3517.

Pale red: eyes deep black; antennæ and legs pale; wings somewhat of a pale yellowish hue, with the nervures and a few obscure dots, or clouds, fuscescent.

Found in the vicinity of London in June.

Sp. 35. costalis. *Testaceo-rufus, capite thoraceque fusco punctatis, oculis atris, antennis pedibusque pallide rufis, alis anticis, costa præsertim, fusco maculatis.* (Long. corp. 1 lin.; Exp. Alar. $2\frac{3}{4}$ lin.)

Ps. costalis. *Steph. Catal.* 313. No. 3518.

Testaceous-red: eyes deep black; head and thorax with fuscous spots, darkest on the latter; legs and antennæ pale red; wings hyaline, slightly flavescent, the nervures brownish, the disc and costa with several largish fuscous clouds and spots.

Also taken near London in June.

Sp. 36. nervosus. *Testaceo-rufus, oculis, thoracis dorso, abdominisque apice atris, alis hyalinis venis fuscescentibus.* (Long. corp. 1 lin.; Exp. Alar. $3\frac{1}{4}$ lin.)

Ps. nervosus. *Steph. Catal.* 313. No. 3519.

Testaceous-red: eyes black; back of thorax the same; abdomen light red, its apex and a dorsal line black; legs pale; wings hyaline, the nervures slightly fuscescent; stigma brownish.

Found in June within the metropolitan district.

Sp. 37. maculipennis. *Niger, pedibus piceis, alis anticis fusco nebulosis maculisque 2-bus magnis versus apicem saturatioribus.* (Long. corp. 1 lin.; Exp. Alar. $3\frac{1}{4}$ lin.)

Ps. maculipennis. *Steph. Nomen.* 2d edit. col. 117.

Black, with some pitchy tints on the sutures of the thorax; legs pitchy; wings hyaline, anterior with the nervures and some obscure clouds fuscescent, and with two large fuscous spots (one the stigma), the other opposed to it on the anal angle; the base of the stigma pale.

Taken near London in July.

B. *Anterior wings* without a discoidal areolet; *second nervure* trifid.

Sp. 38. nigricornis. *Niger, collaris et thoracis lateribus pedibusque rufo-piceis, antennis atris, alis fusco-hyalinis.* (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. $2\frac{3}{4}$ lin.)

Ps. nigricornis. *Steph. Catal.* 313. No. 3520.

Black: sides of the collar and of the thorax pitchy-red; abdomen dull black;



legs deep piceous, with a tinge of red towards the inner base of the femora and of the tibiæ; antennæ deep black, and slightly pilose in the males; wings hyaline, fuscous; nervures and stigma darker.

Taken in June at Hertford.

Sp. 39. phæopterus. *Rufo-piceus, antennis pedibusque pallidioribus, alis hyalinis saturate fuscis, venis stigmatæque saturatioribus.* (Long. corp. $\frac{3}{4}$ —1 lin.; Exp. Alar. $2\frac{1}{2}$ —3 lin.)

Ps. phæopterus. *Kirby MSS.—Steph. Catal. 313. No. 3521.*

Pitchy-red: eyes blackish; legs and antennæ pale pitchy-red, the latter rather short, and slightly pilose in the males; wings deep fuscous, hyaline, with the nervures and stigma darker.

In some examples there is a whitish fascia on the abdomen, and the extreme edges of the segments are occasionally whitish.

Also found at Hertford in June, and in other places within the metropolitan district.

Sp. 40. nigricans. *Piceo-testaceus, pedibus pallidioribus, thorace abdomineque supra nigricantibus, alis hyalinis, sublimpidis, nervis fuscis.* (Long. corp. $\frac{3}{4}$ lin.; Exp. Alar. $\frac{2}{3}$ lin.)

Ps. nigricans. *Kirby MSS.—Steph. Catal. 313. No. 3522.*

Head pitchy-testaceous: thorax blackish above, the sides and beneath pitchy- or reddish-testaceous; abdomen also pitchy-testaceous, beneath blackish; legs pale testaceous; antennæ dusky; wings hyaline, nearly limpid, the nervures fuscous; stigma slightly fuscous.

Taken in the vicinity of London, and in Suffolk.

Sp. 41. abdominalis. *Fuscus, abdomine flavo, ano nigro, alis hyalinis, antennis brevioribus.* (Long. corp. $\frac{1}{2}$ lin.; Exp. Alar. $1\frac{1}{2}$ — $1\frac{3}{4}$ lin.)

Ps. abdominalis. *Fabricius.—Steph. Catal. 313. No. 3523.*

Fuscous: abdomen pale yellow, with its tip black; wings hyaline, immaculate; nervures fuscous; legs and antennæ pale, the latter short.

Found near London in the summer.

Sp. 42. dubius. *Rufo-piceus, antennis pedibusque pallidioribus, abdominis dorso vittâ nigricante, alis hyalinis, flavedine tinctis, nervis subochraceo-fuscis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $1\frac{3}{4}$ lin.)

Ps. dubius. *Steph. Catal. 313. No. 3524.*

Pitchy-red: eyes fuscous; abdomen with a blackish streak down the back; legs and antennæ pale pitchy-red; wings hyaline, with a yellowish tinge; the nervures of an ochreous-brown.

Taken in June near London.



GENUS XXIII.—ATROPOS, *Leach*.

Antennæ long and slender, composed of about 14 joints, the two basal ones robust, the remainder slender, cylindric, slightly pilose, gradually decreasing in length from the fourth, which is the longest: *palpi* with the two basal joints of equal length, the third longer and more slender, the terminal one stouter, obtuse, nearly as long as the other three: *labrum* transverse, rounded in front: *head* somewhat quadrate: *eyes* small, lateral: *collar* very short, transverse: *thorax* quadrate: *wings* none: *abdomen* oblong, or ovate, depressed, soft; *legs* moderate; four anterior *femora* slightly thickened, tip attenuated; posterior pair considerably incrassated, narrowed at the apex: *tibiæ* all slender and simple: *tarsi* short, 3-articulate.

The minute insects belonging to this genus may be known from the Psoci by not only being destitute of wings, but by having the tarsi 3-articulate, the body depressed, the hinder femora very much incrassated, and in the form of the head and trophi: they are found among collections of insects, plants, and animals, when unprotected by camphor, &c. and are sometimes very destructive to the former, especially to minute Lepidoptera, Hymenoptera, and Diptera, consuming the cilia of the wings of the former, and the antennæ of the others. They are commonly known by the name of *death-watch* or *book-louse*, the latter from their great resemblance to the insect whose cognomen it bears, and the former from their habits, they having the propensity, in common with certain Anobia, of making a peculiar noise, which somewhat resembles the ticking of a watch, and is sometimes prolonged, at intervals of about a minute, for a considerable time. The anatomical details of the type of this genus are given by Nitzsche, in the fourth vol. of Germar's *Magazin der Entomologie*, accompanied by a plate (No. II.)

Sp. 1. *pulsatorius*. *Pallidus*, *abdomine oblongo, ore rubro, oculis luteis*. (Long. corp. $\frac{1}{4}$ — $\frac{1}{2}$ lin.)

Termes pulsatorium. *Linne*.—*Wood*, ii. pl. 75.—*At. pulsatorius*. *Steph. Catal.* 313. No. 3525.

Oblong, pale: eyes yellow; antennæ as long as the body; abdomen beneath with a fuscous spot, and a dot of the same towards its apex; stigmata rufescent; mouth red.

Latreille supposes this to be the larva of *Psocus abdominalis*, but I cannot assent to this opinion.

Very abundant, at all times, in neglected boxes of dried insects, and in books.



Sp. 2. fatidicus. *Ochraceus, abdomine ovato, ore pallido, oculis fuscis.* (Long. corp. $\frac{3}{4}$ —1 lin.)

Ter. fatidicum. *Linne.*—At. fatedicum. *Steph. Catal.* 314. No. 3526.

Ochreous: body ovate; eyes fuscous; antennæ and mouth pale.

Found, occasionally, in collections of insects, &c.

FAMILY IV.—RAPHIDIIDÆ, *Leach.*

Antennæ nearly setaceous: *ocelli* three, arranged in a triangle: *thorax* with its first segment, or *collar*, very much elongated, narrow; 2nd, or *metathorax*, broader and shorter: *wings* of nearly equal size, reticulated: *abdomen* elongate, compressed, soft: *legs* slender; *tibiæ* cylindric; *spurs* minute *tarsi* with four distinct joints, the last but one bilobate. Larva somewhat linear-elongate, soft, pubescent, dilated in the middle: *head* elongate, smooth; *collar* corneous and elongate; *legs* six, whitish; pupa quiescent, with the parts exposed as in those of *Tenthredinidæ*.

The insects belonging to this family may be instantly recognised by the great length of their neck, or collar, to which is attached a large obovate head, having the eyes prominent laterally and rather forward, the clypeus broad, inflected, &c.; the wings are all nearly alike and of similar bulk, with very distinct nervures, but which frequently differ on the opposite wings of the same individual, though there is a general habit of permanence existing:—one genus only is found in Britain.

GENUS XXIV.—RAPHIDIA *Auctorum.*

Antennæ with very numerous, short, articulations, the two basal ones largest: *palpi* filiform, maxillary four-jointed; labial three-jointed: *labrum* somewhat quadrate, rounded in front: *mandibles* acute: *head* oval, narrowed behind, inflexed: *clypeus* broad: *eyes* prominent: *collar* very long, cylindric, slightly narrowed in front: *wings* deflexed, nervures slightly hairy: *abdomen* of the males, with two teeth at the apex; of the females, with a compressed, elongate, transversely-striated, and somewhat incurved ovipositor.

As above stated, there is but one indigenous genus of this family, which may be known by its very long cylindrical neck, which is slightly narrowed in front, and bears the head, as it were, on a long footstalk—thence called *Snake-flies*:—their larvæ somewhat resemble those of the *Hemerobidæ*, are active, soft, elongate, dilated in the middle; subsists on other larvæ beneath the bark of trees, &c. and

MANDIBULATA, VOL. VI., AUGUST 15TH, 1836.

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the pupa has the limbs enveloped in a membrane, but free, as in the Hymenoptera, is quiescent, and not active, as stated by Curtis, in copying from Latreille.

Sp. 1. Ophiopsis. PLATE xxxi. f. 1.—*Atra, nitida, clypeo, antennarum basi, femorum apice tibiis tarsisque ochraceo-flavis, abdomine lineis 2-bus lateralibus marginibusque segmentorum stramineis.* (Long. corp. ♂ 5—6½ lin.; ♀ 7—10 lin.; Exp. Alar. 1 unc. 1—4 lin.)

Ra. Ophiopsis. Linne.—Curtis, v. i. pl. 37.—Steph. Catal. 314. No. 3527.

Shining, black: head moderate, slightly punctured in front and behind; clypeus, base of the antennæ, under surface and tips of the femora, the tibiæ and tarsi ochreous-yellow, base and upper surface of the femora dusky; abdomen with two rows of straw-coloured spots on each side, and the margins of the segments, especially in the middle of the back, and beneath of the same hue, apex of the antennæ fuscous; wings slightly stained with fuscous, with fuscous nervures and black, or brownish stigma.

Found in various places within the metropolitan district, but not very abundantly: it has occurred at Darenth and Coombe woods, also at Colney Hatch, and in the New Forest, in June.

Sp. 2. megacephala. *Atra, nitida, ore, antennarum basi, tibiis tarsisque ochraceo-flavis, abdomine lineis 2-bus lateralibus stramineis, stigmatibus brunneo, capite magno lineâ posticâ piceâ.* (Long. corp. ♂ 6 lin.; ♀ 7—8 lin.; Exp. Alar. 14—15 lin.)

Ra. megacephala. Leach MSS.—Steph. Catal. 314. No. 3528.

Shining, black: clypeus, base of the antennæ, the tibiæ and tarsi ochreous-yellow; abdomen with two rows of straw-coloured spots on each side; anterior femora ochreous-yellow, with the base pitchy-black, four posterior ones pitchy-black, with the apex dark ochreous; wings slightly stained with yellowish, nervures fuscous, stigma brown; head very large, faintly punctured, and generally with a dull tawny streak behind.

Probably a variety of the preceding species.

Taken occasionally within the metropolitan district, in June.

Sp. 3. Londinensis. *Nigra, nitida, ore, antennarum basi, collaris lateribus, tibiis tarsisque ochraceo-flavis, abdomine flavo punctato, alis hyalinis, stigmatibus flavescens.* (Long. corp. ♂ 4—6 lin.; ♀ 5—7½ lin.; Exp. Alar. 8—11½ lin.)

Ra. Londinensis. Leach MSS.—Steph. Catal. 314. No. 3529.—Ra. Ophiopsis.

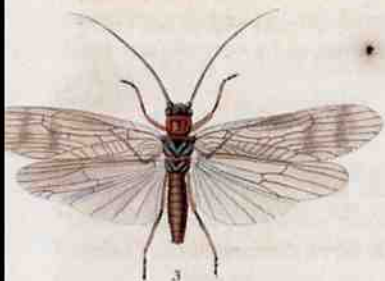
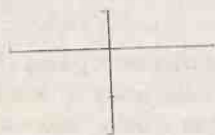
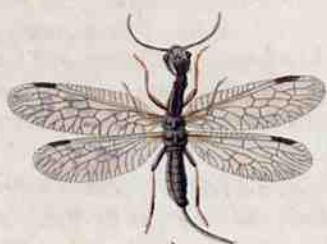
Wood, ii. pl. 52?

Shining black: mouth ochreous-yellow, varied with black; collar with its sides, and occasionally its anterior edge, broadly ochreous-yellow; mesothorax with a yellowish spot in front; abdomen with a dorsal and four lateral rows of yellow spots, the ventral segments edged with the same; legs





Pl. XXXI.



J.O. Westwood del.

G.E. Wagstaff sc.

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ochreous-yellow, the femora, especially the hinder pair, dusky above; base of the antennæ ochreous; wings hyaline, nervures brown; stigma pale yellowish.

Found in the vicinity of London, in Battersea and Copenhagen-fields, about June, but not very common; apparently more abundant near Rochford, in Essex.

Sp. 4. *affinis*. *Nigra, nitida, antennarum basi, ore, collaris marginibus, pedibusque anterioribus ochraceo-flavis, abdomine punctis flavis, alis hyalinis, stigmatе subflavescente*. (Long. corp. ♂ 5 lin.; ♀ 7 lin.; Exp. Alar. 7—9 lin.)

Ra. *affinis*. *Leach MSS.—Steph. Catal. 314. No. 3530.*

Shining, black: mouth luteous, varied with black; base of the antennæ dull ochreous; all the margins of the collar more or less broadly ochreous-yellow; legs ochreous-yellow, the four anterior femora with a blackish line above, the posterior pair wholly pitchy; tips of hinder tarsi also pitchy; abdomen with minute yellow, or straw-coloured dots, placed in two rows on each side; wings hyaline, with fuscous nervures, and a very slightly fuscescent stigma.

Also taken in June, near London.

Sp. 5. *maculicollis*. *Nigra, nitida, antennarum basi, clypeo, tibiis tarsisque ochraceo-flavis, collare fulvescente-ochraceo nigro maculato lateribus luteo-flavis; alis subflavescentibus stigmatе concolore, nervis fusciscentibus*. (Long. corp. ♂ 5 lin.; ♀ 6½ lin.; Exp. Alar. 6—8 lin.)

Ra. *maculicollis*. *Leach MSS.—Steph. Catal. 314. No. 3531.*

Black, shining: head small, slightly punctured; base of antennæ and clypeus ochreous, the latter with two black dots beneath the antennæ; collar dull tawny ochreous, with irregular black spots; the lateral margins broadly ochreous-yellow; abdomen with the edges of the segments pale yellow; legs ochreous-yellow, with the base of the hinder femora, and a line on the others above, dusky or blackish; wings faintly tinged with yellowish, with the stigma concolorous; nervures fuscescent.

Taken at Darenth wood in June; also near Coombe wood, and in Devonshire.

Sp. 6. *confinis*. *Nigra, nitida, ore fulvo, collaris lateribus ochraceis, pedibus ochraceo-flavis, alis hyalinis, stigmatе concolore, nervis fuscis*. (Long. corp. ♂ 5 lin.; ♀ 7 lin.; Exp. Alar. 8—10 lin.)

Ra. *confinis*. *Steph. Catal. 314. No. 3532.*

Shining, black: mouth tawny, with a black dot; antennæ ochreous at the base, and the sides of the collar the same; legs ochreous-yellow, with a dusky line on the upper edge of all the femora; abdomen with the margins



of the segments faintly yellowish; wings hyaline, stigma the same and colourless; nervures fuscous.

Found in June, near London.

SECTION V.—MEGALOPTERINA, *Mac Leay*.

Antennæ moderately long, setaceous, articulations numerous, rarely very distinct: *palpi* filiform or setaceous: *labrum* existed, transverse, entire *mandibles* small: *head* rather large, sometimes depressed: *eyes* moderate: *ocelli* three, or wanting: *thorax* with its anterior segment, or *collar*, large, more or less quadrate: *wings* ample, deflexed or incumbent, posterior sometimes largest; nervures distinct, frequently variable on the two sides of the same individual: *abdomen* somewhat curved or elongate, occasionally furnished with two setæ at its apex: *legs* longish and simple, sometimes compressed: *tarsi* with five joints, and the last but one bifid, or with three joints and nearly simple.

The insects included in this section of the order differ considerably in habit from the remainder: they have in general longish setaceous antennæ; the head broad, mostly depressed, and more or less inflexed; are either destitute of ocelli, or have three placed in a triangle; their wings are ample, resemble each other, are rather coarsely veined, the nervures occasionally differing in the same example: the anterior pair are sometimes largest; at others the posterior are most ample, and, although not longer, their surface is larger from their superior width: they are either deflexed or horizontally incumbent. The following families are found in Britain:—

- | | |
|--|-------------|
| <i>Ocellis</i> nullis: <i>alis</i> deflexis: | 1. SIALIDÆ. |
| 3-bus, in triangulum dispositis: <i>alis</i> incumbētibus: | 2. PERLIDÆ. |

FAMILY I.—SIALIDÆ, *Leach*.

Antennæ inserted on the front of the head between the eyes, rather longer than the thorax, and composed of numerous simple articulations: *mandibles* small, horny, abruptly hooked at the tip, acute, toothless: *palpi* filiform; *maxillary* long, four-jointed, *labial* 3-articulate, all with the terminal joint rather attenuated at the base and obtuse at the tip: *head* transverse, depressed, nutant, as broad as the thorax: *ocelli* wanting: *wings* of nearly equal size, posterior smallest, deflexed, coarsely but somewhat remotely reticulated, the anterior pair dilated at the base of the costa, and all destitute of a stigma: *legs* simple: *tarsi* five-jointed, with the penultimate joint bifid, heart-shaped. Larva elongate-conic, depressed, with six legs:

head large, somewhat orbiculate; eyes moderate; mandibles stout, curved; antennæ longish, somewhat setaceous, four-jointed; thorax triarticulate; abdomen setose, tail conic; legs long, setose; pupa folliculate.

Of this family one genus only is indigenous, viz.—

GENUS XXV.—SIALIS, *Latreille*.

Antennæ short, setaceous, composed of numerous simple joints, the basal one robust: *palpi* filiform, the basal joint somewhat elongate-cylindric: *mandibles* small: *head* moderate, as wide as the thorax: *eyes* prominent: *ocelli* wanting: *collar* ample: *meso-* and *meta-* *thorax* both transverse, tubercular: *wings* deflexed during repose, all coarsely reticulated, anterior rather the largest; *nervures* variable: *legs* shortish: *tibiæ* with two very short spurs at the apex: *tarsi* five-jointed, the last joint but one bifid. Larva active, aquatic, elongate-conic, depressed, furnished with six elongate bristly legs, two somewhat longish four-jointed antennæ, and stout curved mandibles; the thorax is triarticulate, the abdomen furnished on each side of the seven first segments with a branchial appendage; terminal segment elongate, conic, setose at the apex: pupa quiescent, reposing in a cocoon, removed from the water.

The insects of this genus have the wings deflexed, reticulated with strong nervures, which frequently vary in the two sides of the same individual; the penultimate joint of the tarsi is bifid, and the insects are destitute of ocelli:—one indigenous species only is known, which frequents the borders of rivers, &c.

Sp. 1. *lutarius*. *Niger, obscurus, alis fuscis nervis nigris*. (Long. corp. 4—7 lin.; Exp. Alar. 9 lin.—1 unc. 7 lin.)

†Sp. 2. *flavilatera*. “*Alis reticulatis, caudâ inermi thoracis lateribus flavis*.”—Linné.

Phry. *flavilatera*. Linné.—*Berkenhout* (!)—*Steph. Catal.* 321. No. 3684, note.

Wings somewhat cinereous, reticulated; nervures fuscous and closely reticulated, especially towards the outer margin, which is dilated; body wholly blackish; antennæ half the length of the body; tail simple, without prominent styles; collar anteriorly and posteriorly yellowish.

I have never seen a specimen of this insect: whether, therefore, this is its true location I am not prepared to say; but, from the above Linnean definition, such appears to be the case.

This insect was introduced by Berkenhout amongst our indigenous species, but as no example has occurred in any of the numerous collections—above 250—that have fallen under my inspection, I conceive its introduction must originate in a mistake.



He. lutarius. Linne?—Shaw, *G. Z. v. vi. pl. 83. fig. inf.*—*Si. lutarius*. Steph. *Catal. 314. No. 3533.*

Dull, deep black: wings fuscous, with black nervures.

The female lays a great quantity of brown conical eggs, on the leaves of aquatic plants, &c.: they are dispersed with great symmetry, and form large plates: the larva are very active, and swim well.

Very abundant in the vicinity of London, especially on the banks of the Thames, in Battersea-fields, near Putney, Hammersmith, &c.: found also near Ripley and Hertford, in the north of England and Scotland; also in Devonshire, near Dover, &c.

FAMILY II.—PERLIDÆ, Leach.

Antennæ remote, inserted before the eyes, setaceous, nearly as long as the body, consisting of very numerous short articulations, the basal one being largest: *mandibles* distinct: *palpi* exerted, inflexed, filiform or setaceous, maxillary longest, the former five-jointed: *head* as broad as, or broader than, the collar, somewhat trigonate, obtuse in front: *eyes* prominent, rather globose: *ocelli* three, placed in a triangle: *collar* flat, transverse-quadrate: *wings* incumbent, posterior generally largest, with longitudinal folds on their inner margin, nervose, twice as long as the *abdomen*, which is soft, depressed-cylindric, elongate, often furnished at the apex with two many-jointed setæ at the apex: *legs* compressed: *tibiæ* and *tarsi* elongate-cylindric, the latter three-jointed, short, the terminal joint longest and obconic.

The insects included in this family have the wings incumbent during repose, but like those of the two foregoing families the reticulations frequently vary in the same specimen: the head is large; ocelli three in number, the abdomen frequently furnished with two articulate setæ, and the tarsi are always simple: the insects frequent damp and marshy places. The indigenous species may be thus divided into genera:—

Cauda setis 2-bus multiarticulatis instructa.

Abdomen validum.

Alæ in utroque sexu consimiles: . . . 27. ISOGENUS.

dissimiles: . . . 26. PERLA.

subgracile: . . . 28. CHLOROPERLA.

mutica.

Antennis gracilibus, articulis subindistinctis: . . . 29. NEMOURA.

validioribus, articulis submoniliformibus: 30. LEUCTRA.



GENUS XXVI.—PERLA, *Geoffroy*.

Antennæ remote, inserted before the eyes at the base of the mandibles, about the length of the body, composed of numerous articulations, the basal one stoutest and large, second smaller, remainder decreasing in size to the apex: *palpi* unequal, subsetaceous, maxillary long, five-jointed; *labial* shorter, triarticulate, in all the terminal joint most slender: *labrum* transverse, linear: *head* large, much depressed, transverse-ovate: *eyes* lateral, prominent: *ocelli* three: *collar* transverse-quadrate: *meso-* and *meta-* *thorax* unequal: *wings* dissimilar in the sexes; of the male not so long as the body, of the females extending to the apex of the setæ; anterior pair elongate-elliptic; posterior shorter and broader, deeply incised on the outer edge: *abdomen* short, sessile, furnished at its apex with two long jointed setæ: *legs* simple, longest in the males.

The insects of this genus are usually of a large size, and the sexes are very dissimilar, the males (which is rather extraordinary) having the wings very much abbreviated; their legs are also elongated, and their general habit is very dissimilar to the females, which have large expansive wings; the legs are rather shorter than in the males; both sexes have the palpi of dissimilar length, the maxillary ones being much longest, with the last joint slender, and the labrum is linear and somewhat tubercular in the middle.

Sp. 1. *marginata*. *Fusca, capitis maculis abdominis margine flavescentibus, antennis corpore longioribus, thorace subtransverso.* (Long. corp. ♂ 6—7 lin.; ♀ 8—10 lin.; Exp. Alar. ♂ 9 lin.; ♀ 1 unc. 11 lin.—2 unc. 6 lin.)

Pe. *marginata*. *Fabricius.—Steph. Catal. 315. No. 3535.*

Fuscous: antennæ as long as the body; head moderate, black, varied with yellow or ochreous, and with some glossy elevated spots; thorax somewhat transverse, with the disc rugged, a longitudinal dorsal channel, having an elevated line on each side; abdomen more or less ochreous, or yellowish, on its sides and towards the apex; setæ as long as the antennæ, yellowish, with fuscous rings; legs with the tibiæ and tarsi sometimes yellowish, or dull ochreous; wings fuscous, with darker nervures, the fourth discoidal areolet of the posterior pair simple. Pupa pale fuscous, spotted with dusky.

Variable both in size and in colour: in some examples, especially females, the head is ochreous, or yellowish, with two black frontal spots; the thorax is also occasionally varied with ochreous, and the legs are wholly of that colour:—in this state I suspect the insect is the *Per. flavipes*, *Latreille, Hist. Nat. Crust. &c. v. xiii. p. 49*; and the larger specimens to be the *Per. grandis*, *Curtis, fol. 190.—Steph. Catal. 314. No. 3534.*

Not common in the metropolitan district: it has occurred near Sydenham, on the banks of the Croydon Canal; but in the north of England, and in several parts of Scotland, it appears to abound in June and the beginning of July: it is, in common with other species the genus, a favourite food of trout.

Sp. 2. *cephalotes*. *Fusca, capite lato ochraceo-maculato, thorace transverso-quadrato, rugoso, antennis setisque brevibus.* (Long. corp. ♂ 5—5½ lin.; ♀ 6—8 lin.; Exp. Alar. ♂ 9 lin.; ♀ 1 unc. 10 lin.—2 unc. 4 lin.)

Pe. *cephalotes*. *Curtis, v. iv. pl. 100.—Steph. Catal. 315. No. 3536.*

Fuscous, shining: head broader than the thorax, with its base and a transverse streak between the eyes ochreous; thorax transverse-quadrate, rugged, with a central dorsal channel, having an elevated line on each side curved outwards; abdomen ochreous at the tip, of the females frequently entirely so; setæ not so long as the antennæ, which are rather short: wings fuscous, with a greenish tinge in the females; nervures fuscous, the fourth discoidal areolet of the posterior pair mostly with two transverse nervures at the apex. Pupa fuscous.

Found on the borders of the lakes in Cumberland and Westmoreland; also in Scotland in June; but I believe not within the metropolitan district.

Sp. 3. *bicaudata*. *Fusca, capite thoraceque linea longitudinali fulvâ.* (Long. corp. ♂ 8 lin.; ♀ 5—7 lin.; Exp. Alar. ♂ 8 lin.; ♀ 1 unc. 4—6 lin.)

Ph. *bicaudata*. *Linne.—Pe. bicaudata. Steph. Catal. 315. No. 3537.*

Fuscous: head with an irregular longitudinal tawny or orange streak behind; thorax transverse, rugged, with a transverse impressed line in front, and a longitudinal channel, bordered on each side by a raised line, the space between which is tawny or orange, forming a longitudinal streak of that colour; abdomen ochreous beneath; setæ nearly as long as the body, stoutish; antennæ as long as the setæ; wings fuscous, with darker nervures.

Var. β. *Pe. nervosa. Steph. Catal. 315. No. 3538.*—With the wings broader, of a deeper hue, with very dark and distinct nervures.

Found occasionally in June, on the banks of the Thames, near London, as at Fulham, Battersea, Hammersmith, &c.; also in the north of England and in Devonshire.

GENUS XXVII.—ISOGENUS, *Newman*.

Antennæ remote, slender, shorter than the body, composed of numerous remote articulations, the two basal joints largest, the remainder gradually

decreasing in size and length: *palpi* nearly equal, maxillary five-jointed, the two last joints short, more slender than the others; labial three-articulate, the apical joint very short and slender: *labrum* transverse, linear, rounded in front: *head* large, depressed, transverse-quadrate: *eyes* very prominent: *ocelli* three, placed triangularly: *collar* transverse: *meso-* and *meta-thorax* tubercular: *wings* alike in the sexes; anterior elongate-elliptic, rounded at the apex, as long as the setæ.

From the circumstances of the sexes being similar in habit, by both possessing ample wings, I think Mr. Newman has acted judiciously in dividing this genus from the preceding, although in other respects the structure is very similar to that of Perlæ; the insects are, however, of a more slender form, approximating to those of the following genus, likewise divided by Mr. Newman from Perla, but forming a beautifully-intermediate link in the chain of affinities: the *palpi* appear to be of nearly equal length, the *labrum* more rounded in front, and the antennæ shorter than in Perla.

Sp. 1. nubecula. PLATE XXXI. f. 4.—*Alis anticis sordide hyalinis, nubecula costali ultra medium fusca.* (Long. corp. $7\frac{1}{2}$ lin.; Exp. Alar. 1 unc. 3—5 lin.)

Is. nubecula. Ent. Mag. (Newman) v. i. p. 415.—*Steph. Nomen. 2d edit. Appendix.*

Dark brown: head and thorax with a longitudinal ochreous line; anterior wings hyaline, slightly tinged with brown, and having a little oval cloud of a darker brown on the costal margin, situated about one-third of the distance from the tip towards the body; posterior wings beautifully hyaline, iridescent; legs pale brown.

The oval cloud on the costa of the anterior wings is sometimes indistinct, as in the example figured.

Mr. Newman, to whom I am indebted for this species, says that it is abundant in the neighbourhood of running waters in Herefordshire, Worcestershire, Nottinghamshire, &c. and is the favourite food of trout and grayling.

GENUS XXVIII.—CHLOROPERLA, Newman MSS.

Antennæ remote, rather slender, as long as, or longer than, the body, composed of numerous joints, the basal one large, the next smaller, the remainder gradually smaller and shorter: *palpi* dissimilar; maxillary elongate, the two last joints most slender, the terminal one shortest; labial short, the apical joint short and slender: *labrum* small, linear, straight in front: *head* broad, considerably depressed: *eyes* prominent: *collar* ample, transverse-quadrate: *meso-* and *meta-thorax* unequal: *wings* ample, mostly tinged with

MANDIBULATA, VOL. VI., AUGUST 15TH, 1836.

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greenish hues, anterior elongate and narrowish, posterior wider, with the hinder margin excised: *abdomen* slender, its apex furnished with two jointed setæ: *legs* simple.

Although there is not much structural dissimilarity between the insects of this and of the two foregoing genera, yet, from their great diversity of habit, I perfectly coincide with Mr. Newman in removing them from *Perla*: the sexes are alike, and all the species are more or less distinguished by having the wings tinted with yellowish- or ochreous-green; the nervures are fewer in number, and much less distinct than in *Perla* or *Isogenus*; the insects are of a more slender form, &c.

A. *Anterior wings* with four discoidal areolets, the third and fourth with numerous transverse nervures.

Sp. 1. *fuscipennis*. *Ochraceo-viridis, abdominis dorso oculisque nigris, alis sub-fuscescentibus, venis saturatioribus*. (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 1 unc. $\frac{1}{2}$ —1 lin.)

Pe. *fuscipennis*. *Curtis?*—*Steph. Catal.* 315. No. 3539.

Ochreous-green: eyes and ocelli black; sides of the collar somewhat dusky; abdomen above black, its sides and beneath ochreous-green; legs yellowish-green; wings slightly fuscous, with a greenish tinge, the nervures darker.

Found in the north of England and in Scotland, in June.

Sp. 2. *lateralis*. *Ochraceo-viridis, oculis atris, thoracis lateribus, abdominisque dorso nigris, pedibus flavescens fusciscentibus sublineatis*. (Long. corp. 4— $4\frac{1}{2}$ lin.; Exp. Alar. 9—13 lin.)

Pe. *lutea*. *Steph. Catal.* 315. No. 3540.—Pe. *viridis*. *Curtis*, fo. 190.—Pe. *lateralis*. *Steph. Nomen.* 2d edit. *Appendix*.

Ochreous-green: eyes and ocelli black; thorax, or rather the collar, with a broad black margin; abdomen black above, the base of the ventral segments dusky; legs yellowish-green, with faint fuscous streaks; antennæ dusky at the apex; wings greenish-yellow, with concolorous nervures.

Not uncommon within the metropolitan district, especially in the vicinity of Ripley, in Walsham-meadows, in June; also found in the New Forest, and abundantly near Leominster.

Sp. 3. *media*. *Virescente-flava, oculis atris, abdominis dorso, mesothorace posticè metathoraceque nigris, alis viridi-flavescentibus*. (Long. corp. 4— $4\frac{1}{2}$ lin.; Exp. Alar. 10—12 lin.)

Pe. *media*. *Curtis?*—*Steph. Catal.* 315. No. 3541.



Greenish-yellow: eyes and ocelli black: sides of the collar obscurely fuscous; mesothorax behind and metathorax black; abdomen black above; legs greenish-yellow, with a dusky streak on the femora; wings pale greenish-yellow, nervures darker.

Taken near Darenth wood in June, and in Westmoreland.

Sp. 4. *venosa*. *Rufescent-ochracea, oculis atris, collaris lateribus abdominisque dorso nigris, alis flavescens-viridibus nervis fusciscentibus.* (Long. corp. $4\frac{1}{4}$ lin.; Exp. Alar. 11 $\frac{1}{2}$ lin.)

Pe. *venosa*. *Steph. Catal.* 315. No. 3542.

Reddish-ochre, with a greenish tinge: eyes and ocelli black; collar with its lateral margins broadly black; abdomen black above, its sides ochreous-green; legs greenish ochre; antennæ dusky, ochreous at the base; wings yellowish-green, with fuscous nervures.

Found in June, near London.

Sp. 5. *rufescens*. *Ochraceo-rufescens, oculis, lineis 2-abus collaris, abdominisque dorso nigris, alis subflavescentibus nervis concoloribus.* (Long. corp. 4— $4\frac{1}{4}$ lin.; Exp. Alar. 11—13 lin.)

Pe. *rufescens*. *Steph. Nomen.* 2d edit. col. 117.

Reddish ochre: eyes and ocelli black; collar with two longitudinal black streaks; abdomen black above, its sides ochreous, and the base of the ventral segments dusky; legs reddish ochre, with a green tinge; wings pale yellowish, with a reddish hue, the nervures darker, but concolorous; antennæ dusky at the tip.

Also taken near London, in June.

B. *Anterior wings* with three discoidal areolets, the third with few (2-4) inaequidistant transverse nervures.

Sp. 6. *flava*. *Ochraceo-viridis, antennis apice oculisque atris, alis subflavescent-viridibus.* (Long. corp. $1\frac{1}{2}$ — $2\frac{1}{4}$ lin.; Exp. Alar. 6— $7\frac{1}{4}$ lin.)

Se. *flava*. *Four. Ent. Par.* ii. p. 349.—Se. *viridis*. *Fabricius*.—Pe. *viridis*. *Steph. Catal.* 315. No. 3543.

Ochreous-green: antennæ black at the tip; eyes and ocelli black; collar with a faint broad dusky margin; abdomen green, with a blackish streak above; legs greenish immaculate; wings faintly tinged with yellowish-green, with darker concolorous nervures, the latter few in number; caudal setæ pale.

Apparently not very common: found occasionally near London, but more abundantly in Westmoreland and in Carnarvonshire in June, and especially at Leominster.

Sp. 7. *pallida*. *Pallide rufescent-ochracea, oculis atris, alis hyalinis limpidis, nervis subochraceo-virescentibus.* (Long. corp. 2 lin.; Exp. Alar. 6 lin.)

Pe. *pallida*. *Steph. Catal.* 315. No. 3544.

Pale reddish ochreous: eyes and ocelli deep black; collar and abdomen immaculate; legs pale ochreous green; antennæ the same, dusky at the apex; caudal setæ pale; wings hyaline, limpid, with an almost evanescent tinge of yellowish-green, the nervures pale ochreous-green.

Found near London, in June.

GENUS XXIX.—NEMOURA, Latreille.

Antennæ setaceous, remote, placed before the eyes, and composed of numerous very short cylindric articulations, the basal one being largest: *palpi* filiform, with the terminal joint oval-cylindric: *labrum* distinct, semi-circular or subquadrate, rather broader than long, rounded anteriorly and on the sides: *head* rather broad, nearly vertical, not depressed: *eyes* small, lateral: *collar* transverse-quadrate: *wings* incumbent during repose, somewhat folded round the body, and giving it a cylindric form: *abdomen* with two extremely short tubercular processes at the apex, but destitute of setæ: *legs* simple: *femora* slightly compressed: *tarsi* with all the joints simple, and of nearly equal length.

These insects may be readily distinguished from those of the foregoing genera by wanting the elongated reticulated setæ at the apex of the abdomen, without taking other characters into consideration: from the genus *Leuctra* they differ in having the anterior wings more rounded, and furnished with a plexus of nervures towards the apex, resembling a Greek χ ; and the nervures themselves are differently disposed. In common with the other genera of this family, these insects are found in damp and marshy places, during the summer.

A. *Anterior wings* with a χ -like plexus of nervures towards the apex; the hinder margin with six longitudinal nerves.

Sp. 1. *nebulosa*. *Fusco-nigra, collaris lateribus rufo-piceis, pedibus pallide rufescentibus femoribus posticis annulo obscuro, alis cinereis nervis fuscis.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.; Exp. Alar. 9— $10\frac{1}{2}$ lin.)

Ph. *nebulosa*. *Linne ?—Steph. Catal. 315. No. 3545.*

Fuscous-black: sides of the collar somewhat pitchy-red; legs pale reddish, the hinder femora with an obscure blackish ring towards the apex; wings dull ashy-brown, with darker nervures.

This insect is the *Ne. nebulosa* of Latreille, but I suspect not of Linnæus; his insect I believe to be *Ne. variegata*.

Abundant in damp hedges within the metropolitan district, especially in Robin Hood lane, near Coombe wood: found also, not uncommonly, in the north of England, and in Scotland, and also in the New Forest, in June.

Sp. 2. *fuliginosa*. *Fusco-nigra, capite posticè, collaris lateribus, pedibusque fusco rufescentibus, alis fuscescentibus venis fuscis.* (Long. corp. 2—3 lin.; Exp. Alar. $8\frac{1}{2}$ —10 lin.)

Ne. *fuliginosa*. *Steph. Catal.* 315. No. 3546.

Brown-black: head and sides of the neck dull reddish-brown: legs pale reddish-brown, the hinder femora with a very obscure blackish spot towards the apex above; wings brownish, with fuscous nervures.

Probably a suffused variety of the preceding species.

Also not uncommon in the vicinity of the metropolis in damp places in June.

Sp. 3. *pallida*. *Pallide fusco-rufescens, oculis, meso- et meta- thoracis dorso, geniculis intermediis, abdomineque fusco-nigris, alis hyalinis, pallidis, nervis fuscescentibus.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ne. *pallida*. *Steph. Catal.* 315. No. 3547.

Pale reddish-brown, shining: eyes black; meso- and meta- thorax above blackish; abdomen brown-black; legs pale reddish-brown, the intermediate femora blackish at the tips; wings hyaline, pale, with slightly fuscous nervures; antennæ reddish at the base.

Found within the metropolitan district, in June.

Sp. 4. *cruciata*. *Fusco-nigra, collaris lateribus picco-rufescentibus, pedibus pallide rufescentibus tibiis tarsisque intermediis picco-nigris, alis fuscescentibus cruce nervisque saturatioribus.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. 9— $10\frac{1}{2}$ lin.)

Ne. *cruciata*. *Steph. Catal.* 315. No. 3548.

Brown-black: labrum pale reddish; sides of the collar pitchy-reddish; anterior and posterior legs pale reddish, intermediate femora the same, their hinder sides and their tibiæ and tarsi pitchy-black; antennæ long and slender, pitchy-black, the basal joint reddish beneath; wings fuscescent, the nervures fuscous, the transverse ones towards the apex broadly edged with the same colour, and forming a brown χ .

Not uncommon, in June, within the metropolitan district; also found in Scotland.

Sp. 5. *affinis*. *Fusco-nigra, collaris marginibus rufescentibus, pedibus anticis picco-nigris posterioribus pallide rufis, alis cinerascens cruce fuscâ, nervis subfuscescentibus.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 9—10 lin.)

Ne. *affinis*. *Steph. Catal.* 315. No. 3549.

Brown-black: margins of the collar reddish; anterior pair of legs pitchy-black, two hinder pair pale red; wings ashy, with the nervures somewhat fuscescent, the transverse ones darker, and forming an obscure χ .

Also taken near London, in June.



Sp. 6. pusilla. *Fusco-nigra, collaris lateribus pedibusque pallide rufescentibus, alis hyalinis pallidis, nervis subfuscescentibus, capite lato, antennis gracilibus.* (Long. corp. 2 lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Ne. pusilla. *Steph. Catal.* 315. No. 3550.

Pitchy-black: head very broad; collar with its lateral margins pale reddish; legs pale reddish, the femora slightly tinged with piceous; wings hyaline, pale, the nervures slightly fuscous, the transverse ones darker, and forming an oblique line; antennæ very slender, and rather long.

Found in the vicinity of London, in June.

Sp. 7. annulata. *Rufo-fusca, nigro variegata, pedibus pallide rufescentibus femoribus posticis annulo obscuro fusco, alis fusco-cinereis, nervis fuscis.* (Long. corp. 3 lin.; Exp. Alar. 9 lin.)

Ne. annulata. *Steph. Catal.* 315. No. 3551.

Dull red-brown: eyes black; middle of the collar brown-black; meso- and meta- thorax varied with the same, and the back of the abdomen also brown-black; legs pale reddish, the hinder femora with an obscure fuscous ring near the apex; wings pale ashy-brown, with fuscous nervures; antennæ rather long and slender, dusky at the apex.

Not uncommon in the neighbourhood of Hertford in June, frequenting marshy districts.

Sp. 8. pallipes. *Piceo-brunnea, nitida, pedibus pallidis, alis hyalinis subcinereis, nervis pallidis, antennis subpilosis.* (Long. corp. $1\frac{3}{4}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Ne. pallipes. *Steph. Catal.* 315. No. 3552.

Pitchy-brown, very shining: legs pale; wings hyaline, somewhat ashy, with pale nervures; antennæ slightly pilose.

Found at Coombe wood, in June.

Sp. 9. luteicornis. *Nigro-picea, nitida, labro, capite posticè, collaris lateribus, pedibusque rufescentibus, alis pallide cinereis, nervis pallidis, antennis gracilibus pallide luteis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 9—10 lin.)

Ne. luteicornis. *Steph. Catal.* 315. No. 3553.

Shining, pitchy-black: labrum, head behind, and sides of the collar, reddish; legs pale reddish; wings slightly cinereous, with pale nervures; antennæ slender, pale luteous.

One of my specimens is very remarkable for the extraordinary dissimilarity of its antennæ, the right one is slender, with rather indistinct short joints, and of the usual length; the other is about half the length, and composed of about 10 rather elongate subclavate joints, the terminal one being largest, compressed and truncate, forming a kind of club!

Found in the marshes near Hertford, in the beginning of June.



Sp. 10. *pallicornis*. *Nigro-picea, nitida, antennis elongatis pedibusque pallidis, alis subfusco-cinereis, nervis fuscis*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ne. *pallicornis*. *Steph. Catal.* 315. No. 3554.

Shining, pitchy-black: antennæ elongate, slender, pale; legs pale; wings somewhat of a fuscous ash, with fuscous nervures.

Also found in the vicinity of Hertford, in June.

Sp. 11. *nitida*. *Piceo-fusca, nitida, antennis gracilibus elongatis nigris, pedibus pallido-rufis; alis angustis hyalinis, nervis pallidis*. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ne. *nitida*. *Steph. Catal.* 315. No. 3555.

Shining, pitchy-brown: antennæ long and slender, black; legs pale red; wings narrow, hyaline, nervures pale.

The legs are sometimes pitchy towards the apex of the femora and of the tarsi.

Not uncommon, in the vicinity of Hertford and at Ripley, at the end of June and beginning of July.

Sp. 12. *Cambrica*. *Piceo-nigra, collare rugoso, mesothoracis lateribus pedibusque rufescentibus, alis fusciscentibus, nervis brunneis*. (Long. corp. 2 lin.; Exp. Alar. $9\frac{1}{4}$ lin.)

Ne. *Cambrica*. *Steph. Nomen.* 2d edit. col. 118.

Pitchy-black, shining: collar rugged; sides of the mesothorax reddish; legs pale reddish; wings long, narrow, fusciscent, with strong dark brown nervures; antennæ short, black.

Found at South Wales, near Swansea, in October, by L. W. Dillwyn, Esq.

Sp. 13. *sulcicollis*. *Nigra, nitida, pedibus piceis, collare rugoso, sulco dorsali, alis fusciscentibus, nervis saturatioribus*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ — $7\frac{1}{2}$ lin.)

Ne. *sulcicollis*. *Steph. Catal.* 315. No. 3556.

Deep shining black: collar rugged, with a dorsal channel; legs pitchy; tibiæ sometimes pale reddish; antennæ short, black; wings narrow, fusciscent, with darker nervures, and sometimes the transverse ones towards the apex bordered with fuscous, and forming a dark χ .

Also found near Hertford and Ripley, in June and July, not uncommonly.

Sp. 14. *fumosa*. *Atra, nitidissima, abdomine tibiisque rufo-piceis, alis fusciscentibus nervis saturatioribus*. (Long. corp. $1\frac{1}{2}$ — $1\frac{3}{4}$ lin.; Exp. Alar. 5— $6\frac{1}{4}$ lin.)

Ne. *fumosa*. *Steph. Catal.* 315. No. 3557.

Very glossy, deep black: collar slightly wrinkled; abdomen pitchy-red; femora pitchy-black; tibiæ pitchy-red; tarsi black; wings brownish, with darker nervures, the transverse ones towards the apex bordered with dusky.

Antennæ sometimes pitchy at the base.

Common at Ripley, in June and July; also found in Scotland.

B. Anterior wings destitute of a χ -like plexus of nervures; hinder margin with nine longitudinal nervures.

Sp. 15. *variegata*. PLATE xxxi. f. 2.—*Fusco-nigra, collare pedibusque rufis nigro variis, alis pallide cinereis fasciis 2-bus fusciscentibus*. (Long. corp. 4 lin.; Exp. Alar. 11 lin.)

Ne. variegata. *Steph. Catal.* 316. No. 3558.

Head and antennæ deep black, the former rather small; collar pale red, slightly clouded on the disc with blackish; meso- and meta- thorax black; abdomen pitchy above, dusky beneath; legs pale red; coxæ ochreous, tip of the femora black; apex and tip of the tibiæ, and a line on their inner edge, as well as the tarsi, black; wings long and narrow, with numerous nervures, pale ashy, with two or three transverse fuscous streaks; nervures also fuscous; posterior wings fuscous, especially at the apex.

I suspect this insect is the true *Phryganea nebulosa* of Linnæus.

Apparently rare: my specimen occurred near Hertford in June.

GENUS XXX.—LEUCTRA, *Stephens*.

Antennæ placed somewhat remotely in front beneath the eyes, somewhat moniliform and pilose, or setaceous and simple, with distinct joints; in all the basal joint robust, the 2nd slightly smaller: *labrum* transverse, rounded in front: *palpi* with the terminal joint a little acute: *head* large and depressed, or small and inflexed: *eyes* moderate, prominent: *ocelli* 3: *collar* more or less quadrate, longitudinally sulcate and rugose: *wings* incumbent during repose; anterior elongate, somewhat acuminate, the transverse nervures placed rectangularly about the middle of the costa, and not forming a χ -like mark by the union with the longitudinal ones; posterior pair shorter, narrower, acuminate, and incised on the outer margin: *abdomen* somewhat linear-elongate, the apex not furnished with jointed setæ: *legs* rather slender, simple: *femora* and *tibiæ* slightly compressed and striated: *tarsi* with the intermediate joint slightly produced beneath.

The great dissimilarity of the neuration of the wings of the insects included in this genus from those of the foregoing—as exhibited in Plate xxxi. figs. 2 and 3—sufficiently indicate their distinction; these organs are also more elongate and acuminate at the apex, the anterior pair are narrower; the head smaller, the antennæ more distinctly articulated, &c.



A. *Antennæ* somewhat moniliform, each joint producing a whorl of hairs on both sides: *head* broad, depressed.

Sp. 1. *geniculata*. PLATE xxxi. f. 3.—*Nigro-picea, capite rufo-piceo, nigro vario, abdomine supra rufo-piceo, lateribus nigris, pedibus pallide brunneis, femoribus posterioribus annulo nigro, antennis pallide rufis, pilosis*. (Long. corp. 3—3½ lin.; Exp. Alar. 9—10½ lin.)

Le. *geniculata*. *Steph. Nomen*. 2d edit. col. 118.—N. G. (548). *geniculata*. *Steph. Catal.* 316. No. 3561.

Pitchy-black: head pitchy-red, with the eyes, ocelli, and some frontal marks black; collar with the sides straight, the disc rugose, and with three dorsal channels; mesothorax pitchy-red in front; abdomen above pitchy-red, its sides and beneath black; legs pale brown, the four hinder femora with a blackish ring near the apex; tips of the tibiæ and of the tarsal joints blackish; antennæ pale pitchy-red, the articulations very distinct, each producing a whorl of blackish hairs on each side; wings pale fuscous, with darker nervures.

Apparently rare: taken occasionally within the metropolitan district in June; also in the New Forest and in Scotland.

B. *Antennæ* slender and pilose: *head* small.

Sp. 2. *fusciventris*. *Fusco-nigra, collaris lateribus rotundatis, ano piceo, pedibus pallide rufo-piceis, tarsis nigris*. (Long. corp. 2½ lin.; Exp. Alar. 7½ lin.)

Ne. *fusciventris*. *Steph. Catal.* 316. No. 3559.

Brown-black: collar with a longitudinal and two nearly parallel dorsal channels, the rest of the surface rugose; abdomen fuscous, with the apex pitchy; legs pale pitchy-red, with blackish tarsi; palpi and antennæ black; wings fuscous, with darker nervures, the edges of some of the costal nervures fuscous.

Found, in June, near Hertford: not common.

Sp. 3. *abdominalis*. *Piceo-nigra, collare quadrato, ore pedibusque pallide ochraceo-rufis, tarsis nigricantibus, abdomine pallide rufo, maculis lateralibus strigâque ventrali piceo-nigris*. (Long. corp. 3 lin.; Exp. Alar. 8—9½ lin.)

Ne. *abdominalis*. *Steph. Catal.* 316. No. 3560.

Pitchy-black: mouth pale red; collar nearly quadrate, its surface rugose, with five longitudinal dorsal channels, the two outer ones, on each side, placed obliquely; abdomen pale red, with a row of black spots on each side, and a broad streak of black beneath; legs pale ochreous-red, the tips of the hinder femora and the tarsi blackish; wings fuscous, the nervures darker, with a fuscous shade on each side, the apex of the costa the same; antennæ black.

Also found occasionally at Hertford, in June and July.

MANDIBULATA, VOL. VI., AUGUST 15TH, 1836.

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ORDER V.—TRICHOPTERA, Kirby.

Wings all membranaceous, much deflexed, anterior pair more or less pilose, posterior sometimes folded, all furnished with more or less branching nervures, and very few transverse ones: *mouth* with merely rudimentary mandibles: *palpi* four, dissimilar, maxillary occasionally long, labial short, sometimes nearly wanting: *maxillæ* and *labium* membranaceous: *body* more or less hairy: *head* small, transverse, vertical, flat above: *eyes* moderate, semiglobose, prominent: *ocelli* two, frontal: *collar* small, transverse: *abdomen* compressed-cylindric, not furnished with setæ at the apex: *legs* slender, *coxæ* elongate, *tibiæ* armed, in general, with two, three, or four long spurs, sometimes spinulose: *tarsi* elongate, five-jointed, cylindric, furnished with two small claws, and an intermediate cushion. Metamorphosis incomplete: larva aquatic, hexapod, active, elongate, subcylindrical, slightly pilose; head corneous, three following segments coriaceous, each having a pair of legs; next frequently dilated and papillose, remainder variable, being sometimes furnished with exserted branchial organs, and occasionally with two caudal appendages: they mostly reside in a cylindric tube, lined within with silk, and clothed without with various materials, according to the groups to which they belong, as hereafter particularized: pupa quiescent, being shut up in the case of the larvæ; it somewhat resembles the imago, the limbs, &c. being distinct. The eggs are deposited in a gelatinous mass.

The insects included in this order are generally known by the name of *Case-* or *Caddice-flies*, *Water-moths*, &c. In their larva state they frequent running streams, lakes, ponds, &c. some species preferring nearly stagnant waters, others the impetuous torrents of mountain-streams, &c.: they are consequently always to be found in marshy districts, and usually make their appearance during the summer months, though some few species do not occur till the autumn: in general habit they greatly resemble each other, and from the almost total uniformity of colouring that obtains amongst them, they are extremely difficult to divide specifically from each other: nevertheless, by a careful attention, sufficiently powerful characters of distinction may be detected, not only in the colouring, but also in the neuration of the wings. Continental naturalists almost universally agree in placing these insects as a great section of the Neuroptera, in which respect they have been partially followed in Britain, but I conceive their characters, especially those drawn from their wings, which are pilose, and have branching nervures, like the Lepidoptera, are unlike any of the true Neuroptera: their coxæ and legs are also

constructed on the model of those of the Lepidoptera, and their general habit is towards those insects; their mandibles likewise are nearly obliterated, the collar is narrow and transverse, &c. But few writers have attended to these insects, the admirable Treatise of M. Pictet on the Phryganeæ of Switzerland being almost the only guide towards their classification, &c., and from that work I have extracted the two following tables,* showing the dissimilarities in the larvæ, and also some external characters of the imago:—

Larvæ with a case, opening with a round hole;

segments of the thorax rounded;

external respiratory organs isolated, legs moderately

long: PHRYGANEÆ.

in tufts;

hinder legs long: MYSTACIDE.

short: SERICOSTOMA.

segments with the anterior angles pointed: . TRICHOSTOMA.

with a case, opening by a cleft: . . . HYDROPTILA.

without a case;

Pupa with a double envelope: . . . RHYACOPHILA.

single envelope: . . . HYDROPSYCHE.

Imago.

Posterior wings folded;

with transverse nervures.

Maxillary palpi moderate and slightly hairy: PHRYGANEÆ.

long and hairy: . MYSTACIDE.

without transverse nervures.

Maxillary palpi different in the sexes;

of the male clavate: . TRICHOSTOMA.

forming a rounded

face: . SERICOSTOMA.

alike in the sexes;

last joint ovate: . RHYACOPHILA.

filiform: HYDROPSYCHE.

not folded.

Antennæ setaceous: . . . PSYCHOMIA.

filiform: . . . HYDROPTILA.

* In the 4th volume of the New Series of the Philosophical Magazine—published in February and March, 1834—are short descriptive notices of some of the indigenous Trichoptera, by Mr. Curtis, whose names I have endeavoured to assimilate with my own previously published ones (1829), and with those of M. Pictet; but it is to be regretted that these descriptions have appeared in a work not devoted to the subject, and consequently rarely seen by entomologists, as the result has been that, from the almost simultaneous appearance of M. Pictet's splendid work on this order (July, 1834), the

From these tables it is manifest that considerable diversity occurs amongst the insects of this order, not only in the larva, but in the imago states. Pictet regards the above groups as genera only, but I think the generality of them bear a higher designation, and may probably be nearly equivalent to families; as such, in the present state of our knowledge of the Trichoptera, I shall consider them; and I have endeavoured to characterize them by a slight modification of the above tables, whereby I have reduced the anomaly resulting from taking characters peculiar to the sexes, as employed by Pictet, in some of his groups:—

<i>Pedes</i> haud calcaribus instructis :	.	.	.	.	1. ACENTROPIDÆ.
calcaribus instructis ;					
<i>Antennæ</i> filiformes, aut pectinatæ :	.	.	.	.	2. HYDROPTILIDÆ.
setaceæ ;					
<i>Alæ</i> posticæ haud plicati :	.	.	.	.	6. PSYCHOMIDÆ.
plicati ;					
<i>anticæ</i> nervis transversalibus ;					
<i>Palpi</i> maxillares, mediocres, subhirsuti :	.	.	.	.	8. PHRYGANIDÆ.
elongati, hirsutissimi :	.	.	.	.	7. LEPTOCERIDÆ.
<i>anticæ</i> nervis transversalibus fere destitutis ;					
<i>Palpi</i> maxillares					
articulo ultimo elongato, filiformi :	.	.	.	.	4. HYDROPSYCHIDÆ.
brevi, ovato ; artiº. 2-do elongato :	.	.	.	.	5. SERICOSTOMIDÆ.
brevissimo :	.	.	.	.	3. RHYACOPHILIDÆ.

FAMILY I.—ACENTROPIDÆ *mihi*.

Antennæ nearly setaceous, remote, short: *maxillary palpi* drooping, 3-jointed, labial wanting: *head* and *thorax* clothed with scale-like hairs, the latter furnished on its sides with a pair of *petagiæ*, or *tippets*: *wings* deflexed, anterior acute, posterior ovate, furnished with a connecting bristle at the base: *abdomen* rather elongate: *legs* moderate; *femora* and *tibiæ* shortish, of nearly equal length, the latter not furnished with spurs: *tarsi* 5-jointed.

nomenclature of the species has been greatly embarrassed, many of Pictet's insects being synonymous with the indigenous ones, and thus in repeated instances a third name has been imposed on the same species; and an additional inconvenience arises from the names of Mr. Curtis's insects occurring in a miscellaneous work, as before referred to, while those of Pictet appear in a work expressly devoted to the subject, and will consequently be more generally employed, although not strictly having the priority.

This anomalous family may be instantly recognized from the genuine Trichoptera by having the legs wholly destitute of spurs, in addition to the very peculiar neuration of its wings, all of which have a long discoidal areolet, from which a radiating series of nervures springs, the nervures extending to the costal and hinder margins; but another great peculiarity apparent is the thorax being furnished with regular tippets, as in the Lepidoptera, and which circumstance, combined with the scale-like clothing of its wings, their structure, the bristle at the base of the hinder pair, the squamous head, &c. appear to warrant its removal to that order of insects, as suggested by Mr. Westwood, in the Entomological Transactions, v. i. p. 118; but amongst which group can it be located? I am not aware of any genus of the Tineidæ (the only family to which it can possibly be allied) that is destitute of spurs* on the four hinder tibiæ: its

* The absence of tibial spurs in the genus which forms the type of this family—*Acentria* of my Catalogue—induced me to arrange it with the Neuroptera, in which order these appendages are almost universally deficient, or are extremely minute, even in the gigantic species, while they are as invariably present both in the Lepidoptera and Trichoptera, although various modifications, both in form and number, occur. If I am correct in my reference to Olivier, through Latreille, both those writers place *Acentria* (now *Acentropus*) in the genus *Phryganea* (or Trichopterous division of the Neuroptera) in which they are followed by Mr. Curtis, who places it, *without question*, in the family Phryganidæ, notwithstanding its total want of spurs, whereas the insects included in that family have those organs fully developed, and have, moreover, the tibiæ and tarsi more or less armed with rigid spines, while in *Acentropus* they are perfectly simple! the neuration of the wings is also wholly dissimilar, as is also the structure of the mouth, &c.; the posterior wings are not folded, &c.

In the "*Naturalist*," published on the 1st inst. vol. i. p. 14, Mr. Dale has some remarks on the genus *Acentropus*, in which, after defending Mr. Curtis's assumed ignorance of its identity with *Acentria*,† he justifies its removal from the Neuroptera, and appears to conceive its location to be perfectly natural between *Hydroptila* and *Papilio*!!! and he exults in the fact that Messrs. Curtis and Westwood consider that I did wrong in placing it in the Neuroptera! But this last writer and myself are of opinion that Mr. Curtis is equally in error by placing it with the Trichoptera.

† A point I am disposed to controvert, inasmuch as Mr. Curtis, in naming his insects from my collection, had the opportunity of seeing the insect dozens



metamorphoses are yet unknown; but, when detected, its location will then become evident: for the present, therefore, having completed the Lepidoptera, I shall temporarily remove it to this side of the line of demarcation, and consider it as referrible to this order, rather than omit all notice of this singular family.

GENUS I.—ACENTROPUS, *Curtis*.

Antennæ slightly pubescent, inserted close to the eyes, shorter than the body: *labrum* elongate: *maxillary palpi* large, curved, densely clothed with scaly hairs: *head* somewhat globose: *eyes* globose, lateral: *ocelli* two: *wings* dissimilar, anterior with a long discoidal areolet, with numerous radiating nervures, which extend to the costal and hinder margins; posterior smaller, with similar nervures, all furnished with scale-like cilia: *abdomen* attenuated, its apex terminated by a curved hairy lobe and two pilose appendages; in the female simple and acute.

The chief peculiarities of this genus have been already pointed out in the observations upon the family: one species only appears to be known, which seems to frequent marshy places.

Sp. 1. *niveus*. *Pallide rufo-ochraceus, capite thoraceque cunescens, alis sericeo-niveis, oculis atris.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 6— $7\frac{1}{2}$ lin.)

Phr. *nivea*. *Olivier teste Latreille*.—*Acentria niveosa*. *Steph. Catal.* 316. No. 3562 ♂.—*Zancle Hansoni*. *Steph. Nomen.* 2d edit. col. 118 ♀.—*Acentropus Garnonsii*. *Curtis*, v. xi. pl. 497, var.

Pale reddish-ochre: eyes black; head and thorax clothed with short white and greyish scales; tippets whitish; abdomen ochreous above, dotted with white scales beneath; wings glossy snow-white.

The anterior wings have sometimes the costa and hinder margin more or less of a bright tawny-ochreous.

Brief as Latreille's definition of the Phry. *nivea* of Olivier is, I believe this to be that insect. Latreille says, "Blanche; ailes ciliées; partie supérieure de l'abdomen obscure."—*Hist. Nat. Crust. &c.* v. xiii. p. 93.

Found on willows near the Croydon Canal, by Greenwich, in June; also by Dr. Leach, in Scotland; Mr. Hanson, near Reading, in

of times, and he has appended to his account the localities which I furnished him with many years since; and Mr. Dale, upon a visit to me of some days, when he had the uncontrolled range of my cabinets during my unavoidable absence from home, must have noticed so remarkable an insect, which remains to this moment in the actual position it occupied in the drawer in 1826, the period of his sojourn at my residence.



Berkshire; and by the Rev. W. L. P. Garnons, at Layer Murney, near Colchester, in Essex.

FAMILY II.—HYDROPTILIDÆ *mih.*

Antennæ filiform, very short, not very remote: maxillary *palpi* 5-jointed, somewhat pointed; labial minute: *head* and *thorax* densely clothed with woolly hairs: *wings* narrow, acute, or obtuse; nervures obscure, radiating, with no discoidal areolet: *abdomen* short or moderate: *legs* shortish; four posterior *tibiæ* furnished with spurs at the apex and in the middle: *tarsi* 5-jointed. Larva residing in a flat kidney-shaped case, opening at each extremity by a simple cleft, and composed of silk and a few grains of sand; the larva itself has the head and the three anterior segments narrow, the abdominal segments considerably dilated, and destitute of external respiratory organs; the legs are short: they undergo their metamorphoses in the case, by closing it and fixing it on a stone.

The pretty little tineiform insects included in this family are distinguished by having very short filiform antennæ, which are either perfectly simple, or strongly pectinated: the wings are long, narrow, and acute, ciliated rather densely at the apex, and in the typical genus along the costa and inner margins; the four hinder tibiæ are armed with spurs. Three genera occur in Britain, thus simply characterized:—

Antennis simplicibus, haud pectinatis;

<i>Tibiis</i> intermediis 2-calcaratis :	.	.	2. HYDROPTILA.
1-calcaratis :	.	.	2. AGRAYLEA.
pectinatis :	.	.	3. NARYCIA.

GENUS II.—HYDROPTILA, *Dalman.*

Antennæ sensibly thickened towards the apex, which is obtuse: maxillary *palpi* with the articulations of nearly equal length, the terminal joint ovoid: *head* small: *eyes* small, lateral: *collar* and *thorax* ovate: *wings* narrow, acute, densely pilose, and ciliated on the margins, with few very indistinct nervures; posterior pair similar, not folded: *abdomen* short, slender, obtuse in the males, acute in the females: *legs* moderate, intermediate and posterior tibiæ furnished with two pair of long spurs.

From *Narycia* this genus differs by having the antennæ perfectly simple, the anterior wings narrow, acute at the apex, densely ciliated on the costal and inner margins, and on the apex; the palpi are rather long and slender: the insects are of small size, and the species resemble each other considerably in bulk, colour, and habit: they are very active and nimble, and fly in the evening.

Sp. 1. *tineoides*. *Fusca, capite antennis pedibusque pallidis, alis fuscis, anticis fasciis duabus punctoque apicali albis.* (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. $2\frac{1}{2}$ —3 lin.)

Hyd. *tineoides*. *Dalman.*—*Steph. Catal.* 317. No. 3579.

Fuscous: crown white, forehead and eyes black; antennæ pale, glossy, the apex dusky; thorax griseous, pilose; abdomen pale and shining; wings very pilose, anterior with two parallel, somewhat remote, pale or whitish transverse fasciæ, the basal one sometimes interrupted, with an obscure dot of the same hue between them, and a distinct one on the apex: legs pale.

Common, from the middle of June till towards the end of August, at Hertford.

Sp. 2. *brunneicornis*. *Nigra, fronte albâ, antennis flavo-brunneis apice nigro, alis canescentibus, anticorum marginibus albo nigroque punctatis.* (Long. corp. 1 lin.; Exp. Alar. $2\frac{1}{4}$ —3 lin.)

Hyd. *marginata*. *Steph. Catal.* 317. No. 3580.—Hyd. *brunneicornis*. *Pictet, p. 226. pl. xx. f. 12.*

Black: head with a white spot between the antennæ, the latter yellowish-brown, with the tip black; anterior wings grey-brown, edged with black and dotted, on the margins especially, with white, forming three faint bands of this colour; posterior wings pale fuscous, or grey.

Taken, occasionally, near London, in June.

Sp. 3. *sparsa*. *Fusco-nigra, fronte canescente, antennis pedibusque fulvis, alis anticis marginibus albo niveoque punctatis.* (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. 3 lin.)

Hyd. *sparsa*. *Phil. Mag. (Curtis) v. iv. p. 217.*—*Steph. Nomen.* 2d edit. Appendix.

“Fuscous black: antennæ and legs fulvous; head grey; anterior wings with a silvery white spot on the middle of the costa, another opposite, the margin between this and the base with an interrupted whitish line, and several minute dots of the same colour at the apex.”—*Curtis, l. c.*

Found in June, near Hertford.

Sp. 4. *Vectis*. *Fusca, fronte albida, alis anticis fasciâ mediâ angulatâ punctisque variis ochraceis, ventre pedibusque argenteo micantibus.* (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. $3\frac{1}{4}$ lin.)

Hyd. *Vectis*. *Phil. Mag. (Curtis) v. iv. p. 217.*—*Steph. Nomen.* 2d edit. col. 118.

“Fuscous: head whitish or ochreous; anterior wings with an ochreous spot near the base, an angulated band across the middle, a spot on the cilia at the stigma and seven round, and one at the apex; legs and belly dull silvery.”—*Curtis, l. c.*

Taken in June, in the south of England.

Sp. 5. *costalis*. *Pallide ochracea, nitida, alis anticis fusco variegatis, ciliis costalibus elongatis nigris area centrali pallida.* (Long. corp. 1—1½ lin.; Exp. Alar. 3 lin.)

Hyd. *costalis*. *Phil. Mag. (Curtis) v. p. 217.*—Hyd. *Scotica*. *Steph. Nomen. 2d edit. col. 118?*

“Pale ochreous, shining: anterior wings variegated, fuscous, with a dot on the disc, the costal cilia long and black, with a long pale space at the centre.”—*Curtis, l. c.*

Found, occasionally, in June, near London, and probably in Scotland.

GENUS III.—AGRAYLEA, *Curtis*.

“*Antennæ* not longer than the body, rather short and filiform: *head* rather broad: *abdomen* short: *wings* long, narrow and pubescent: anterior *legs* short, the others slender; four posterior *tibiæ* with long spurs at the apex, intermediate with one at the middle; hinder with a pair above the apex.”—*Curtis, l. c.*

I do not remember to have seen a specimen of this genus, which, from the above definition, appears to belong to this family, and to differ from the other genera by having only one spur in the middle of the intermediate *tibiæ*.

†Sp. 1. *sexmaculata*. *Ochracea, antennarum apice fusco, alis anticis fuscis, maculis sex albidis.* (Long. corp. — lin.; Exp. Alar. 4 lin.)

Agr. 6-maculata. *Phil. Mag. (Curtis) v. iv. p. 217.*—*Steph. Nomen. 2d edit. Appendix.*

“Ochreous: antennæ fuscous, except at the base; superior (anterior) wings pale fuscous, with two whitish spots on the costa, two towards the apex, and two oblong spots on the inferior (inner) margin of the same colour.”—*Curtis, l. c.*

I know not the locality of this species.

†Sp. 2. *multipunctata*. *Fusca, vertice griseo, facie, abdomine, pedibusque fulvis, alis anticis maculis plurimis ochraceis.* (Long. corp. — lin.; Exp. Alar. 4 lin.)

Agr. *multipunctata*. *Phil. Mag. (Curtis) v. iv. p. 217.*—*Steph. Nomen. 2d edit. Appendix.*

“Fuscous: crown of head griseous; superior (anterior) wings with a long ochreous spot beyond the stigma, with several small ones on the posterior margin and along the centre to the base, two oblong ones on the inferior

MANDIBULATA, VOL. VI., AUGUST 15TH, 1836.

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(inner) margin, and two at the base of the cilia; face, abdomen, and legs, fulvous."—*Curtis, l. c.*

Of this species I am also unaware of the locality.

GENUS IV.—NARYCIA *mihi*.

Antennæ with the basal joint pilose and much incrassated, the remainder furnished on each side with long hairs: maxillary *palpi* drooping, very pilose, rather short: *head* transverse-ovate, pilose in front: *eyes* moderate, lateral, scarcely prominent: *thorax* ovate: *wings* strongly deflexed during repose; anterior elongate-elliptic, obtusely rounded at the apex, which is furnished with short scaly cilia; nervures very indistinct; posterior smaller, somewhat ovate, furnished with longer cilia: *abdomen* shortish, stout, somewhat cylindric: *legs* stoutish, anterior tibiae with a single spur at the inner apex; intermediate with a pair, and posterior with a pair at the apex, and a second pair in the middle.

The distinctly pectinated filiform antennæ of the insects of this genus at once serve to distinguish them from the other Trichoptera, from which, like *Acentropus*, they also differ in having the wings clothed with scale-like hairs; but, unlike that genus, their legs are provided with ample spurs, and the sides of the thorax are not furnished with tippets.

Sp. 1. *elegans*. PLATE xxxii. f. 4.—*Brunneo-nigra, alis anticis nigris brunneo variegatis, punctisque flavis, margine tenuiore ochraceo maculato.* (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. 4 lin.)

Narycia elegans. *Steph. Nomen. 2d edit. col. 118.*

Shining brown-black: antennæ very pilose, silvery-grey, with the tips of the articulations black, radii fuscous; anterior wings black, varied with brown, and with numerous yellowish and ochreous dots, of a golden tint, especially on the margins, the inner one having two large blotches of that colour towards the middle; posterior wings fuscous, with darker cilia; legs silvery-grey, varied with brown-black.

Twice taken on palings at the Hermitage, South Lambeth, at the end of June.

FAMILY III.—RHYACOPHILIDÆ *mihi*.

Antennæ slender, moderate, rarely exceeding the length of the wings: maxillary *palpi* alike in the sexes and 5-jointed, slightly pilose, the two basal joints short, the 2nd being about as long as the 1st, the 3rd elongate, 4th and 5th somewhat shorter, this last being ovoid: *wings* narrow, elongate, slightly



ciliated on the hinder and inner margins; anterior with more or less furcate longitudinal nervures, but very rarely with transverse ones, or with a discoidal areolet; posterior rather shorter and smaller, slightly folded on the inner edge: *abdomen* moderate, of the males occasionally furnished with hairy appendages beneath, and in both sexes sometimes also at the apex: *legs* long and slender, *tibiæ* more or less armed with spurs.

Larva with or without external respiratory organs, not residing in a case; pupæ inclosed in a double envelope, the inner one scaly, the outer silken and mixed with small stones and other foreign materials: they reside in running waters.

The insects of this family are for the most part of small size, and are extremely difficult to discriminate from each other without careful attention to their structure, owing to the similarity of their colouring, and their paucity of markings: it is much to be regretted that M. Pictet, in his otherwise valuable work on these insects, has almost totally omitted to notice the peculiarities of neuration of the wings, or the numbers and positions of the spurs on the *tibiæ* of the respective species, especially of this family, which he seems to have mixed together most heterogeneously: they may generally be distinguished by having the two basal joints of the maxillary palpi very short, and the terminal one not longer than the preceding, and ovate.

The species may be thus divided into genera:—

Tibiis anticis 2-calcaratis:

<i>Alis</i> omnibus <i>areola</i> discoidali:	.	.	.	8. GLOSSOSOMA.
<i>anticis</i> solum <i>areola</i> discoidali:	.	.	.	9. TINODES.
omnibus <i>areola</i> discoidali nulla;				
<i>Antennis</i> art. basali maximo:	.	.	.	6. BERÆA.
parvo;				
<i>Alis</i> elongatis, angustis, obtusis:	.	.	.	7. ANTICYRA.
brevibus, rotundatis:	.	.	.	5. AGAPETUS.

Tibiis anticis 3-calcaratis: 10. RHYACOPHILA.

GENUS V.—AGAPETUS, *Curtis*.

Antennæ shorter than the wings, and not longer than the body, stout, especially at the base, and divaricating: *palpi* rather short, slightly pilose: *head* densely clothed with woolly hairs above: *eyes* globose, rather prominent: *wings* short, with dense elongate cilia on the hinder and inner margins, anterior rounded at the apex, with four single longitudinal nervures on the costal portion of the apex, and with three bifid ones on the anal portion: *abdomen* short, robust; of the male furnished with an incurved spine in the



middle beneath, and a smaller and similar process behind it; of the female simple and acute at the apex: *legs* rather short, anterior shortest; *tibiæ* all armed with a pair of spurs at the apex, the intermediate and posterior ones with a second pair below the middle, hinder *tibiæ* ciliated on the outer edge; apex of the middle pair and basal joint of the tarsi dilated in the females.

The insects of this genus are small; they have the anterior wings short, rounded, and rather broad in proportion to their length; the antennæ are very robust, especially at the base, and diverge from each other: the males are remarkable from having an incurved spine-like process beneath the middle of the abdomen, and the females have the base of the intermediate tarsi dilated.

Sp. 1. *funereus*. *Niger, obscurus, alis anticis fusco-brunneis, ciliis elongatis nigricantibus, pedibus fuscis*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Ph. *funerea*. *Olivier?*—*Steph. Catal.* 317. No. 3583.

Black, obscure: head slightly clothed with a brown-black pile; anterior wings dusky-brown, with a clothing of fine golden hairs, and with long dusky cilia; posterior wings fuscous, and slightly iridescent; legs fuscous.

Taken occasionally near London, and in Devonshire, in June.

Sp. 2. *fuscipes*. *Niger, supra tomentosus, alis anticis ochraceo-fuscis pilis pallidioribus, pedibus fuscis, ochraceo maculatis*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

N. G. (552) *fuliginosa*. *Steph. Catal.* 317. No. 3586.—Ag. *fuscipes*. *Phil. Mag. (Curtis)* v. iv. p. 217 ♂.—Rh. *lanata*. *Pictet*, 194. pl. xvi. f. 18.—Ag. *ochripes*. *Phil. Mag. (Curtis)* v. iv. p. 217 ♀.

Black, clothed above, especially on the head and thorax, with a shining griseous pile; anterior wings griseous, with ochreous hairs, the posterior iridescent, with the apex griseous, the nervures of all dusky; legs fuscous, with the trochanters, the knees, and the middle of the hinder tarsi ochreous. Female with the legs pale ochreous, and the basal joints of the intermediate tarsi dilated.

Found, not uncommonly, at Ripley, in June; also in Devonshire and in the New Forest.

Sp. 3. *laniger*. *Brunneus, tomentosus, subtus ochraceus, alis anticis griseo-ochraceis, pilis pallidioribus, pedibus ochraceis, anticis nigricantibus*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5-5\frac{1}{2}$ lin.)

N. G. (552). *opaca*. *Steph. Catal.* 317. No. 3584.—Rh. *lanigera*. *Pictet*, 195. pl. xvi. f. 19.

Brown: head densely clothed with a shining griseous pile; thorax the same



above, beneath ochreous; anterior wings bright tawny-griseous, clothed with hairs of a golden hue, especially at the base; cilia long and slightly ochreous-brown; posterior wings more transparent, somewhat fuscous and iridescent; legs ochreous; antennæ dusky.

Common in Walsam-meadows, near Ripley, in June; also at Hertford.

Sp. 4. *comatus*. *Niger, subtilis ochraceo-fulvus, tomentosus, alis anticis canescentibus pilis subochraceis, pedibus ochraceis*. (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

N. G. (552). *flavipes*. *Steph. Catal.* 317. No. 3588.—Rh. *comata*. *Pictet*, 194. pl. xvi. f. 17.

Above black: head and thorax densely clothed with a glossy griseous pile; beneath tawny-ochreous; anterior wings ochreous-brown, clothed with a brighter pile, and ciliated with long ochreous-brown hairs; legs pale ochreous.

Less abundant than the last: taken near Ripley in June.

Sp. 5. *setiferus*. *Capite corporeque brunneis, antennis ochraceis brunneo annulatis, alis griseo-cinereis sericeis, pedibus flavis*. (Long. corp. 2 lin.; Exp. Alar. 5 lin.)

Rhy. *setifera*. *Pictet*, 197. pl. xvi. f. 24.—Ag. *setiferus*. *Steph. Nomen*. 2d edit. *Appendix*.

Head and palpi brown: antennæ annulated with ochreous and brown; anterior wings griseous-ash, immaculate, ochreous at the base, with long silky griseous cilia; legs ochreous-yellow, with short spines, and dusky cilia on the femora and tibiæ.

Found, in June, at Hertford.

†Sp. 6. *azureus*. *Niger, antennis fuscis, alis anticis atris, nitidis, postice atro azureis, pedibus ochraceis*. (Long. corp. 2 lin.; Exp. Alar. 5 lin.)

Ph. *azurea*. *Linné*.—Turton (!)—Mystacide? *azurea*. *Steph. Catal.* 320. No. 3660.

Deep glossy black: antennæ short, thick and deep brown; anterior wings shining black, the hinder portion brilliant steel blue, with long black cilia; legs ochreous.

Introduced by Turton into the British list: I supposed that I possessed the insect when my Catalogue was published, seven years since, but my insect proves to be a species allied to *Mystacide niger*, and not the present, according to *Pictet's* detailed description, which appears to place it in this genus.



GENUS VI.—BERÆA *mih.*

Antennæ rather slender, shorter than the wings, porrected, the basal joint robust, elongate and hairy: maxillary *palpi* long, stout and hairy: *labial* short: *head* small, transverse, pilose in front: *thorax* ovate: *wings* short, with very indistinct nervures; anterior broadish, rounded at the apex; all very pubescent, and fringed with long hairs: *abdomen* short, obtuse: *legs* rather short: *tibiæ* all with a pair of longish spurs at the apex, the posterior pair with a smaller pair below the middle.

The little insects comprised in this genus differ from the rest of the family by having the *palpi* robust and hairy, the basal joint of the *antennæ* stout, directed forwards, and also very hairy, the *antennæ* themselves being rather slender, especially at the tip; the wings are rather broad, short and rounded at the apex, with very indistinct nervures, and very hairy; they are generally of very sombre dark hues, and the insects of small size: the genus corresponds with *Thya* of Curtis, but as that name was long since employed by Dr. Leach for a genus of Crustacea, I shall adopt the one given previously to Mr. Curtis's, in the second edition of my Nomenclature.

Sp. 1. *albipes*. *Atra*, *alis nigro-fuscis*, *anticis subiridescentibus*, *atomis aliquot albidis*, *pedibus fuscis*, *tarsis albidis*. (Long. corp. 2 lin.; Exp. Alar. 5½—6 lin.)

N. G. (552). *albipes*. *Steph. Catal.* 317. No. 3581.—*Beræa albipes*. *Steph. Nomen. 2d edit. col.* 118.—*Thya pullata*. *Phil. Mag. (Curtis)* v. iv. p. 216?

Deep black: wings brown-black, anterior faintly iridescent, with some obscure whitish atoms towards the apex; cilia long and black; legs fuscous; tarsi whitish-ochreous.

Found near London, and at Hertford, in June.

Sp. 2. *pygmæa*. *Atra*, *alis fuscis immaculatis*, *pedibus fuscis*, *genubus albidis*. (Long. corp. 2 lin.; Exp. Alar. 4½—5 lin.)

N. G. (552). *pygmæa*. *Steph. Catal.* 317. No. 3585.—*Be. pygmæa*. *Steph. Nomen. 2d edit. col.* 119.—*Rhy. Melas. Pictet*, p. 196. *pl. xvi. f.* 21?

Deep black: anterior wings fuscous-black, immaculate, cilia black; legs fuscous, with the knees whitish, or ochreous.

Taken near London, and in Devonshire, in June.

Sp. 3. *Marshamella*. *Atra*, *alis anticis angustioribus subochraceo-fuscis*, *immaculatis*, *pedibus fuscis*, *geniculis tarsisque subochraceis*. (Long. corp. 2 lin.; Exp. Alar. 5 lin.)



N. G. (552). Marshamella. *Steph. Catal.* 317. No. 3587.—Be. Marshamella. *Steph. Nomen.* 2d edit. col. 119.—Thya Maurus. *Phil. Mag.* (Curtis) v. iv. pl. 216.—Rhy. nigrocincta. *Pictet*, p. 197. pl. xvi. f. 23?

Deep black: wings fuscous-black, with a dull lutescent tint; anterior rather narrow; cilia fuscous; legs fuscous, with the knees and tarsi dull ochreous.

From Marsham's cabinet.

GENUS VII.—ANTICYRA, *Curtis*.

Antennæ stoutish, rather longer than the body, but shorter than the wings, the apex slender, basal joint small: maxillary *palpi* stout, nearly glabrous, depending, longish: *head* very hairy in front, small: *eyes* not prominent: *wings* long, nervures indistinct, anterior very narrow, obtusely rounded on the hinder margin, moderately pubescent, and fringed with shortish hairs: *abdomen* short, acute; of the male with two horny lobes at the apex: *legs*, especially the two hinder pair, rather long and slender: anterior *tibiæ* with a pair of short spurs at the apex, two posterior pair each with two long spurs at the tip, intermediate pair with two towards the base, and hinder pair with two below the middle: intermediate *tibiæ* and *tarsi* dilated in the females.

Unlike the insects of the foregoing genus, these are distinguished by having the wings, the anterior especially, very long and narrow, but with indistinct nervures; they are also very pilose, but the *palpi* and basal joint of the *antennæ* are but very slightly hairy, and the last is not conspicuously enlarged, as in *Beræa*; the legs are long, the two hinder pair armed with long spurs, and the intermediate *tibiæ* and *tarsi* are dilated in the females.

Sp. 1. *phæopa*. *Ochracea*, *capite thoraceque supra fuscis*, *alis anticis griseo-fuscescentibus*, *posticis iridescentibus*, *antennis brunneis ochraceo cinctis*, *tibiis tarsisque fuscescentibus*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Ti. *phæopa*. *Steph. Catal.* 316. No. 3575.—*Rhi. tomentosa*. *Pictet*, p. 189. pl. xvi. f. 9?

Pale ochreous: head and thorax above fuscous; *antennæ* brown, with ochreous rings; anterior wings dull pale fuscous, with shortish cilia; posterior pair paler, more transparent, slightly iridescent; legs long; *coxæ*, trochanters, and femora pale ochreous; *tibiæ* and *tarsi* pale fuscous.

Taken in June, at Ripley.

Sp. 2. *gracilipes*. *Pallide fusca*, *antennis pallidis nigro annulatis*, *alis anticis nitide ochraceis*, *pedibus fulvescentibus*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5-5\frac{1}{2}$ lin.)



Ti. lutescens. *Steph. Catal.* 316. No. 3573.—Ant. gracilipes. *Phil. Mag* (Curtis) v. iv. p. 217.

Pale fuscous: head griseous; eyes black; antennæ pale, with black or dusky rings; wings elongate-lanceolate, anterior ochreous and shining, with concolorous cilia; posterior more transparent, slightly iridescent, and pale ochreous; legs slender, dull pale fulvous.

Found at Hertford, in July.

Sp. 3. subochracea. *Pallide ochraceo-fusca, antennis fusco annulatis, alis angustis, anticis subochraceis, pedibus fulvescentibus.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ —6 lin.)

Ti. subochracea. *Steph. Catal.* 317. No. 3576.—Ant. latipes. *Phil. Mag.* (Curtis) v. iv. pl. 217. ♀ ?

Pale ochreous-brown: eyes black; antennæ pale ochreous, annulated with fuscous; wings narrow, anterior pale dull ochreous, with brighter cilia; posterior slightly transparent and fuscous; abdomen ochreous; legs pale fulvous.

Found at Ripley, towards the end of June.

Sp. 4. ciliaris. *Pallide ochracea, oculis abdomineque atro-fuscis, thorace rufo, pedibus antennisque pallidis, his fusco maculatis.* (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. $4\frac{3}{4}$ lin.)

Ti. ciliaris. *Steph. Catal.* 317. No. 3577.

Pale ochreous: head immaculate, rounded; eyes deep fuscous; thorax bright red and shining; wings narrow, anterior pale uniform, yellow-ochreous, with the costa slightly darker; cilia silky and paler; posterior rather darker, more transparent, with the cilia slightly fuscous; abdomen deep fuscous, or black; legs pale.

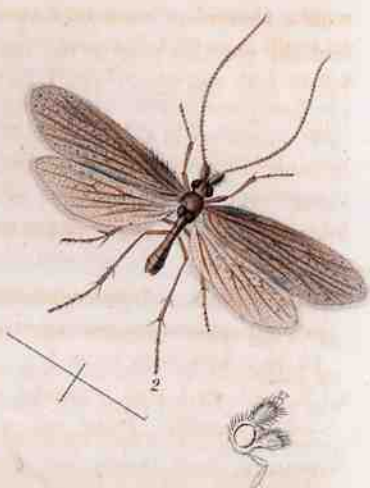
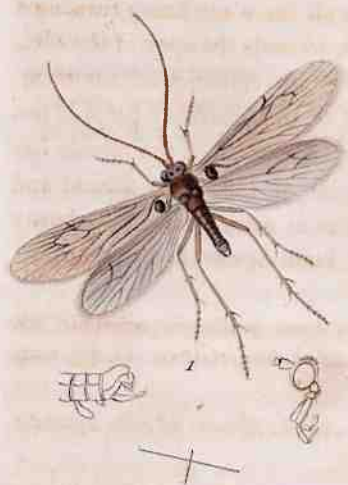
Taken in June, at Hertford.

GENUS VIII.—GLOSSOSOMA, *Curtis.*

Antennæ nearly as long as the wings, slender, the basal joint a little thickened; *palpi* alike in the sexes, maxillary with the terminal joint scarcely longer than the preceding one: *head* globose: *eyes* globose, lateral, prominent: *thorax* ovate: *wings* elongate-elliptic, each with a small somewhat lozenge-shaped areolet, placed beyond the middle of the disc; the anterior pair in the male with a raised callous glossy membrane at the base, concave beneath: *abdomen* attenuated to the apex, with a depressed horny appendage on the seventh segment beneath, and a smaller one on the following in the male, the terminal one appendiculated; of the female acute: *legs* dissimilar, anterior pair short, with two minute spurs at the apex of the tibiæ, their *femora* compressed and thickened, two hinder pair slender, elongated, the







I.O. Westwood. del.

C.E. Wagstaff. sc.

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intermediate tibiæ with a pair of shortish spurs in the middle, and a second pair at the apex, posterior also with a pair at the apex, and a second pair near the apex; of the female the intermediate tibiæ and basal joint of their tarsi are considerably dilated.

This genus may be known at once by all the wings being furnished with a somewhat lozenge-shaped areolet, towards the apex of the disc, and the anterior pair in the males having an elevated callous membrane near the base; the terminal joint of the maxillary palpi is not longer than the preceding, the legs are slender, but the female has the intermediate tibiæ and the basal joint of their tarsi dilated and compressed: the abdomen of the males is armed with two horny lobes beneath, as represented in the left hand figure (l. pl. xxxii.)

†Sp. 1. Boltoni. *Fusco-castanea, abdominis apice pedibusque ochraceis, alis pallide fusciscentibus, anticarum apice maculis obscure ochraceis.* (Long. corp. 4? lin.; Exp. Alar. 10 lin.)

Gl. Boltoni. *Phil. Mag. (Curtis) v. iv. p. 216.—Steph. Nomen. 2d edit. Appendix.*—Rhy. vernalis. *Pictet, 189. pl. xv. f. 4?*

“Antennæ, head, thorax, and abdomen fuscous-castaneous, the former annulated with, and the latter tipped with ochreous; wings pubescent, pale fuscous; superior (anterior) with the callous lump at the base in the male brown, clothed with black hairs; stigma and a spot opposite on the inferior margin fuscous, and each nervure terminated by a spot of the same colour on the margin alternating with ochreous spots, with an indistinct row behind them, and two or three near the disc of the same colour; inferior (posterior) wings grey and transparent at the base.”—*Curtis, l. c.*

The locality of this insect is not stated.

Sp. 2. fimbriata. PLATE xxxii. f. 1.—*Piceo-fusca, capite abdominis apice pedibusque ochraceis, alis pallide fusciscentibus immaculatis.* (Long. corp. 2½—3 lin.; Exp. Alar 5½—7 lin.)

Ti. fimbriata. *Steph. Catal. 316. No. 3563.—Ti. simplex. Steph. Catal. 316. No. 3564 ♀.*

Head ochreous, eyes and palpi fuscous; thorax and abdomen pitchy-brown or dusky-chestnut, the apex of the latter ochreous; wings pubescent, uniform pale fuscous, and wholly destitute of spots; stigma and nervures a little darker, anterior with the callous spot at the base fuscous, darker towards the disc; posterior wings rather paler and more transparent; legs and antennæ ochreous, the latter annulated with pale fuscous.

Found, but rarely, near London; also taken in Scotland by the late Dr. Walker.

MANDIBULATA, VOL. VI., AUGUST 15TH, 1836.

x



GENUS V.—TINODES, *Leach MSS.*

Antennæ somewhat remote, shorter than the wings, slender, the basal joint slightly thickened: *palpi* similar in the sexes, maxillary long, a little pubescent, with the terminal joint considerably longer, and more slender, than the preceding one: *head* transverse: *eyes* globose, lateral: *thorax* slender: *wings* narrow; anterior elongate-elliptic, with two small discoidal areolets, and four furcate nervures on the posterior margin, and in the males with a depressed, shining, membranous spot at the base: *abdomen* short, obtuse in the male, horny and acute at the tip in the female: *legs* slender; anterior *tibiæ* with two very short spurs at the apex; intermediate with a pair of long ones towards the base, and another at the tip; hinder ones with a pair near the apex, and a second pair at the apex itself; intermediate *tibiæ* and *tarsi* rarely dilated in the females.

This genus closely resembles the foregoing, but the posterior wings are destitute of a discoidal areolet, and the anterior pair have, in addition to the lozenge-shaped one, towards the apex of the disc, an elongate-pentagonal one between it and the anal angle; they are likewise furnished with a rounded membranous spot towards the base, which is not, however, raised as in *Glossosoma*: the legs are slender in both sexes, and the abdomen of the male is not armed with horny appendages beneath; the basal joint of the antennæ is rather small, the terminal joint of the palpi considerably longer than the preceding, &c.

A. *Anterior wings* with the nervures distinct, discoidal areolet closed; (intermediate *tibiæ* and *tarsi* not dilated in the females).

Sp. 1. *pallescens*. *Pallide ochraceo-fulvus, abdomine saturatiore apice pallido, pedibus ochraceis, alis anticis ochraceo-flavis, nervis pallidis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 6—7 lin.)

Ti. *pallescens*. *Steph. Catal.* 316. No. 3565.

Pale tawny-ochreous: eyes fuscous; head clothed with a griseous down; antennæ pale, faintly annulated with dull ochreous; abdomen brown on the back at the base, the apex pale; legs pale ochreous; wings iridescent, pale ochreous yellow, very sparingly clothed with short golden hairs; cilia pale ochreous yellow; nervures of all pale.

Found, occasionally, near London, in June.

Sp. 2. *flaviceps*. *Ochraceus, thorace abdomineque supra schistaceis, antennis brunneis, pedibus capiteque ochraceo-flavis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 7—8 lin.)

Ti. *flaviceps*. *Steph. Catal.* 316. No. 3566.



Ochreous: head yellowish-ochre; eyes black; antennæ brown; thorax and abdomen above slate-colour, the apex of the latter ochreous; wings somewhat transparent, slightly iridescent, pale fuscous, sparingly clothed with short golden hairs; nervures brownish-ochre, hinder pair more transparent, and of a darker hue; legs ochreous-yellow.

Also taken in June, near London.

Sp. 3. *xanthoceras*. *Fuscus, antennis pedibusque flavo-ochraceis, alis hyalinis, iridescentibus, ochraceo-fuscis, nervis saturatioribus*. (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. 8 lin.)

Ti. *xanthoceras*. *Steph. Catal.* 316. No. 3567.

Head, eyes, thorax, and abdomen fuscous, the latter darkest and pale at the apex; antennæ bright ochreous yellow; wings hyaline, iridescent, especially the posterior, all pale ochreous-brown, with darker nervures, the costal one darkest, and very sparingly clothed with short gold-coloured hairs; legs ochreous-yellow.

Inhabits the vicinity of London, in June and July.

Sp. 4. *luridus*. *Fusco-ochraceus, antennis capite thorace supra abdomineque saturate brunneis, alis (posticis præsertim) iridescentibus venis fuscis, pedibus ochraceo-fulvis*. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $8\frac{1}{2}$ — $9\frac{1}{4}$ lin.)

Ti. *picicornis*. *Steph. Catal.* 316. No. 3568.—Ti. *luridus*. *Phil. Mag. (Curtis)* v. iv. p. 216.

Ochreous-brown: antennæ, head, thorax above, and abdomen, deep reddish-brown; wings long and rather narrow, anterior slightly hyaline and iridescent, somewhat fuscous, with darker nervures; posterior more hyaline and iridescent, with fuscous nervures; legs tawny-ochre.

Common, in June, at Hertford; also in other places within the metropolitan district.

Sp. 5. *pallipes*. *Ochraceo-brunneus, palpis oculisque nigris, alis latioribus anticis ochraceo-fuscis, aureo pilosis, nervis fuscescentibus, posticis iridescentibus, pedibus flavis*. (Long. corp. 3 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Ti. *pallipes*. *Steph. Catal.* 316. No. 3572.

Ochreous-brown: palpi and eyes black; apex of abdomen ochreous; wings rather short and broad, hyaline; anterior ochreous-brown, with fuscescent nervures, densely clothed with golden hairs, transparent, with a conspicuous dot towards the base within; posterior more transparent, iridescent, with fuscous nervures; legs ochreous-yellow.

Found in the vicinity of London, in June.

Sp. 6. *annulicornis*. *Ochraceus, palpis oculis thoracis dorso, abdominisque basi*

supra fuscescentibus, pedibus ochraceo-flavis, antennis brunneis ochraceo annulatis. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

Ti. *annulicornis.* *Steph. Catal.* 316. No. 3569.

Ochreous: palpi and eyes brownish; antennæ brown, with narrow whitish rings; thorax above and upper base of the abdomen fuscescent, the tip of the latter shining ochreous; wings nearly glabrous, iridescent, pale brownish, with scattered golden hairs, and fuscescent nervures; posterior more transparent and iridescent; legs ochreous-yellow.

Taken, but apparently not very common, near London, in June.

Sp. 7. *albipunctatus.* *Pallide ochraceus, capite, thorace abdomineque supra fuscis, pedibus pallide flavis, alis subochraceo-fuscis, anticis ad marginem posteriorem nebulis saturatioribus punctisque albidis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Ti. *albipunctatus.* *Steph. Catal.* 316. No. 3570.

Pale ochreous: head, thorax, and abdomen above fuscous, or slate colour; eyes fuscous; antennæ ochreous; wings of an ochreous-brown, slightly hyaline and iridescent, anterior of a brighter hue, clothed with short golden hairs, which form by their union a darkish stigma and minute spots on the hinder margin at the apex of the nervures, each space between the nervures with a minute whitish spot on the cilia; posterior immaculate; legs and antennæ pale ochreous-yellow; intermediate tibiæ at the apex and base of the tarsi dilated in the female.

Apparently rare: found, in June, near London.

B. *Anterior wings* with the nervures indistinct, discoidal areolet open behind; (intermediate tibiæ and tarsi dilated in the females).

Sp. 8. *obscurus.* *Ochraceo-flavus, oculis abdomineque supra subfuscis, alis subhyalinis, anticis fuscescente-ochraceis, immaculatis, antennis pedibusque ochraceo-flavis.* (Long. corp. $2\frac{3}{4}$ lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Ti. *obscurus.* *Steph. Catal.* 316. No. 3574.

Ochreous-yellow: eyes and abdomen above fuscescent; wings somewhat hyaline, slightly iridescent, anterior of a brownish-ochre, with darker nervures, immaculate, and sparingly clothed with golden hairs; posterior more transparent and iridescent; cilia of all fuscous; legs and antennæ pale ochreous-yellow.

Also rather uncommon: found in June, near London.

Sp. 9. *pusillus.* *Brunneo-fuscus, abdomine nigricante, alis fusco-testaceis, antennis ochraceo fuscoque annulatis, pedibus ochraceo-flavis.* (Long. corp. 2 lin.; Exp. Alar. 7 lin.)

Ph. *pusillus.* *Fabricius?*—*Steph. Catal.* 317. No. 3582.

Fuscous-brown: eyes and abdomen blackish; wings rather narrow, brownish-



testaceous, densely clothed with golden hairs, immaculate; cilia slightly fuscous, posterior somewhat more transparent and slightly iridescent; legs ochreous-yellow; antennæ ochreous, annulated with fuscous.

Taken within the metropolitan district, in June.

GENUS X.—RHYACOPHILA, *Pictet*.

Antennæ rather slender, not so long as the wings, placed somewhat remotely, the basal joint stoutish: maxillary *palpi* rather long, slender, nearly glabrous, a little porrected obliquely: *head* smallish, and rounded, hairy in front: *eyes* rather prominent, lateral: *wings* long, and somewhat elliptic-acute; anterior with three elongate discoidal areolets, from the first of which arise four sub-simple nervures, running parallel with the stigma, then follow two bifid ones, and on the anal angle are two simple ones, which arise from the apex of the inner areolet; posterior wings shorter, small, also with three elongate-discoidal areolets, and with one of the nervures very distinctly furcate near the margin: *abdomen* longish, compressed, attenuated to the apex; of the males furnished with long horny appendages, the two intermediate being laminated and bifid, the two others spiniform, the larvæ are bifurcate: *legs* rather slender; anterior pair shortest: *tibiæ* all armed with a pair of long spurs at the apex, the anterior with one also below the middle, the intermediate and hinder pair each with a pair near the apex. Larva with external respiratory organs, the segments somewhat remote, rounded on the sides, the terminal one with a bifid appendage at each side.

The three-spined anterior *tibiæ* of the insects of this genus, form a conspicuous mark of distinction from those of the other genera of this family, and their *palpi* remove them from the Hydropsychidæ, in which family several genera are characterized by having a spur on the side of the anterior *tibiæ*: the larvæ of the Rhyacophilidæ have their respiratory organs external.

A. *Body* slender: (intermediate *tibiæ* and *tarsi* of the females not dilated).

Sp. 1. *vulgaris*. *Fusco-ochracea, alis hyalinis, anticis fusco subpunctatis, maculæ dorsali communi rhomboidali pallide-flavescente*. (Long. corp. 5—6 lin.; Exp. Alar. 1 unc. 12—13 lin.)

Phi. *obsoletus*. *Steph. Catal.* 318. No. 3604.—Rh. *vulgaris*. *Pictet*, p. 182. *pl. xv. f. 1*.—Phi. *dorsalis*. *Phil. Mag. (Curtis)* v. iv. p. 213?

Head, antennæ, and body ochreous-brown, spotless; eyes black; anterior wings hyaline, pale dull ochreous-brown, with minute darker punctures in the direction of the nervures, especially towards the inner and hinder margins, and an irregular, somewhat triangular, spot in the middle of the inner edge, forming, with the opposite wing, when closed, a rhomboid spot; the posterior wings are more transparent, faintly iridescent, and spotless; legs pale ochreous.



Larva with the head narrow, yellow, with three black spots; collar yellow; meso- and meta- thorax and abdomen purplish, varied with greenish; respiratory organs purple; legs ochreous: it inhabits rivulets.

Found, occasionally, in the vicinity of the metropolis, in June and July, but more abundantly in Devonshire; taken also in the New Forest and in Scotland.

Sp. 2. Stigma. *Pallide ochracea, alis fusciscentibus atomis flavescens, stigmate elongato, fusco, antennis pedibusque fulvescentibus.* (Long. corp. 5—6 lin.; Exp. Alar. 12—15 lin.)

Phi. Stigma. *Steph. Catal.* 318. No. 3603.—Phi. longipennis. *Phil. Mag.* (Curtis) v. iv. p. 213?

Pale ochreous: eyes fuscous; back of the abdomen sometimes fuscous; legs and antennæ rather pale fulvous, the latter with darker rings; anterior wings fuscous, with numerous indistinct minute yellowish atoms, and a whitish dot in the middle; posterior wings more transparent, of an uniform colour, all with an elongate tawny-fuscous stigma, sometimes dotted with ochreous.

Found near London, and in Devonshire, in July.

Sp. 3. opaca. *Subfuscescente-ochracea, alis fusciscentibus ochraceo indistincte irroratis, nebulisque albidis, antennis crassis brevibusque, his pedibusque fulvescentibus.* (Long. corp. 5 lin.; Exp. Alar. 11½ lin.)

Phi. opacus. *Steph. Catal.* 318. No. 3605.

Brownish-ochreous, with the under parts and the apex of the abdomen palest; eyes fuscous; antennæ rather short and thick, fulvous; anterior wings fuscous, very indistinctly irrorated with ochreous, and with some obscure whitish clouds on the inner margin; stigma obscure; posterior wings hyaline, immaculate-fuscous; legs pale tawny.

Taken, in June, within the metropolitan district.

B. Body broad: (intermediate tibiæ and tarsi of the females dilated.)

Sp. 4. nebulosa. *Ochraceo-fusca, abdomine ochraceo-cingulato, pedibus fulvescentibus, coxis fusciscentibus, alis subfusco nebulosis anticis apice subtruncato.* (Long. corp. 6 lin.; Exp. Alar. 13½ lin.)

Phi. nebulosus. *Steph. Catal.* 318. No. 3606.

Very broad, ochreous-brown: palpi and eyes fuscous; margins of the abdominal segments both above and below broadly ochreous; legs pale tawny, with the coxæ fuscous; anterior wings obliquely truncate at the apex, the disc obscurely clouded with fuscous, the hinder margin with a brownish dot at the tip of each nervure; intermediate tibiæ and tarsi dilated in the females.

Found at Hertford, in the autumn.



FAMILY IV.—HYDROPSYCHIDÆ, *Curtis*.

Antennæ in general very slender, sometimes very much attenuated and elongate, at others stouter and not so long as the wings: maxillary *palpi* similar in the sexes, 5-jointed, the terminal joint very long and filiform, frequently longer than the four others united, the basal joint mostly short, the two next of nearly equal length, and the fourth rather longer: *wings* moderately broad, the anterior with very few, or no, transverse nervures, the hinder margin either rounded or somewhat obliquely truncate; posterior wings ample, more or less folded towards the inner edge: *abdomen* longish and rather stout, of the males with small horny lamellæ at the apex, of the females obtuse: *legs* moderate: *tibiæ* with a pair of spurs at the apex, the anterior sometimes with a single additional one in the middle, the intermediate and posterior with a pair at or below the middle.

Larva, as in the preceding family, with or without external respiratory organs, not residing in a case; pupa inclosed in a single silken envelope, constructed of silk, with bits of plants and small stones intermixed, or merely a simple cocoon.

The insects of this family differ from those of the foregoing by having the terminal joint of the palpi remarkably long and slender, and apparently divided into numerous rings or rudimentary joints; they are of dull hue in general, and many of them are so extremely similar to each other that the utmost caution is requisite to separate them: the respective genera, however, differ much in habit from each other.

This family may be thus divided into genera:—

Tibiis anticis 3-calcaratis;

- | | | | |
|--|---|---|--------------------|
| <i>Alis anticis nervis transversalibus diversis;</i> | . | . | 14. CYRNUS. |
| <i>paucis;</i> | | | |
| <i>Antennis alis longioribus;</i> | . | . | 11. PLECTROCNEMIA. |
| <i>haud longioribus;</i> | . | . | 15. POLYCENTROPUS. |

Tibiis anticis 2-calcaratis;

- | | | | |
|--|---|---|-------------------|
| <i>Antennis gracilis alis longioribus;</i> | | | |
| <i>Alis posticis parvis, vix plicatis;</i> | . | . | 12. PHILOPOTAMUS. |
| <i>amplicibus, valde plicatis;</i> | | . | 13. HYDROPSYCHE. |
| <i>brevibus alis brevioribus;</i> | . | . | 16. APHELOCHEIRA. |



GENUS XI.—PLECTROCNEMIA* *mihi*.

Antennæ rather slender, about as long as the wings, slightly pubescent, the basal joint largest, but not conspicuously robust: maxillary *palpi* rather slender, with the terminal joint considerably longer than the others united: *head* broadish, clothed with long hairs on the crown: *eyes* rather prominent: *thorax* stoutish: *wings* much deflexed during repose; anterior elongate-elliptic, with all the nervures bifurcate on the hinder margin, and the subcostal one united to the costal by a transverse nervure at the base of the stigma, forming one long discoidal areolet; posterior wings ovate-triangular, with about five bifurcate nervures on the central portion of the hinder margin: *abdomen* shortish, terminated by two lateral, angulated, horny appendages in the males: *legs* rather slender, anterior shortest and stoutest, their tibiæ armed with a pair of longish spurs at the apex, and a single one in the middle of the inner edge; intermediate tibiæ with a pair of long slender ones at the apex, and a second pair below the middle; hinder ones with a pair at the apex, and another pair above the middle.

From the two following genera this may be known by the anterior tibiæ being furnished with a strong spur in the middle, in addition to the pair at the apex, as in *Cyrnus* and *Polycentropus*, but from those genera the different neuration of the wings, as well as the general habit, remove it: the antennæ are longer than in the last genus, and rather stouter.

Sp. 1. *senex*. *Fuseescente-brunnea, fronte thoraceque pilis argenteo-albidis vestitis, antennis fulvis albo annulatis, alis anticis canescentibus, albido nigroque variegatis costâ nigro-punctatâ.* (Long. corp. 5—6 lin.; Alar. 12—13 lin.)

N. G. (554). *nigripunctatus*. *Steph. Catal.* 317. No. 3591.—Phil. conspersus. *Phil. Mag.* (Curtis) v. iv. p. 213?—Hyd. *senex*. *Pictet*, 219. pl. xix. f. 1.

Head and thorax pale fuscous, the former with a band of silvery-white hairs round the eyes, and a tuft of the same on the forehead, and the latter with white hairs above; the under side, palpi, and legs, are pale tawny; antennæ tawny, with white rings; anterior wings ashy, or hoary, with numerous irregular whitish blotches and black spots, placed somewhat regularly on the margins, but irregularly on the disc, and the hinder margin with some indistinct yellowish and dusky spots, and near the base, towards the inner margin, is a tuft of brown hairs; posterior wings pale ashy, and immaculate.

* Πληκτρος calcar, κνημη tibia.



Larva with the head fulvescent, dotted with black, the central spots disposed in a circle, the rest of the body fleshy-yellow.

Apparently rare near London, but not uncommon in Devonshire, in July.

GENUS XII.—PHILOPOTAMUS, *Leach MSS.*

Antennæ nearly as long as the wings, slender, with a tuft of hair at the base: maxillary palpi very long, the terminal joint considerably longer than the others united, and attenuated to the tip: *head* moderate: *eyes* large, subglobose: *thorax* stout: *wings* elongate-elliptic; anterior with four indistinct transverse nervures, placed nearly in a line with the stigma, and another situated obliquely about the middle of the costa; posterior small, very slightly folded: *abdomen* shortish, broad, depressed, acute at the apex, which is furnished with horny appendages in the males: *legs* moderately long: anterior tibiæ armed with a pair of longish spurs at the tip, intermediate and posterior each with a long pair at the tip, the former with a second pair above the middle, and the latter with a pair below the middle: *tarsi* moderate, middle pair not dilated in the females.

The pretty insects contained in this genus differ from the following in having a distinct transverse nervure, placed rather obliquely, about the middle of the costa, the other transverse nervures are situated in nearly a straight line, somewhat parallel with the hinder margin, and arising from the stigma; the anterior wings are rather acutely-elliptic, very prettily maculated with yellow or tawny, on a brown ground; the posterior ones are small and but little folded; the anterior tibiæ are destitute of a medial spur.

Sp. 1. *Scopulorum*. *Niger, pedibus antennisque fulvis, his brunneo annulatis, alis anticis brunneis luteo-maculatis, posticis fusciscentibus brunneo-maculatis.*
(Long. corp. 4—5½ lin.; Exp. Alar. 9—15 lin.)

Phi. Scopulorum. Leach MSS.—Steph. Catal. 317. No. 3599.

Black: palpi and antennæ tawny, the latter annulated with brown; forehead with a dense griseous pile; anterior wings brown, irregularly spotted with round pale luteous spots of various sizes, largest on the costa; posterior wings fusciscent, with obscure luteous and brownish spots on the margins; legs pale tawny.

Extensively distributed throughout the mountainous districts of England, Scotland, and Ireland; found but rarely in the lower parts of the country: it occurs in June.

Sp. 2. *variegatus*. *Niger, antennis pedibusque fulvescentibus, alis anticis*
MANDIBULATA, VOL. VI., SEPT. 30TH, 1836. Y



brunneis maculis numerosis, rotundatis, luteis, posticis griseis. (Long. corp. 5 lin. ; Exp. Alar. 1 unc. 2—4 lin.)

Phr. variegata. *Fabricius*.—Phi. variegatus. *Steph. Catal.* 318. No. 3601.

Black: antennæ and palpi pale tawny; anterior wings deep brown, with numerous distinct, rounded, bright luteous spots, the largest of which are on the margins; posterior wings plain griseous; legs pale tawny.

Taken, but not very commonly, in Devonshire, in June.

Sp. 3. *montanus*. *Niger, antennis brunneis, pedibus fulvis, alis fuscescente-brunneis, luteo obscure maculatis.* (Long. corp. 3—4 lin. ; Exp. Alar. 9—11 lin.)

Phr. montana. *Donovan, v. xvi. pl. 548. f. 1.*—Phi. montanus. *Steph. Catal.* p. 318. No. 3609.

Black: palpi and antennæ brown; legs tawny; anterior wings dusky-brown, with numerous indistinct rounded luteous spots; posterior wings darker, more transparent, and with a few dusky spots on the margin, at the extremities of the nervures.

Found in Devonshire, and in South Wales and Ireland, in July.

GENUS XIII.—HYDROPSYCHE, *Pictet*.

Antennæ very slender, generally longer than the wings, and sometimes a little serrated within, the basal joint rather stout: maxillary *palpi* above as long again as the labial, the terminal joint very much elongate and slightly attenuated, irregularly wrinkled transversely, as is also the apical joint of the labial: *head* pilose: *eyes* small: *thorax* subovate: *wings* rather ample, anterior elongate, narrow at the base, the apex obliquely truncate,

†Sp. 4. *reticulatus*. *Niger, alis subferrugineis atro reticulatis maculatisque.* (Exp. Alar. 15 lin.?)

Phr. reticulata. *Linneé*.—*Turton (!)*—Phi. reticulatus. *Steph. Catal.* 318. No. 3602, *note*.

Black: wings pale ferruginous, anterior transversely reticulated with black, with some spots of the same on the hinder margin and on the disc; posterior with a waved black fascia, and a marginal row of somewhat confluent black spots.

I have never seen this insect: from the Linnean definition, it hardly belongs to this genus, but I know not where else to locate it: from Panzer's figure it seems allied to the foregoing insects, and probably the Linnean term, "*venis atro reticulatis*," merely refers to the appearance of reticulation arising from the colouring.

Turton gives this as indigenous, but I believe improperly.



or rounded; transverse nervures few in number, irregularly dispersed, the middle of the costa without one: posterior wings ovate, with a trifid nervure in the centre; *legs* moderately stout: anterior *tibiæ* with a pair of spurs at the apex, intermediate and posterior with a pair of long ones at the tip, the former with a second pair above the middle, and the latter with a pair much below the middle: intermediate *tibiæ* and their *tarsi* dilated in the females. Larva furnished with external respiratory organs.

These insects differ from those of the preceding genera by having the antennæ usually considerably longer than the wings and very slender; the wings are of different shape, being somewhat truncate at the apex, and they are generally destitute of a transverse nerve towards the middle of the costa; the proportions of the joints of the palpi are slightly different; their colours are of sombre hue, the wings not being prettily maculated with yellowish on a brown ground, as in *Philopotamus*, and the posterior pair have a trifid central nervure.

Sp. 1. *atomaria*? *Brunnea*, *infra ochracea*, *cano pilosa*, *alis canescentibus*, *anticis ochraceo nigroque maculatis*, *pedibus flavescentibus*. (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 9—11 lin.)

Phr. *maculata*. *Donovan*, v. xvi. pl. 548. f. 2.—*Phi. maculatus*. *Steph. Catal.* 318. No. 3600.—*Phi. instabilis*. *Phil. Mag.* (*Curtis*) v. iv. p. 213.—*Hyd. atomaria*. *Pictet*, p. 201. pl. xvii. f. 1?

Head and thorax brown, clothed above with greyish hairs, the sides and under surface of the latter ochreous; abdomen brown above, ochreous beneath and at the apex; wings pale grey, the anterior with a few more or less indistinct blackish dots and ochreous spots, the former predominating on the costa, and the latter on the inner margin, where are two rather larger brownish blotches, separated by two ochreous ones; on the hinder margin are also some conspicuous ochreous spots; legs and antennæ pale tawny, the latter annulated with brown; palpi brown.

Var. β . *Phi. obliquus*. *Steph. Catal.* 318. No. 3610.—Wings more distinctly spotted, the spots disposed in two somewhat oblique streaks.

Larva with the head brown, with four azure spots, the three following segments brown, the abdomen greyish-green, its last segment and legs yellowish.

Found, occasionally, near London, in June and July, but more abundantly in Devonshire and Scotland.

Sp. 2. *tenuicornis*. *Capite*, *thorace abdomineque nigricantibus*, *antennis gracilibus*, *ochraceis*, *alis anticis canescentibus*, *ochraceo nigroque punctatis*, *posticis fuscescentibus*, *pedibus ochraceo-fulvis*, (Long. corp. 4 lin.; Exp. Alar. 10—11 lin.)

Phi. antennatus. *Steph. Catal.* 318. No. 3612.—*Hyd. tenuicornis.* *Pictet*, p. 203. *pl.* xvii. f. 2.

Head, thorax, and abdomen dusky, or blackish, clothed with a greyish pile; antennæ very long and slender, pale ochreous; anterior wings hoary-brown, minutely sprinkled with ochreous and black dots, the latter condensed into black spots on the inner margin; posterior wings dusky-brown, immaculate; legs tawny-ochreous, tibiæ palest.

Larva with the head and three anterior segments blackish, the former with three orange spots; the remaining segments, except the last, which, and its appendages, are ochreous, greyish-green; respiratory organs orange; legs yellowish.

Not common: found, occasionally, in July, near London.

Sp. 3. guttata. *Capite, thorace abdomineque nigris, griseo pilosis, alis anticis canescentibus ochraceo nigroque distincte maculatis, posticis albidis, pedibus fulvis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 9—10 lin.)

Phi. bimaculata. *Steph. Catal.* 318. No. 3611.—*Hyd. guttata.* *Pictet*, p. 203. *pl.* xvii. f. 3.

Head, thorax, and abdomen black, clothed with a greyish pile; antennæ moderately long, pale tawny; anterior wings hoary, distinctly spotted with ochreous and black, the latter predominating towards the inner margin; posterior wings whitish hyaline; legs tawny; claws black.

Larva with the head brown, its sides and round the eyes yellowish, the crown with a black T; the three following segments grey, yellowish on the sides, and edged with black; abdomen greenish, its apex and respiratory organs whitish; legs yellow.

Also uncommon: taken, in June, near London.

Sp. 4. pellucidula. *Capite palpis thoraceque nigricantibus, abdomine brunneo, antennis ochraceis, fusco punctatis, alis semihyalinis, anticis indistinctè ochraceo fuscoque irroratis, marginibus internis et posticis ochraceo maculatis.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. 13—15½ lin.)

Phi. dorsalis. *Steph. Catal.* 318. No. 3614.—*Phi. pellucidulus.* *Phil. Mag. (Curtis)* v. iv. p. 213.—*Hyd. læta.* *Pictet*, 204. *pl.* xvii. f. 4.

Palpi dusky; head and thorax blackish above, clothed with very short greyish hairs; abdomen brown; wings semitransparent, anterior very obscurely irrorated with pale fuscous and ochreous, this last colour condensed into roundish spots at the apex of the costa and on the hinder margin, and into elongate ones on the inner margin, forming, when the wings are closed, conspicuous dorsal marks; posterior wings paler and more transparent; legs pale ochreous; antennæ very long and slender, ochreous, with dusky spots.

Larva robust; head ochreous, with a blackish spot in form of a cross; thoracic



segments pale brown, the two last each with an oblique black streak on the anterior angle, all edged with black; abdomen ochreous; respiratory organs whitish; legs yellow.

Found, near London, in June and July, and rather abundantly in Devonshire, and in Scotland and Ireland.

Sp. 5. *hibernica*. *Ochracea, capite, thorace, abdomineque fuscis, alis hyalinis nervis ochraceis, anticis posticè obscure fusco punctatis.* (Long. corp. 4—5 lin.; Exp. Alar. 11½—12½ lin.)

Phi. ochroleucus. *Steph. Catal.* 318. No. 3613.—Hyd. *hibernica*. *Curtis, folio* 601.

Ochreous: head, thorax, and abdomen fuscous, the former clothed with bright greyish hairs; wings semitransparent, with ochreous nervures, anterior indistinctly spotted towards the base, and more distinctly on the tip of the costa and on the hinder margin with ochreous and pale fuscous; antennæ shortish, pale ochreous, with slender oblique brownish rings at the base; legs pale ochreous.

I obtained a pair of this species from the Marshamian collection: the locality unknown. "Roundstone in Connemara."—*Curtis, l. c.*

Sp. 6. *lanceolata*. *Capite thorace abdomineque nigricantibus, alis fuscis, anticis subfalcatis, obscure irroratis, margine postico fusco punctato.* (Long. corp. 3½—4 lin.; Exp. Alar. 12—13 lin.)

Phi. *marginepunctatus*. *Steph. Catal.* 318. No. 3615.—Hyd. *lanceolata*. *Phil. Mag. (Curtis) v. iv. p.* 213.

Head, thorax, and abdomen blackish, clothed with pale greyish hairs; wings fuscous, anterior slightly falcate, clothed with shining ochreous pubescence, somewhat freckled, and the hinder margin spotted with fuscous; legs pale tawny ochreous; antennæ moderately long.

Found, occasionally, near London, in July, and in the north of England, rather commonly.

Sp. 7. *angustipennis*. *Capite thorace abdomineque nigricantibus, alis fuscis, anticis ochraceo tinctis stigmatè brunneo, maculisque ochraceis, antennis subserratis.* (Long. corp. 3½—4½ lin.; Exp. Alar. 10—13 lin.)

Phi. *affinis*. *Steph. Catal.* 318. No. 3608.—Hyd. *angustipennis*. *Phil. Mag. (Curtis) v. iv. p.* 213.

Head, thorax, and abdomen blackish, the latter paler beneath; wings fuscous; anterior tinged with ochreous, with a brown stigma, an oblong ochreous spot before and a round one at the hinder angle, most distinct in the males; legs ochreous, the base dusky or fuscous; antennæ slender, ochreous, obscurely serrated within, and faintly annulated with brown.

Found, occasionally, near London, in July; also in Norfolk and in Scotland.



Sp. 8. *fulvipes*. *Niger, abdominis segmentorum marginibus pallidis, tibiis tarsisque pallide fulvis, alis anticis brunneis, obscure ochraceo nebulosis.* (Long. corp. 5—6 lin.; Exp. Alar. 13—14 lin.)

Phi. obscurus. *Steph. Catal.* 318. No. 3607.—Hyd. *fulvipes*. *Curtis, v. xiii. pl.* 601.

Brown-black: head and neck clothed with griseous hairs; margins of the abdominal segments pale or ochreous; wings pale tawny-brown, obscurely freckled with ochreous, nervures dark, with a small dot on the costa at the apex of the first furcate one; posterior wings paler, not freckled, and slightly iridescent; legs tawny, femora and sometimes the tibiæ dusky; antennæ tawny, annulated with brown.

Not common: taken in July near London; also at Carlisle, and in Devonshire and in Dorsetshire.

Sp. 9. *angustata*. *Fusco-griseus, abdomine nigricante subtus virescente, alis subhyalinis, anticis ochraceis, holosericeis, iridescentibus, nebulis 2-bus sub-ochraceis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ —7 lin.)

Hyd. *angustata*. *Curtis, fol.* 601.—Hyd. *angustata*. *Steph. Nomen. 2d edit. Appendix.*

“Antennæ shorter than the wings, annulated; head and thorax griseous; abdomen slate-colour, beneath silky-green or whitish; wings subdiaphanous, fuscous; superior (anterior) ochreous, with silky yellowish pubescence, and slightly iridescent, a large obscure ochreous spot on the costa towards the apex, and another on the interior margin beyond the middle.”—*Curtis, l. c.*

This insect appears to unite the present genus with *Cyrnus*, but the anterior tibiæ are not spurred in the middle: it differs considerably in habit from *Hydropsyche*.

I possess a pair of these insects, which answer to the above definition of Mr. Curtis: they were found in July in the garden at the Hermitage: it occurs, according to Mr. Curtis, in Loch Derg.

GENUS XIV.—CYRNUS *mih*i.

Antennæ stoutish, considerably shorter than the wings, but as long as, or longer than, the body, the basal joint slightly thickened: *palpi* slender, maxillary ones long, the terminal joint filiform and transversely wrinkled: *head* rather large, pilose: *eyes* globose: *thorax* subovate: *wings* small; anterior narrow, elongate-elliptic, rounded at the apex, narrowed at the base, the hinder margin with four bifid nervures, the longitudinal nervures each united by a transverse one, forming three elongate discoidal areolets, and two triangular ones towards the apex; posterior small, ovate, slightly folded, the costal portion divided by a row of transverse nervures: *legs* stoutish, and rather long: anterior *tibiæ* with a pair of shortish spurs at the apex, and a single

longer one in the middle; intermediate and posterior each with two pair, one pair at the apex, the other pair in the former towards the base, and in the latter below the middle.

From the foregoing genera this may be known by the anterior tibiæ being furnished with three spurs, two at the apex, and one in the middle, and from the following, which agrees in that particular, by the different neuration of the wings: these last organs are generally of plain hue, and have mostly a transparent spot on the disc: the antennæ are shorter than the wings, which are rounded at the apex.

Sp. 1. *unipunctatus*. *Nigricans, antennis pedibusque fulvis, alis fuscescentibus, nervis saturatioribus, anticis macula albo-hyalina.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $2\frac{1}{2}$ —3 lin.)

Tin. *unipunctatus*. *Steph. Catal.* 316. No. 3571.

Blackish: head brown; margins of abdominal segments beneath pale ochreous; legs and antennæ tawny, the latter faintly annulated with brown; wings brownish, with an ochreous tinge, the nervures fuscous; anterior with a white hyaline spot at the apex of the inner discoidal areolet; posterior wings more transparent, and slightly iridescent.

Not common: taken in June and July, at Hertford, Ripley, and in other places, within the metropolitan district.

Sp. 2. *pulchellus*. *Fuscus, pedibus fulvis, antennis ochraceis, brunneo annulatis, alis ochraceo-fuscis, anticis ad apicem, pallide luteo irroratis, punctoque discoidali albido.* (Long. corp. 3 lin.; Exp. Alar. 6—7 lin.)

N. G. (553). *pulchellus*. *Steph. Catal.* 317. No. 3589.

Fuscous: apex of the abdomen, palpi, and legs tawny; antennæ ochreous, annulated with brown; anterior wings ochreous-brown, prettily freckled with pale luteous, especially at the apex, with a whitish hyaline dot at the tip of the inner discoidal areolet, the nervures dark fuscous; posterior wings darker fuscous, iridescent and immaculate.

This also occurs in various places within the metropolitan district, in June and July, and likewise in the New Forest and in Devonshire.

Sp. 3. *urbanus*. *Gracilis, ochraceus, capite thoraceque supra brunneis, alis angustis, immaculatis, antennis brunneo annulatis, palpis nigricantibus.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ —6 lin.)

Hyd. *urbana*. *Pictet, p. 213. pl. xix. f. 13.*—Cyr. *cognatus*. *Steph. Nomen.* 2d edit. col. 119.

Very slender: head and thorax light ochreous, brown above; eyes and palpi blackish; antennæ ochreous, annulated with brown; anterior wings narrow,



especially at the base, pale ochreous, immaculate, nervures very faint ; legs pale yellow.

Taken near London, in June.

Sp. 4. unicolor. *Subgracilis, ochraceus, capite palisque brunneis, alis hyalinis, perlepidè iridescentibus.* (Long. corp. 2 lin. ; Exp. Alar. 6 lin.)

Hyd. unicolor. *Pictet, p. 218. pl. xx. f. 3.*

Rather slender : head and palpi brown, the latter darkest or dusky ; rest of the body, with the legs and antennæ, bright ochreous ; wings pale ochreous, very transparent, immaculate, and beautifully iridescent.

Found in June, at Hertford.

GENUS XV.—POLYCENTROPUS, *Curtis*.

Antennæ stoutish, shorter than the wings, but longer than the body, the basal joint thickened, the apical ones attenuated : *palpi* slender, slightly pilose ; maxillary long and incurved, the terminal joint somewhat filiform, transversely wrinkled, and about as long as the others united : *head* transverse-ovate : *eyes* globose : *thorax* robust : *wings* small ; anterior somewhat elliptic-ovate, rounded at the apex, narrowed at the base, the costa with a central transverse nervure, two others in a line towards the tip at the base of the second furcate nervure, an oblique one towards the hinder angle, and another between that and the inner margin towards the base ; posterior slightly folded : *legs* rather stout, anterior shortest, their *tibiæ* furnished with a pair of spurs at the apex, and another on the side above the middle ; intermediate and posterior each with a pair at the apex, the former with a second pair above the middle, and the latter with a pair near the apex ; intermediate *tibiæ* at the apex, and their *tarsi*, dilated in the females.

This genus—*Amathus* of my Nomenclature, 2nd edit., (555) of my Catalogue—agrees with *Cyrnus* and *Plectrocnemia* in having a spur, or spine, about the middle of the anterior *tibiæ*, as in many *Lepidoptera*, in addition to a pair at the apex ; but from these genera the different neuration of the wings, exclusively of the variation in the structure of the palpi, distinguishes the present ; the colouring is gayer than in those insects, and the form of the wings dissimilar : the species are of small size, and rather difficult to discriminate from each other.

Sp. 1. subpunctatus. *Fusco-brunneus, antennis pedibusque ochraceis, alis ochraceo-fuscis, anticis obsolete fusco irroratis.* (Long. corp. 1½—2 lin. ; Exp. Alar. 6—7 lin.)

N. G. (555.) subpunctatus. *Steph. Catal.* 317. No. 3592.—Am. subpunctatus. *Steph. Nomen.* 2d edit. col. 119.

Dusky-brown: head paler, clothed with griseous hairs; palpi and legs pale ochreous; antennæ the same, faintly annulated with brown; wings ochreous-brown, anterior clothed with golden hairs, and obsoletely dusted with fuscous, nervures fuscous; posterior wings paler, slightly iridescent.

Found, occasionally, in June and July, near Hertford.

Sp. 2. picicornis. *Nigricans, tibiis tarsisque ochraceis, antennis piceis nigro annulatis, alis fusco-fulvescentibus, anticis obsoletè fuseo nebulosis.* (Long. corp. 2 lin.; Exp. Alar. 6—7 lin.)

N. G. (555.) picicornis. *Steph. Catal.* 317. No. 3593.—Am. picicornis. *Steph. Nomen.* 2d edit. col. 119.

Dusky: palpi and femora the same; tibiæ and tarsi dull ochreous; antennæ pitchy, with obscure black rings; head clothed with griseous hairs; wings of a tawnyish-brown, anterior with golden hairs and obscure darker shades; posterior paler, somewhat hyaline and iridescent.

Taken in July, in Devonshire.

Sp. 3. pyrrhoceras. *Fusco-nigricans, antennis fulvis, brunneo annulatis, pedibus ochraceo-fulvis, alis fuscescentibus, anticis ochraceo irroratis.* (Long. corp. 2½ lin.; Exp. Alar. 1 unc. 6½ lin.)

N. G. (555.) pyrrhoceras. *Steph. Catal.* 317. No. 3596.—Am. pyrrhoceras. *Steph. Nomen.* 2d edit. col. 119.

Bluish-brown: head clothed with griseous hairs; antennæ tawny, with brown rings; legs tawny-ochreous, with the femora rather dusky behind; wings fuscous, anterior rather thickly and uniformly sprinkled with small rounded ochreous dots; nervures fuscous; posterior more transparent, slightly iridescent.

Apparently not common: taken in the vicinity of London in July.

Sp. 4. fuliginosus. *Capite thoraceque nigricantibus, antennis abdomineque piceis, pedibus obscure ochraceis, alis fusco-infumatis obsoletissimè ochraceo irroratis.* (Long. corp. 2½ lin.; Exp. Alar. 7—7½ lin.)

N. G. (555.) fuliginosus. *Steph. Catal.* 319. No. 3594.—Am. fuliginosus. *Steph. Nomen.* 2d edit. col. 119.

Head and thorax blackish, clothed with a dull griseous pile; abdomen pitchy; wings dull smoky-brown, anterior very obscurely freckled with minute indistinct ochreous atoms; posterior immaculate, more transparent; legs dirty-ochreous, the tibiæ and tarsi brightest; antennæ pitchy, obscurely annulated with brown.

Also found in the neighbourhood of the metropolis, in July.

MANDIBULATA, VOL. VI., SEPT. 30TH, 1836.

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Sp. 5. *concinus*. *Capite thoraceque brunneis, abdomine fusco basi pallidiore, pedibus antennisque ochraceo-fulvis, his obscure brunneo annulatis, alis anticis fulvescente-fuscis ochraceo irroratis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

N. G. (555.) *concinus*. *Steph. Catal.* 317. No. 3595.—Am. *concinus*. *Steph. Nomen.* 2d edit. col. 119.

Head and thorax brown, clothed with griseous hairs; abdomen fuscous, with the base paler, the margins of the segments also palish; wings tawny-brown, anterior with a slightly golden pile, and thickly, but minutely, freckled with ochreous, some of the spots rather confluent on the costa; posterior wings of a darker hue, more transparent, a little iridescent, with brown nervures, and immaculate; legs and antennæ tawny-ochreous, the latter annulated with brown.

Taken at Ripley, in July.

Sp. 6. *trimaculatus*. *Ochraceo-fuscus, alis anticis punctis numerosis rotundatis ochraceis, pedibus antennisque ochraceis, his annulis pallidioribus.* (Long. corp. 1½—2 lin.; Exp. Alar. 5—6 lin.)

Am. *cambricus*. *Steph. Nomen.* 2d edit. col. 119.—Pol. *trimaculatus*. *Phil. Mag. (Curtis)* v. iv. p. 213.

Ochreous-brown, with a coppery tinge; head clothed with pale griseous hairs; wings fuscescent, anterior with numerous round ochreous spots, largest on the margins, with three or four more distinct towards the hinder angle; posterior wings paler iridescent, and more hyaline, the margin somewhat fuscescent; legs and antennæ dirty-ochreous, the latter with paler rings.

Found occasionally at Hertford, towards the end of June, and in Norfolk.

Sp. 7. *irroratus*. *Fusco-brunneus, alis anticis maculis numerosis ochraceo-sericeis ornatis nebulisque fuscis, pedibus subcastaneo ochraceis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 8—9 lin.)

N. G. (555.) *flavomaculatus*. *Steph. Catal.* 317. No. 3597.—Am. *maculatus*. *Steph. Nomen.* 2d edit. col. 119.—Pol. *irroratus*. *Curtis*, v. xii. pl. 544.

“Brown, head and thorax with shining yellowish hairs; antennæ annulated with ochre; superior (anterior) wings with numerous ochreous silky spots, close together, but leaving several spaces, forming seven or eight brown patches on the costa, disc and inferior (inner) margin; under wings very iridescent; legs dull ochreous, with a pale castaneous tint.”—*Curtis*, l. c.

Found, occasionally, in the vicinity of the metropolis, in June, but more abundantly in the north of England, and in Scotland.

Sp. 8. *multiguttatus*. *Fuscus, alis anticis punctis numerosissimis ochraceis notatis, maculaque alba.* (Long. corp. 3 lin.; Exp. Alar. $8\frac{1}{2}$ —9 lin.)



N. G. (555.) subnebulosus. *Steph. Catal.* 317. No. 3598.—Am. subnebulosus. *Steph. Nomen.* 2d edit. col. 119.—Pol. multiguttatus. *Curtis, fol.* 544.

“Fuscous, iridescent: antennæ nearly as long as the superior (anterior) wings in the male, spotted or annulated with ochre; superior (anterior) wings with innumerable ochreous spots, with a white dot on a fuscous space on the interior margin, and an oblique line on the disc; posterior tibiæ brown, especially the upper side in the male.”—*Curtis, l. c.*

Also found, occasionally, within the metropolitan district, in June, and not uncommon in Scotland, in July.

GENUS XVI.—APHELOCHEIRA* *miki*.

Antennæ rather shorter than the wings, slender, placed somewhat remotely, and distinctly serrated within: *palpi* slender, maxillary ovate, the basal joints of nearly equal length, the terminal one scarcely longer than the others united, transversely wrinkled: *head* densely pilose on the crown: *eyes* globose: *thorax* short, ovate: *wings* ample, broad, anterior a little elongate, narrowed at the base, expanded near the apex, which is obtusely rounded; towards the tip are one or two very faint transverse nervures, but no vestige of one on the costa; hinder wings short, ovate, also with few indistinct transverse nervures: *abdomen* rather short and robust, compressed, the tip with two short horny processes in the males, obtuse in the females: *legs* rather short; anterior *tibiæ* slender, with two short spurs at the apex, intermediate and posterior each with a pair of spurs at the apex, and a second pair below the middle; hinder *tibiæ* rather stoutest and longest.

The brevity of the antennæ and wings, combined with the breadth of the latter, the few transverse nervures with which they are furnished, of which there are none about the middle of the costa; the simple unarmed anterior tibiæ, &c. sufficiently point out their distinction from the other genera of this family; the wings are of sombre hue, more or less faintly freckled with a pale tinge, in some cases amounting almost to spots, as in the genus *Philopotamus*; but the general habit of the insects demands their separation from those insects.

Sp. 1. *flavomaculata*? PLATE xxxii. f. 3. var.—*Fusco-brunnea*, *abdominis segmentorum marginibus pallidis, alis griseo-fuscis, anticis obsolete luteo maculatis*. (Long. corp. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.; Exp. Alar. 6—8 lin.)

* Αφελος simplex, χειρ manus.

Hyd. flavomaculata. *Pictet*, p. 220. pl. xix. f. 2?—Aph. flavomaculata? *Steph. Nomen*. 2d edit. Appendix.

Dusky-brown: head densely clothed with short griseous hairs; antennæ ochreous, annulated with brown; abdomen with the margins of the segments pale; anterior wings griseous- or tawny-brown, more or less obscurely freckled with yellowish, or ochreous, the nervures darker; posterior wings more transparent, iridescent and immaculate; legs tawny-ochreous.

The anterior wings are sometimes totally destitute of luteous spots, as in the individual whence the figure was taken.

Apparently rare, or rather very local: found in June in Devonshire, near Plymouth.

Sp. 2. subaurata. *Brunnea*, *pedibus ochraceo-fulvis*, *alis subfuscis*, *anticis immaculatis*, *aureo-pilosis*. (Long. corp. $1\frac{3}{4}$ lin.; Exp. Alar. $5\frac{3}{4}$ lin.)

Ti. subaurata. *Steph. Catal.* 317. No. 3578.

Brown: head pale, clothed with short griseous hairs; legs pale tawny-ochreous; antennæ ochreous, annulated with brown; wings somewhat fuscous, the anterior clothed with a short golden pile, immaculate; posterior more transparent and iridescent, with brown nervures.

Found within the metropolitan district.

FAMILY V.—SERICOSTOMIDÆ *mihi*.

Antennæ shortish, robust, with the basal joint enlarged and longish, or slender, with the basal long and very hairy: *palpi* dissimilar in the sexes; maxillary in the males triarticulate, with the terminal joint clavate or pilose, or spoon-shaped, and forming by their union a kind of mask; in the females they are five-jointed, the terminal joint being slender; the second joint, in both sexes, rather long: *wings* long and narrow, sometimes very pilose, almost wholly destitute of transverse nervures, and the longitudinal ones not very distinct: posterior wings small, and but slightly folded on the inner margin: *abdomen* rather stout, the apex of the males armed with horny appendages, and of the females obtuse: *legs* moderate: *tibiæ* mostly armed with spurs at the apex, the two hinder pair each with a pair above the tip.

Larva robust, short, slightly attenuated to the apex, which is truncate, and furnished with short terminal processes; head and following segment scaly, the remainder soft and fleshy: in some instances the anterior angle of each thoracic segment is acutely pointed, in others rounded; legs rather slender, hinder pair short: the larva resides in double flat cases, to which pieces of stone, &c. are fastened; or in slightly curved ones, which are attenuated at one end, and resemble shells belonging to the genus *Dentalium*.

The insects of this family are generally of moderately large size,

and are remarkable for the disparity that exists in the palpi of the sexes, the labial ones in the males being more or less clavate, and in the females having their terminal joint small; the wings are almost destitute of transverse nervures, and are usually rather thick, are of plain colours, rarely adorned with spots. The indigenous species may be thus divided into genera :—

<i>Tibiis anticis</i> haud calcaratis :	18. POTOMARIA.
bicalcaratis ;	
<i>intermediis</i> bicalcaratis :	19. SERICOSTOMA.
quadricalcaratis ;	
<i>Antennis</i> remotis ; <i>calcaribus</i> brevibus :	17. BRACHYCENTRUS.
approquantibus ;	
art ^o . basali vix elongato :	20. NOTIDOBIA.
elongato ;	
hirsutissimo :	23. MORMONIA.
vix hirsuto ;	
(<i>Palpis maxillaribus</i> maris) divaricatis :	21. SILO.
recurvis .	22. GOËRA.

GENUS XVII.—BRACHYCENTRUS, *Curtis*.

Antennæ remote at their origin, shorter than the wings, stout in the males, rather slender in the females, the basal joint slightly robust: maxillary *palpi* in the males short, diverging and very pilose, in the females long and slender: *head* rather small, transverse, pilose: *eyes* globose, lateral: *thorax* short, hairy: *wings* ample, broadest towards the apex, which is obtusely rounded; anterior with a small triangular areolet on the disc between the stigma and the inner margin, from which arise four somewhat parallel nervures, which extend to the hinder margin, the following nervure is trifid, each branch becoming furcate on the margin, the second costal nervure is abruptly angulated before the stigma; posterior wings smaller, ovate, with the costal nervures bifid at the apex, the inner one simple: *legs* rather short: *tibiæ* with a pair of short spurs at the apex, the intermediate and hinder pair with a second pair below the middle.

These insects are remarkable for having the spurs of the tibiæ very short; the antennæ, which are of dissimilar degrees of robustness in the sexes, are placed somewhat remotely from each other; the palpi are short, diverging and very pilose in the males, but slender and longer in the females; the wings are less opaque than in the other genera of this family, and have the nervures distinct, with a conspicuous elongate-triangular areolet on the upper pair towards the apex of the disc.



Sp. 1. subnubilus. *Niger, alis fuscescentibus nervis piceis, antieis flaveseente subnebulosus, tibiis tarsisque ochraceis.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.; Exp. Alar. $8\frac{1}{2}$ —12 lin.)

N. G. (557.) nubilus. *Steph. Catal.* 318. No. 3616.—Meroe nubila. *Steph. Nomen.* 2d edit. col. 119.—Br. subnubilus. *Phil. Mag. (Curtis)* v. iv. p. 215.

Black: head and thorax clothed with griseous hairs; wings pale fuscous, anterior with a slight tawny hue, the nervures pitchy, the arcolelets on the hinder margin, the small discoidal one, and the stigma yellowish in the middle, the inner margin and the edges of the transverse nervures dark fuscous; posterior wings paler, immaculate, with the nervures dull pitchy; femora dusky, tibiæ and tarsi pale ochreous; antennæ black.

Taken in the New Forest and in Devonshire, and occasionally near London in June.

Sp. 2. concolor. *Ater, alis fuscescentibus, immaculatis, nervis piceis, tibiis tarsisque ochraceo-fuscis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

N. G. (557.) concolor. *Steph. Catal.* 318. No. 3617.

Deep black: head and thorax clothed with blackish pile; wings pale fuscous, with darker or pitchy nervures; anterior immaculate, posterior more transparent and paler; femora blackish, tibiæ and tarsi dusky-ochre; antennæ stout and black.

Also found, occasionally, near London, in June, and in Devonshire.

Sp. 3. costalis. *Ater, alis fuscescentibus, immaculatis, costâ stigmatæque fuscis, nervis piceis, femoribus fuscis, tibiis tarsisque fusco-ochraceis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

N. G. (557.) costalis. *Steph. Catal.* 318. No. 3618.

Deep black: head and thorax clothed with blackish hairs: wings pale fuscous, anterior immaculate, the nervures pitchy, costa and stigma fuscous; femora fuscous; tibiæ and tarsi dirty-ochre.

Taken in June, near London.

GENUS XVIII.—POTOMARIA, *Leach MSS.*

Antennæ shorter than the wings, moderately stout, the basal joint robust and slightly pilose: *maxillary palpi* clavate in the males, very short; elongate, slender and pilose in the females, with the terminal joint short and attenuated: *head* small, pilose: *eyes* large, globose: *thorax* stout: *wings* narrow, anterior narrowed at the base, rounded at the apex, with a few transverse nervures towards the hinder margin, which is somewhat obtusely truncated obliquely: posterior wings small, ovate-triangular, slightly folded within: *abdomen*



robust, obtuse, somewhat elongate: *legs* rather short and slender; anterior *tibiæ* without spurs, intermediate with a pair at the apex, hinder with a pair at the apex, and a second pair considerably below the middle.

These insects may be known by having the anterior *tibiæ* destitute of spurs, either in the middle or at the apex; the antennæ are shorter than the wings and stout, with the basal joint slightly robust and a little pilose:—they are of large size, and have the wings obtusely rounded at the apex: they frequent running waters.

Sp. 1. *analís*. PLATE XXXIV. f. 4.—*Nigra, alis fuscis, anticis maculâ anali albâ, nebulisque basali albidis*. (Long. corp. 4½—6 lin.; Exp. Alar. 13—15 lin.)

Phr. *analís*. *Fabricius*.—Po. *analís*. *Steph. Catal.* 318. No. 3622.

Black: head densely clothed with a golden pile; antennæ deep brown, with darker clouds; wings fuscous, with darker nervures, posterior immaculate, anterior more or less clouded with whitish towards the base, and with a somewhat triangular white spot on the anal angle; legs dirty-ochreous, femora dusky.

Apparently rare: taken in July in the New Forest, near Brockenhurst, and likewise in Devonshire.

Sp. 2. *assimilis*. *Nigra, alis fuscis, cupreo tinctis, immaculatis, tibiis tarsisque obscurè ochraceis*. (Long. corp. 4—5 lin.; Exp. Alar. 13—14 lin.)

Po. *assimilis*. *Steph. Catal.* 319. No. 3623.

Black: head with a bright ochreous tuft behind; palpi and antennæ dusky; wings fuscous, immaculate, anterior with a coppery tinge, the nervures darker; legs dusky, with the *tibiæ* and tarsi dirty-ochreous.

Also found in the New Forest, in July, and in the north of England, and in Devonshire.

Sp. 3. *hyalina*. *Nigra, antennis gracilibus, brunneis, alis subhyalinis pallide fuscescentibus, immaculatus, palpis tibiis tarsisque ochraceis*. (Long. corp. 4½ lin.; Exp. Alar. 14 lin.)

Po. *hyalina*. *Steph. Catal.* 319. No. 3624.

Black: head with a pale tawny patch of hairs behind; palpi ochreous; antennæ slender, pale brown; wings somewhat transparent, pale fuscous, with darker nervures; anterior immaculate, posterior rather dusky; femora blackish; *tibiæ* and tarsi ochreous.

Inhabits the metropolitan district, in June.



GENUS XIX.—SERICOSTOMA, Latreille.

Antennæ not so long as the wings, very stout, especially at the base, the basal joint robust, slightly pilose: maxillary palpi in the males recurved, densely hairy, the two united forming an obtuse rounded mask, concave within and convex without, and furnished with a silky pile within; in the females elongated, five-jointed, the terminal joint short and slender: *head* small, with a tuft between the antennæ: *eyes* large: *thorax* robust: *wings* narrow, anterior without transverse nervures, somewhat obtusely rounded at the apex; posterior smaller, elliptic-ovate, slightly folded on the inner margin: *abdomen* somewhat robust, obtuse: *legs* shortish, slender: *tibiæ* all armed with a pair of spurs at the apex, the intermediate without a second pair below the middle, and the hinder with a pair near the apex. Larva somewhat cylindric, with the head and following segment scaly above, the remainder soft: *legs* short, pilose.

At the time of the appearance of my Catalogue, I was not aware that this genus had been named, as above, and characterised, by Latreille,* and therefore I could not employ his name, but adopted the very expressive one of Leach, from (Προσωπον, persona,) the mask-like appearance of the male palpi, which had previously suggested a similar name to Spence for the only indigenous species, as referred to in my Catalogue.

Sp. 1. Spencii. PLATE xxxiii. f. 2.—*Fusco-nigrum, alis anticis sericeo-testaceis, aureo tinctis, antennis brunneis, basi punctoque verticis aurantiaco-ochraceis.* (Long. corp. 4—5 lin.; Exp. Alar. ♂ 10—♀ 14 lin.)

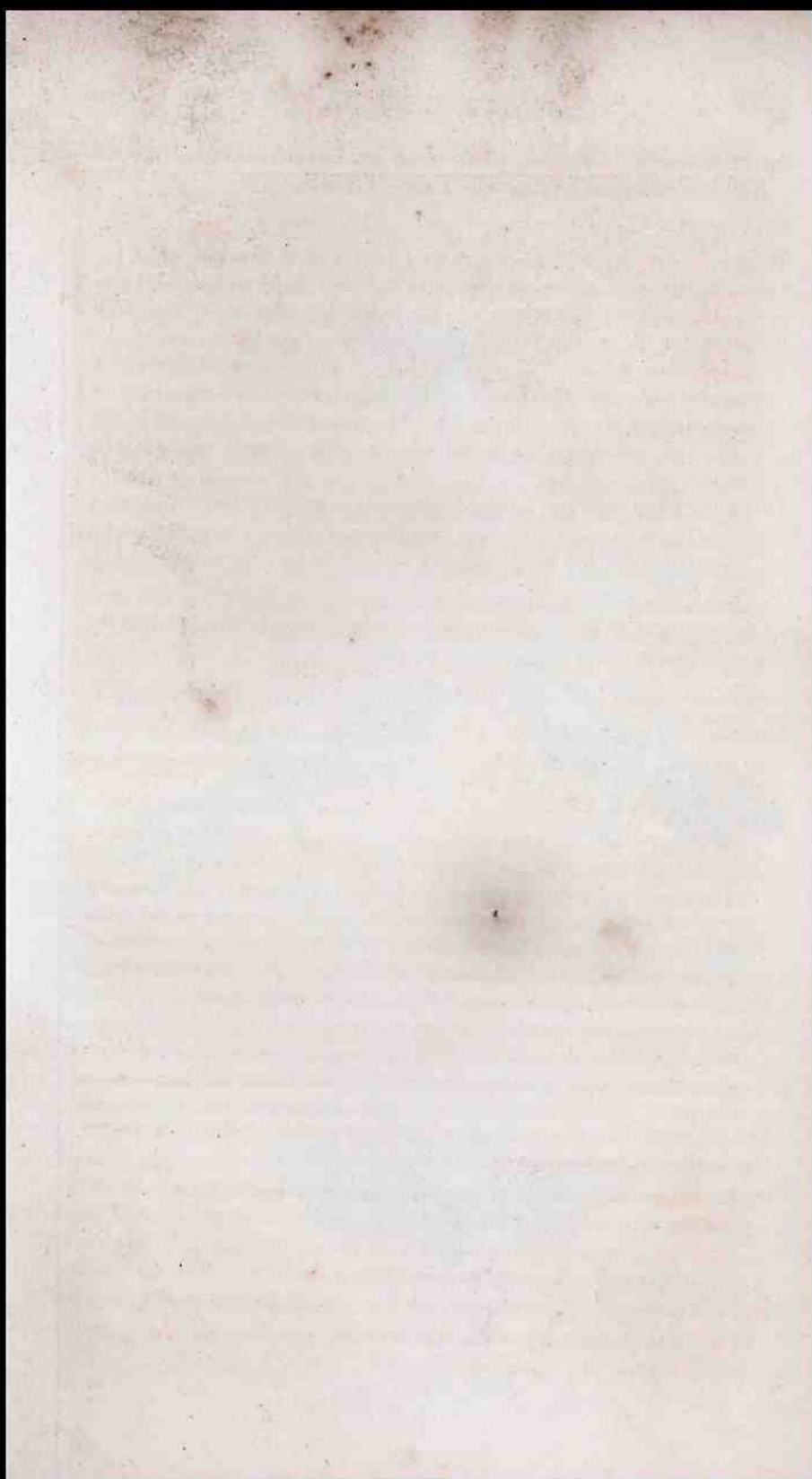
Prosoponia Leachii. *Steph. Catal.* 319. No. 3627.—Pro. Spencii. *Kirby and Sp. Int. Ent.* (4th edit. 1830) iii. 488.—Ser. Latreillii. *Phil. Mag.* (Curtis) v. iv. p. 214.

Brown-black: antennæ reddish-brown, with some scale-like hairs at the base, and a tuft on the crown orange-ochreous; anterior wings testaceous-brown, with a golden silky gloss; femora dusky-brown; tibiæ and tarsi ochreous, the female has the antennæ darker at their base, and the orange spot on the crown is less conspicuous; the mask on the face is wanting.

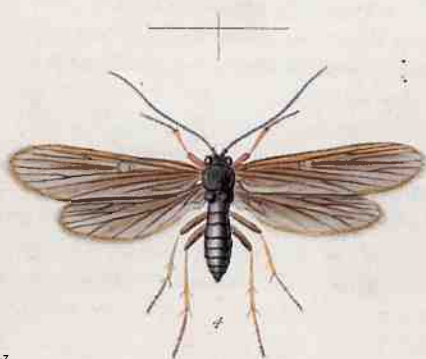
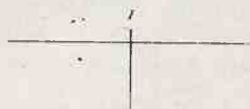
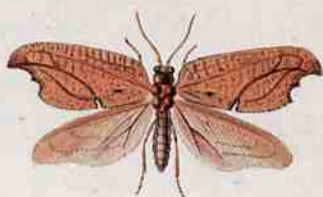
In my Catalogue I named this conspicuous insect after my lamented friend Dr. Leach, whose brilliant career was suddenly obscured some years since, and has now, alas! within these few weeks been brought to a conclusion, his death having occurred on the 24th of August last, at Genoa. In Mr. Curtis's sketch of the undescribed species of May-flies, &c. he has

* In *Fum. Nat.* p. 439.





Pl. XXXVII



J.O. Westwood, del.

C.E. Wagsstaff, sc.

London. Published by L.F. Stephens. March 1st. 1835.



followed Mr. Haliday in naming this species after Latreille ; but the following note* will show that his name must fall, it having been described long since in Kirby and Spence.

Found in the New Forest, about Brockenhurst, in June and July ; also in the west of England, in South Wales, near Carlisle, in Scotland, &c.

GENUS XX.—NOTIDOBIA† *mihi*.

Antennæ much shorter than the wings, very robust, especially in the males, in which sex they are somewhat serrated within; the basal joint very slightly elongate, but robust and a little pilose: *maxillary palpi* short, somewhat divaricating and pilose in the males; longer and more slender, less pilose in the females, with the terminal joint elongate-ovate; *labial* slender: *head* small, pilose: *eyes* large, subglobose: *thorax* stoutish: *wings* rather narrow, short, anterior narrowed at the base, rounded at the apex; all with a small ovate-triangular areolet towards the hinder margin, adjoining to which is a waved series of transverse nervures: *abdomen* short, robust and obtuse: *legs* short, stoutish; *tibiæ* all armed with a longish pair of spurs at the tip, the intermediate and posterior each with a second pair below the middle, lowest in the latter.

The short incrassated basal joint of the antennæ of this genus,

* "But the animal distinguished by the most remarkable cheeks is a species of *Phryganea*, L. (*Phryganea personata*, Spence); for from this point projects a spoon-shaped process, which curves upwards, and uniting with that of the other cheek, forms an ample mask before the face, the anterior and upper margins of which, in the insect's natural state, are closely united; and the posterior part, being applied to the anterior part of the eye, causes the face to appear much swollen. It looks as if it was a single piece; but, upon pressing the thorax, it opens, both above and in front, into two parts, each convex without and hollow within, and each having attached to its inside a yellow tuft of hair resembling a feather."

To this account the following note is appended:—

"This insect was taken both at Matlock and Exmouth. The body and thighs are of a light brown, wings testaceous, legs pale; antennæ between setaceous and filiform, two-thirds the length of the body; first joint not much thicker than the rest."—*Kirby and Sp. Int.* iii. p. 489. (1826.)

In the 2nd edition of this vol. p. 488 (published in 1830) the insect bears the name *Prosoptiona Speneii*, as above given; the generic name being adopted from my Catalogue, which appeared in July 1829.

† *Notio humilitas, slow vivo.*

MANDIBULATA, VOL. VI., SEPT. 30TH, 1836.

2 A



combined with the approximation of the insertion of the latter, the 4-spurred posterior tibiæ, short, divaricating maxillary palpi, and slender labial ones, exclusively of the diversity in the formation of the wings, which have a distinct somewhat ovate areolet on the disc, towards the apex of the wings, the dark colour of the latter, and the brevity and stoutness of the antennæ, serve to discriminate them from the allied genera of this family.

Sp. 1. atrata. *Nigra, alis (anticis præsertim) fuscis, immaculatis, tibiis tarsisque obscure testaceis.* (Long. corp. 4 lin.; Exp. Alar. 10—13 lin.)

Phr. atrata. *Fabricius.*—Not. atrata. *Steph. Catal.* 319. No. 3626.—Ser. atratum. *Pictet, p.* 178. *pl.* xiv. *f.* 5, *a—c.*

Black and pilose: antennæ brown-black; anterior wings deep brown, with a coppery tinge, and clothed with a short black pile, immaculate; posterior wings rather paler; femora black; anterior and middle tibiæ and tarsi obscure testaceous, posterior pale testaceous, or ochreous.

Not very uncommon: taken in June at Hertford; also in the New Forest.

GENUS XXI.—SILO, *Curtis.*

Antennæ shorter than the wings, the basal joint porrected, parallel, long, stout, cylindric, hairy: *palpi* pubescent, maxillary in the males diverging, slightly pilose, the three terminal joints of equal length: *head* small, hairy on the crown: *eyes* prominent: *wings* nearly twice as long as the body, obtusely lanceolate; anterior with two costal nervures, then three furcate ones, and three others united near the disc, with a curved one near the hinder angle; posterior wings small: *abdomen* short and robust: *tibiæ* with a pair of spurs at the apex; intermediate and posterior with a pair also below the middle.

This and the following genus are distinguished by having the basal joint of the antennæ very much lengthened and robust, the two are parallel with each other and porrected; the males of the present genus are distinguished from those of the following by having the maxillary palpi divaricating and short; they are also very pubescent, and the females have the same organs rather stout, but slender at the apex; the neuration of the wings is also somewhat different in the two genera, which are, however, closely allied.

Sp. 1. pallipes. *Nigra, alis nigro-fuscis, immaculatis, pedibus pallide ochraceis.* (Long. corp. 4 lin.; Exp. Alar. 9—11 lin.)

Phr. pallipes. *Fabricius.*—Not. pallipes. *Steph. Catal.* 319. No. 3625.



Black and slightly pilose: antennæ dusky-black; wings brown-black, immaculate, anterior with a griseous tinge; legs pale ochreous.

In some examples the wings are of a paler hue than others, while some are deep black.

Rather common, in the neighbourhood of Hertford, in June and July.

GENUS XXII.—GOËRA, *Hoffmansegg*.

Antennæ longer than the wings, the basal joint stout, long and pubescent, parallel, the remainder very small, much attenuated at the apex: *palpi* pubescent; maxillary in the males recurved, and slightly clavate; of the females slender: *head* rather small, pilose: *eyes* somewhat prominent: *wings* rather broad, rounded at the apex, obtusely-lanceolate; nervures not very distinct, two on the costa, then three furcate ones, followed by a curved one towards the posterior angle, which forms a dilated somewhat circular areolet towards the apex of the inner margin; posterior wings small, slightly folded within: *legs* rather short: *tibiæ* all with a pair of spurs at the tip, the two hinder pair with another pair below the middle.

As previously mentioned, these insects have the basal joint of the antennæ porrected, elongate and robust, and the two are parallel with each other; the males are distinguished by having short maxillary palpi, which are recurved and closely applied to the head; those of the female are long and slender; the wings have a very silken appearance, and have a conspicuous dilated and orbicular areolet towards the apex of the inner margin.

Sp. 1. *pilosa*. *Sericeo-ochracea, alis anticis subtestaceo-ochraceis, immaculatis, posticis subfuscescentibus, oculis nigris*. (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. 9—11 lin.)

Phr. *pilosa*. *Fabricius*.—Goë. *pilosa*. *Steph. Catal.* 319. No. 3628.

Ochreous: eyes black; head and thorax clothed with silky pile; anterior wings pale testaceous-ochre, immaculate and silky; posterior somewhat fuscous; legs pale ochreous; antennæ brownish-ochre, the basal joint palest.

Abundant, in July and September, at Hertford; found also in other parts of the country.

Sp. 2. *flavipes*. *Sericeo-ochracea, thorace abdomine coxis femoribusque fuscis*. (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. 10—12 lin.)

Goë. *fuscata*. *Steph. Catal.* 319. No. 3630.—Goë. *flavipes*. *Phil. Mag. (Curtis)* v. iv. p. 215.

Ochreous: eyes dusky; thorax and abdomen blackish, clothed with silky pile; anterior wings silky-ochreous, immaculate, beneath fuscous; posterior somewhat fuscous; legs fuscous; tibiæ and tarsi pale ochreous; antennæ brown, the basal joint clothed with ochreous hairs.

Less abundant than the last, but found in plenty within the metropolitan district, at Hertford, Ripley, &c.

Sp. 3. *vulgata*. *Nigra, alis flavo-testaceis immaculatis, pedibus ochraceo-flavis*. (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 10 lin.)

Phr. *vulgata*. *Olivier.*—*Goë. vulgata*. *Steph. Catal.* 319. No. 3629.

Black, clothed with silky hairs; wings testaceous-yellow, immaculate; posterior slightly paler; legs wholly pale ochreous-yellow; antennæ dusky.

Found, in June, near London, and in Devonshire; not common.

†Sp. 4. *irrorata*. *Ochracea, alis anticis subochraceis, punctis numerosis indistinctis albidis, antennis piceis ochraceo subannulatis*. (Long. corp. — lin.; Exp. Alar. 7 lin.)

Goë. irrorata. *Phil. Mag. (Curtis) v. iv. p. 215.—Steph. Nomen. 2d edit. Appendix.*

“Ochreous, pubescent: antennæ piceous, slightly annulated with ochre, the basal joint long, stout, and very hairy: wings very pale fuscous; superior (anterior) subochreous, with numerous indistinct whitish dots.”—*Curtis, l. c.*

I know not this species, nor its locality.

GENUS XXIII.—MORMONIA, *Curtis*.

Antennæ approximating at the base, rather longer than the wings, the basal joint robust, considerably elongated, very pilose, and the two parallel and porrected, the apical joints very slender: *palpi* moderate, maxillary in the males porrected, slightly clavate and thickly clothed with short hairs; labial slender: *head* small, very pilose: *eyes* globose, rather prominent: *thorax* densely hairy: *wings* moderately ample, anterior somewhat ovate-lanceolate, and rather diaphanous, with few or no transverse nervures, especially on the inner margin, towards the base of which is a patch densely clothed with longish erect hairs; posterior rather small: *abdomen* shortish and robust: *legs* slenderish: *tibiæ* all furnished with a pair of spurs at the apex, the two hinder ones each with a second pair below the middle.

These insects may be known by having the antennæ placed somewhat closely at their origin, and by their slenderness, the great length and hairiness of the basal joint, pilosity of the head, and brevity of the palpi in the males, and their slenderness in the



females; the wings are somewhat hyaline, short and narrow, and the anterior pair are adorned with a dense hairy patch at the base within.

Sp. 1. *nigromaculata*. PLATE xxxii. f. 2.—*Fusco-brunnea, oculis nigris, pedibus antennisque ochraceis, his brunneo annulatis, alis fusciscentibus, anticis nigro irroratis*. (Long. corp. $2\frac{3}{4}$ lin.; Exp. Alar. $9\frac{1}{4}$ lin.)

Goë. *nigromaculata*. *Steph. Catal.* 319. No. 3633.

Fuscous-brown: hairy; eyes black; wings fusciscent, with darker nervures, minutely sprinkled, especially the anterior, with black dots, particularly in the direction of the nervures; abdomen on its sides and apex, and the legs ochreous; antennæ pale ochreous, with brown rings.

Found, but very rarely, in June, near London, and in Devonshire.

Sp. 2. *hirta*. *Fusco-brunnea, alis anticis maculis duabus obscurioribus, pedibus pallidis, antennis pallidis brunneo annulatis*. (Long. corp. 3 lin.; Exp. Alar. 9—10 lin.)

Phr. *hirta*. *Fabricius*.—Goë. *hirta*. *Steph. Catal.* 319. No. 3631.—Mor. *gracilicornis*. *Phil. Mag. (Curtis)* v. iv. p. 215 ♂.

Fuscous-brown: palpi and eyes black, very hairy; anterior wings hairy, pale fuscous-brown, with an ochreous hue, and two obscure clouds, or spots, one on the disc, the other towards their inner margin; the extreme hinder margin is also slightly obscure; posterior wings nearly glabrous and fuscous; legs and antennæ pale, the latter annulated with fuscous or brown, with the basal joint very pilose.

Not uncommon, within the metropolitan district, in June, about Hertford, Ripley, &c.; found also in the New Forest, in Devonshire, near Oxford, &c.

Sp. 3. *immaculata*. *Ochraceo-brunnea, alis anticis pallide brunneis immaculatis, antennis ochraceis fusco punctatis*. (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. 9—10 lin.)

Goë. *immaculata*. *Steph. Catal.* 319. No. 3632.—Mor. *maculicornis*. *Phil. Mag. (Curtis)* v. iv. p. 215 ?

Ochreous-brown, or dusky, very pubescent: eyes black; anterior wings pale brown, immaculate; posterior fusciscent; legs pale ochreous; antennæ ochreous, dotted with fuscous above.

Found, in the vicinity of Hertford, in June; also in Devonshire.

Sp. 4. *minor*. *Ochraceo-brunnea, oculis nigris, alis hyalinis, iridescentibus,*



immaculatis, pedibus antennisque ochraceis. (Long. corp. 2 lin.; Exp. Alar. 7 lin.)

Mor. minor. *Steph. Nomen. 2d edit. Appendix.*

Ochreous-brown: eyes black; wings hyaline, iridescent, immaculate, pilose; legs and antennæ pale ochreous, the latter faintly annulated with fuscous.

Taken, in June, in Devonshire.

FAMILY VI.—PSYCHOMIDÆ, *Curtis.*

Antennæ stoutish, not exceeding the length of the wings: maxillary *palpi* similar in the sexes and 5-jointed, the terminal one elongate-filiform: *wings* narrow, obtuse, or acute, without transverse nervures; anterior with three or four bifid ones on the hinder margin; posterior small, resembling the anterior, but not folded within; cilia of all short: *abdomen* stoutish and short: *legs* moderate: anterior *tibiæ* sometimes without spurs at the apex, two hinder ones each with a pair at the tip, and a second pair towards the middle.

The insects of this family, like the Hydropsychidæ, have the terminal joint of the palpi very long and slender; but from them they may be known by the slenderness of the wings, which are totally destitute of transverse nervures: the only indigenous genus frequents mountain torrents, which I believe to be the case with the other genera of this family.

GENUS XXIV.—CHIMARRA, *Leach.*

Antennæ scarcely so long as the wings, especially in the females, somewhat robust, the basal joint longest, subovate, some of the following short, the remainder oblong: *palpi* rather long, maxillary with the 2nd and 3rd joints very long, the apical one slender; labial with the terminal joint nearly as long as the two others united, and filiform: *head* subglobose: *eyes* globose, very prominent: *thorax* ovate: *wings* slightly deflexed during repose, destitute of transverse nervures; anterior elongate, narrow, rounded at the apex, with about nine longitudinal nervures, of which the four which extend to the hinder margin are more or less deeply bifurcate: posterior *wings* small, not folded: *abdomen* short, furnished with a short recurved process at the apex in the females: *legs* rather long and stout, anterior the shortest, their *tibiæ* without spurs at the tip, the others with a longish pair at their apex, another pair above the middle in the intermediate, and the posterior with a pair below the middle: the intermediate *tibiæ* of the females at the apex, and the basal joint of their tarsi, slightly dilated.



The only indigenous genus of this family, and may be recognised by having the palpi very long, with the 2nd and 3rd joints considerably lengthened and stoutish, the terminal one slender: one species only occurs in Britain.

Sp. 1. *marginata*. PLATE xxxiii. f. 4. var. ♀.—*Fusco-nigra, alis costâ, margine postico, lineisque aliquot anticarum ochraceo-flavis*. (Long. corp. 4—5 lin.; Exp. Alar. 6—9 lin.)

Phr. *marginata*. Linné.—Chi. *marginata*. Steph. Catal. 318. No. 3621.—Curtis, v. xii. pl. 561.

Brown-black: head and basal joint of the antennæ bright ochreous; crown black; thorax with its anterior edge, or the collar, bright ochreous; anterior wings with the costa, the extreme hinder margin, and one or two of the inner longitudinal nervures, bright ochreous-yellow, the other nervures dusky; posterior wings, with the upper portion of the costa, bright ochreous; legs ochreous, the anterior pair and tips of the hinder tibiæ palest; the base of the femora and apex of the anterior tarsi blackish.

Some examples—as in the one figured—are of a paler hue, and have the yellow edgings to the anterior wings, the oblique nervures, and the collar of a faint brownish-ochreous.

Found on the banks of torrents in England and Ireland; about Dunlough Gap, near Killarney, and near Plympton in Devonshire, very abundantly; also in Cumberland and South Wales.

FAMILY VII.—LEPTOCERIDÆ, Leach.

Antennæ slender, considerably longer than the wings, sometimes four or five times as long, setaceous: maxillary *palpi* similar in the sexes, 5-jointed, long, and generally hairy: *wings* furnished with several transverse nervures, mostly disposed in an irregularly waved line, a little beyond the middle; anterior pair very long and narrow, posterior smaller and much folded within: *abdomen* moderate or short, rarely long: *legs* short, or somewhat elongate: *tibiæ* with spurs at the apex, and the two hinder pair frequently with others below the middle. Larva long and slender, without external lateral respiratory organs, the latter generally short, the four anterior segments and legs bristly, the latter sometimes slender and elongate, at others short and stout: it inhabits an elongate moveable case, in which it changes to pupa.

The insects of this family are usually of a gregarious nature, and may be sometimes observed, especially towards evening, in large flocks, like gnats, sporting about, near the edge of slowly running and quiet streams; they are rendered very conspicuous by



the great length of the antennæ, which are sometimes four or five times as long as the body, and are usually very slender; the wings, especially the anterior, are also long and narrow; the legs short, sometimes having only a single pair of spurs on each of the four posterior tibiæ; the eyes are in general very prominent, and the palpi hairy. The indigenous species have been divided into the following genera:—

Tibis posterioribus bicalcaratis;

Palpis maxillaribus art. 2-bus basalibus brevibus: . 26. CERACLEA.

art. basali solo breve: . 27. LEPTOCERUS.

Tibiis posterioribus quadricalcaratis;

Antennis gracilibus alis longioribus (in masculis denticulatis): 25. ODONTOCERUS.

incrassatis, haud alis longioribus, haud denticulatis: 28. MOLANNA.

GENUS XXV.—ODONTOCERUS, *Leach*.

Antennæ somewhat longer than the wings, stoutish at their base, their inner edge regularly denticulated nearly to the apex, which is slender, the basal joint elongate, porrect and robust: *palpi* very pilose, maxillary with the three basal joints rather short, somewhat cylindric and of equal length; the 4th elongate, 5th scarcely pilose, rather shorter than the 4th: *head* small, transverse: *eyes* large, subglobose: *thorax* robust: *wings* rather long; anterior elongate-elliptic, rounded at the apex, the 2nd longitudinal nervure furcate from about its middle, the 3rd bifid nearly from the transverse nervure, the remainder simple and parallel, but the 4th is bifid in the females; posterior elongate-triangular: *abdomen* rather stout, obtuse at the apex in both sexes: *legs* shortish: anterior and intermediate *tibiæ* with a pair of short spurs at their apex, and the latter with a long pair near the base, hinder ones with a long pair near the apex, and a similar pair on the tip itself. Larva robust, fleshy, broad, cylindric, truncate at the apex: legs short and slightly pilose.

The denticulated antennæ of these insects, exclusively of the difference in the structure of the palpi, the neuriation and opacity of the wings, the double-spurred posterior tibiæ, &c. sufficiently point out their distinction as a genus; to which may be added, that the posterior legs of the larvæ are shorter than the 2nd pair, and the larva itself is robust and somewhat cylindric.

Sp. 1. *albicornis*. PLATE xxxiv. f. 1 ♀.—*Griseo-fuscus, alis griseis aut canescentibus vix maculatis, antennis albido-ochraceis*. (Long. corp. 4—6 lin.; Exp. Alar. 15—18 lin.)

Phr. albicornis. Scop. Ent. Car. No. 689.—*Odo. griseus.* Leach.—*Steph. Catal.* 319. 'No. 3635.

Dusky-brown: head griseous, with whitish hair in the front; palpi brown; thorax with griseous hairs in front, and some obscure spots beneath, at the insertion of the legs, which are dull ochreous; anterior wings griseous in the male, and with a hoary tinge in the female, the nervures prominent, dusky, especially the transverse ones, which are edged with the same; several of the areolets are clouded with a paler tinge; cilia and posterior wings fuscous; antennæ pale, whitish-ochreous.

Found, occasionally, near London, in June and July; abundant about Cheltenham and in Devonshire; also common about Carlisle, in Scotland; Ireland, near Killarney; and in Norfolk.

†*Sp. 2. maculipennis.* *Niger, alis anticis ochraceis nigricante maculatis, pedibus fulvis anticis femoribusque obscuris.* (Long. corp. — lin.; Exp. Alar. 16 lin.)

Odo. maculipennis. *Phil. Mag. (Curtis) v. iv. p. 214.*—*Steph. Nomen. 2d edit. Appendix.*

“Pubescent, black: head and thorax griseous, scutellum ochreous; superior (anterior) wings ochreous; nervures, margin, and cilia black, a spot on the costa, the stigma, another beyond it, a large one at the posterior angle, and several small ones round the disc, pale black; legs fulvous, anterior pair and thighs dusky.”—*Curtis, l. c.*

“New Forest, in June.”—*Curtis, l. c.*

GENUS XXVI.—CERACLEA, *Leach.*

Antennæ slender, very much longer than the wings, not denticulated within, the basal joint rather short and stout, the terminal ones extremely slender: *palpi* very pilose; maxillary with the two basal joints short, the 3rd elongate, 4th shorter than the 3rd, 5th slender, slightly pilose: *head* small, densely hairy in front: *eyes* large, subglobose: *thorax* stout: *wings* transparent; anterior elongate, narrow, rounded at the apex, nervures very distinct, the 3rd and 5th bifid at the tip; posterior obtusely triangular; *cilia* of all short: *abdomen* short, rather slender in the males, stout and obtuse in the females: *legs* shortish; *tibiæ* all furnished with a pair of spurs at the apex only; intermediate and posterior pair somewhat bristly beneath.

The antennæ of *Ceraclea* are remarkably long and slender, which character, united to the transparency of the wings, their conspicuous nervures, the two short basal joints of their palpi, robust thorax, &c. serve to distinguish the genus from *Leptocerus*, in which genus the

MANDIBULATA, VOL. VI., SEPT. 30TH, 1836.

2 B

four posterior tibiæ, in common with Ceraclea, are armed with spurs at the apex alone.

Sp. 1. *nervosa*. *Nigra, alis anticis griseis, nervis fuscis, posticis hyalinis obscuris, pedibus obscure ochraceis, nebulis obscurioribus.* (Long. corp. 4 lin.; Exp. Alar. 11—13 lin.)

Phr. *nervosa*. Latreille.—Cer. *nervosa*. Steph. Catal. 319. No. 3635.

Black: head with a whitish patch of hair between the antennæ, the latter spotted with white, especially beneath; anterior wings griseous, with black nervures; posterior transparent, dull fuscous, with darker nervures; legs obscure ochreous, varied with darker shades.

Abundant, at the end of May and in the beginning of June, in Battersea-fields, near Hammersmith, Putney, and along the banks of the Thames; also taken near Killarney, in the Reeks Mountains.

GENUS XXVII.—LEPTOCERUS, Leach.

Antennæ much longer than the wings, especially in the males, slender, not denticulated within, the basal joint shortish and robust: *palpi* in general very hairy; maxillary with the basal joint short, the remainder elongate, the terminal one slender, and sometimes apparently divided into a 6th joint: *head* small, pilose: *eyes* large, subglobose: *wings* long and narrow, rounded at the apex, nervures not very distinct, variable in position, as shown in the sectional divisions: *cilia* short: *abdomen* rather long and slender: *legs* slender: *tibiæ* each furnished with a single pair of spurs at the apex alone.

Larva slender, fleshy, attenuated behind and truncate at the apex; legs long and slender, the hinder pair especially.

Leptocerus, like Ceraclea, is distinguished by having the antennæ remarkably long and slender, in some cases exceeding the length of the body four or five times; the basal joint alone of the palpi is short, the terminal one sometimes very long, and apparently divided about its middle, producing the appearance of a sixth joint; the wings are long and opaque, with the nervures rather indistinct, but varying in position at the apex, or hinder margin, of the wing: the genus probably requires division, the first and last sections being very dissimilar to each other; the former one, as containing the type of Latreille's genus *Mystacide*, might retain that name, while a new one is required for the other.

§ A. *Apical areolets* of anterior wings formed by a slightly curved line of transverse nervures:—MYSTACIDÆ, Latr.

Sp. 1. ochraceus. *Pallide ochraceus, oculis atris, thorace ferrugineo, lineis 3-bus longitudinalibus obscuris, alis posticis hyalinis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Long. Antennarum 15—16 lin.; Exp. Alar. 12—13 lin.)

Lep. ochraceus. *Curtis, v. ii. f. 57.—Steph. Catal. 319. No. 3636.*

“Pale dull ochre colour: eyes black; antennæ towards their apex and annulations fuscous; head and thorax ferruginous, the latter with three longitudinal fuscous obscure stripes; abdomen cinereous; superior (anterior) wings long, lanceolate, rounded; cilia fuscous; inferior (posterior) wings semitransparent; legs pale.”—*Curtis, l. c.*

Found on palings in the Regent's Park, and at Benacre, in Suffolk, by Mr. Curtis.

†Sp. 2. testaceus. *Rufescente-ochraceus, oculis nigris alis posticis hyalinis apice subfusco.* (Long. corp. — lin.; Exp. Alar. 8 lin.)

Lep. testaceus. *Phil. Mag. (Curtis) v. iv. p. 214.—Steph. Nomen. 2d edit. Appendix.*

“Reddish-ochre, very pubescent: antennæ long; eyes black; cilia fuscous; inferior (posterior) wings transparent, subfuscous at their tips.”—*Curtis, l. c.*

Locality not known to me.

Sp. 3. obtusus. *Niger nitidus, antennis pedibusque brunneis, alis fuscis, anticis rotundato-obtusis.* (Long. corp. 3— $3\frac{1}{2}$ lin.; Long. Ant. 8—9 lin.; Exp. Alar. $7\frac{1}{2}$ —8 lin.)

Lep. obtusus. *Steph. Nomen. 2d edit. col. 120.*

Shining black: eyes dull black; antennæ very long, brown, with the base and upper surface dusky; wings somewhat hyaline, fuscous, with dusky nervures, the anterior pair very obtuse at the apex; legs brown; tibiæ and tarsi with an ochreous tinge on the outer edge.

Not common; found, occasionally, within the metropolitan district, in July.

Sp. 4. nigricans. *Niger nitidus, antennis albo annulatis, alis fuscis, pedibus brunneis, tarsis ochraceis.* (Long. corp. $3\frac{1}{2}$ lin.; Long. Ant. $7\frac{1}{2}$ lin.; Exp. Alar. 9 lin.)

Lep. nigricans. *Steph. Catal. 320. No. 3648.*

Blackish and shining: eyes black; antennæ annulated with white; wings fuscous, with darker nervures, the anterior pair obtuse at the apex; legs brown; tarsi ochreous.

Found, in June, near London.

Sp. 5. ater. *Ater, oculis nigris antennis nigro alboque subannulatis, alis immaculatis subiridescentibus, pedibus nigris.* (Long. corp. 3 lin.; Long. Ant. $7\frac{1}{2}$ lin.; Exp. Alar. 9 lin.)

Mys. phæa. *Steph. Catal.* 320. No. 3661.—Mys. atra. *Pictet, p.* 169. *pl.* xii. f. 4.

Dull obscure black, with the antennæ faintly annulated with white; the maxillary palpi long and hairy; the wings immaculate, slightly ciliated, and a little iridescent; posterior nearly as dark as the anterior.

Larva slender, bright pale ochreous, with numerous black dots, forming χ -like marks on the head and two first thoracic segments, the 3rd segment with two black dots; legs ochreous, dotted with black.

Taken near London, in June; but apparently rare.

Sp. 6. niger. *Niger nitidus, alis anticis splendide chalybeo-nigris, oculis rufis, antennis nigro alboque annulatis, pedibus brunneis.* (Long. corp. 3— $3\frac{1}{2}$ lin.; Long. Ant. 9 lin.; Exp. Alar. $8\frac{1}{2}$ — $9\frac{1}{2}$ lin.)

Phr. nigra. *Linné.*—Mys. ? nigra. *Steph. Catal.* 320. No. 3659.

Bright shining black: eyes bright red during life, brown after death: antennæ very long, annulated with black and white; anterior wings of a rich bluish-or steel-black, and very glossy, with an obscure patch towards the apex of the inner margin; legs brown.

Larva attenuated behind, very pale ochreous, the head and two anterior segments of the thorax spotted with black, the following segment with two or three black dots; legs also dotted with black, and very slender, the hinder pair considerably elongated.

A specimen—which I supposed was the Ph. azurea of Linné—in my collection, has the antennæ of a pure white, and only four lines long; the anterior wings of a rich violet.

Extremely abundant, in June and July, within the metropolitan district; found also in Devonshire and in Scotland.

§ B. *Anterior wings* with the 2nd and 3rd nervures bifid on the hinder margin.

Sp. 7. perfuscus. *Niger, alis anticis fusco-brunneis, immaculatis, posticis saturate fuscis, antennis albo nigroque annulatis, pedibus ochraceis.* (Long. corp. 3 lin.; Long. Ant. 12 lin.; Exp. Alar. 9 lin.)

Lep. perfuscus. *Steph. Catal.* 319. No. 3640.

Black: palpi brown; head with a brownish tuft of hairs between the antennæ, the latter very long and annulated with black and white; anterior wings rich fuscous-brown, with a coppery tinge, immaculate; posterior dark fuscous, a little brownish at the base; legs pale ochreous, especially the tarsi.

Found, in the vicinity of London, in June.



Sp. 8. aureus. *Niger, cano pilosus, antennis albo annulatis, alis anticis aureo-sericeis, posticis griseis, iridescentibus, pedibus pallidis, tarsis albis brunneo-annulatis.* (Long. corp. 3 lin.; Long. Ant. 10 lin.; Exp. Alar. 10—11 lin.)

Lep. tarsalis. *Steph. Catal.* 319. No. 3641.—*Mys. aurea. Pictet, p.* 162. *pl.* xiii. *f.* 1.

Black, clothed above with a hoary down; palpi griseous; antennæ annulated with black and white; anterior wings thickly covered with a short golden pile, with a brighter spot towards the apex of the inner margin; posterior griseous and iridescent; legs dull ochreous, with the tips of the tibiæ brown; tarsi white, annulated with brown.

Also taken near London, and obtained from the Marshamian collection.

Sp. 9. annulatus. *Niger, alis brunntis, maculis holosericeo-fulvescentibus ornatis, palpis, pedibus, antennisque brunneis, his albo subannulatis.* (Long. corp. 3 lin.; Long. Ant. 9 lin.; Exp. Alar. 10—11 lin.)

Phr. annulata. *Gmelin, p.* 2367.—Lep. subannulatus. *Steph. Catal.* 319. No. 3642,

Deep black: antennæ slender, above twice the length of the wings, brown, annulated with white at the base, indistinctly so at the apex; palpi and legs brown; hinder tibiæ obscure; anterior wings brown, glossy, and adorned with a few yellowish hairs, forming rather ill-defined spots; cilia black; posterior wings griseous, with fuscous cilia.

Obtained from Marsham's cabinet: locality unknown.

Sp. 10. dissimilis. *Fulvo-ochraceus, oculis nigris, antennis albidis, brunneo annulatis, alis anticis griseo-ochraceis, immaculatis, posticis hyalinis concinnè iridescentibus.* (Long. corp. 3 lin.; Long. Ant. 8 lin.; Exp. Alar. $8\frac{1}{2}$ —9 lin.)

Lep. dissimilis. *Steph. Catal.* 319. No. 3637.

Bright tawny-ochreous, inclining to ferruginous on the thorax; eyes black; antennæ whitish, annulated with brown: anterior wings griseous-ochre, immaculate; posterior very transparent and beautifully iridescent; abdomen greenish-brown; legs pale ochreous.

Common, at Hertford, in June; also found in other places within the metropolitan district.

Sp. 11. bimaculatus. *Niger, alis fuscis, anticis macula laterali duplici flavâ, aut griseâ.* (Long. corp. $2\frac{1}{2}$ lin.; Long. Ant. 7 lin.; Exp. Alar. 9 lin.)

Phr. bimaculata. *Linné.*—Lep. bimaculata. *Steph. Catal.* 320. No. 3645.

Black: antennæ black, faintly annulated with whitish towards the base; wings fuscous, anterior with a lunate yellowish or griseous spot about the middle



of the inner margin, and a second smaller one a little beyond; posterior immaculate; legs pitchy-brown.

Taken, but rarely, near London, in July.

Sp. 12. interruptus. *Niger, alis fuscis, anticis strigis aliquot interruptis niveis, margineque postico albo punctato.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Long. Ant. $8\frac{1}{2}$ lin.; Exp. Alar. $8\frac{1}{2}$ — $9\frac{1}{2}$ lin.)

Phr. interrupta. *Fabricius.—Donovan, v. xvi. pl. 551.—Lep. interruptus: Steph. Catal. 320. No. 3650.*

Black: antennæ annulated with white; crown with a white patch; palpi pale; wings fuscous, anterior with about three or four transverse snow-white streaks, forming, as it were, interrupted lines, the 1st before the middle, the 2nd rather beyond the middle, and a 3rd placed obliquely towards the apex; the hinder margin frequently dotted with white on the cilia; posterior wings more transparent, immaculate; legs pale.

The number and position of the niveous streaks on the anterior wings vary slightly.

Abundant in the north of England and in Scotland, frequenting the borders of lakes, in June and July: taken also on the banks of the Tay, in Devonshire.

Sp. 13. affinis. *Ater, antennis albo annulatis, alis anticis punctis duobus marginalibus albis, pedibus subochraceis, tarsis albis.* (Long. corp. 3 lin.; Long. Ant. 6 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Lep. affinis. *Leach MSS.—Steph. Catal. 320. No. 3657.*

Deep black: antennæ annulated with white; anterior wings with two white spots on the margin, a little beyond the middle, one of them on the costa, the other on the inner margin; posterior immaculate; legs somewhat ochreous, clouded with blackish; tarsi white.

Found in the north of England, near Carlisle, in June.

§ C. *Anterior wings* with the 2nd nervure bifid, the 5th trifid, on the hinder margin.

Sp. 14. assimilis. *Viridi-fuscus, oculis brunneis, antennis albo fuscoque annulatis, alis anticis griseo-ochraceis, immaculatis, posticis hyalinis, iridescentibus.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Long. Ant. 7 lin.; Exp. Alar. 8—9 lin.)

Lep. assimilis. *Steph. Catal. 319. No. 3638.*

Green-brown: head clothed with hoary pile in front; antennæ annulated with fuscous and white; thorax with a faint pale longitudinal streak; anterior wings plain, immaculate, griseous-ochre; posterior hyaline, iridescent; legs pale ochreous; tips of the tarsal joints brownish.

Found, not uncommonly, near London, in June.

Sp. 15. *annulicornis*. *Pallide fuscus, antennis albis, nigro annulatis, palpis pedibusque ochraceis, alis anticis griseo-brunneis, posticis subhyalinis, fuscis-centibus.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Long. Ant. 6 lin.; Exp. Alar. 9—10 lin.)

Lep. *annulicornis*. *Steph. Catal.* 319. No. 3639.

Pale fuscous: antennæ black, annulated with white; palpi ochreous; anterior wings griseous-brown, immaculate; cilia rather pale; posterior wings slightly hyaline, brownish; legs pale.

Also taken, not very commonly, near London, in June.

Sp. 16. *seminiger*. *Niger, antennis albo-annulatis, alis anticis griseo-ochraceis, posticis atro-fuscis, immaculatis, pedibus pallidis.* (Long. corp. 3 lin.; Long. Ant. 6 lin.; Exp. Alar. 9 lin.)

Lep. *seminiger*. *Steph. Catal.* 319. No. 3643.

Black: antennæ annulated with white; palpi ochreous; anterior wings griseous-ochre, with a very faint paler ochreous dot before the middle of the inner margin, two or three others placed obliquely towards the apex of the wings; posterior deep fuscous, immaculate; legs pale.

Found near Hertford, and in the New Forest, in June and July.

Sp. 17. *cinereus*. *Cinereo-fuscus, alis anticis cano pubescentibus, costâ nebulis que aliquot subochraceis, tibiis tarsisque albido-ochraceis.* (Long. corp. 4— $4\frac{1}{2}$ lin.; Long. Ant. 10 lin.; Exp. Alar. 12—13 lin.)

Lep. *grossus*. *Steph. Catal.* 320. No. 3644.—Lep. *cinereus*. *Phil. Mag.* (Curtis) v. iv. p. 214.

Fuscous: eyes black; "antennæ very long, black, annulated with white, clothed with griseous hairs; wings fuscous; superior (anterior) clothed with grey pubescence; costa slightly ochreous, as well as some iridescent marks; a small portion of the base of the inferior (posterior) wings pale ochreous; tibiæ and tarsi of the same colour."—Curtis, *l. c.*

Inhabits the vicinity of London, and the New Forest, in July.

Sp. 18. *filosus*. *Niger, capite infra fulvo, antennis gracilibus brunneo alboque annulatis, alis anticis ochraceo-brunneis, marginibus flavescentibus, posticis hyalinis iridibus, pedibus pallidis brunneo annulatis.* (Long. corp. 3— $3\frac{1}{2}$ lin.; Long. Ant. 7 lin.; Exp. Alar. 11 lin.)

Phr. *filosa*. *Linné*.—Lep. *filosus*. *Steph. Catal.* 320. No. 3646.

Black: head yellowish beneath; palpi and antennæ brown, the latter very slender and long, annulated with white from the base to the middle; anterior wings clear pale brown, somewhat transparent and immaculate, the costal and inner margins pale tawny; posterior wings more transparent and iridescent; legs whitish, faintly annulated with brown.

Taken near London, in June.



Sp. 19. *caliginosus*. *Niger*, *antennis tenuissimè albo annulatis*, *alis brunnescente-fuscis*, *immaculatis*, *posticis basi subiridescentibus*, *pedibus ochraceo-brunneis*, *tarsis pallidioribus*. (Long. corp. 3 lin.; Long. Ant. 11 lin.; Exp. Alar. 9—10 lin.)

Lep. ater. *Steph. Catal.* 320. No. 3647.

Deep black: antennæ with very narrow white rings; wings brownish-fuscous, immaculate; posterior a little darker, and slightly iridescent, especially at the base; legs ochreous-brown, with the tarsi paler.

In this and the following insect, as well as the immediately preceding one, the third, or hinder twig of the 5th nerve arises nearly upon the transverse nervure.

Pictet having a *Mys. atra* (described in p. 196), it becomes necessary to change the name I had applied to this species.

Common, within the metropolitan district, in June and July.

Sp. 20. *aterrimus*. *Ater*, *antennis albo tenuissimè annulatis*, *alis fusco-nigris*, *nervis saturatoribus*, *pedibus fuscis*. (Long. corp. 3 lin.; Long. Ant. $6\frac{1}{2}$ lin.; Exp. Alar. $8\frac{1}{2}$ — $9\frac{1}{2}$ lin.)

Lep. *aterrimus*. *Steph. Catal.* 320. No. 3649.

Deep black: antennæ with slender white rings; palpi fuscous; wings brown-black, with darker nervures, and immaculate; posterior somewhat paler; legs fuscous.

Also common, in the vicinity of the metropolis, in June and the beginning of July.

Sp. 21. *bilineatus*. *Niger*, *palpis antennisque brunneis*, *his obscurè flavo annulatis*, *alis brunneis*, *lineis 2-bus abbreviatis albidis*, *pedibus ochraceis*. (Long. corp. $2\frac{3}{4}$ lin.; Long. Ant. 6 lin.; Exp. Alar. 8 lin.)

Phr. *bilineata*. *Linné*.—Lep. *bilineatus*. *Steph. Catal.* 320. No. 3651.

Black: palpi brown; antennæ brown, with several of the lower articulations faintly annulated with ochreous; anterior wings brown, each with three oblique whitish lines or streaks, one of them on the inner margin, forming a streak common to both wings, the other two towards the apex of the costa; posterior wings hyaline and iridescent; legs ochreous, the tarsi faintly annulated with brown.

Not common: taken in June near London.

§ D. *Anterior wings* (sometimes very narrow) with the nervures rather indistinct, the 2nd nervure alone bifid on the posterior margin.

Sp. 22. *quadrifasciatus*, *Niger*, *alis ochraceo-testaceis*, *anticis fasciis quatuor latis nigris posticis immaculatis*. (Long. corp. $2\frac{1}{2}$ —3 lin.; Long. Ant. 7 lin.; Exp. Alar. 8—10 lin.)



Phr. quadrifasciata. *Fabricius*.—Lep. quadrifasciatus. *Steph. Catal.* 320. No. 3656.

Black: antennæ annulated with black and white; wings dull ochreous-testaceous, anterior with four broad black bands, placed nearly equidistantly, the fourth at the apex; posterior immaculate, paler; nervures dusky; abdomen greenish-brown; legs pale, hinder femora dusky.

Not very abundant: taken occasionally near London, but more frequently in Devonshire and in Scotland.

Sp. 23. longicornis. *Fuscus, alis anticis griseo et nigricante variis, posticis griseis immaculatis, antennis pedibusque pallidis.* (Long. corp. 3 lin.; Long. Ant. 9 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Phr. longicornis. *Linne*.—Lep. longicornis. *Steph. Catal.* 320. No. 3655.

Pale fuscous: eyes black; antennæ whitish, about thrice the length of the body; anterior wings pale griseous, varied with dusky or blackish dots; posterior griseous and immaculate; legs whitish.

Apparently rare: taken in June near London.

Sp. 24. rufo-griseus. *Fuscus, alis anticis rufo-griseis, atomis pallidioribus, posticis fuscis, subhyalinis, pedibus pallidis, antennis albis nigro maculatis.* (Long. corp. $2\frac{1}{2}$ lin.; Long. Ant. 9 lin.; Exp. Alar. $7\frac{1}{2}$ —8 lin.)

Lep. rufogriseus. *Steph. Catal.* 320. No. 3652.

Fuscous: eyes black; anterior wings griseous-red, with numerous fainter atoms; posterior somewhat transparent, fuscous, darkest on the margins; abdomen pale; legs whitish; antennæ very slender, white, with narrow black rings.

Not common: found in Devonshire, in July, and occasionally near London.

Sp. 25. bicolor. *Capite, thorace et alis anticis ochraceo-ferrugineis, abdomine alisque posticis nigricantibus, antennis nigris albo annulatis, pedibus fulvis.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.; Long. Ant. $7\frac{1}{2}$ lin.; Exp. Alar. 6—8 lin.)

Lep. rufus. *Steph. Catal.* 320. No. 3653.—Lep. bicolor. *Phil. Mag. (Curtis)* v. iv. p. 214.

Head, thorax, and anterior wings light rusty-ochre; posterior wings and abdomen blackish; legs fulvous; antennæ very long and slender, black, faintly annulated with white.

Rather more abundant than the last: found near London, and in the New Forest, and in Devonshire, in July.

Sp. 26. elongatus. *Pallide rufo-ochraceus, alis anticis angustis, ochraceis atomis paucis atris, posticis hyalinis fusco, iridescentibus, pedibus antennisque pallide*
MANDIBULATA, VOL. VI., DEC. 31ST, 1836. 2 c

griseis, his albido annulatis. (Long. corp. 2 lin.; Long. Ant. $8\frac{1}{2}$ lin.; Exp. Alar. 7 lin.)

Lep. elongatus. *Steph. Catal.* 320. No. 3658.

Pale ochreous-red: eyes black; anterior wings very narrow, reddish-ochre, with some minute black dots on the nervures, especially towards the apex; cilia rather pale; abdomen pale; posterior wings hyaline, and slightly iridescent, with a fuscous tinge; legs pale; antennæ pale griseous, annulated with whitish.

Taken in June, near London.

Sp. 27. tineiformis. *Fusco-cinereus, alis anticis angustissimis nervis fusco irroratis, pedibus ochraceo-albis, antennis albis nigro annulatis.* (Long. corp. 2— $2\frac{1}{2}$ lin.; Long. Ant. $4\frac{1}{2}$ lin.; Exp. Alar. 6— $6\frac{1}{2}$ lin.)

Lep. gracilis. *Steph. Nomen. 2d edit. col. 120.*—Lep. tineiformis. *Phil. Mag. (Curtis) v. iv. p. 214.*

Ashy-brown: eyes black; forehead very pilose; anterior wings long and very narrow, the nervures faintly, but minutely, dotted with fuscous; posterior wings also narrow, immaculate, with longish cilia; abdomen pale; legs ochreous-white; antennæ moderate, white, annulated with black.

Found, in June, at Ripley; also in the west of England.

Sp. 28. attenuatus. *Capite thoraceque fuscis, alis angustissimis, subhyalinis pallidis immaculatis, abdomine pedibusque ochraceo-pallidis, antennis pallidis, fusco annulatis.* (Long. corp. $1\frac{3}{4}$ —2 lin.; Long. Ant. $4\frac{1}{2}$ lin.; Exp. Alar. 5—6 lin.)

Lep. attenuatus. *Steph. Catal.* 320. No. 3654.

Head and thorax fuscous: eyes black; wings very narrow, hyaline, pale, immaculate, the posterior pair faintly suffused with fuscous, with their cilia very long; abdomen and legs pale ochreous; antennæ pale, annulated with fuscous.

Taken, at the end of June, at Ripley.

GENUS XXVIII.—MOLANNA, *Curtis*.

Antennæ stout, not longer than the wings, the basal joint longish and robust: *palpi* slender, slightly hairy; maxillary with the two basal joints short, the 3rd and 4th longish and stout, the 5th slender, filiform, a little longer than the 4th: *head* small: *eyes* slightly prominent: *thorax* stoutish: *wings* long and narrow, obtusely rounded at the apex, anterior with the 4th nervure trifid, the 5th bifid, posterior with the 1st and 3rd nervures bifid: *abdomen* shortish, slender, obtuse at the apex in the females: *legs* long, slightly pubescent, and setose beneath, all the *tibiæ* armed with a pair of longish



spurs at the apex, and the intermediate and posterior each with a second pair considerably below the middle.

This genus, in my opinion, scarcely belongs to the present family, yet I know not where better to place it: from the other genera it differs in having the antennæ not longer than the wings, the latter very obtusely rounded at the apex, and differing in the positions of the transverse nervures from the true Leptoceridæ and the Phryganidæ; the legs, moreover, are rather long, and the two hinder pair of tibiæ are each furnished with two pair of longish spurs, one pair at the apex, and the other pair much below the middle.

Sp. 1. *nigripalpis*. PLATE xxxiii. f. 3.—*Capite, palpis abdomineque fuscis, thorace fulvo, alis anticis ochraceo-sericeis, posticis pallide fuscescentibus, pedibus fulvis*. (Long. corp. 3 lin.; Exp. Alar. 12 lin.)

Amblypteryx nigripalpis. Steph. Catal. 318. No. 3619.

Head and palpi fuscous; thorax bright tawny; abdomen fuscous, its apex rather ochreous; anterior wings thickly clothed with an ochreous silky pubescence, the nervures somewhat fuscous; posterior wings pale fuscous, with darker nervures; legs pale tawny; antennæ tawny, spotted with fuscous.

Found, but apparently very rarely, in the vicinity of London, at Hertford, in June; also taken in the New Forest.

Sp. 2. *angustata*. *Capite thorace abdomineque fuscis, palpis pedibusque ruf ochraceis, alis anticis subfulvis, nervis fuscis, posticis fuscescentibus*. (Long. corp. 3 lin.; Exp. Alar. 12 lin.)

Amb. rufipalpis. Steph. Catal. 318. No. 3620.—*Mo. angustata*. Phil. Mag. (Curtis) v. iv. p. 214.

Head, thorax, and abdomen, fuscous; palpi and legs ochreous-red; anterior wings dull tawny, clothed with a silken pile, with the nervures fuscous; posterior pale fuscous; antennæ tawny, with fuscous spots above.

The head, thorax, and abdomen, are sometimes pale tawny-ochreous; all the wings dull fuscous-ochre, with darker nervures.—Probably a distinct species.

Likewise taken near London, in July, and in Devonshire, in June.

FAMILY VIII.—PHRYGANIDÆ *mili*.

Antennæ setaceous, longer than the body, but not longer than the wings: *mazillary palpi* slightly hairy, dissimilar in the sexes, those of the male being 3 or 4-articulate, and of the female 5-jointed, the terminal joint shorter



than the two preceding united; *labial* 3-articulate, the last joint ovoid: *wings* furnished with a series of transverse nervures, forming a flexuous or repanded line towards the bifurcations of the longitudinal ones; posterior wings ample, considerably folded within: *abdomen* moderate, slightly compressed: *legs* rather short: *tibiæ* mostly furnished with a pair of long spurs at the apex, and the two hinder pair with others about the middle; the *tibiæ* themselves and the *tarsi* very frequently armed with short spurs beneath. Larva residing in a moveable case of various forms, and differently composed: the head and thorax are scaly, and the legs short: the respiratory organs are isolated, and arise transversely on the upper and under surface of the body.

The insects embraced in this family are amongst the largest of the order, especially those of the typical genus, some of which are very bulky: in the structure of the oral organs there is considerable difference, in general, between the sexes, the maxillary palpi of the males being mostly 3- or 4-jointed, while those of the females are invariably 5-jointed; the antennæ are longer than the body, but shorter than the wings, and are rather stoutish: the wings are distinctly furnished with a somewhat repanded series of transverse nervures, placed a little beyond the middle, and the posterior pair are much folded; in the anterior there is considerable diversity of outline, as well as of neuration, whence the species may be readily subdivided in groups, or genera: the *tibiæ* and *tarsi* are mostly armed with short rigid spire-like setæ, and the legs are rather short. The larvæ reside in moveable cases, composed of various substances, and of various forms; the head and thorax are scaly, and the rest of the body soft, the first abdominal segment being, in general, much dilated and rounded on the sides; the terminal joint is truncate, and furnished with two hooks.

The British species may be thus divided into genera:—

<i>Tibius</i> haud setigeris :	.	.	.	.	35. NEURONIA.
<i>setis armatis</i> ;					
<i>Corpus</i> latum, depressum :	.	.	.	.	34. AGRYPNIA.
subcompressum, haud depressum ;					
<i>Alis</i> setis erectis ornatis :	.	.	.	.	31. CHÆTOPTERYX.
<i>pilosus, vix setigeris</i> ;					
<i>Palpi</i> maxillares					
arti°. ult°. breve, subelliptico :	.	.	.	.	29. PHRYGANEÆ.
elongato, filiformi					
<i>Alis</i> anticis latis, versus apicem dilatatis, margine postico					
rotundato :	.	.	.	.	30. HÆLESUS.
angustis, margine postico rotundato :	.	.	.	.	33. ANABOLIA.
oblique truncato	.	.	.	.	32. LIMNAPHILUS.



GENUS XXIX.—PHRYGANEÆ *Auctorum*.

Antennæ setaceous, approximating, longer than the body, but shorter than the wings, slightly pubescent beneath: *palpi* rather pubescent; maxillary of the male 4-jointed, of the female 5-jointed, the terminal joint elliptic-ovoid: labial 3-articulate in both sexes, the apical joint of the male robust, somewhat ovate, of the female more slender and somewhat elliptic: *head* ovate: *eyes* globose, prominent: *thorax* ovate: *wings* slightly deflexed during repose; anterior elongate, lanceolate, with a waved line of transverse nervures, placed rather beyond the middle, at the origin of the bifurcation of the longitudinal ones; posterior more ample, ovate-triangular: *abdomen* of the males compressed, and furnished at the apex with two long, incurved horny appendages, two shorter ones below them, and a bilobed one between; of the females robust, and obtuse at the apex: *legs* rather stout; *tibiæ* with numerous short spines, and two spurs at the apex, the two hinder pair with a second pair of spurs below the middle; the hinder *tibiæ* long and curved. Larva with the head and following segment scaly, the 5th segment much dilated on the sides, the respiratory organs prominent, and placed obliquely, the apex of the abdomen with two hooks; case formed of pieces of aquatic plants.

This genus contains the largest species of the order, and, exclusively of their great bulk, they may be known by having the terminal joint of the palpi rather short and ovate; the palpi themselves are dissimilar in the sexes, those of the males being 4-jointed, and of the females 5-jointed: the wings are in general ornamented with rather conspicuous colours, the anterior being somewhat lanceolate, and rounded at the apex, and the posterior being very simple, and of plain colours.

Sp. 1. *grandis*. *Brunneo-fusca, supra pubescente-grisea, alis fusco-testaceis maculis parvis numerosissimis pallidioribus, punetisque albido, mas; aut fusco-cinereis nebulis pallidioribus, lineolisque duabus interruptis nigris, punetisque albo, fœmina.* (Long. corp. 4—9 lin.; Exp. Alar. 1 unc. 6 lin.—2 unc. 4 lin.)

Phr. *grandis*. Linné.—Wood, v. ii. pl. 48.—Steph. Catal. 321. No. 3678 ♀.—Phr. *striata*. Linné?—Steph. Catal. 321. No. 3677 ♂.

Dusky-brown, clothed, especially above, with a pale griseous or ashy down; eyes black; antennæ testaceous-brown, dotted at the base above with dusky, or pitchy; sides of the thorax black; wings of the male dull testaceous-brown, anterior thickly clouded with small palish spots, with a larger and brighter one towards the hinder angle, the nervures obscurely dotted with blackish, or fuscous, and the hinder margin spotted with the latter



colour; of the female the anterior wings are more of an ashy hue, less freckled with pale dots, especially on the disc, which last is clouded with fuscous, and bears one or two irregular and interrupted black streaks, the longest one terminating in a conspicuous white dot; posterior wings in both sexes immaculate; legs dull tawny, four anterior annulated with fuscous.

The markings on the anterior wings vary considerably in intensity, and are sometimes nearly obliterated.

Rather local, but in some places very abundant, especially about Albury in Surrey, in June and the beginning of July; also taken at Ripley, Hertford, in the New Forest, and in Devonshire.

Sp. 2. *Beckwithii*. *Griseo-fusca, alis anticis nigro valdè nebulosis, antennis piceis*. (Long. corp. 6 lin.; Exp. Alar. 1 unc. 9 lin.)

Phr. *Beckwithii*. *Leach MSS.—Steph. Catal. 321. No. 3679.—Phr. grandis. Kirby and Sp. Int. pl. iii. f. 4?*

Griseous-brown, clothed with a paler down; antennæ pitchy; sides of thorax dusky; anterior wings fuscous, thickly freckled with paler spots, and very much clouded with dusky-black; nervures slightly dotted with fuscous, the hinder margin spotted with the same; legs pitchy.

I suspect this to be only a strong variety of the foregoing species.

Sp. 3. *atomaria*. *Fusco-cinerea, alis anticis fusco-cinerascentibus, punctis nigris numerosissimis sparsis, pedibus ochraceis*. (Long. corp. 7 lin.; Exp. Alar. 1 unc. 10 lin.)

Phr. *atomaria*. *Fabricius.—Steph. Catal. 321. No. 3681.*

Ashy-brown: eyes black; antennæ yellowish; head and thorax hairy; body cinereous; wings pale ashy-brown, the anterior very thickly sprinkled with minute black dots; legs ochreous, with blackish spurs.

Apparently very rare: taken in the vicinity of the metropolis, in July.

Sp. 4. *varia*. *Griseo-fusca, alis anticis nigro alboque variis, puncto distincto niveo, antennis pedibusque fulvis, fusco annulatis*. (Long. corp. 5—7 lin.; Exp. Alar. 11—16½ lin.)

Phr. *varia*. *Fabricius.—Donovan, v. viii. pl. 277. f. 1.—Steph. Catal. 321. No. 3682.*

Head griseous-brown, with tawny down; palpi testaceous, with the tip black; eyes black: antennæ dull testaceous, annulated with brown; thorax fuscescent, or ochreous, with griseous or ashy pile; anterior wings fuscous, irregularly varied with black clouds and spots, largest towards the inner margin, and with numerous white dots and blotches, two of the latter



being large, and placed somewhat obliquely on the inner margin; towards the apex of the disc is a conspicuous snow-white dot, appended to a black streak, and another edged with black near the posterior angle; the posterior wings are slightly iridescent, with the apex rather broadly tipped with brown; legs pale tawny, annulated with brown.

Extremely variable in the intensity of the markings, and slightly so in their positions.

Larva dirty shining green, with the head and legs ochreous, the former with elongate black streaks; the following segment also ochreous, edged anteriorly and posteriorly with black.

Not very uncommon, in the vicinity of London, towards the end of June; taken also in Norfolk, Cambridge, South Wales, Devon, and Scotland.

Sp. 5. minor. *Fusco-ochracea, alis anticis ochraceis, nigro-fusco nebulosis, maculâ costali fuscâ, fasciâque subrepandâ posticâ albido-ochraceâ.* (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. 9—12 lin.)

Phr. flexuosa. *Steph. Catal.* 321. No. 3680.—Phr. minor. *Curtis, v. xiii. pl. 592.*

“Subochraceous: antennæ annulated with brown, the base, crown of head, and back of thorax greyish, with ochreous hairs; base of abdomen brown, back fuscous; wings pubescent, nervures brown; superior (anterior) ochreous, variegated and reticulated, with a brown patch at the base, an imperfect fascia at the middle, with a black lunate spot and white dot on the disc, a brown fimbria at the posterior margin, bearing two round ochreous spots on the costa, a distinct line formed of similar spots parallel to the margin, which is broken by similar spots, and the edges spotted with brown; inferior (posterior) wings iridescent, pale fuscous at the apex; palpi, anterior thighs, and tips of tibiæ brown.”—*Curtis, l. c.*

The ochreous spots vary a little in position in different specimens, and, in lieu of the imperfect central fascia, there is only a deep fuscous costal spot.

Taken in the garden at the Hermitage, South Lambeth, in July;

†Sp. 6. *Phalænoides. Nigra, alis albidis, maculis nigris sparsis.* (Long. corp. — lin.; Exp. Alar. — lin.)

Phr. *Phalænoides. Linné.—Turton (!)—Steph. Catal.* 321. No. 3683, note.

Black: antennæ half the length of the body; wings whitish; anterior sprinkled with numerous black dots, disposed in a row on the hinder margin; posterior white, the hinder margin with a black band, the lateral margin with black dots.

Indicated, but improperly, by Turton, as British.



also in other parts within the metropolitan district, and in the New Forest and in Scotland, but not very plentifully.

GENUS XXX.—HALESUS *mihi*.

Antennæ setaceous, short, somewhat remote, longer than the body, and as long as the wings: *palpi* slightly pubescent; *maxillary* of the males 4-jointed, of the females 5-jointed, the terminal joint long and somewhat acuminate; labial 3-articulate in both sexes, the terminal joint ovate, most robust in the males: *head* transverse, *front* rather prominent: *eyes* large, globose: *thorax* ovate, collar distinct: *wings* considerably deflexed during repose; anterior elongate, lanceolate, with the costa somewhat dilated towards the apex, the hinder margin rounded, nervures moderately distinct; posterior very ample, transparent, and much folded: *abdomen* of the males slightly compressed, furnished at the apex with short horny appendages; of the females more robust, and somewhat cylindric, with the apex obtuse: *legs* rather stout: *tibiæ* armed with numerous short spines, and two spurs at the apex; the two hinder pair each with a pair below the middle; hinder *tibiæ* straight.

Larva very robust, the head and following segments scaly, the 3rd dilated, the body cylindric: case formed of pieces of wood and stones, connected with much regularity.

The very ample posterior wings of the insects of this genus, and the large anterior ones, of which the costa is somewhat dilated towards the apex, and the hinder margin distinctly rounded, will sufficiently distinguish them from the allied genera; and from *Limnephilus* this last character alone will enable the reader to know them, inasmuch as in that genus the hinder margin of the anterior wings is always truncate, and sometimes deeply excised.

Sp. 1. *digitatus*. *Ochraceo-brunneus, antennis brunneis, alis anticis pallidis nervis albidis brunneo marginatis, areolis posticis lineâ longitudinali brunneâ.* (Long. corp. 7—9 lin.; Exp. Alar. 18—24 lin.)

Phr. *digitata*. *Schrank*, 309. No. 616.—N. G. (371). (*Halenus*, *Nom.*) *radiatus*. *Leach MSS.*—*Steph. Catal.* 321. No. 3670.

Pale ochreous-brown: head with a longitudinal tawny streak; palpi pale; antennæ brown; thorax also brown and pubescent, the anterior margin rather tawny; anterior wings ample, the nervures whitish-ochre, edged with brown, forming a border to each areolet, the groundwork of which is whitish-ochre, in some with paler spots and brown lines, and the areolets on the hinder margin have a more or less distinct brown central line, producing a radiated appearance; posterior wings very transparent pale yellowish, immaculate; legs pale tawny, with black spines.



Extremely variable as to the markings on the anterior wings, which are sometimes nearly obliterated, and at others remarkably powerful.

Larva robust, fleshy: head and thorax brown, with numerous black streaks, forming regular figures, radiated on the head; the abdomen is pale yellow; legs tawny: it forms a very compact case, comprised of small pieces of wood, &c. placed somewhat longitudinally, or a little inclined.

Extremely abundant, in the autumn, about Hertford and its vicinity; also taken at Ripley, in Devonshire, near Carlisle, in Scotland, Suffolk, the New Forest, &c.

Sp. 2. *cingulatus*. *Fulvo-ochraceus, oculis nigris, alis anticis pallide ochraceis immaculatis, abdomine fulvescente segmentorum marginibus nigris*. (Long. corp. $8\frac{1}{2}$ lin.; Exp. Alar. 18 lin.)

N. G. (371.) *cingulatus*. (*angulatus*). *Steph. Catal.* 321. No. 3671.—*Ph. pilosa*. *Pictet*, p. 134. *pl. vi. f. 2?*

Tawny-ochre: antennæ brown; eyes black; thorax with its sides dusky; anterior wings pale ochre, immaculate; nervures yellowish-ochreous, faintly edged with a darker tint, the base of some brownish; posterior wings very transparent, pale whitish-yellow, with pale ochreous nervures; abdomen pale tawny, with the margins of the segments and its apex blackish; legs tawny, with black spines.

Taken in July, in Devonshire.

Sp. 3. *Vibex*. *Ochraceus, alis anticis subangustatis pallide brunneo-ochraceis, atomis numerosis pallidioribus, costâ exceptâ, sparsis*. (Long. corp. 7—9 lin.; Exp. Alar. 14—22 lin.)

N. G. (571.) *angustatus*. *Steph. Catal.* 321. No. 3672.—*Lim. Vibex*. *Phil. Mag.* (*Curtis*) v. iv. p. 125.

Ochreous: eyes black; antennæ tawny; thorax with its sides brown; anterior wings rather narrow and somewhat acute at the tip, of a very pale ochreous-brown, thickly freckled throughout with numerous paler dots, excepting the costa, which is immaculate; nervures pale luteous-ochre; posterior hyaline, faintly iridescent, very pale whitish-ochre; legs pale tawny, with blackish spines.

Found, in the autumn, in Devonshire, and occasionally in the vicinity of London; also in Norfolk and the New Forest.

Sp. 4. *latipennis*. *Pallide ochraceus, oculis nigris, alis anticis sublatius ochraceo-brunneis, viz pallide irroratis, nervis fusco submarginatis*. (Long. corp. 7— $8\frac{1}{2}$ lin.; Exp. Alar. 18—20 lin.)

N. G. (571.) *confinis*. *Steph. Catal.* 321. No. 3673.—*Lim. latipennis*. *Phil. Mag.* (*Curtis*) v. iv. p. 125.

MANDIBULATA, VOL. VI., JAN. 31ST, 1837.

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Pale ochreous: eyes black; antennæ pale tawny; anterior wings rather broad, pale ochreous-brown, very obscurely, or not at all, freckled with paler atoms, the nervures pale, and faintly edged with pale fuscous; posterior wings immaculate, transparent, pale whitish-ochre, with the apex and nervures darker; abdomen and legs pale tawny, the spines on the latter black.

Taken near Hertford, in September; also at Ripley, in the New Forest, &c.

Sp. 5. hieroglyphicus. *Ochraceo-flavus, oculis nigro-brunneis, alis anticis, costâ exceptâ, brunnescentibus, atomis pallidioribus confertim irroratis.* (Long. corp. 8—10 lin.; Exp. Alar. 17—25 lin.)

N. G. (571.) flavus. *Steph. Catal.* 321. No. 3674.—Lim. hieroglyphicus. *Phil. Mag. (Curtis)* v. iv. p. 125.

Ochreous-yellow: eyes brown-black; antennæ tawny; anterior wings with a pale brown tint, excepting the costa, which, with numerous minute atoms throughout the rest of the wing, is of a paler tint; legs pale tawny, with blackish spines.

Found in the vicinity of Ripley and Albury, in August and September, and in other places within the metropolitan district.

Sp. 6. lateralis. *Fulvo-ochraceus, oculis nigris, thoracis lateribus fuscescentibus, alis anticis pallide ochraceis, concinnè irroratis, nervis subfulvis.* (Long. corp. 8 lin.; Exp. Alar. 17—20 lin.)

N. G. (571.) lateralis. *Steph. Catal.* 321. No. 3675.—Ph. striata. *Pictet, p. 132. pl. vi. f. 1?*

Pale tawny-ochre: eyes black; antennæ tawny; thorax pale tawny, with its sides blackish or brown; anterior wings broad, fuscescent, with somewhat tawny nervures, the disc, especially towards the inner margin, very thickly and prettily freckled throughout with minute palish spots; posterior wings ample, iridescent, whitish, with the tips and nervures rather darker; legs pale fulvous, with blackish spines.

Taken, occasionally, within the metropolitan district, in August, and likewise in Devonshire.

Sp. 7. stellatus. *Ochraceus, alis anticis fuscescentibus lineis maculisque pallidis.* (Long. corp. $5\frac{1}{2}$ —6 lin.; Exp. Alar. 16—18 lin.)

N. G. (571.) obscurus. *Steph. Catal.* 321. No. 3676?—Lim. stellatus. *Phil. Mag. (Curtis)* v. iv. p. 125.

Ochreous: "superior (anterior) wings very pubescent fuscous-ochre, with pale lines at the base and centre of the discoidal nervures, two or three small spots at the base, a bilobed one near the centre, two dots by the transverse



nervures, and a curved series of pale streaks beyond them; inferior (posterior) wings fuscous-ochreous, very pale at the base."—*Curtis, l. c.*

Found rarely near London; also in the Isle of Wight, Devonshire, and Dorsetshire.

GENUS XXXI.—LIMNEPHILUS, *Leach.*

Antennæ slender, setaceous, somewhat approximating and slightly pubescent, especially in the males, shorter than the wings: *palpi* pubescent; maxillary 5-jointed, pilose at the base, the 4th joint shorter than the 5th, which is slightly elongated and a little attenuated; labial 3-articulate, with the two basal joints pilose: *head* small, transverse: *eyes* prominent, globose: *thorax* small, subovate-convex: *wings* deflexed during repose; anterior long and narrow, the costa not dilated towards the apex, the hinder margin obliquely truncate, and sometimes deeply excised; posterior ample, thin, and much folded when at rest: *abdomen* slightly compressed in the males, stouter and rather longer in the females: *legs* moderate: *coxæ* long and setose: *femora* slender, unarmed; *tibiæ* and *tarsi* armed with short spines, the former with a small pair of spurs at the apex, and the hinder pair with two others below the middle. Larva with the head and three anterior segments horny, 4th segment with two or three tubercles, the terminal one with two claws; legs long: inhabits a case composed of sand, pebbles, pieces of wood, bones, &c. in which the pupa is also formed.

Known from the allied genera by having the hinder margin of the anterior wings more or less truncate, and in some instances deeply emarginate: the wings are in general narrower than in the other Phryganidæ, and the nervures somewhat indistinct: there is great similarity among the species, which, however, form several very distinct groups, and the last species offers many points of distinction: the species of the 1st section may probably form a distinct genus, as indicated in the 2nd edition of my Nomenclature.

A. Anterior wings with the hinder margin cut out:—*GLYPHOTÆLIUS miki.*

Sp. 1. *pellucidula*. *Ochraceus, alis anticis emarginatis pallidis fusco irroratis, maculis duabus hyalinis, posticis hyalinis apice ochraceo, in maribus fusco nebuloso.* (Long. corp. 6—8 lin.; Exp. Alar. 15—18 lin.)

Phr. *pellucidula*. *Olivier, E. M.* 541. 12.—*Lim. pictus*. *Steph. Catal.* 323. No. 3732 ♂.—*Lim. angulatus*. *Steph. Catal.* 325. No. 3728 ♀.—*Lim. basalis*. *Phil. Mag. (Curtis)* v. iv. p. 122 ♂.—*Lim. emarginatus*. *Phil. Mag. (Curtis)* v. iv. p. 122 ♀.

Dusky, or brownish-ochre, clothed with similarly-coloured hair; antennæ and palpi paler or fulvescent; eyes fuscous; abdomen dusky-green (yellowish-ochre in the dried state); anterior wings of the male thickly and minutely

freckled with brown, having a conspicuous clear oblique transparent spot in the middle of the disc, a second irregular one between that and the apex, frequently united to the former; the hinder margin also pale, with three distinct brown spots towards the apex, and a patch of the same hue on the anal angle; some of the inner nervures are deeply freckled with blackish-brown, and the stigma is usually deep fuscous; posterior wings very transparent and iridescent, with the apex ochreous, varied with brown:—female with the anterior wings of a more uniform tint, faintly freckled with pale brown, having a narrow oblique spot on the disc, and a second, generally remote, and somewhat indistinct and irregular towards the apex, the hinder margin with the anal angle and three spots towards the costa brown; stigma pitchy-brown; posterior wings transparent, with a pale uniform brownish spot on the apex; legs in both sexes pale tawny, with black spines.

Lim. ornatus. *Steph. Catal.* 323. No. 3731, var. ♂.

Rather larger, with the anterior wings paler, less deeply freckled with fuscous, but having a very distinct lunate transparent discoidal spot; stigma pale fuscous; a triangular blotch of a pitchy hue at the base of the inner margin; the costa prettily freckled with brown; posterior wings with the apex ochreous, faintly varied with brown.

Lim. diaphanus. *Steph. Catal.* 323. No. 3730, var. ♂.

Less than the former; the anterior wings pale ochreous, very faintly freckled with a deeper tint, leaving only a broad oblique transparent blotch on the disc; the stigma and three spots on the hinder margin faintly pitchy; posterior wings with the apex unvaried pale ochreous-brown.

Lim. cognatus. *Steph. Catal.* 323. No. 3729, var. ♀.

With the anterior wings pale ochreous, faintly mottled with a darker tint, leaving a very narrow oblique transparent line on the disc, and a faint one towards the hinder margin, which last has three rather indistinct pitchy spots towards the apex, and a tinge of the same hue on the hinder angle; stigma pale pitchy-brown.

An extremely variable species: in some examples the stigma on the anterior wings is wholly wanting, in others it is very distinct, and in some partly obliterated; the tranverse nervures are occasionally edged with deep fuscous.

The larva (according to Pictet) is large, has the head and two first segments dull uniform brown, divided with black streaks, the following segment pale, with some blackish spots; the abdomen pale greenish; legs brown.

This variable species is far from uncommon, throughout the metropolitan district, during the early summer months: it also occurs in the New Forest, Devonshire, Norfolk, Suffolk, near Dover, in Scotland, &c.



B. *Anterior wings* with the hinder margin entire, truncated obliquely.

Sp. 2. *Lineola*. *Pallide ochraceus, alis anticis pallidis fusco irroratis, posticis immaculatis lineolâ apicis fuscâ.* (Long. corp. 6—9 lin. ; Exp. Alar. 14—22 lin.)

Phr. *Lineola*. *Villers Ent.* iii. 41.—*Lim. Striola*. *Leach.*—*Steph. Catal.* 322. No. 3685.—*Lim. Strigosa*. *Phil. Mag. (Curtis)* v. iv. p. 122

Pale ochreous : eyes and sides of the thorax fuscous ; antennæ pale fulvous ; anterior wings more or less freckled with minute brown dots, but in some instances wholly immaculate ; these dots are occasionally united, and form a distinct line on the hinder margin ; posterior wings very transparent and delicate, the nervures and apex slightly tinged with ochreous-brown, with a more or less distinct longitudinal streak of a darker hue on the latter ; abdomen pale greenish, fuscous above ; legs pale tawny, with pale spines.

Not uncommon, during the summer, in the vicinity of London ; found also in Devonshire, in the New Forest, and near Carlisle ; also in Scotland in July.

Sp. 3. *flavicornis*. *Ochraceus, abdomine virescente, alis anticis hyalinis griseo variegatis, nervis margineque interiore fuscopunctatis, antennis pedibusque flavescens.* † (Long. corp. 5—6 lin. ; Exp. Alar. 14—16 lin.)

Phr. *flavicornis*. *Fabricius—Pictet, p. 151. pl. ix. f. 2.*—*Lim. flavicornis*. *Steph. Catal.* 322. No. 3689.

Ochreous : thorax brown above ; abdomen pale green beneath, the back and sides griseous ; anterior wings very transparent, slightly variegated with griseous towards the apex ; the nervures ochreous, sparingly freckled with brown towards the inner edge of the wings, which is also slightly spotted with the same : legs pale tawny, with black spines.

Larva with the head and three anterior segments deep brown, with various black streaks and marks, the following segment pale brown ; abdomen pale greenish ; legs very long, brown, and spotted with black.

Not uncommon in various parts of the country during the summer : found also in Scotland.

Sp. 4. *dorsalis*. *Virescente-ochraceus, alis pallidis anticis hyalinis margine interiore brunneo irroratis, antennis flavescens, brunneo annulatis.* (Long. corp. 5—6½ lin. ; Exp. Alar. 14—16 lin.)

Lim. dorsalis. *Steph. Catal.* 322. No. 3687.

Greenish-ochreous : abdomen brighter ; wings pale ; anterior hyaline, with the inner margin very thickly, but irregularly, freckled with brown, with a more transparent blotch beyond the middle, and a less distinct one covering the transverse nervures ; posterior wings very transparent and immaculate,



legs flavescent, with black spines; antennæ fulvescent, annulated with pale brown.

Also found throughout the metropolitan district, and in other parts of the country, during the summer.

Sp. 5. discoidalis. *Sordide ochraceus, alis anticis fuscescentibus basi pallidioribus, macula discoidali et altera postice semihyalinis, posticis apice fusco.* (Long. corp. 7 lin.; Exp. Alar. 15 lin.)

Lim. pallescens. *Steph. Nomen. 2d edit. col. 121.*—Lim. discoidalis. *Phil. Mag. (Curtis) v. iv. p. 123.*

Dusky-ochreous: "superior (anterior) wings pale brown, with the costa (as far as the stigma), a large spot below the disc connected with a large one covering the transverse nervures, and numerous dots, semitransparent; apical margin of inferior (posterior) wings fuscous."—*Curtis, l. c.*

Found, occasionally, within the metropolitan district, in July.

Sp. 6. rhombicus. *Ochraceus, alis anticis griseo-flavescentibus maculâ magnâ rhomboidali pallidâ utrinque brunneo marginatâ.* (Long. corp. 6—8 lin.; Exp. Alar. 12—16 lin.)

Phr. rhombica. *Linne.—Donovan, v. vii. pl. 220.*—Lim. rhombicus. *Steph. Catal. 322. No. 3692.*

Bright ochreous: eyes fuscescent; anterior wings bright yellowish-griseous, palest at the base; on the disc, beyond the middle, is a large oblique pale or whitish spot, and an indistinct one towards the apex; the fuscous spot is bordered anteriorly and posteriorly with brown; the inner and apical portion of the wing is of a deeper hue than the rest, and immaculate; the posterior wings are very transparent, whitish, with pale ochreous nervures; legs tawny, with black spines.

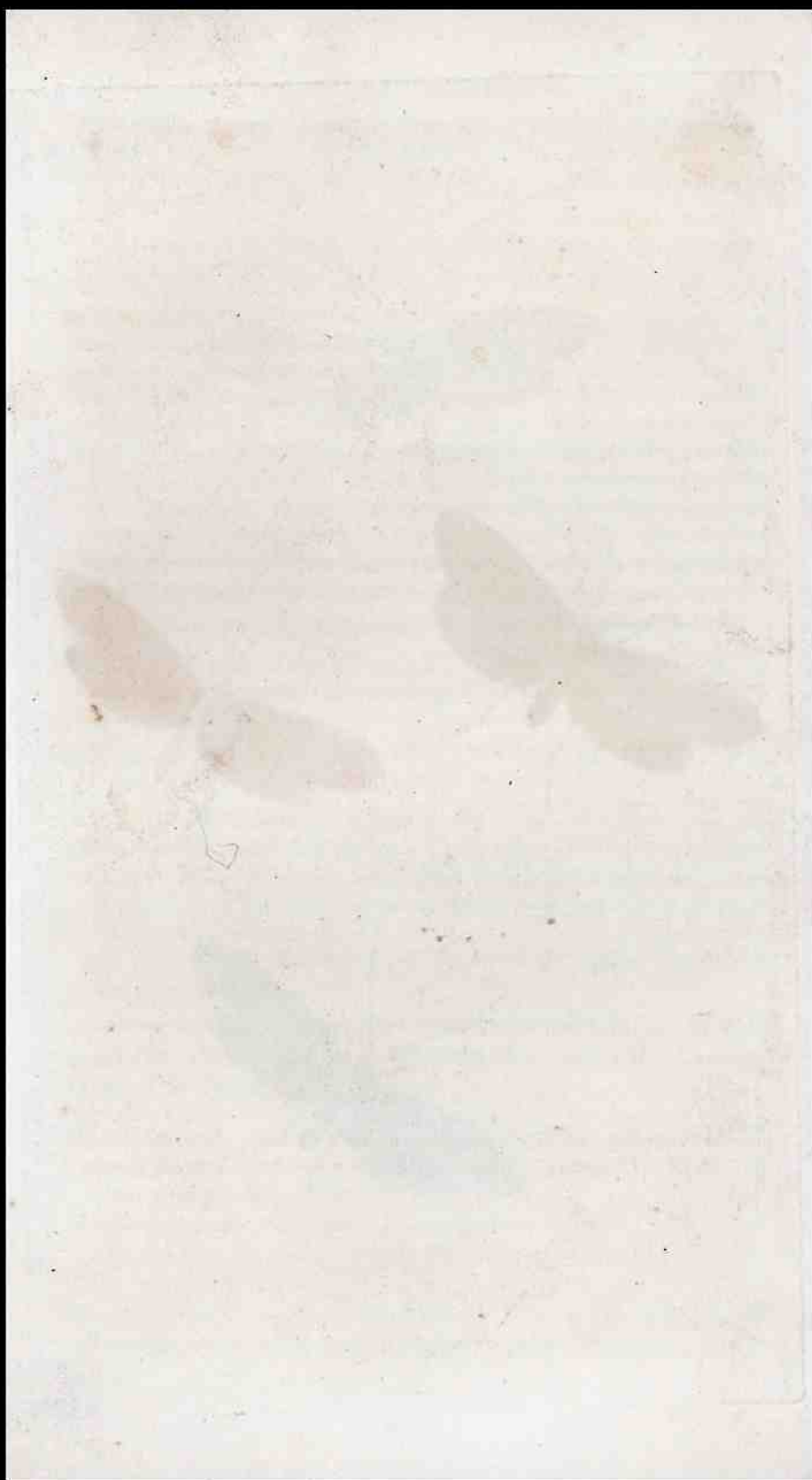
Not a very abundant, but a very handsome species; taken, however, in various parts of the country, in the middle of summer: found also in Scotland.

Sp. 7. marmoratus. *Ochraceus, alis pallidioribus, anticis fusco nebulosis, maculis duabus subhyalinis, nervis transversalibus fuscis.* (Long. corp. 6—7 lin.; Exp. Alar. 12—15 lin.)

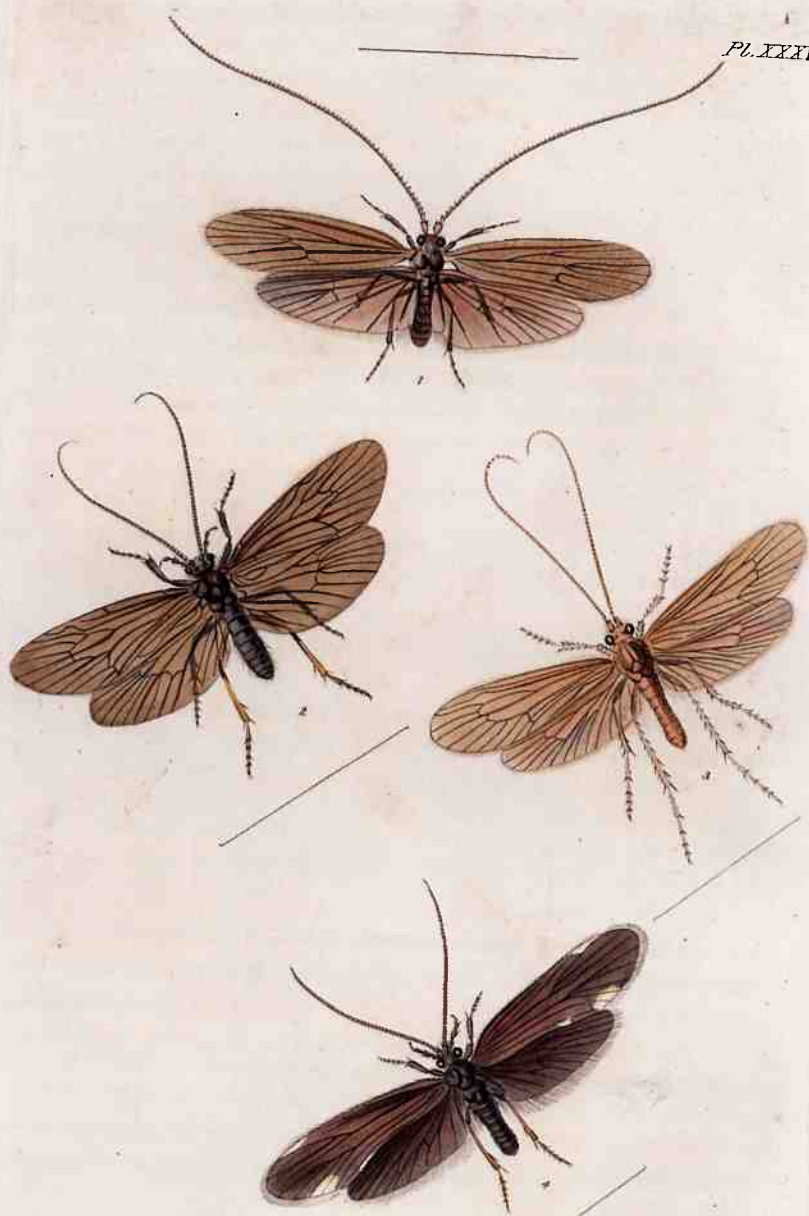
Lim. nebulosus. *Steph. Catal. 322. No. 3690.*—Lim. marmoratus. *Phil. Mag. (Curtis) v. iv. p. 123.*

Dull ochreous: eyes fuscescent; sides of the thorax brownish; anterior wings pale ochreous, prettily variegated, or clouded, with brown, except an oblique transverse spot, about the middle of the disc, and an irregular blotch covering the transverse nervures, which, with some dots beyond them, are brown; stigma fuscescent; posterior wings very transparent and iridescent,





Pl. XXXIV.



J. O. Westwood. del.

G. F. Wagstaff.

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immaculate, the apex very slightly tinted with ochreous; abdomen ochreous, greenish beneath during life; legs tawny, with black spines.

Some examples are of a browner tint than others, and they vary a little in markings.

Not uncommon, within the metropolitan district, in July and August; taken also in Devonshire, and in other parts of the country.

Sp. 8. *binotatus*. *Sordide ochraceus, alis anticis flavescentibus, maculis tribus pallescentibus, stigmatē piceo.* (Long. corp. 6 lin.; Exp. Alar. 14 lin.)

Lim. *glaucopterus* Steph. Catal. 322. No. 3691.—Lim. *binotatus*. Phil. Mag. (Curtis) v. iv. p. 125.

Dull ochreous: anterior wings yellowish-ochreous, deepest at the base, with three small pale transparent spots on the disc, and a larger one towards the apex, covering the transverse nervures; near the hinder angle is a large brown spot; stigma large, dull pitchy-brown; posterior wings hyaline, faintly tinted with ochreous at the tip; abdomen greenish-ochreous, green beneath during life; legs pale tawny, with blackish spines.

Found, but not very commonly, within the metropolitan district.

Sp. 9. *elegans*. *Fusco-ochraceus, alis anticis pallide fusciscentibus, vittis aliquot albidis subradiatim dispositis.* (Long. corp. 6—7 lin.; Exp. Alar. 14—16 lin.)

Lim. *albovittatus*. Steph. Nomen. 2d edit. col. 121.—Lim. *elegans*. Phil. Mag. (Curtis) v. iv. p. 123.—Curtis, v. xi. pl. 488.

“Palpi and antennæ ferruginous: head and thorax somewhat castaneous, the crown of the former and the back of the latter lead colour; abdomen ochreous, the back fuscous, with whitish margins to the segments; wings shining, superior (anterior) pale brown, the nervures darker, with the third cell (areolet), a stripe on the disc, the 1st, 2nd, 4th, and 5th posterior cells, and a spot at the base of the 3rd and 6th, whitish, the superior discoidal cell very long.”—Curtis, l. c.

My specimens of this beautiful species were taken by Mr. Weaver in the New Forest, where it has also been taken in June by Mr. Dale, as stated by Curtis, as above quoted.

Sp. 10. *nebulosus*. *Ochraceus, alis anticis flavescente-ochraceis, fusco variegatis, macula discoidali rhombea utrinque fusco marginata, lunulâque apicis pallidis.* (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. 13— $14\frac{1}{2}$ lin.)

Lim. *affinis*. Steph. Catal. 322. No. 3693.—Lim. *nebulosus*. Phil. Mag. (Curtis) v. iv. p. 123.—Lim. *apicalis*. Phil. Mag. (Curtis) v. iv. p. 123, var. Phr. *lunaris*. Pictet, p. 132. pl. ix. f. 3.

Ochreous: thorax griseous above; head and antennæ pale ochreous, the former fuscous on the crown; anterior wings yellowish-ochre, darker at



the apex, which is variegated with deep brown; on the disc is a large oblique subrhomboid transparent spot, as in *L. rhombicus*, bordered anteriorly and posteriorly with deep brown; beyond this is an irregular blotch of the same, covering the transverse nervures, which last are pitchy-ochreous, the others of a paler hue; on the hinder margin is a pale suboval spot, edged within with a deep border of brown clouds, and forming a lunate mark; stigma deep ochreous, sometimes pitchy, and occasionally wanting; posterior wings very transparent, faintly tinted with ochreous at the apex; legs pale tawny, with black spines.

A very variable species: in some instances the anterior wings are almost immaculate; in others very much clouded with fuscous.

Larva with the head and thorax very pale ochreous, the former and two following segments with minute black dots; abdomen whitish; legs ochreous, with black dots: the case in which it resides is composed of vegetable materials, which are always disposed longitudinally, and vary considerably in different individuals.

An extremely abundant and greatly diffused species, occurring, during the autumn, in profusion in marshy places throughout the metropolitan district; found also in Wales, the north of England, and Scotland.

Sp. 11. *lunatus*. *Ochraceus, alis anticis fuscis, costâ maculâ centrali alterâque sublunata postice subhyalinis, stigmatè magno, piceo.* (Long. corp. 5 lin.; Exp. Alar. 14½ lin.)

Lim. stigma. *Steph. Catal.* 322. No. 3701.—Lim. *lunatus*. *Phil. Mag.* (Curtis) v. iv. p. 123.

Head and thorax above ochreous: "superior (anterior) wings brown, the costa, a spot on the disc, and a large sublunate spot beyond it semihyaline; there are four pale rays between this and the posterior margin, which is spotted brown and whitish; stigma large and piceous."—Curtis, *l. c.*

Found, occasionally, within the metropolitan district, in June.
"Whittlesea Mere, July."—Curtis, *l. c.*

Sp. 12. *stigma*. *Ochracea, alis anticis saturatioribus, basi costâque pallidis, disco immaculato, stigmatè rotundato, piceo.* (Long. corp. 5—6 lin.; Exp. Alar. 14—15 lin.)

Lim. *bimaculatus*. *Steph. Catal.* 322. No. 3686.—Lim. *stigma*. *Phil. Mag.* (Curtis) v. iv. p. 123.

Ochreous, with a reddish tint: antennæ pale tawny-ochreous, annulated with pale fuscous; eyes fuscous; anterior wings very pale yellowish-ochre, darker on the inner (or dorsal) edge and hinder margin, the disc immaculate, stigma very distinct, rounded and deep pitchy; nervures pale ochreous; posterior wings transparent, faintly tinted with yellowish, the apex and



nervures darker; abdomen ochreous, greenish beneath during life; legs pale tawny-ochreous, faintly annulated with brownish, spines black.

Taken near London, in June, and in the New Forest.

Sp. 13. griseus. *Fusco-griseus, alis anticis brunnescentibus flavido irroratis maculæque albidæ, stigmatè nigro fusco.* (Long. corp. 5—6½ lin.; Exp. Alar. 12—15½ lin.)

Phr. grisea. *Linne.*—Lim. griseus. *Steph. Catal. 322. No. 3688.*

Head and thorax griseous-brown above, ochreous beneath; mouth tawny; antennæ brown, annulated with griseous; anterior wings fuscous, minutely freckled with pale yellowish, with some of the nervures, especially on the hinder margin, dotted with deep brown; towards the middle of the disc is an indistinct whitish blotch; the transverse nervures are blackish-brown, and terminated in a large ovate stigma of a similar hue; posterior wings transparent, with the nervures and apex brownish; legs ochreous, with black spines.

Not very abundant, at least within the metropolitan district, where it occurs in July; found also in the New Forest and in Scotland.

Sp. 14. costalis. *Ochraceus, alis anticis fuscescentibus nebulis saturatioribus, nervis transversis fuscis, alteris plerisque fusco irroratis, stigmatè perfusco.* (Long. corp. 6 lin.; Exp. Alar. 13 lin.)

Lim. costalis. *Steph. Catal. 322. No. 3699.*

Ochreous: head and thorax above ashy; antennæ pitchy, with paler rings; wings pale fuscescent ochre, anterior obscurely freckled with darker clouds, most of the nervures, especially those towards the inner margin, dotted with brown, and the transverse ones wholly of that colour; stigma conspicuous and deep brown; posterior wings hyaline and highly iridescent; abdomen fuscescent above, ochreous beneath; legs dull ochreous, with black spines.

Taken near London, and at Whittlesea Mere, in June and July.

Sp. 15. affinis. *Pallide ochraceus, alis pallidioribus, immaculatis, nervis piceo irroratis, stigmatè piceo.* (Long. corp. 5½—6 lin.; Exp. Alar. 13—14 lin.)

Lim. punctulatus. *Steph. Catal. 322. No. 3700.*—Lim. affinis. *Phil. Mag. (Curtis) v. iv. p. 123.*

Pale ochraceous: antennæ fulvescent, annulated with brown; abdomen brownish above, with the margins of the segments pale; anterior wings pale fuscous, freckled irregularly with ochreous; nervures, especially the transverse ones, more or less dotted with pitchy-brown; stigma pitchy; posterior wings transparent and highly iridescent, faintly tinted with ochreous at the apex; legs pale fulvescent, with the extreme tips of the tarsal joints and the spines black.

Also found, but not very abundantly, within the metropolitan
MANDIBULATA, VOL. VI., JAN. 31st, 1837. 2 E

district, in June and July, and in the New Forest, in Kent, Suffolk, and Scotland.

Sp. 16. *marginalis*. *Supra fuscus subtilis ochraceus, alis anticis fuscescentibus, lunulâ mediâ, maculâque tripartitâ postice hyalinis, stigmate piceo.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 12 lin.)

Lim. *marginalis*. *Steph. Catal.* 322. No. 3698.

Ochreous beneath, fuscous above, the margins of the abdominal segments pale; anterior wings pale fuscous, irregularly freckled with ochreous, with a lunate pale hyaline spot, placed obliquely, beyond the middle, and an ovate spot of similar hue beyond the transverse nervures occupying the base of three of the marginal areolets; stigma pitchy, darkest towards the disc; posterior wings very transparent, iridescent and immaculate; legs pale tawny, with the spines and tips of the tarsal joints blackish.

Also found, but not very abundantly, in the vicinity of the metropolis, in June.

Sp. 17. *fenestralis*. *Ochraceus, supra fuscus, alis anticis albidis, basi excepto irregularitèr fusco irroratis et maculatis, lineola discoidali maculisque posticè subhyalinis, stigmate piceo.* (Long. corp. 5— $6\frac{1}{2}$ lin.; Exp. Alar. 10—15 lin.)

Lim. *versicolor*. *Steph. Catal.* 322. No. 3694.—Lim. *fenestralis*. *Phil. Mag.* (Curtis) v. iv. p. 123.

Head and thorax fuscous above, ochreous beneath; abdomen above fuscous, beneath ochreous, with a broad fuscous streak on both sides; anterior wings whitish, minutely and irregularly freckled and dusted with pitchy-brown, except at the base of the costa, with a clear oblique spot on the disc, another irregular one behind the transverse nervures, mostly united to a smaller one on the hinder margin near the anal angle; towards the base there is frequently also a triangular spot of similar hue towards the base of the inner margin; stigma pitchy-brown, or blackish, with pale dots; posterior wings very transparent, pale, and faintly tinted with fuscous at the apex; legs pale tawny, with black spines.

The markings on the anterior wings vary a little in extent, and are sometimes bordered with deep pitchy-brown, with which colour the extreme inner margin is frequently dotted.

Found in the vicinity of the metropolis, occasionally, in June and July; also in the New Forest.

Sp. 18. *bipunctatus*. *Fuscus, infra ochraceus, alis anticis albido-fuscis, pallide irroratis, lunulâ mediâ maculâque bisinuatâ postice hyalinis plerisque brunneo marginatis, nervis longitudinalibus albo punctatis, stigmate piceo.* (Long. corp. 6—7 lin.; Exp. Alar. 10— $13\frac{1}{2}$ lin.)

Lim. *tessellatus*. *Steph. Catal.* 322. No. 3695.—Lim. *bipunctatus*. *Phil. Mag.* (Curtis) v. iv. p. 123.



Above fuscous, beneath ochreous: abdomen with a broad fuscous streak; anterior wings pale whitish-brown, darkest towards the apex, thickly freckled with whitish, except on the costa, and a lunate spot on the disc, another behind the transverse nervures resembling a reversed S, and nearly united to a small one on the hinder margin; these spots are very frequently broadly edged with deep fuscous-brown; the longitudinal nervures on the inner margin are generally pitchy, dotted irregularly with white; stigma also pitchy, with a few pale dots; posterior wings very transparent, iridescent and immaculate; legs tawny, spines and tips of tarsal joints black.

Not uncommon, within the metropolitan district, in June and July; also found in the New Forest, near Cambridge, in Scotland, Devonshire, &c.

Sp. 19. *signatus*. *Ochraceus, supra fuscus, alis anticis ochraceo-albidis, macula mediâ utrinque fusco marginatâ albâ, stigmatè pallide brunneo.* (Long. corp. 6 lin.; Exp. Alar. 12 lin.)

Lim. *signatus*. *Steph. Catal.* 322. No. 3696.

Ochreous: head, thorax, and abdomen above fuscous, the sides of the latter with a fuscous streak; antennæ pale reddish-brown, with darker rings; anterior wings very pale ochreous-white, minutely, but very sparingly, freckled with brown towards the apex, especially on the anal angle; on the disc is a small white oblique spot, edged anteriorly and posteriorly with deep fuscous; the stigma is pale brown; posterior wings ample, hyaline, pale and immaculate; legs tawny, anterior tibiæ faintly annulated with fuscous, the others armed with black spines.

Taken, in the vicinity of London, in August.

Sp. 20. *obliquus*. *Fuscus, infrâ ochraceus, alis anticis flavescens-ochraceis, maculâ præobliquâ pallidâ, stigmatè piceo.* (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Lim. *obliquus*. *Steph. Catal.* 322. No. 3697.

Above fuscous, beneath ochreous: palpi pale; antennæ fuscous, with faint pale rings; anterior wings pale yellowish-ochre, obscurely freckled with a paler hue, with a narrow larger and paler spot, placed very obliquely, about the middle of the disc; transverse nervures and stigma pitchy; posterior wings pale and hyaline; legs pale tawny, with black spines.

Found, but rarely, near London, in July.

Sp. 21. *luniger*. *Ochraceo-fuscus, alis anticis fuscescentibus, lunulâ mediâ maculâque posticâ subhyalinis, stigmatè brunneo.* (Long. corp. 5½ lin.; Exp. Alar. 11 lin.)

Lim. *lunatus*. *Steph. Catal.* 322. No. 3702.

Ochreous-brown, paler beneath: abdomen with the margins of its segments pale; anterior wings brownish, obscurely freckled with darker tints, with a somewhat crescent-shaped transparent spot in the middle towards the inner margin, an ovate spot beyond the transverse nervures, which are dusky, also transparent, the stigma dull pitchy-brown; posterior wings slightly fuscous, transparent and very iridescent; legs dull ochreous, with blackish spines.

Also somewhat uncommon: found in the neighbourhood of London in July.

Sp. 22. *Auricula*. *Ochraceus, alis anticis lucidis, saturate ochraceis, macula mediâ, alterâque auriculæformi postice hyalinis, stigmatè obscure fusco.* (Long. corp. 4—5 lin.; Exp. Alar. 10—11 lin.)

Lim. fenestralis. *Steph. Catal. 322. No. 3703.*—Lim. *Auricula*. *Phil. Mag. (Curtis) v. iv. p. 124.*

Ochreous: head, thorax, and abdomen above fuscous, the margins of the segments of the latter and the under surface greenish-ochre during life; antennæ faintly annulated with brownish; anterior wings shining and pubescent, deep ochre, with a transparent spot on the disc, varying in magnitude, and sometimes nearly obliterated, and a larger irregular, somewhat earshaped one over the transverse nervures, which are pale; stigma obscure fuscous-ochre; posterior wings whitish-hyaline, pale brown at the tip; legs pale tawny-ochreous, spines fuscous.

The inner margin of the anterior wings is occasionally fuscous.

Not uncommon, in June and July, within the metropolitan district; taken also near Carlisle, in Devonshire, the New Forest, Suffolk, Scotland, &c.

Sp. 23. *geminus*. *Fuscus, alis anticis lucidis, fuscescente-ochraceis, macula geminata mediâ hyalinâ, stigmatè ochraceo.* (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. 9—11 lin.)

Lim. *geminus*. *Steph. Catal. 322. No. 3704.*

Fuscous: beneath ochreous; edges of the abdominal segments pale; anterior wings rather narrow, shining and deep dusky-ochreous, with a double hyaline spot in the middle, in other respects immaculate; posterior wings dusky-hyaline, very iridescent, with their apex fuscous; legs pale tawny, with blackish spines.

Found, in the vicinity of London, at Hertford, Ripley, &c. in June; also taken in the New Forest.

Sp. 24. *obscurus*. *Ochraceus, alis anticis angustis fusco-ochraceis, macula centrali seriisque duabus punctorum posticis hyalinis, stigmatè fusco-ochraceo.* (Long. corp. 4—5 lin.; Exp. Alar. 10—12 lin.)



Lim. assimilis. *Steph. Catal.* 322. No. 3705.—Lim. obscurus. *Phil. Mag.* (Curtis) v. iv. p. 124.

Ochreous, fuscous above: abdomen with the edges of its segments pale; antennæ brown; anterior wings narrow, dusky-ochre, with a pale hyaline dot on the disc, and two irregular rows of pale dots towards the hinder margin, one anterior to, and the other behind, the transverse nervures; the extreme hinder margin and the stigma dark fuscous ochre; posterior wings dusky hyaline, with the apex fuscous; legs pale dirty ochre, with dusky spines.

Taken, occasionally, near London, in June; also in the New Forest, and in Devonshire.

Sp. 25. fuscus. *Ochraceo-fuscus, alis anticis fuscis, atomis maculisque quatuor pallidis, stigmatе fusco-piceo immaculato, tibiis anticis fusco annulatis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 10—11 lin.)

Lim. fuscus. *Steph. Catal.* 322. No. 3706.

Ochreous-brown, darkest above: antennæ pitchy-brown; anterior wings deep fuscous, freckled, especially on the apical and hinder margins, with whitish, with a blotch of the same towards the base of the costa, another on the costa before the stigma, a third on the inner margin, opposite to the second, and a fourth covering the transverse nervures; the inner or dorsal nervures are thick, deep fuscous, with remote whitish dots, the others slender and pale; stigma pitchy-brown, immaculate; legs pale ochreous, with black spines; anterior tibiæ and tarsi annulated with fuscous.

Also taken, near London, in June and July.

Sp. 26. cœnosus? *Ochraceo-fuscus, alis brevibus fuscis pallide ochraceis obsolete irroratis, stigmatе obscuro, utrinque pallide marginato.* (Long. corp. 4 lin.; Exp. Alar. 10—11 lin.)

Lim. caliginosus. *Steph. Nomen.* 2d edit. col. 122.—Lim. cœnosus. *Phil. Mag.* (Curtis) v. iv. p. 123?

Deep ochreous-brown: antennæ faintly annulated with a paler hue; abdomen dusky; anterior wings broad, short and glossy, deep fuscous, obsoletely freckled with pale ochreous, with an obscure darker stigma, bordered anteriorly and posteriorly with whitish; on the inner margin towards the hinder angle is an obscure palish spot, and the inner nervures are slightly dotted with whitish; posterior wings very transparent pale fuscous, with the apex darker; legs fuscous, with darker spines.

Taken at Whittlesea Mere, in July, and also in Scotland?

Sp. 27. punctatissimus. *Ochraceo-fuscus, alis anticis angustis pallide fuscis, perlepidè vagèque albido irroratis, antennis brunneis, ochraceo tenuiter annulatis.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 12 lin.)

Lim. punctatissimus. *Steph. Catal.* 322. No. 3707.



Ochreous-brown: antennæ brown, with slender ochreous rings; anterior wings narrow, pale fuscous, thickly, irregularly, and prettily freckled throughout with whitish dots and blotches; stigma indistinct, immaculate; posterior wings delicate, hyaline, iridescent, pale fuscous, with the tips darker; abdomen with the edges of the segments pale; legs pale ochreous-brown, with dusky spines.

Found, near Hertford, in June and July.

Sp. 28. Vinculum. *Ochraceo-fuscus, alis anticis fuscis, maculis quatuor pallidis, stigmatе fusco, pallide irrorato.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $9\frac{1}{2}$ —10 lin.)

Lim. 4-maculatus. *Steph. Catal. 322. No. 3708.*—Lim. Vinculum. *Phil. Mag. (Curtis) v. iv. p. 124.*

Ochreous-brown: "superior (anterior) wings deep fuscous, the stigma a little darker, with numerous pale dots, and a larger one before the stigma, two opposite on the inferior (inner) margin and another upon the transverse nervures; apex of inferior (posterior) wings fuscous."—*Curtis, l. c.*

Taken near London, and in the New Forest, in July and August.

Sp. 29. tenebricus. *Fuscus, alis anticis saturate fuscis plus minus ochraceo irroratis maculisque duabus pallidis, stigmatе piceo.* (Long. corp. 4 — $5\frac{1}{2}$ lin.; Exp. Alar. 12 — 14 lin.)

Lim. confluens. *Steph. Catal. 322. No. 3709.*—Lim. tenebricus. *Phil. Mag. (Curtis) v. iv. p. 123.*

Fuscous: thorax with a pale streak on each side; abdomen with the edges of the segments pale; anterior wings very dark fuscous, more or less freckled and dotted with ochreous, especially at the base of the costa and on the extreme hinder margin, inner margin very dark, in some examples almost black at the base, with a pale ochreous spot towards the apex, opposite to the stigma, which is fuscous and immaculate, and edged anteriorly with ochreous; posterior wings fuscescent, with the tip darker: antennæ pitchy-brown, with ochreous annulations; legs ochreous, with blackish spines.

Not uncommon, in the neighbourhood of London, during the summer; also found in the New Forest, Devonshire, the north of England, &c.

Sp. 30. fuscatus. *Ochraceo-fuscus, alis anticis pallide fuscis, marginibus interioribus et posticis saturatioribus, stigmatе fusco-piceo, pallide irrorato.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 12 lin.)

Lim. fuscatus. *Steph. Catal. 322. No. 3710.*

Ochreous-brown: antennæ faintly annulated with ochreous; anterior wings pale fuscous, with the inner and posterior margins darker, the stigma pitchy-brown, with a few pale dots, the wings immaculate, except an indistinct palish spot on the inner margin towards the hinder angle; poste-



rior wings ample, transparent, slightly iridescent, pale fuscous, with the apex darker; legs dull ochreous, with fuscous spines.

Found, occasionally, at Hertford, in June.

Sp. 31. sparsus. *Fuscus, infra ochraceus, alis anticis fusco-ochraceis, atomis pallidioribus, maculæque posticæ ochraceæ, pedibus ochraceis, tibiis anticis fusco annulatis.* (Long. corp. 4—5½ lin.; Exp. Alar. 11—13 lin.)

Lim. nubilus. *Steph. Catal. 322. No. 3711.*—Lim. sparsus. *Phil. Mag. (Curtis) v. iv. p. 123.*

Fuscous, ochreous beneath: antennæ brown, rather broadly annulated with ochreous; anterior wings silky, pale brown, thickly freckled with ochreous, with a larger spot of the same hue towards the apex of the inner margin; posterior wings fuscescent, slightly iridescent, with the apex brown; legs pale ochreous, anterior tibiæ annulated with fuscous.

A common species, frequenting the marshy districts in the vicinity of London; taken at Battersea, Coombe wood, Ripley, Hertford, &c.; the New Forest, Devonshire, Dorset, Wilts, Suffolk, &c. and the north of England.

Sp. 32. irroratus. *Ochraceus, antennis brunneo annulatis, alis anticis pallide ochraceis, atomis numerosissimis pallidioribus, abdominis dorso fusco, pedibus ochraceis spinis fuscis.* (Long. corp. 4½ lin.; Exp. Alar. 11 lin.)

Lim. irroratus. *Steph. Catal. 322. No. 3712.*

Ochreous: antennæ faintly annulated with brown; anterior wings pale yellowish-ochre, freckled throughout with very numerous paler dots, stigma obsolete; posterior wings iridescent, yellowish, with the apex dusky; abdomen fuscous above; legs pale ochreous, with fuscous spines.

Apparently rare: taken, near London, in June.

Sp. 33. flavescens. *Ochraceus, alis anticis pallide flavescente-ochraceis, immaculatis, posticis pallididissimè flavescentibus.* (Long. corp. 6 lin.; Exp. Alar. 14 lin.)

Lim. flavescens. *Steph. Catal. 322. No. 3713.*

Pale ochraceous: antennæ faintly annulated with whitish; anterior wings wholly of a plain yellowish-ochre, very clear and entirely immaculate; nervures pale ochreous; posterior wings very pale yellowish, with the apex darker; legs pale ochreous, with dusky spines.

Also taken, near London, in June, at Ripley, but apparently not common.

Sp. 34. ochraceus. *Supra fuscus, infra ochraceus, alis anticis pallide fusco-flavidis, flavo irroratis, stigmato obscuro.* (Long. corp. 4—4½ lin.; Exp. Alar. 10½—11 lin.)



Lim. testaceus. *Steph. Catal.* 322. No. 3714.—Lim. ochraceus. *Phil. Mag.* (Curtis) v. iv. p. 124.

Ochraceous: back of the thorax and of the abdomen fuscous; eyes blackish; anterior wings pale dusky-yellow, obscurely freckled with pale yellow; nervures ochreous; stigma faintly darker; posterior wings pale, whitish-hyaline, iridescent, the apex yellowish; legs bright ochreous, with dusky spines.

Taken, occasionally, near London, in June, and in the New Forest.

Sp. 35. consobrinus. *Supra fuscus, subtus ochraceus, alis anticis ferrugineo-ochraceis fusco irroratis, angulo postico brunneo ochraceo irrorato.* (Long. corp. 4—5½ lin.; Exp. Alar. 10—11½ lin.)

Lim. subnebulosus. *Steph. Catal.* 323. No. 3715.—Lim. consobrinus. *Phil. Mag.* (Curtis) v. iv. p. 124.

Above fuscous, beneath ochreous: anterior wings pale rusty-ochre, the inner and hinder margins darker and freckled with brown; anal angle brown, freckled with yellowish; costa immaculate; stigma obscure; posterior wings whitish-hyaline, iridescent, obscurely tinted with ochreous at the apex; legs ochreous, with blackish spines.

Also found within the metropolitan district, in June, and in the New Forest.

Sp. 36. notatus. *Ochraceus, dorso fusco: alis anticis pallide ferrugineo-flavidis atomis saturate brunneis longitudinaliter notatis, angulo postico brunnescente ochraceo irrorato.* (Long. corp. 5 lin.; Exp. Alar. 10½ lin.)

Lim. notatus. *Steph. Catal.* 223. No. 3716.

Ochraceous: back of thorax and of abdomen fuscous; anterior wings pale rusty-yellowish, with the costa immaculate, the inner and hinder margins darker; the disc with scattered brown atoms disposed in longitudinal lines; hinder angle brownish, freckled with ochreous; posterior wings pale yellowish, hyaline, iridescent, with the apex ochreous; legs ochreous, with black spines.

Inhabits the vicinity of London, in June.

Sp. 37. substrigosus. *Ochraceus, thoracis abdominisque dorso fuscescentibus, alis anticis pallide ochraceus margine interno apiceque saturatioribus, strigis duabus obscuris brunneis.* (Long. corp. 5½ lin.; Exp. Alar. 12 lin.)

Lim. substrigosus. *Steph. Nomen.* 2d edit. col. 122.

Ochreous: thorax and abdomen above somewhat fuscous; anterior wings pale ochraceous, the inner and apical portions darker; towards the inner margin are two obscure brown streaks, extending nearly from the base to the apex; stigma concolorous with the costa; posterior wings whitish-hyaline,



iridescent, with the apex a little ochreous; legs pale-ochreous, with dusky spines.

Also found within the metropolitan district, about Hertford, in June.

Sp. 38. *bipartitus*. *Ochraceus, alis anticis pallidioribus, margine interno et postico vagè brunneo irroratis, disco linea longitudinali brunnea*. (Long. corp. $4\frac{1}{2}$ —5 lin.; Exp. Alar. 10—11 lin.)

Lim. interruptus. *Steph. Catal.* 323. No. 3717.—Lim. *bipartitus*. *Phil. Mag. (Curtis)* v. iv. p. 124.

Ochreous: anterior wings paler, with the costa immaculate, the inner margin darker, thickly and irregularly freckled with brown, as is a triangular blotch on the hinder margin; this space is bounded on the disc with a longitudinal brown line, partially interrupted towards the apex; posterior wings whitish, hyaline, with a yellowish tinge towards the apex; legs ochreous, with dusky spines.

Not uncommon, in August and September, at Coombe wood, and in other places within the metropolitan district; taken also in the New Forest and near Dover.

Sp. 39. *vittatus*. *Subtestaceus, alis anticis ochraceo flavis, vitta longitudinali interrupta brunnea*. (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 9 lin.)

Phr. *vittatus*. *Fabricius, E. S., Supp.* 201.—Lim. *vittatus*. *Steph. Catal.* 323. No. 3718.

Pale testaceous-ochre: thorax and abdomen rather darker, the latter with a palish lateral streak; anterior wings with an interrupted longitudinal brown line, expanded at the apex, the inner and posterior apical margins of the wing darker than the costa; posterior wings yellowish, hyaline, slightly darkest at the apex; legs pale ochreous, with black spines.

Apparently scarce: taken, in September, near London.

Sp. 40. *nigrivittatus*. *Ochraceus, antennis pedibusque pallidioribus, alis anticis ochraceo-flavis, lineâ abbreviata longitudinali mediâ nigrâ, margine postico brunneo irrorato, stigmatè brunneo*. (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 11 lin.)

Lim. *lineola*. *Steph. Catal.* 323. No. 3719.—Phr. *elegans*. *Pictet, p.* 137. *pl. x. f.* 3.

Ochreous: head with a blackish dash between the antennæ, which are pale ochreous; abdomen rather dusky above; anterior wings ochreous-yellow, shining, and rather narrow, with the nervures light; on the hinder margin is a triangular blotch, formed of brown freckles, and on the disc, rather beyond the middle, is a short longitudinal black streak, placed over the 5th longitudinal nervure; stigma brown; posterior wings transparent, whitish, faintly tinted with ochreous at the apex; legs ochreous, with black spines.

MANDIBULATA, Vol. VI., JAN. 31st, 1837.

2 F

Larva with the head and thorax brown, the following segment with four black dots; the abdomen ochreous; legs brown.

I am compelled to change the name originally proposed in my Catalogue for this species, as the name *lineola* is employed by Villers, and that of *elegans*, given by Pictet, was previously used to designate a very different insect by Curtis, who, with ill-judged taste, has confused the nomenclature of the Trichoptera considerably, by adopting many of the *same names* as I had previously employed to *very different insects*, as may be seen by the synonyms.

Also rare: found within the metropolitan district, in the autumn.

Sp. 41. *præustus*. *Fuscus, infra ochraceus, alis anticis pallide ochraceis, margine postico maculâ apicali stigmatique ustulatis.* (Long. corp. 3 lin.; Exp. Alar. 6 lin.)

Lim. *præustus*. *Steph. Catal.* 323. No. 3720.

Fuscous, beneath ochreous: antennæ brownish; anterior wings pale ochreous, with a triangular blotch at the anal angle, an obscure spot on the apex towards the costa, and the stigma umbre brown; posterior wings whitish, hyaline, iridescent, with the apex faintly tinted with ochreous; legs pale ochreous, with dusky spines.

Found, but rarely, near London, in July.

Sp. 42. *flavus?* *Ochraceus, thoracis dorso abdomineque brunneis, alis anticis flavis vittis duabus indistinctis longitudinalibus brunneis.* (Long. corp. 5 lin.; Exp. Alar. 10—11 lin.)

Phr. *flava*. *Linné*, ii. p. 910?—Lim. *variabilis*. *Steph. Catal.* 323. No. 3722. —Lim. *terminalis*. *Phil. Mag.* (Curtis) v. iv. p. 124?

Ochreous: back of the thorax and the abdomen brown; anterior wings rusty yellowish-ochre, with the nervures concolorous, the inner margin and a portion of the hinder one thickly freckled with brown, forming two indistinct longitudinal streaks, and having an ovate immaculate patch on the hinder margin; posterior wings hyaline, pale, immaculate, with the apex faintly tinged with ochreous; legs and antennæ bright tawny, the former with black spines.

A very variable species: in some examples the anterior wings are very much freckled with brown; in others they are almost immaculate.

Larva with the head and two anterior segments brown, the following ochreous, with four dusky dots, the abdomen pale ochreous, with long cilia; legs brown.

Not uncommon, in June, in the neighbourhood of the metropolis, and apparently very abundant in December: taken likewise in the New Forest.



Sp. 43. *centralis*. *Ochraceus, alis anticis fuscis, interne ochraceo irroratis, maculâ centrali alterâque posticâ, lunulâque marginali pallidis.* (Long. corp. 4—5 lin.; Exp. Alar. 10—11 lin.)

Lim. *apicalis*. *Steph. Catal.* 323. No. 3725.—Lim. *centralis*. *Phil. Mag. (Curtis)* v. iv. p. 124.

Ochreous: thorax above and abdomen brown; anterior wings fuscous, thickly freckled with ochreous, the costa wholly of the latter colour; on the disc is an obscure pale spot, and a smaller and less distinct one on the transverse nervures, and on the hinder margin is a large somewhat ovate blotch of the same, extending almost from angle to angle; posterior wings pale, hyaline, with the apex ochreous; legs and antennæ pale tawny-ochreous, the former with black spines.

Also taken within the metropolitan district, but less frequently than the last, in June and July.

Sp. 44. *punctatus*. *Brunneo-ochraceus, alis anticis pallide ochraceis, interne brunneo punctatis.* (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Lim. *punctatus*. *Steph. Catal.* 323. No. 3723.

Brownish-ochreous, with a tawny hue: eyes black; anterior wings pale ochreous, the costa immaculate, the disc, inner and hinder margins, thickly covered with somewhat confluent brown freckles; nervures brownish at the apex and towards the base of the inner margin; posterior wings very transparent, pale, with the apex rather ochreous; legs pale tawny, with brownish spines.

Found in July, near London.

Sp. 45. *elongatus*. *Pallide ochraceus, alis anticis angustatis et elongatis, pallide ochraceis interne brunneo subirroratis.* (Long. corp. 3½ lin.; Exp. Alar. 11—12 lin.)

Lim. *elongatus*. *Steph. Catal.* 323. No. 3726.

Pale ochreous: antennæ long and tawny; anterior wings narrow and somewhat elongate, pale ochreous, with the extreme inner margin and the apex faintly freckled with brown, the costa immaculate; posterior wings very transparent, pale ochreous white; legs pale tawny, with blackish spines.

Also found, in July, near London.

Sp. 46. *fuliginosus*. *Brunneo-ochraceus, abdomine pallido, alis anticis fusco-fuliginosis, atomis pallidioribus obscure notatis, posticis hyalinis, albidis, iridescentibus.* (Long. corp. 4 lin.; Exp. Alar. 11 lin.)

Lim. *fuliginosus*. *Steph. Catal.* 323. No. 3727.

Ochreous-brown: antennæ pale tawny; anterior wings dull smoky-brown, with a few very obscure paler freckles on the disc, the nervures dusky;

posterior wings hyaline, whitish, iridescent and immaculate; abdomen pale, ochreous; legs pale ochreous, with black spines.

Inhabits the metropolitan district, in June; not uncommon.

Sp. 47. *ustulatus*. *Ochraceus, abdomine pallidiore, alis anticis ochraceis, brunneo irroratis, costâ immaculatâ, disco maculâ magna irregulari brunneo-ustulatâ.*
(Long. corp. 4 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Lim. *ustulatus*. *Steph. Catal.* 323. No. 3724.

Ochreous: antennæ reddish; abdomen pale; anterior wings ochreous, with darker nervures, the costa immaculate, except at the extreme apex, the rest of the wings indistinctly freckled with brown, with a large irregular umbre-brown patch, obscurely dotted with pale, on the disc towards the middle of the costa; posterior wings pale ochreous, hyaline and immaculate, with the tip slightly tinted with brown; legs pale, with blackish spines.

Rare: found in June, near London.

Sp. 48. *incisus*. *Ochraceus, alis pubescentibus, subbrevis, anticis margine interno nervisque brunneo irroratis, posticis pallidis ad apicem emarginatis.*
(Long. corp. $3-4\frac{1}{2}$ lin.; Exp. Alar. $9\frac{1}{2}-10\frac{1}{2}$ lin.)

Lim. *villosus*. *Steph. Catal.* 323. No. 3721.—Lim. *incisus*. *Phil. Mag. (Curtis)* v. iv. p. 124.

Ochreous: thorax brownish above; anterior wings rather short, somewhat acute at the apex, pubescent, yellowish-ochreous, the nervures and extreme inner margin closely freckled with brown, in other respects immaculate; posterior wings pale, hyaline, iridescent, the hinder margin towards the apex deeply notched, the apex itself tinted with ochreous; abdomen and legs pale ochreous, the latter with black spines.

This insect differs considerably in habit from the other species of the genus, the anterior wings being much shorter and more acute, with the discoidal areolets elongate, and the hinder wings have the posterior margin towards the apex deeply notched.

Not uncommon, during the middle of the summer, within the metropolitan district, but much more abundant in the west of England, about Tavistock and Ashburton.

GENUS XXXII.—AGRYPNIA, *Curtis*.

Antennæ as long as the body, inserted in front of the head, close to the eyes, slender, slightly pubescent: *palpi* rather pubescent; maxillary long, compressed, 5-jointed, the basal joint short; the 2nd and 3rd longer, equal in length, the other two shorter than these, also equal in length, the 5th somewhat elliptic; labial 3-articulate, short, the apical joint longest and somewhat ovate: *head* very broad, transverse-ovate: *eyes* globose: *thorax* small, suborbicular: *abdomen* depressed, long, very broad, narrowed at the base: *wings* long; anterior rather narrow, sub lanceolate, rounded at the

apex; posterior short, folded within: *legs* rather slender: *femora* simple: *tibiæ* sparingly armed with spines, posterior slightly bent, all armed with a pair of short spurs at the apex, and the four hinder with a second pair below the middle.

This genus, established by Mr. Curtis, may be at once recognised from the other Trichoptera by having the body depressed and very broad, the head is also large, but the wings in neuration closely resemble those of the first section of the following genus; from its depressed form and large head, it reminds one forcibly of the genus *Lyda* amongst the Hymenoptera, with which, however, it has no affinity: one species (and I believe one specimen only) has been hitherto taken, which is described and figured by Curtis, from whose account its characters have been abridged.

†Sp. 1. *Pagetana*. *Ochracea, oculis brunneis, alis immaculatis, apicibus subfuscantibus*. (Long. corp. 4 lin.; Exp. Alar. 12 lin.)

Agr. *Pagetana*. *Curtis, v. xii. pl. 540.—Steph. Nomen. 2d edit. Appendix.*

“Pale dull ochreous: eyes and ocelli brownish; antennæ, head, and thorax, a little more ferruginous, and clothed with ochreous hairs, the latter with an ash-coloured tint, the postscutellum and abdomen dull castaneous, with a grey bloom, the base of the segments in the latter dark, the apex ochreous, tips of superior (anterior) wings slightly fuscous; inferior (posterior) transparent, iridescent, the tips suffused with ochre, all the nervures dark brownish-ochre, excepting a few of the basal ones in the under wings, legs and underside brighter ochre.”—*Curtis, l. c.*

I have never seen this insect, which is said to have been “taken by C. J. Paget, Esq., in a salt marsh, between Yarmouth and Caistor, the 14th August.”—*Curtis, l. c.*

GENUS XXXIII.—ANABOLIA* *mihi*.

Antennæ longer than the body, but not so long as the wings, rather stout, especially the basal joint, slightly pubescent: *palpi* slightly pilose and pubescent; maxillary slender, 5-jointed, the three basal joints short, the two apical ones elongate-cylindric, of equal length; labial 3-articulate and very short, the terminal joint thickened: *head* small, transverse: *eyes* very prominent: *thorax* ovate: *wings* considerably deflexed during repose, the anterior long and narrowed, somewhat lanceolate, and faintly dilated on the costa, the apex rounded; posterior smaller, and folded within, furnished

* *Αναβολή* dilatio.



with numerous longitudinal nervures, placed very closely towards the apex: *abdomen* short, slightly compressed, obtuse at the tip; of the female more robust and obtuse: *legs* rather long and slender: *femora* simple: *tibiæ* and *tarsi* rather thickly armed with longish spines, the former with a pair of short spurs at the apex, and the four hinder ones each with a second pair below the middle.

The insects of this genus—at least those of the first section—almost too closely resemble those of the immediately preceding, the neuration of the wings exactly corresponding; but from them they differ in having the body rounded and somewhat compressed, the palpi slightly dissimilar, and the antennæ apparently shorter: those of the second section have the wings a little abbreviated and slightly dilated on the inner margin towards the apex, and resemble in form those of the genus *Chætopteryx*, from which, however, they are removed by the absence of the rigid setæ, with which the wings of that genus are adorned.

§ A. *Anterior wings* rather narrow and elongate: *palpi* very slightly pilose.

Sp. 1. *nervosa*. *Capite thorace abdomineque supra fusco-brunneis, infra ochraceis, antennis nigricantibus, alis anticis fusco-ochraceis macula subcentrali albida, posticis subhyalinis apice ochraceo.* (Long. corp. 4—6 lin.; Exp. Alar. 13—15 lin.)

Lim. nervosus. *Leach MSS.—Samouelle, pl. 7. f. 3.—An. nervosa. Steph. Catal. 320. No. 3662.—Ph. fusca. Pictet, p. 133. pl. x. f. 1.*

Head, thorax, and abdomen dusky-brown above, tawny-ochreous beneath; antennæ blackish; anterior wings ochreous-brown, the nervures dark-brown, the margins, especially the hinder one, dusky-brown, and towards the centre of the disc a lunate whitish spot, and one or two at the base of the 2nd or 3rd marginal areolet; posterior wings somewhat transparent, their apex tinged with ochreous-brown; legs ochreous, with the tarsi brown.

Larva with the head and three following segments blackish-brown, the three first adorned with numerous regular blackish markings, the rest of the body ochreous; legs ochreous, spotted with black.

Abundant at Hertford, and in other places within the metropolitan district, towards the end of August and beginning of September: found also near Dover and Ramsgate, in the New Forest, and in Scotland.

Sp. 2. *lurida*. *Supra ochraceo-brunnea, infra lurido-ochracea, antennis brunneis, alis anticis lurido-ochraceis, macula obsoleta albidâ, posticis hyalinis apice lurido.* (Long. corp. 5—7 lin.; Exp. Alar. 14—16 lin.)

Ana. lurida. Steph. Catal. 320. No. 3663.



Head, thorax, and abdomen above ochreous-brown, beneath lurid-ochreous; antennæ brown; anterior wings lurid-ochreous, the nervures dark brown; towards the apex of the 3rd discoidal areolet is a whitish dot, and another at the base of the 3rd marginal one; posterior wings very transparent, slightly iridescent, with the apex lurid.

These may be only larger and more brilliant examples of the foregoing species, to which they are greatly allied.

Taken also within the metropolitan district in September.

B. *Anterior wings* short and rather broad; *palpi* long and pilose:—
DRUSUS, Steph.

Sp. 3. testacea. *Rufescente-ochracea, alis pallidioribus anticis atomis paucis pallidis, pedibus ochraceis, oculis nigris.* (Long. corp. 4—5 lin.; Exp. Alar. 12—13 lin.)

Phr. testacea. *Gmelin.*—N. G. (569.) (*Drusus Nom.*) planus. *Steph. Catal.* 321. No. 3665.—Lim. luridus. *Phil. Mag. (Curtis) v. iv. p. 124.*

Reddish-ochre: eyes black; thorax very pilose; wings transparent, pale reddish-ochreous, with a few minute paler dots, the nervures distinct and slightly dusky, the surface clothed with very fine golden hairs; posterior wings paler, immaculate, the apex with a dusky tinge; legs ochreous, with black spines.

Not very common: taken in July and August at Hertford; also in the New Forest and in Devonshire.

Sp. 4. annulata. *PLATE xxxiv. f. 3.—Rufescente-ochracea, oculis nigris, alis hyalinis flavescente-ochraceis, immaculatis, abdomine fusciscentis, marginibus segmentorum ochraceis.* (Long. corp. 3 lin.; Exp. Alar. 11 lin.)

N. G. (569.) annulatus. *Steph. Catal.* 321. No. 3666.

Reddish-ochre: eyes black; thorax rather dusky; wings very transparent, pale immaculate, yellowish-ochre, the nervures distinct and somewhat darker; posterior very pale at the base, and slightly iridescent; abdomen fuscous, with the edges of the segments ochreous; legs reddish-ochre, with dusky spurs and setæ; antennæ pale reddish ochre.

Rare: found in June in Devonshire.

Sp. 5. flavipennis. *Rufescente-ochracea, oculis brunneis, alis subhyalinis tomento subaurato ornatis.* (Long. corp. 3 lin.; Exp. Alar. 9½ lin.)

N. G. (569.) lutescens. *Steph. Catal.* 321. No. 3667.—Phr. flavipennis. *Pictet, p. 133. pl. xi. f. 8.*

Reddish-ochre: eyes brown; wings transparent, pale ochreous, immaculate, clothed with a golden down; nervures slightly darker; abdomen greenish-brown, darkest above; legs very pale ochreous, with black spines.

Apparently rare: taken, in June, in Devonshire.



Sp. 6. *nigricornis*. *Ochracea, oculis antennisque picco-nigris, capite thoraceque supra brunneis, alis anticis pallide ochraceis, albido indistincte irroratis.* (Long. corp. 4 lin.; Exp. Alar. 10—11 lin.)

N. G. (569.) *picicornis*. *Steph. Catal.* 321. No. 3668.—Phr. *nigricornis*. *Pictet, p.* 136. *pl.* vi. *f.* 4.

Ochreous: antennæ and eyes pitchy-black; head and thorax brown above; palpi ochreous; anterior wings broad, pale ochreous, with minute indistinct whitish dots, especially towards the inner margin, which is darker than the anterior; towards the base are some larger and more distinct spots, with a larger one in the middle, and another on the inner edge, where the nervures decussate; legs pale, with dull black spines.

Not a common species: found, in the vicinity of London, in June.

Sp. 7. *dubia*. *Rufescente-ochracea, antennis brunneo annulatis, oculis fuscis, alis anticis pubescentibus, fusco-ochraceis punctis remotis pallidioribus.* (Long. corp. 5½ lin.; Exp. Alar. 12 lin.)

N. G. (569.) *dubius*. *Steph. Catal.* 321. No. 3664.

Reddish-ochreous: antennæ annulated with brown; eyes fuscous; anterior wings very pubescent, slightly granulated, ochreous-brown, with the nervures darker, the areolets minutely sprinkled with remote paler dots; the hinder angle is somewhat dilated; posterior wings hyaline, pale, with a faint ochreous tinge, the nervures and apex distinctly ochreous; legs pale ochreous, with black spines.

This remarkable insect makes a near approach to the following genus, but differs in having the wings less distinctly rounded at the apex, and somewhat longer and narrower.

Also an uncommon species: found, in June, in the vicinity of the metropolis.

GENUS XXXIV.—CHÆTOPTERYX* *mihi*.

Antennæ longer than the body and the wings, very slender, simple: *palpi* slightly pubescent, also very slender; maxillary 5-jointed, the two basal joints short, the other three long and slender, the apical one slender and acute; labial 3-articulate, the terminal joint obtuse ovate: *head* small: *eyes* large, prominent: *thorax* ovate: *wings* much deflexed during repose; anterior short, broad, much rounded at the apex, and very pubescent, the costa rounded in the middle and deeply ciliated, the disc granulated, and producing long rigid setæ; posterior wings less pilose, short, very broad and ample, faintly notched on the hinder margin: *abdomen* short, robust,

* χαιτη seta, πτερυξ penna.



narrowed at the base, dilated at the apex, of the female longer, more robust and very obtuse: *legs* long, rather stout: *femora* simple: *tibiæ* and *tarsi* furnished with numerous short spines, the former with a pair of spurs at the apex of each, and the four hinder ones each with a second pair below the middle.

The insects of this genus may be known, not only by a slight diversity in the form of the palpi, but especially by having the anterior wings very broad, granulated, beset throughout with rigid erect bristles, very pubescent, and rounded at the apex: in fact, their entire habit is very dissimilar to that of any other genus of this family: two species only are known.

Sp. 1. *villosa*. *Fulvescente-ochracea, antennis brunneis, alis anticis subgranulatis ochraceo-brunneis punctis duobus pallidis.* (Long. corp. $4\frac{1}{2}$ — $5\frac{1}{2}$ lin.; Exp. Alar. 10—12 lin.)

Phr. *villosa*. *Fabricius*.—Chæ. *villosa*. *Steph. Catal.* 321. No. 3669.

Of a tawny-ochreous, darker above: eyes black; antennæ brown; anterior wings ochreous-brown, with the nervures slightly prominent and tubercular, furnished with distinct, long, silky, blackish hairs, longest on the inner margin, the membrane also bearing minute tubercles, with a pale dot towards the hinder angle on the inner margin, and another above it; posterior wings very transparent; abdomen ochreous; legs pale ochreous, with black spines.

Larva with the five anterior segments brown, the remainder and legs ochreous.

Not uncommon, in July and August, within the metropolitan district, especially in the vicinity of Hertford.

Sp. 2. *brevipennis*. *Ochracea, supra brunnescens, abdomine nigricante, alis anticis tuberculatis fulvescente-ochraceis punctis tribus minutissimis pallidis.* (Long. corp. 3— $3\frac{1}{2}$ lin.; Exp. Alar. 9—11 lin.)

Lim. *brevipennis*. *Phil. Mag. (Curtis)* v. iv. p. 125.—Phr. *tuberculosa*. *Pictet*, p. 140. pl. vii. f. 4.

Ochreous, brownish above: eyes black; antennæ brown; anterior wings very broad and rounded, rough and tawny-ochreous, with the nervures very prominent and tubercular, clothed with long silky black hairs, the membrane also slightly tubercular, with a pale spot at the base of the 3rd marginal areolet, another below the centre, and a third towards the hinder angle, the hinder margin darkish, with pale dots; abdomen greenish-black, with its apex ochreous; legs pale ochreous, with black spines.

Larva resembling that of the foregoing species in colour, &c.

Also common in the vicinity of London, as at Hertford, Ripley, Guildford, &c.; found also in Suffolk and in Cambridgeshire.

MANDIBULATA, VOL. VI., JAN. 31st, 1837.

2 G

GENUS XXXV.—NEURONIA, *Leach*.

Antennæ longer than the body, but shorter than the wings, very stout, pubescent: *palpi* very pubescent and pilose; maxillary longest, 5-jointed, the three basal joints short, the two apical ones longer, stout, ovate; labial 3-articulate, the basal joints slender, the terminal one robust, ovate: *head* broad, transverse, with a tuft of hair between the antennæ: *eyes* slightly prominent: *collar* pilose: *thorax* ample, subovate: *wings* very slightly pilose, shining, and hyaline, furnished with coarse and numerous nervures, anterior with the costal one in place of the stigma, suddenly curved; at the apex of the disc is a short ovate areolet; posterior smaller, rounded on the hinder margin: *body* robust, cylindric, of the male with the apex broadly expanded, of the female larger and obtuse: *legs* rather slender and elongate: *tibiæ* not armed with spines, but all furnished at the apex with a pair of long spurs, the four hinder ones also with a pair below the middle: *tarsi* also spineless.

This genus—the last of the order—is rendered conspicuous by the remarkable transparency of its wings, which are very slightly pilose, but are furnished with strong and very distinct nervures, of which the second longitudinal one is abruptly waved towards the apex, in place of the usual stigma, as in the genera *Phryganea* and *Halesus*; but from these genera the structure and form of the wings, exclusively of the diversity in the palpi, and their stout, short antennæ, remove them.

Sp. 1. fusca. PLATE XXXIV. f. 2.—*Nigricante-fusca, tibiis posticis ochraceis, alis subochraceo-fuscescentibus, nervis piceis.* (Long. corp. 5—7 lin.; Exp. Alar. 10—15 lin.)

Phry. fusca. *Linne?*—Neu. fusca. *Steph. Catal.* 323. No. 3733.

Blackish-brown: collar clothed with griseous hairs; anterior wings of a dark uniform fuscous, with an ochreous tinge and pitchy nervures; posterior rather paler and more transparent, especially at the base; legs blackish-brown, with the hinder tibiæ bright yellowish-ochreous.

This appears to be a scarce insect: it is met with occasionally within the metropolitan district in the summer.



APPENDIX.

Page 5. *FORFICULA borealis*. *Curtis, v. xii. pl. 560.*

Mr. Curtis, in the folio quoted, says, "Mr. Stephens gives the *F. media* of Marsham as a variety of this species," after stating that the British Forficulidæ have been divided into four genera, as I alone have done in p. 4; and if the reader will refer to p. 5, he will find that I give *F. media* as a distinct species, the forceps of which I have figured from Marsham's original insect.

Page 20.† *LOCUSTA Christii*. *Curtis, v. xiii. pl. 608.*—"Pallide viridis, lineis 2-bus faciei mandibulisque cærulescentibus, elytris maculatis, femoribus posterioribus subtus, interne cærulescentibus, nigro maculatis. (Long. corp. 2 unc. 4 lin.; Exp. Alar. — unc. — lin.)

"Pea-green: antennæ subferruginous; an ochreous and purplish longitudinal line behind each eye, face with two lines down the middle, and the mandibles blue-black; thorax triangular behind, with a sharp convex carina; abdomen reddish-brown, marbled with greenish-yellow; elytra more or less spotted, nervures reddish-brown, variegated with green towards the base; wings delicate yellow, inclining to green, the apical portion more grey, nervures brown and piceous, reticulations ochreous; hinder legs pale green; thighs blue internally beneath, with a large black space from the base to the middle, a blackish band beyond it, and a ring near the apex, which is brown above; spines of tibiæ tipped with black; tarsi grey."—*Curtis, l. c.*

"Taken by Wm. Chistry, Esq. upon some French-beans in a garden on the Clapham-road, in July, 1826."—*Curtis, l. c.*

Page 46. *ECTOBIVS lapponicus*—*Blatta lapponica*, *Curtis, v. xii. pl. 556*, where it is stated "there are 11 species (of *Blatta*) registered as inhabitants of England."—I had previously described 12, for although the date of the plate is July 1, it was not published till August 1.

Page 90. *CORDULIA Curtisii*.—*Loudon, v. vii. p. 60.*—*Curtis, v. xiii. pl. 616.*—The reference to Loudon's Magazine, by some accident, is erroneously stated in this page.

Page 184. *SERICOSTOMA Spencii*.—The death of Dr. Leach, here referred to, took place at Genoa on the 24th of August last, from an attack of cholera, after an illness of seven hours only, in, I believe, the 47th year of his age.



LIST OF PLATES.

PLATE	FIG.	PAGE
XXVIII.	1. Forficula auricularia (<i>forceps</i>)	4
	2. Forficula media (<i>forceps</i>)	5
	3. Forficula borealis (<i>forceps</i>)	5
	4. Forficula forcipata	6
	5. Chelidura albipennis (<i>forceps</i>)	7
	6. Gomphocerus rufus	30
	7. Ectobius lapponicus	46
XXIX.	1. Cænis macroura	60
	2. Baetis semicolorata	64
	3. Cloeon dipterum	68
	4. Agrion rubellum	71
XXX.	1. Gomphus flavipes (and anal appendage)	88
	2. Chrysopa fulvipes	101
	3. Hemerobius concinnus	106
	4. Hemerobius fuscatus	114
XXXI.	1. Raphidia Ophiopsis	130
	2. Nemoura variegata	144
	3. Leuctra geniculata	145
	4. Isogenus nubecula, <i>var.</i>	137
XXXII.	1. Glossosoma fimbriata (with anal appendage and palpi)	161
	2. Mormonia nigripunctata and palpi	189
	3. Aphelocheira flavomaculata, <i>var.</i>	179
	4. Narycia elegans	154
XXXIII.	1. Drepanopteryx Phalænoides	100
	2. Sericostoma Spencii and palpi	184
	3. Molanna angustata	208
	4. Chimarra marginata ♀	191
XXXIV.	1. Odontocerus albicornis	192
	2. Neuronina fusca	234
	3. Anabolia annulata	231
	4. Potomaria analis	183

ERRATA.

PAGE	LINE	for	read
3	8	for	<i>mclytra</i>
3	21	as the	<i>clytra</i> .
7	9	—	at the.
20	8	—	<i>Hagenbach</i> .
37	13	—	Zetterstedt (and elsewhere).
50	10	—	<i>ÆCANTHUS</i> .
—	—	family	<i>ECANTHUS</i> .
—	—	genera	group.
53	30	—	families.
58	26	—	<i>ANISOPTERA</i> .
63	18	—	<i>nigricanus</i> .
64	12	—	<i>nervuris</i> .
—	21	—	<i>stigmata subochracea</i> .
97	11	—	<i>niger</i> .
—	13	—	<i>stigmata subochraceo</i> .
103	4 from bottom	—	<i>nigris</i> .
115	4	—	portions.
151	2	—	four.
155	6	—	few.
171	34	—	joint rosy;
183	30	—	joint.
199	26	—	joint.



INDEX.

	Page	ÆSN.	Page	Ama.	Page	BA.	Page
<i>Acentria</i> , <i>nivea</i> . . .	150	<i>maculatissima</i> . . .	83	<i>subpunctatus</i> . . .	177	<i>longicauda</i> . . .	63
ACENTROPIDÆ . . .	148	<i>mixta</i> . . .	84	<i>Amblypteryx</i> , <i>nigripalpis</i> . . .	203	<i>mellea</i> . . .	63
ACENTROPUS . . .	150	<i>rufescens</i> . . .	82	<i>rufipalpis</i> . . .	203	<i>nigra</i> . . .	67
<i>Garnonsii</i> . . .	150	<i>teretiuscula</i> . . .	85	ANABOLIA . . .	204-229	<i>obscura</i> . . .	65
<i>niveus</i> . . .	150	<i>vernalis</i> . . .	85	<i>annulata</i> . . .	231	<i>phæopa</i> . . .	65
ACHETA . . .	37-39	AGAPETUS . . .	155	<i>dubia</i> . . .	232	<i>semicolorata</i> . . .	64
<i>campestris</i> . . .	39	<i>azureus</i> . . .	157	<i>flavipennis</i> . . .	231	<i>striata</i> . . .	65
<i>domesticus</i> . . .	40	<i>laniger</i> . . .	157	<i>lutescens</i> . . .	231	<i>subfusca</i> . . .	64
<i>sylvestris</i> . . .	40	<i>funereus</i> . . .	156	<i>lurida</i> . . .	230	<i>verna</i> . . .	66
ACHETIDÆ . . .	10	<i>fuscipes</i> . . .	156	<i>nervosa</i> . . .	230	<i>venosa</i> . . .	63
<i>Acrida</i> . . .	36	<i>ochripes</i> . . .	156	<i>nigricornis</i> . . .	232	<i>Barbites</i> , <i>autumnalis</i> ? . . .	11
<i>aptera</i> . . .	12	<i>setiferus</i> . . .	157	<i>pivicornis</i> . . .	232	BERÆA . . .	155-158
<i>Kirbii</i> . . .	13	AGRAYLEA . . .	151-153	<i>plana</i> . . .	231	<i>albipes</i> . . .	158
<i>Bingleii</i> . . .	17	<i>multipunctata</i> . . .	153	<i>testacea</i> . . .	231	<i>Marshamella</i> . . .	158
<i>brachyptera</i> . . .	13	<i>sexmaculata</i> . . .	153	ANAX . . .	81	<i>pygmea</i> . . .	158
<i>dorsalis</i> . . .	14	AGRION . . .	71	<i>formosa</i> . . .	81	BLABERUS . . .	42-44
<i>fusca</i> . . .	14	<i>annulare</i> . . .	74	<i>Imperator</i> . . .	81	<i>giganteus</i> . . .	42
<i>grisea</i> . . .	18	<i>Chloridion</i> . . .	75	ANISOPTERA . . .	12	BLATTA . . .	43-44
<i>varia</i> . . .	15	<i>cingulatum</i> . . .	73	ANISOPTERINA . . .	53	<i>Americana</i> . . .	44
<i>verrucivora</i> . . .	17	<i>corea</i> . . .	76	ANTICYRA . . .	155-159	<i>lucida</i> . . .	46
<i>virescens</i> . . .	11	<i>elegans</i> . . .	72	<i>ciliaris</i> . . .	160	<i>Maderæ</i> . . .	43
<i>viridissima</i> . . .	16	<i>ezoneatum</i> . . .	72	<i>gracilipes</i> . . .	159	<i>orientalis</i> . . .	44
ACRYDIUM . . .	19-32	<i>fulvipes</i> . . .	75	<i>latipes</i> . . .	160	BLATTIDÆ . . .	10-42
<i>bitaculatum</i> . . .	34	<i>furcatum</i> . . .	73	<i>phæopa</i> . . .	159	BOREIDÆ . . .	50
<i>binotatum</i> . . .	35	<i>hastulatum</i> . . .	73	<i>subochracea</i> . . .	160	BOREUS . . .	50
<i>bipunctatum</i> . . .	34	<i>Lincolniense</i> . . .	75	APHILOCHEIRA, . . .	167-179	<i>hyemalis</i> . . .	51
<i>Panzer</i> . . .	36	<i>minium</i> . . .	75	<i>flavomaculata</i> . . .	179	BRACHYCENTRUS . . .	181
<i>brevipenne</i> . . .	35	<i>platypoda</i> . . .	76	<i>subaurata</i> . . .	180	<i>concolor</i> . . .	182
<i>cristatum</i> . . .	35	<i>Puella</i> . . .	73	<i>Aphelomera</i> , <i>Italica</i> . . .	41	<i>costalis</i> . . .	182
<i>dorsale</i> . . .	34	<i>rufipes</i> . . .	71	ATROPOS . . .	115-128	<i>subnubilus</i> . . .	182
<i>ephippium</i> . . .	35	<i>sanguineum</i> . . .	75	<i>fatidicus</i> . . .	129	<i>Brachycercus</i> , <i>chironomiformis</i> . . .	62
<i>hieroglyphicum</i> . . .	35	<i>xanthopteron</i> . . .	72	<i>pulsatorius</i> . . .	128	<i>Harrisellus</i> . . .	61
<i>humale</i> . . .	34	<i>zonatum</i> . . .	72	BAETIS . . .	55-62	<i>minimus</i> . . .	61
<i>laterale</i> . . .	35	AGRIONIDÆ . . .	70	<i>autumnalis</i> . . .	67	CÆNIS . . .	55-60
<i>marginatum</i> . . .	34	AGRYPNIA . . .	204-228	<i>basalis</i> . . .	64	<i>brevicauda</i> . . .	61
<i>nigricans</i> . . .	36	<i>Pagetana</i> . . .	229	<i>bioculata</i> . . .	65	<i>chironomiformis</i> . . .	62
<i>obscurum</i> . . .	35	<i>Aleyrodes</i> . . .	116	<i>carnea</i> . . .	65	<i>dimidiata</i> . . .	61
<i>ochraceum</i> . . .	35	<i>dubia</i> . . .	116	<i>caudata</i> . . .	63	<i>Harrisella</i> . . .	61
<i>pallescens</i> . . .	34	<i>gigantea</i> . . .	116	<i>costalis</i> . . .	64	<i>interrupta</i> . . .	62
<i>scriptum</i> . . .	35	<i>Amathus</i> . . .	176	<i>culiciformis</i> . . .	66	<i>minima</i> . . .	60
<i>subulatum</i> . . .	34	<i>cambricus</i> . . .	178	<i>cingulata</i> . . .	67	<i>pennata</i> . . .	61
<i>variegatum</i> . . .	36	<i>concinus</i> . . .	178	<i>dispar</i> . . .	63	CALEPTERYX . . .	71-78
<i>vittatum</i> . . .	35	<i>fuliginosus</i> . . .	177	<i>elegans</i> . . .	64	<i>anceps</i> . . .	80
<i>zonatum</i> . . .	35	<i>maculatus</i> . . .	178	<i>flavescens</i> . . .	64	<i>Ludoviciana</i> . . .	79
ÆSHNA . . .	81-82	<i>pivicornis</i> . . .	177	<i>fuscata</i> . . .	66	<i>Virgo</i> . . .	79
<i>affinis</i> . . .	85	<i>pyrrhoceras</i> . . .	177	<i>horaria</i> . . .	66	<i>xanthostoma</i> . . .	80
<i>chrysophthalmus</i> . . .	82	<i>subnebulosus</i> . . .	179	<i>lateralis</i> . . .	65	CERACLEA . . .	192-193
<i>Delii</i> . . .	82					<i>nervosa</i> . . .	194
<i>grandis</i> . . .	83						
<i>junceae</i> . . .	84						



	Page	BEC.	Page	Go.	Page	HE.	Page
CHOLIDURA	4-6	griseus	18	<i>fuscata</i>	187	Pini	111
albipennis	7	verrucivorus	17	<i>hirta</i>	189	punctatus	111
CHÆTOPTERYX,		DERMAPTERA	1-3	<i>immaculata</i>	189	Stigma	112
	204-232	DREPANOPTERYX,		irrorata	188	subfasciatus	111
brevipennis	233		99-100	<i>nigromaculata</i>	189	subnebulosus	107
villosa	233	Phalænoides	100	pilosa	187	variegatus	113
CHIMARRA	190	<i>Drusus</i>	231	vulgata	188		
marginata	191	<i>annulatus</i>	231	GOMPHOCERUS	19-29	HYDROPSYCHE,	147-167-170
CHLOROPERLA	137	<i>dubius</i>	232	apricarius	32	angustata	174
flava	139	<i>lutescens</i>	231	biguttatus	30	angustipennis	173
fuscipennis	138	<i>plicicornis</i>	232	<i>biguttulus</i>	30	atomaria	171
lateralis	138	<i>planus</i>	231	calidoniensis	32	flavomaculata	180
<i>lutea</i>	138	<i>Dryas</i>		elegans	31	fulvipes	174
media	138	<i>nigripunctatus</i>	168	ericetarius	31	guttata	172
pallida	139	ECTOBIUS	44-45	rufus	30	hibernica	173
rufescens	139	germanicus	46	sibiricus	32	læta	172
venosa	139	lapponicus	46-235	<i>Sowerbii</i>	30	lanceolata	173
<i>viridis</i>	138-139	lividus	48	GOMPHUS	81-87	pellucidula	172
CHRYSOPA	99-101	nigripes	48	flavipes	88	<i>Sener</i>	168
abbreviata	103	pallens	46	forcipatus	87	tenuicornis	171
affinis	104	pallidus	48	<i>pulchellus</i>	88	<i>urbanus</i>	175
alba	104	Panzeri	47	<i>vulgatissimus</i>	87	HYDROPSYCHIDÆ,	
angusta	104	perspicillaris	47	GRYLLIDÆ	10		148-167
angustipennis	104	EPHEMERA	55	GRYLLOTALPA	37	HYDROPTILA	147-151
capitata	102	apicalis	59	didactyla	37	brunnicornis	152
carnea	103	cognata	56	vulgaris	38	costalis	153
fulviceps	101	diluta	58	HALESUS	204-209	<i>marginata</i>	152
immaculata	103	dispar	58	<i>angustatus</i>	209	sparsa	152
maculata	102	dubia	59	cingulatus	209	tineoides	152
Perla	105	fusca	58	<i>confinis</i>	209	Vectis	152
<i>punctifrons</i>	104	helvipes	59	<i>flavus</i>	210	HYDROPTILIDÆ,	
reticulata	102	<i>lutea</i>	57	hieroglyphicus	210		148-151
subfalcata	105	marginata	57	lateralis	210	ISOGENUS	134-136
ventralis	103	minor	60	latipennis	209	nubecula	137
viridis	103	<i>nigricans</i>	58	<i>obscurus</i>	210	LABIA	4-7
CLOEON	55-67	rosea	59	radiatus	210	minor	8
albipenne	69	rufescens	59	stellatus	210	LABIDURA	4-8
cognatum	69	stigma	57	Vibex	209	<i>gigantea</i>	8
<i>consobrinum</i>	69	submarginata	58	HEMEROBIDÆ	97-98	<i>Lepturus</i>	92
dimidiatum	69	talcosa	57	HEMEROBIUS	99-105	LEPTOCERIDÆ,	
dipterum	68	vespertina	60	affinis	109		148-191
<i>dorsale</i>	69	vulgata	55	angulatus	106	LEPTOCERUS	192-194
hyalinatum	68	— <i>Don</i>	56	apicalis	110	affinis	198
ochraceum	68	EPHEMERIDÆ	54	concinus	106	annulatus	197
<i>obscurum</i>	69	EPHIPPIGERA	11	confinis	115	annulicornis	199
Virgo	70	virescens	11	crispus	112	assimilis	198
unicolore	69	FORFICULA	4	elegans	113	ater	196
CONIOPTERYX	115	<i>albipennis</i>	7	fasciatus	108	— <i>Step.</i>	200
Alevrodiformis	116	auricularia	4	fimbriatus	113	aterrimus	200
Psociformis	117	borealis	5-235	fuscus	107	attenuatus	202
Tineiformis	116	<i>centralis</i>	7	fuscatus	114	aureus	197
CORDULEGASTER	81-86	forcipata	6	hirtus	106	bicolor	201
annulatus	86	media	5	Humuli	108	bilineatus	200
CORDULIA	81-88	— <i>Hagen.</i>	7	irroratus	111	bimaculatus	197
ænea	89	FORFICULIDÆ	1-3	lutescens	109	caliginosus	200
<i>compressa</i>	90	GLOSSOSOMA	155-160	marginatus	109	cinereus	199
Curtisii	90-236	Boltoni	161	Marshami	114	dissimilis	197
metallica	89	fimbriata	161	nebulosus	107	elongatus	201
CYRNUM	167-174	<i>Glyptothelus</i>	211	nemorialis	110	filosus	199
<i>cognatus</i>	175	<i>angulatus</i>	211	nervosus	108	<i>gracilis</i>	202
pulchellus	175	<i>cognatus</i>	212	nitidulus	114	<i>grossus</i>	199
unicolor	176	<i>diaphanus</i>	212	obscurus	108	interruptus	198
unipunctatus	175	<i>ornatus</i>	212	<i>obsoletus</i>	110	longicornis	201
urbanus	175	<i>pictus</i>	211	paganus	110	niger	196
DECTICUS	11-16	GOERA	181-187	pallidus	112	nigricans	195
Bingleii	17	flavipes	187	perelegans	109	obtusus	195

LEP.	Page	LIM.	Page	Page	Mys.	Page	
ochraceus	195	elongatus	227	LOCUSTA	19	phæa	196
perfuscus	196	emarginatus	211	aprica	24	NARYCIA	151-154
pilosus	199	fenestralis	218	autumnalis	11	elegans	154
4-fasciatus	200	— Steph.	220	bicolor ?	25	NEUROPTERA	49
rufogriseus	201	flavus	226	biguttata	26	NEMOURA	134-140
rufus	201	flavescens	223	Christii	235	affinis	141
seminiger	199	flavicornis	213	cærulescens	21	annulata	142
subannulatus	197	fuliginosus	227	consobrina	27	Cambrica	143
tarsalis	197	fuscatus	222	crucigera	26	cruciata	141
testaceus	195	fuscus	221	dorsata	22	fuliginosa	141
tineiformis	202	geminus	220	elegans	22	fumosa	143
LESTES	71-76	glaucopterus	215	flavipes	21	luteicornis	142
autumnalis	78	griseus	217	grossa	21	nebulosa	140
forcipula	78	hieroglyphicus	210	hæmorrhoidalis	27	nitida	143
Nympha	77	incisus	228	lineata	26	pallicornis	143
sponsa	77	interruptus	225	migratoria	20	pallida	141
Viridis	77	irroratus	223	miniata	25	pallipes	142
LEUCTRA	134-144	latipennis	209	mollis	27	pusilla	143
abdominalis	145	Lineola	213	montana	23	sulcicollis	143
fusciventris	145	— Steph.	225	obscura	27	variegata	144
geniculata	145	lunatus	216	ochropa	22	NEURONIA	204-234
LIBELLULA	81-90	— Steph.	219	parallela	23	fusca	234
angustipennis	95	luniger	219	pedestris	29	NOTIDOBIA	181-185
basalis	96	luridus	231	rhomboidea	28	atrata	186
bimaculata ?	93	marginalis	218	rosea	25	pallipes	186
cancellata	93	marmoratus	214	rubicunda	24	ODONTOCERUS	192
cærulescens	93	nebulosus	215	rubroviridata	22	albicornis	192
conspurcata	91	— Steph.	214	rufipes	25	griseus	192
depressa	91	nigrivittatus	225	stridula	20	maculipennis	192
Donovani	93	notatus	224	tricarinata	23	ECANTHUS	37-41
flaveola	96	nubilus	223	variegata	28	Italicus	41
pallidistigma	94	obscurus	220	varipes	28	Orthetrum	92
prænubila	92	ochraceus	223	venosa	28	ORTHOPTERA	9
4-maculata	92	obliquus	219	viridula	24	OSMYLUS	99
rufostigma	95	ornatus	212	vittata	25	maculatus	99
Scotica	94	pallescens	214	LOCUSTIDÆ	10-18	PANORPA	51
vulgata	95	pellucidulus	211	MECONEMA	11-14	affinis	25
LIBELLULIDÆ	70-80	pictus	211	varia	15	apicalis	52
LIBELLULINA	70	præustus	226	MEGALOPTERINA	132	borealis	53
LIMNEPHILUS	204-211	punctatus	227	Meroe		communis	52
affinis	217	punctatissimus	221	concolor	182	germanica	53
affinis, Steph.	215	punctulatus	217	costalis	182	PANORPIDA	50-51
albovittatus	215	4-maculatus	222	nubila	182	PANORPINA	49
angulatus	211	rhombicus	214	MICROPTERYX	11-12	PERLA	134-135
apicalis	215	signatus	219	aptera	12	bicaudata	136
— Steph.	227	sparsus	223	brachyptera	13	cephalotes	136
assimilis	221	stellatus	210	Roeseli	13	flavipes	135
Auricula	220	stigma	216	MOLANNA	192-202	grandis	135
basalis	211	— Steph.	216	angustata	202	marginata	135
bimaculatus	216	strigosus	213	nigripalpis	232	nervosa	136
binotatus	215	Striola	213	MORMONIA	181-188	PERLIDÆ	132-134
bipartitus	225	subnebulosus	224	gracilicornis	189	PHASGONURA	11-15
bipunctatus	218	substrigosus	224	hirta	189	viridissima	16
caliginosus	221	tenebricus	222	immaculata	189	Platetrum	91
centralis	227	terminalis ?	226	maculicornis ?	189	PLECTROCNEMIA	
cænosus	221	tessellatus	218	minor	189	senex	167-168
cognatus	212	testaceus	224	nigromaculata	189		168
confusus	222	ustulatus	228	MYRMELEONIDÆ	97	PHILOPOTAMUS	
consobrinus	224	variabilis	226	MYRMELEON	98	affinis	167-169
costalis	217	versicolor	218	formicarium	98	antennatus	172
diaphanus	212	Vibex	209	Mystacide	147	bimaculatus	173
discoidalis	214	villosus	228	aurea	197	conspersus ?	168
dorsalis	213	Vinculum	222	atra	196	dorsalis	165-172
elegans	215	vittatus	225	azurea	157	instabilis	171
— Pict.	225			nigra	196		

PHI.	Page	POI.	Page	Pso.	Page	Page	Page
<i>longipennis</i>	166	<i>plicicornis</i>	177	<i>subfasciatus</i>	119	TERMITINA	97
<i>maculatus</i>	171	<i>pyrrhoceras</i>	177	<i>subnebulosus</i>	121	<i>Tetrix</i>	
<i>marginipunctatus</i>	173	<i>subpunctatus</i>	176	<i>subocellatus</i>	124	<i>Panzeri</i>	34
<i>montanus</i>	170	POTOMARIA	181-182	<i>subpunctatus</i>	126	<i>Thya</i>	
<i>nebulosus</i>	166	<i>analisis</i>	183	<i>variegatus</i>	118	<i>Maurus</i>	159
<i>obliquus</i>	171	<i>assimilis</i>	183	<i>venosus</i>	121	<i>pullata</i>	158
<i>obsoletus</i>	165	<i>hyalina</i>	183	<i>vittatus</i>	122	TINODES	155-162
<i>obscurus</i>	174	<i>Prosoponia</i>		PSYCHOMIA	147	<i>albipunctatus</i>	164
<i>ochroleucus</i>	173	<i>Leachii</i>	184	PSYCHOMIDÆ	148-190	<i>annulicornis</i>	163
<i>opacus</i>	166	<i>Spencii</i>	184	RAPHIDIA	129	<i>ciliaris</i>	160
<i>pellucidulus</i>	172	PSOCIDÆ	97-115	<i>affinis</i>	131	<i>fimbriatus</i>	161
<i>reticulatus</i>	170	PSOCUS	115-117	<i>confinis</i>	131	<i>flaviceps</i>	162
<i>Scopulorum</i>	169	<i>abdominalis</i>	127	<i>Londinensis</i>	130	<i>luridus</i>	163
<i>variegatus</i>	169	<i>atomarius</i>	118	<i>maculicollis</i>	131	<i>lutescens</i>	160
PHRYGANEÆ	147-204	<i>bifasciatus</i>	120	<i>megacephala</i>	130	<i>obscurus</i>	164
<i>albicornis</i>	193	<i>bipunctatus</i>	123	<i>ophiopsis</i>	130	<i>pallidus</i>	162
<i>annulata</i>	197	<i>costalis</i>	126	RAPHIDIIDÆ	97-129	<i>pallipes</i>	163
<i>atomaria</i>	205	<i>contaminatus</i>	120	RHYACOPHILA		<i>phaeopus</i>	159
<i>Beckwithii</i>	205	<i>dubius</i>	127		147-155-165	<i>pusillus</i>	164
<i>elegans, Pict.</i>	225	<i>fasciatus</i>	118	<i>comata</i>	157	<i>simplex</i>	161
<i>flava</i>	226	<i>flavescens</i>	125	<i>lanata</i>	156	<i>subauratus</i>	180
<i>flavipennis</i>	231	<i>flavicans</i>	123	<i>lanigera</i>	156	<i>subochraceus</i>	160
<i>flavosa</i>	206	<i>flaviceps</i>	124	<i>Melas?</i>	158	<i>unipunctatus</i>	175
<i>fusca, Pict.</i>	230	<i>flavidum</i>	123	<i>nigrocincta</i>	159	<i>xanthoceras</i>	163
<i>grandis</i>	204	<i>hyalinus</i>	125	<i>nebulosa</i>	166	TRICHOPTERA	146
<i>Lineola</i>	213	<i>immaculatus</i>	125	<i>opaca</i>	166	TRICHOSTOMA	147
<i>lunaris</i>	215	<i>immunis</i>	121	<i>setifera</i>	157	XIPHIDIION	11-13
<i>minor</i>	206	<i>lineatus</i>	119	<i>stigma</i>	166	<i>dorsale</i>	14
<i>nigricornis</i>	232	<i>longicornis</i>	121	<i>tomentosa</i>	159	<i>fuscum</i>	14
<i>pellucidula</i>	211	<i>maculatus</i>	119	<i>vernalis</i>	161	<i>Zancle</i>	
<i>personata</i>	185	<i>maculipennis</i>	126	<i>vulgaris</i>	165	<i>Hansoni</i>	150
<i>Phalænoides</i>	206	<i>megastigmus</i>	120	RHYACOPHILIDÆ,			
<i>pilosa?</i>	209	<i>nebulosus</i>	119		148-154		
<i>striata</i>	205	<i>nervosus</i>	126	SERICOSTOMA,		ENGLISH NAMES.	
<i>— Pict.</i>	210	<i>nigricans</i>	127		147-181-184	<i>Case or Caddis-flies</i>	146
<i>testacea</i>	231	<i>nigricornis</i>	126	<i>atratum</i>	186	<i>Cock-roach</i>	42-45
<i>tuberculosa</i>	233	<i>obsoletus</i>	119-123	<i>Latreillii</i>	184	<i>Crickets</i>	
<i>varia</i>	205	<i>ochropterus</i>	122	<i>Spencii</i>	184-236	<i>domestic</i>	40
PHRYGANIDÆ	148-203	<i>phaeopterus</i>	127	SERICOSTOMIDÆ,		<i>mole</i>	37
PODISMA	19-29	<i>plicicornis</i>	118		148-180	<i>Golden-eye</i>	101
<i>pedestris</i>	29	<i>pilicornis</i>	117	SIALIDÆ		<i>Grasshopper</i>	19
POLYCENTROPUS,		<i>4-maculatus</i>	124	SIALIS		<i>Locust</i>	20
	167-176	<i>4-punctatus</i>	125	<i>flavilatera</i>		<i>May-fly</i>	56
<i>concinus</i>	178	<i>rufescens</i>	125	<i>lutaria</i>		<i>Snake-fly</i>	129
<i>fuliginosus</i>	177	<i>similis</i>	120	SILO	181-186	<i>Water-n oth</i>	146
<i>irroratus</i>	178	<i>sempunctatus</i>	123	<i>pallipes</i>			
<i>multiguttatus</i>	178	<i>striatulus</i>	124	<i>Sympetrum</i>	94		

END OF VOL. VI.

ILLUSTRATIONS
OF
BRITISH ENTOMOLOGY;

OR, A
Synopsis of Indigenous Insects:

CONTAINING
THEIR GENERIC AND SPECIFIC DISTINCTIONS;
WITH
AN ACCOUNT OF THEIR METAMORPHOSES, TIMES OF
APPEARANCE, LOCALITIES, FOOD, AND ECONOMY,
AS FAR AS PRACTICABLE.

BY JAMES FRANCIS STEPHENS, F.L. AND Z.S.

V. PRESIDENT OF THE ENTOMOLOGICAL SOCIETY OF LONDON, ETC.

EMBELLISHED WITH COLOURED FIGURES OF THE RARER AND
MORE INTERESTING SPECIES.

MANDIBULATA.
VOL. VII.

"In his tam parvis tamque ferè nullis quæ ratio! quanta vis! quam inextricabilis perfectio!"—*Plin.*

"Finis Creationis Telluris est gloria DEI, ex opera Naturæ, per Hominem solum."—*Linné.*

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ILLUSTRATIONS

PLATE I

BRITISH ENTOMOLOGY

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ILLUSTRATIONS OF BRITISH ENTOMOLOGY.

ORDER VI.—HYMENOPTERA.

Wings four, rarely wanting, all membranaceous and naked, generally with distinct ample unequal areolets, anterior largest, mostly with a conspicuous *stigma* on the costa; posterior small, with few nervures; *ocelli* two or three; *mouth* various; *palpi* four; *mandibles* exerted, horny, rarely employed for mastication; *prothorax* obsolete, giving place to an ample collar; *abdomen* various, consisting of from 6 to 9 segments, and, in the females, furnished at the apex with an *ovipositor* of 5-6 valves, or a sharp *sting*, having in many instances a poison bag at its base, and two short compressed styles; *tarsi* generally pentamerous, or 5-jointed. Metamorphosis incomplete: *larva* in some cases furnished with 6 unguiculated legs, and with from 0 to 12 membranaceous ones, and with two simple eyes; in others without legs and vermiform; *pupa* quiescent, folliculated, with the antennæ, legs, and wings distinct, and resembling the imago.

Next to the Coleoptera this order appears to be the most numerous in species; in fact, from the very great accession to their numbers which the investigations of some entomologists in this country have brought to light, it has been supposed to be more extensive; but the number of Coleoptera have been silently increasing at the same time, though it must not be disputed that amongst the parasitic groups, discoveries of new species are almost daily taking place: the order is considerably diversified in habit, and embraces in its extensive grasp some of the most useful and valuable insects, as more particularly referred to hereafter. From the extent of the order it becomes necessary to subdivide it into sections. I shall therefore proceed nearly in conformity with the divisions adopted by Latreille, with the alterations as pointed out in my Systematic Catalogue, commencing with—

SECTION I.—TEREBRANTIA, *Latreille*,

In which the females are furnished with a laminated, or filiform, ovipositor;

MANDIBULATA, VOL. VII., AUGUST 31st, 1835.

a 2



in a few resembling a sting, and valvular; vagina bivalve, received in a canal at the lower apex of the body, the valves compressed; in some lamelliform, in others elongate-cylindric, setaceous, filiform.

These insects, as also proposed by Latreille, may be further subdivided into—

A. *Abdomen* united to the thorax, along its whole breadth, without any distinct peduncle: and

B. *Abdomen* united to the thorax by a distinct peduncle.

The subdivision A. embraces two families, viz.—

FAMILY I.—TENTHRIDINIDÆ, *Leach*.

Wings with the marginal areolets complete: mandibles more or less long, terminated with teeth: *labium* with three laminæ: *maxillary palpi* with 6 joints, labial with 4: *ovipositor* composed of two serrated leaves, rarely exerted: *antennæ* various.

The insects of which this interesting family—which is rather extensive—is composed vary considerably in habit amongst themselves; I shall, therefore, in order to facilitate their investigation, subdivide them into the groups proposed by Leach, in the 3rd vol. of the Zoological Miscellany, abridging the external characters there given, as they appear well calculated to disunite the various groups into which they seem naturally divisible. A considerable variation exists in the number of legs of the larvæ—some possessing only the 6 true legs, while others have from 2 to 18 prolegs: in the early stage many of them are armed throughout their body with spines, while others are destitute of armature: in general, they resemble the larvæ of Lepidoptera, being fleshy, but gradually taper from the head, which is distinct and scaly; they curl up when disturbed, and feed upon living vegetable substances, some few forming galls: again, some species are gregarious, and others solitary.

The females are furnished with a serrated ovipositor, which they employ in forming chinks, wherein to deposit their eggs—thence called *Saw-flies*. The following are the British genera:—

Labrum distinctum,

Antennæ breves, clavatæ, 5-8 articulatæ.

Calcaria obtusa, apice antlio instructa.

Antennæ articulis ante clavam 5;

clava subsolida 2-articulata :

3-articulata :

articulis ante clavam 4;

. 1. Cimbex.

. 2. Trichiosoma.



clava distincte articulata ;

articulis 1: . . . 3. CLAVELLARIA.

2: . . 4. ZARÆA.

3: . . . 5. АВІА.

Calcaria acuminata, simplicia: . . . 6. AMASIS.

Antennæ mediocres; (maris ciliatæ aut furcatæ.)

Ala antica areola marginali ramulum emittente: . 7. HYLOTOMA.

terminali: . 8. SCHIZOCERUS.

Antennæ mediocres, multiarticulatæ, pectinatæ aut serratæ: 9. **LOPHYRUS.**

haud pectinatæ, aut serratæ.

Tibiae 4-*posticae* calcaribus 2-bus instructæ: . . . 27. TARPA.

3-bus instructæ: . . . 28. LYDA.

Antennæ 9-articulatæ; corpus breve.

Areola 1 marginali, 3 submarginale subæquales: . 10. CLADIUS.

2nda parva: . 11. PRISTIPHORA.

4 submarginales.

Tarsi omnes simplices: 12. NEMATUS.

postici art. 1.^{mo} elongato compressissimo : . 13. CRESUS.

Areolæ 2 marginales; *corpus* mediocre aut elongatum.

Arcolæ 4 submarginales.

Antennæ art^o. 3.^{to} 4.^{to} longiore: . 20. ALLANTUS.

3.^{to} et 4.^{to} æqualibus: . 21. TENTHREDO.

3 submarginales; prima brevissima:

Antennæ art°. 3.^{to} 4.^{to} longiore: . 22. DOSYTHEUS.

3.^{to} et 4.^{to} æqualibus: . 23. DOLERUS.

3 submarginales prima 2-da non brevior;

Antennæ art.^o 3.^{to} 4.^{to} longiore: . . . 26. MELICERTA.

3.^{to} et 4.^{to} æqualibus: . 24. EMPHYTUS.

Antennæ 9-10 articulatae, medio crassiores, art.^o 3.^{to} 4.^{to} longiore.

Areolæ 4 submarginales, 1 marginali: *antennæ* 9-art.^{c.} . 14. **MESSA.**

2 marginales ;

Antennæ 10-articulatæ: . . . 16. **ATHALIA.**

9. articulatae breves ;

Alæ hyalinæ, tenues: . . . 17. SELANDRIA.

obscuræ, incrassatæ : . 18. SCIAPTERYX.

Antennæ 9-articulatæ elongatæ, tenues: . 19. HEMICHROA.

3 submarginales, 2 marginales: *antennæ* 9 artæ: . 15. FENUSA.

Antennæ 11-13 articulatae: 25. HETERARTHURUS.

Labrum obsoletum.

Antennæ subclavatæ: 29. CEPHUS.

setaceæ : 30. JANUS.

In accordance with the principles before alluded to, I shall proceed to describe the insects included by Leach in

§ 1. *Antennæ* short and clavate, with the third joint the longest; *anterior wings* with 3 marginal and 2 submarginal areolet.

GENUS I.—CIMBEX, *Olivier.*

Antennæ clavate-capitate, 7-jointed, basal joint robust, 2nd minute, 3rd very long and slender, 4th and 5th clavate-truncate, equal in length, 6th and 7th coalescing, and forming an oblong ovate club: *head* as broad as the thorax: *ocelli* 3: *mandibles* irregularly 3-dentate: *body* robust, obscurely villose: *wings* ample, anterior with 2 marginal and 3 submarginal areolets, the 1st of the latter receiving 2 recurrent nervures: *abdomen* cylindric in the males, with the 1st segment deeply notched above, and having a membrane in the emargination; ovate in the females: 4 posterior *femora* unarmed, thickened in the males; *tibiæ* with 2 obtuse *spurs* at the apex.

Cimbex differs from the cognate genera, not only in the structure of its antennæ, but from having the labrum comparatively smaller, the body less pilose, furnished with a large membrane at the base in the males, and in which sex the 4 hinder femora are very much incrassated and curved; the anterior tarsi with spiny processes beneath, &c. The larvæ form a strong oval cocoon, in which they change to pupa; they appear very difficult to rear, as I have experienced, having taken many; but when found in the pupa state, they have frequently produced the imago: in general, the species are very rare.

Sp. 1. *femorata*. *Violascente-nigra, subpubescentia, antennis luteis basi fuscis, tarsis membranæque abdominali luteis, femoribus tibiisque cyaneo-atris, alis hyalinis apice areolæque costali 2dâ antice fusciscentibus.* (Long. corp. 11—13½ lin.; Exp. Alar. 20—25 lin.)

Ten. *femorata*. *Linné.*—Ci. *femorata*. *Steph. Catal.* 323. No. 3734.

Slightly pubescent; violet-black, the head and thorax of a deeper and less violet tint; antennæ luteous, with the base fuscous or black; abdomen with its basal membrane luteous; femora and tibiæ of a blue-black; tarsi luteous or testaceous; wings hyaline, with the apex and second costal areolet anteriorly fusciscent.

The male in this (as in the other species of the genus) has the abdomen less robust, with the two posterior femora elongated and thickened.

One of my specimens has the three intermediate joints of the abdomen above dull ferruginous, and another the apex pithy.

Extremely rare in England: it occurs near Windsor, and in Darent wood, towards the end of June.

Sp. 2. *varians*. *Nigra, antennis tarsis membranæque abdominali luteis, alis hyalinis, apice areolæque submarginali secunda fuscis.* (Long. corp. 7—11½ lin.; Exp. Alar. 15—20 lin.)

Ci. *varians*. *Leach.*—*Steph. Catal.* 324. No. 3735.

Head, thorax, and abdomen black; legs the same; tarsi, antennæ, and basal membrane of the abdomen luteous; wings hyaline, with the apex and second submarginal areolet fuscous.

Extremely variable: some examples have the sides of the 3rd to the 6th segments luteous or yellow, or a portion of the segments edged with, or entirely luteous, or occasionally ferruginous. In some the tibiæ are black, in others luteous or pale fuscous, and the claws in some rare instances ferruginous; the coloured apex to the wings varies in intensity. These varieties occur in both sexes.

Not very abundant: found at Darent and Coombe woods: in this last locality I once captured nearly twenty specimens one morning early in June. It has been found in Scotland.

Sp. 3. *pallida*. *Fusco-lutea, thorace pectoreque nigricantibus, abdomine pallide luteo incisuris atris, antennis pedibusque pallide luteis, alis hyalinis apice areolæ costali secunda fuscis.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. 17 lin.)

Ci. *pallida*. *Steph. Catal.* 324. No. 3736.

Dusky-luteous, with the thorax and breast blackish; abdomen pale luteous, with the base of the segments black, antennæ and legs pale luteous; wings hyaline, with the costa, the second areolet anteriorly and the apex deep fuscous.

This insect resembles the foregoing in its wings, and Ci. *Griffinii* in the colour of the abdomen and legs: it may be a very extraordinary variety of Ci. *varians*.

Taken in June near Colney-hatch at Hollick wood.

†Sp. 4. *decemmaculata*. *Violascente-nigra, antennis tarsis et membranâ abdominali luteis, abdomine segmentis 3—7 utrinque macula (intermediis 6 majoribus) flavâ.* (Long. corp. 10—11 lin.; Exp. Alar. 21—23½ lin.)

Ci. *decemmaculata*. *Leach.—Curtis, v. i. pl. 41.—Steph. Catal.* 324. No. 3737.

Violet-black; head, thorax, and abdomen beneath black; antennæ, abdominal membrane, and tarsi luteous; abdomen above with a yellow spot on each side of the 3rd to the 7th segments, the six intermediate ones being largest; wings of a slightly tawny hue, with the apex and second marginal areolet darker.

Found near Windsor, but very rare.

Sp. 5. *Griffinii*. *Lutea, pectore saturiore, abdomine flavo segmentorum interstitiis nigris, alis subfulvescentibus, areolâ secunda costali saturiore.* (Long. corp. 11 lin.; Exp. Alar. 18—21 lin.)

Ci. *Griffinii*. *Leach.—Steph. Catal.* 324. No. 3738.—Te. *lutea*. *Donovan, Brit. Ins. v. vi. pl. 324* ♂.

Luteous; breast, and sometimes the base of the abdomen slightly, darker or fuscous; abdomen yellow, with the interstices (or base) of the segments black, and with a dorsal line composed of ferruginous, or fuscous dots;



wings slightly fulvescent, with the second costal areolet and the apex darker or slightly fuscous.

Taken in the fens in the vicinity of Cambridge and Whittlesea; at times in great abundance, in June: also found near Norwich.

Sp. 6. annulata. *Lutea, abdomine flavo, thorace disco pectore abdominisque segmentis duabus piceis tertioque maculâ subviolascens-fuscis, femoribus violascens-luteis; alis hyalinis apice fuscis.* (Long. corp. 10—11 lin.; Exp. Alar. 20—23 lin.)

Ci. annulata. *Leach.*—*Steph. Catal.* 324. No. 3739.

Luteous; abdomen dull yellow, with a dorsal row of rusty dots, its base, or rather the first two segments and a spot on the third, with the disc of the thorax and the breast, of a violaceous-brown; femora of a violaceous-luteous; wings hyaline, sometimes a little fulvescent, with the second costal areolet darker, and the apex slightly fuscous.

Taken near Windsor, and in the marshes about Cambridge; also in Devonshire, in June and July.—Probably a variety of *C. Griffinii*.

†Sp. 7. maculata. *Fusco-testacea æneo-nitens, capite antennis, tibiis tarsisque luteis, abdomine flavo, segmentis tribus primis dorsalibus violascens-fuscis, 3-tio maculâ utrinque flavâ, 4-to maculâ dorsali fusco-violaceâ.* (Long. corp. 10—12½ lin.; Exp. Alar. 21—24 lin.)

Cra. maculata. *Fourcroy.*—Ci. maculata. *Steph. Catal.* 324. No. 3740.

Testaceous-brown, with a brassy tint; head, antennæ, tibiæ, and tarsi, dull luteous; abdomen yellow, with the three basal segments on the back violaceous- or brassy-brown, and a spot of the same on the 4th; the 3rd with a yellow or luteous spot on each side; wings hyaline, with the costa and the second areolet darker, the nervures testaceous-brown.

Scarce: found at Darenth wood.

†Sp. 8. humeralis. *Nigra, antennis pedibusque luteis, fronte thoracis angulis anticis abdomineque flavis; hoc supernè segmentis 1, 2, et 4 fuscis, eaternè maculâ flavâ notatis, aliis medio maculâ fuscâ, alis hyalinis anticè fulvescentibus, fusco variis.* (Long. corp. 9¼ lin.; Exp. Alar. 17½ lin.)

Cra. humeralis. *Fourcroy.*—Ci. humeralis. *Steph. Catal.* 324. No. 3741.

Black; head, scutellum and pleuræ rusty-luteous; antennæ and legs luteous, the four posterior femora black in front: the forehead, anterior angles of the thorax and abdomen yellow; the latter with the 1st, 2nd, and 4th segments fuscous, with a yellow spot externally, the remainder with a fuscous spot on the back; wings hyaline, with the costa fulvescent, and the apex clouded with fuscous.

Very rare: found near Salisbury.

GENUS II.—TRICHIOSOMA, *Leach.*

Antennæ slender, clavate-capitate, 8-jointed, basal joint robust and rounded,



pilose, 2nd minute, 3rd nearly half the length of the antennæ, very slender, 2 next stouter and shorter, equal in length with each other, 6th obconic, forming part of the club, the latter completed by 2 coalesced joints: head scarcely so wide as the thorax: ocelli 3: mandibles generally bidentate: wings as in *Cimbex*: body robust, villose: abdomen cylindric and elongate in the males, slightly notched above at the base, ovate and depressed in the females: 4 posterior femora thickened and dentate within in the males; tibiæ furnished with a pair of obtuse spurs.

The more densely pilose body of the insects of this genus, combined with the greater slenderness of the antennæ, which, as pointed out by Mr. Curtis, are punctured, as well as the larger labrum, the dentate thickened posterior femora of the males, the simplicity of the tarsi, &c. sufficiently indicate their distinction from *Cimbex*: in metamorphosis they, however, resemble the insects of that genus, but they appear in the imago still earlier in the year.

Sp. 1. *sylvaticum*. *Subæneo-atrum, abdomine nigro-æneo subtus sordidè luteo fusco marginato, femoribus cyaneo-atris, tibiis tarsisque luteis.* (Long. corp. 8 lin.; Exp. Alar. 16—18 lin.)

Tr. *sylvaticum*. Leach.—*Steph. Catal.* 324. No. 3742.

Of a deep brassy black; abdomen above with an ashy pile, beneath dull luteous, margined with fuscous; femora blue-black; tibiæ and tarsi luteous; wings hyaline, slightly fulvescent, with the apex more or less fuscous; mandibles red at the tip, with obsolete teeth; antennæ brassy-black; labrum pentagonal.

The sides of the abdomen are sometimes edged with luteous-red, in addition to the pale under surface.

Not common: taken occasionally at Darenth wood and near Edinburgh.

Sp. 2. *laterale*. *Nigro-æneum, capite saturatiore, antennis nigris, femoribus cyaneo-atris, tibiis tarsis ventre lateribusque abdominis luteis.* (Long. corp. 10—12 lin.; Exp. Alar. 18—22 lin.)

Ti. *laterale*. Leach.—*Curtis, v. i. pl.* 49.—*Steph. Catal.* 324. No. 3743.

Brassy-black: head deepest; antennæ black; abdomen with a slightly ferruginous pile, its under surface and sides luteous-red; femora blue-black; tibiæ and tarsi luteous; wings somewhat fulvescent, with the apex more or less fuscous; mandibles deep black, with the apex pitchy; labrum with the angles rounded.

Also found at Darenth wood, more abundantly than the last; and occasionally at Coombe wood, in April and May.

Sp. 3. *Latreillii*. *Æneo-nigrum, capite antennisque nigris, abdomine supra purpurascens-nigro, femoribus violascentibus, tibiis tarsisque luteis.* (Long. corp. 9—11 lin.; Exp. Alar. 18—20 lin.)



Tr. Latreilli. *Leach, Zool. Misc. v. iii. 110.—Steph. Nomen. 2d edit. Appendix.* Brassy-black, with a ferruginous pile; head and antennæ black; abdomen purplish-black; femora slightly violet; tibiæ and tarsi luteous; wings hyaline, fulvescent, with the apex fuscous; labrum of the male nearly rounded.

The two joints preceding the club of the antennæ are sometimes ferruginous.

In the late Mr. Haworth's collection was an example of this species; and I obtained one from that of Mr. Bainbridge; probably taken near London.

Sp. 4. Lucorum. *Nigrum, thorace æneo-nigro, femoribus cyaneo-atris, tibiis tarsisque luteis, labro ♂ magno.* (Long. corp. 6—10 lin.; Exp. Alar. 15—18½ lin.)

Te. Lucorum. *Linne.—Te. Vitellinæ. Donovan, v. iii. pl. 88. f. 3.—Tr. Lucorum. Steph. Catal. 324. No. 3744.*

Black; thorax rather brassy, clothed with a fine reddish-ash pubescence; femora dull blue-black; tibiæ and tarsi luteous; wings hyaline, with the apex slightly fuscous; labrum of the male large and rounded, of the female small.

The tibiæ are sometimes slightly fuscous.

Very abundant on whitethorn hedges within the metropolitan district, appearing towards the beginning of May.

Sp. 5. tibiale. *Subæneo-nigrum, capite atro, femoribus tibiisque cyaneo-nigris, tarsis luteis, abdominis basi pubescentiâ cinereo-rufa vestito.* (Long. corp. 7—9 lin.; Exp. Alar. 16—18 lin.)

T. tibiale. *Steph. Catal. 324. No. 3745.*

Of a somewhat brassy-black; head deep black; abdomen clothed at the base with a dense ashy-red pubescence; femora and tibiæ bluish-black; tarsi pale luteous; wings hyaline, sometimes slightly fulvescent, with the apex fuscous.

Found, not uncommonly, at Darenth wood, in May.

Sp. 6. Scalesii. *Æneo-nigrum, capite atro, femoribus purpureo-violascentibus, tibiis tarsisque luteis; mandibulis ♂ parvis.* (Long. corp. 5½—7½ lin.; Exp. Alar. 12½—15 lin.)

Tr. Scalesii. *Leach.—Steph. Catal. 324. No. 3746.*

Brassy-black, clothed with a ferruginous pile, which is deepest on the thorax and base of the abdomen; head deep black; femora purplish-violet; tibiæ and tarsi luteous; mandibles small in the male, bidentate, with the apex reddish; labrum rounded in front, minute in the female.

Taken at Coombe and Darenth woods in May; not common.

Sp. 7. unidentatum. *Nigrum, capite, thorace abdominisque basi ferrugineis densè villosis, femoribus violascentibus, tibiis tarsisque luteis, mandibulis rufis unidentatis.* (Long. corp. 7 lin.; Exp. Alar. 14—15 lin.)



Tr. unidentatum. *Leach.—Steph. Catal. 324. No. 3747.*

Black: head, thorax, and base of the abdomen clothed with a dense ferruginous pubescence; femora violet; tibiæ and tarsi luteous; wings slightly fulvescent, with the apex fuscous; mandibles red, unidentate.

Found (but rarely) at Coombe wood.

Sp. 8. pusillum. *Obscure æneo-nigrum, capite pallidior, femoribus cyaneo-nigris, tibiis tarsisque fusco-luteis, mandibulis piceis.* (Long. corp. 4 lin.; Exp. Alar. 10—11 lin.)

Tr. pusillum. *Steph. Catal. 325. No. 3748.*

Dull brassy-black: head and thorax clothed with a pale griseous pubescence; abdomen nearly glabrous; antennæ deep black; head dull black; femora bright blue-black; tibiæ and tarsi dirty-luteous; mandibles pitchy-red at the apex, strongly bidentate; wings of a dull yellowish-brown, with the apex a little darker.

Found in the vicinity of London, but not common.

Sp. 9. biverrucatum. *Ater, griseo-villosum, femoribus cyaneo-nigris, tibiis tarsisque luteis, antennarum medio ferrugineo; abdominis apice verrucis duabus luteo-rufis.* (Long. corp. 6—7½ lin.; Exp. Alar. 12—13 lin.)

Tr. biverrucatum. *Steph. Nomen. 2d edit. Appendix.*

Deep black, rather opaque, and densely clothed with a griseous pubescence; femora blue-black; tibiæ and tarsi dull luteous; antennæ pitchy-black, ferruginous in the middle; abdomen very slender in the male, and but slightly dilated in the female, its apex in both sexes furnished with two exserted luteous-red tubercles.

Taken near Teignmouth in Devonshire.

GENUS III.—CLAVELLARIA, *Leach.*

Antennæ 5-jointed, shortest in the females; basal joint robust, 2nd transverse, 3rd very long and slender, 4th short, 5th forming a club as long as the 3rd, and punctured: *labrum* large; *mandibles* dentate, long in the males: *head* nearly as wide as the thorax: *eyes* not approximating: *ocelli* 3: *wings* as in *Cimbex*: *body* slightly villose: *abdomen* linear in the males, with the basal joint slightly emarginate, a little dilated towards the apex, and depressed on the back in the females: *legs* rather short; 4 posterior *femora* unarmed, thickened in the males; *tibiæ* furnished with obtuse spurs at the apex.

The 5-jointed antennæ of the insects of this genus, exclusively of the difference in the trophi, the slightly emarginated abdomen, the base of which is not furnished with a membrane, the simple hinder femora, extraordinary length of the mandibles of the males, longer labrum, &c. sufficiently point out its distinction from the two preceding, with which it is generally included: the difference of habit alone seems to call for a separation, setting aside the differences above

alluded to; the sexes (if such they be) being very dissimilar to each other.

Sp. 1. Amerinæ. *Nigra cinereo-pubescent, labro clypeoque albidis, antennis articulo ultimo tibiis tarsis ventre anoque ferrugineo-testaceis.* (Long. corp. 9—9½ lin.; Exp. Alar. 14—15 lin.)

Te. Amerinæ. *Linne.*—Cl. Amerinæ. *Steph. Catal. 325. No. 3749.*

Black, with an ashy pubescence; labrum and clypeus whitish, the former strongly cordate, with the base much rounded; antennæ ferruginous at the apex; abdomen the same beneath, its apex and two last segments above more luteous; legs rusty-testaceous, with the femora black; wings hyaline, with the second areolet and the apex brownish.

I have never seen the female (unless, as I strongly suspect, the following insect be it); but, according to Olivier, it differs in having nearly the entire upper part of the abdomen entirely testaceous, and the femora blue-back.

The larva feeds on the willow.

Of this very rare insect the only examples I have seen were captured near Windsor; one being in the British Museum, the other in my own collection.

Sp. 2. marginata. *Nigra, antennis apice tibiis tarsisque luteis, abdomine segmentis posticis margine ventris fasciis et margine labroque albis.* (Long. corp. 8—10 lin.; Exp. Alar. 15—18 lin.)

Te. marginata. *Linne.*—Cl. marginata. *Curtis, v. ii. pl. 93.—Steph. Catal. 325. No. 3750.*

Black; head and thorax with a slight ashy pile; antennæ with the apex ferruginous; labrum and anterior portion of the clypeus whitish; abdomen somewhat glabrous, the two basal segments entirely black, the remainder with broad whitish margins, of which the first two, on the 3rd and 4th segments, are interrupted; all the segments beneath also margined with yellow-white; apex ferruginous; legs black, with luteo-testaceous tibiæ and tarsi; wings hyaline, with the second costal areolet and the apex fuscescent.

Of this (which I suspect to be the female of the preceding), the specimens in the British Museum and my own collection are the only examples I have seen: they were taken near Windsor.

GENUS IV.—ZARÆA, *Leach.*

Antennæ 6-jointed, short, two basal joints transverse, 3rd long, slender, a little curved, 4th short, rather stouter, 5th and 6th forming a club, with an obtuse apex: *maxillary palpi* composed of 6 unequal joints, the first three being short, the others more or less elongated: *head* small, much narrower than the *thorax*: *eyes* united behind in the male: *ocelli* 3: *wings* as in *Cimex*: *body* glabrous: *abdomen* cylindric in the males, ovate in the females; the



basal segment not emarginated: *legs* slender; femora not incrassated in the males; *tibiæ* armed with 2 obtuse spurs at the apex.

The 6-jointed antennæ of *Zaræa* distinguish this genus from the other genera of this group, and from all the preceding the dissimilarity in the proportions of the basal and terminal joints of the palpi, also serve to remove it, as do likewise the fasciated wings, small head, having the eyes approximating behind in the males, and other differences in the trophi.

Sp. 1. fasciata. *Æneo-atra, tibiis tarsisque luteis, alis anticis fascia fused; abdominis ♀ basi albido.* (Long. corp. 5—6 lin.; Exp. Alar. 10—11½ lin.)

Te. fasciata. *Linne.*—*Za. fasciata.* *Curtis, v. ii. pl. 97.*—*Steph. Catal. 325. No. 3751.*

Brassy-black; thorax with its extreme hinder margin whitish; abdomen with the basal segment also whitish and diaphanous; legs black, with the *tibiæ* and tarsi dull luteous; wings hyaline, with a central fasciæform fuscous spot.

The male is said to differ in having the basal segment of the abdomen concolorous with the others.

Not very uncommon within the metropolitan district: it has been taken at Highgate and at Birch and Coombe woods; in the latter places in some plenty in June and July: the males appear to be very scarce.

GENUS V.—ABIA, *Leach.*

Antennæ 7-jointed, short, 2 basal joints transverse, 3rd very long, bent, 4th and 5th of equal length, more robust, 2 following very short, and forming an obtuse club: *maxillary palpi* of 6 unequal joints: *head* very small: *eyes* nearly united behind in the male: *ocelli* 3: *wings* as in *Cimbex*: *body* villose, cylindric, and adorned with a velvety dorsal patch in the males, broader and ovate in the females; the base not emarginate: *legs* short and slender, femora not incrassated in the males; *tibiæ* armed at the tip with rather obtuse spurs.

Abia differs from the cognate genus in having 7 articulations to the antennæ; the body of a rich metallic silken hue, the males having a raised velvety patch on the back of the abdomen, which latter in the females is broad, ovate and destitute of the patch: the insects are comparatively of small size, and appear to be gregarious.

Sp. 1. nigricornis. *Subvillosa, nigro-ænea, antennis ferrugineis, abdomine viridi-æneo, pedibus flavis, femoribus nigro-æneis, alis nebula mediâ maculâque apicali fusciscentibus.* (Long. corp. 4½—5½ lin.; Exp. Alar. 9—11 lin.)

Ab. nigricornis. *Leach.*—*Curtis, v. ii. pl. 89.*—*Steph. Catal. 325. No. 3752.*



Head and thorax brassy-black, slightly villose; antennæ deep black; abdomen greenish-brass; femora brassy-black; tibiæ and tarsi luteous-yellow; wings of a dull brownish-luteous, with an irregular cloud in the middle, and the apex fuscous.

The male has the wings and markings thereon of a deeper hue, and a broad ovate dull velvety-black spot in the middle of the 4th, 5th, and 6th segments of the abdomen. The antennæ are sometimes brownish at the apex.

Taken occasionally in the woods about London, in June: I have found it at Coombe and Darent.

Sp. 2. *sericea*. *Subvillosa, nigro-ænea, antennis ferrugineis, abdomine supra viridi-æneo, pedibus luteis femoribus basi nigro-æneis, alis nebula mediâ strigâque apicali fuseescentibus.* (Long. corp. $\frac{4}{5}$ — $5\frac{1}{2}$ lin.; Exp. Alar. 9—11 lin.)

Te. *sericea*. *Linne.—Donovan, v. xii. pl. 402.—Ab. sericea. Steph. Catal. 325. No. 3753.*

Head and thorax brassy-black, the sides of the latter sometimes greenish; antennæ ferruginous, or luteous; abdomen bright greenish-brass above, blackish beneath, with the sides greenish; legs luteous, with the femora at the base brassy-black or purplish; wings hyaline, with a somewhat triangular brownish cloud in the middle, and a streak of the same at the apex.

The male has a narrow, elongate, velvety-black patch on the middle of the 4th, 5th, 6th, and 7th segments of the abdomen.

Also found in the vicinity of the metropolis, in June, on heaths, and in woods: I once met with it in utter profusion flying round an old willow at Coombe wood.

GENUS VI.—AMASIS, *Leach*.

Antennæ 5-jointed, 2 basal joints short, 3rd rather long and slender, 4th shorter, 5th forming an obtuse club: *mandibles* bidentate: *head* small: *eyes* not approximating in the males: *wings* nearly as in *Cimbex*, the last submarginal areolet receiving 1 recurrent nervure, the 2nd two: *body* naked, punctured: *abdomen* with the 1st segment entire: *legs* short; 4 posterior tibiæ armed at the tip with a pair of acute spurs; *tarsi* with the penultimate joint much shorter than the antepenultimate.

The acute pair of spurs at the apex of the 4 posterior tibiæ of *Amasis*, exclusively of the different proportion of the joints of the tarsi, and the different number of those of the antennæ—which are 5 in number—the naked punctate depressed body, &c. sufficiently point out its distinction from the *Tenthridinidæ* with clavate antennæ.

†Sp. 1. *obscura. Totus nigra, alis albicantibus.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)



Ci. obscura. *Fabricius.*—*Am. obscura.* *Steph. Catal.* 325. No. 3754.

Entirely black, with the wings whitish, the costa of the anterior dusky; body glabrous.

Said to have been found in Lincolnshire: the only specimens I have seen are in the collection at the British Museum.

†*Sp. 2. Jurinæ.* *Nigra, abdominis dorso subcroceo, segmento primo toto segmentisque aliis basi nigris, pedibus flavis, femoribus basi tibiis posticis apice tarsisque omnibus apice nigris.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

Te. Jurinæ. *St. Fargeau Mon.* 38. No. 103.—*Am. læta.* *Steph. Catal.* 325. No. 3755.

Black; abdomen with the basal joint anteriorly black, the 2nd black, with the sides broadly saffron-coloured, the remaining segments of this last colour, with the base of each on the back black; legs yellow, with the femora at the base, the apex of the hinder tibiæ and of each joint of the tarsi black; wings pellucid.

The only examples I have seen of this pretty species are in the British Museum: they were taken near Bristol.

§ 2. *Antennæ* 3-jointed, filiform or subclavate; ciliated or furcate in the males: *anterior wings* with 1 marginal and 4 submarginal areolets; *body* short and stout.

GENUS VII.—HYLOTOMA, *Fabricius.*

Antennæ 3-jointed, 2 basal joints small, 3rd very long, filiform, and ciliated on one side in the males, shorter and somewhat clavate in the females, and nearly glabrous: *labrum* transverse: *mandibles* bidentate: head transverse, with a tubercle between the antennæ: *wings* ample, anterior with one marginal areolet, emitting a nerve from the apex; [and 4 submarginal areolets, the 2nd receiving 1 recurrent nervure, the 3rd 2, and the 4th extending to the margin: *body* rather short and stout: *legs* simple in both sexes, 4 posterior tibiæ with a spine on the inner side below the middle, and two at the apex. Larva with 14 prolegs.

The singular 3-articulate simple antennæ of these insects sufficiently distinguish them from all the others of this family, excepting the females of *Schizocerus*, but from which they may be instantly known by the nervure, which is emitted at the apex of the marginal areolet of the anterior wings, as well as the spine on the inner margin of the 4 posterior tibiæ: it is, perhaps, matter of doubt whether the antennæ really consist of only 3 articulations, as it is probable that if investigated with a very high power, the apparent elongated 3rd joint is composed of several closely united ones.

A. Antennæ short, nearly filiform in the females, and pilose:—*PTILIA*,
St. Fargeau.

Sp. 1. pilicornis. *Corpore atro-cærulescente, alis pallide nigricantibus, apice dilutioribus, pedibus nigris albido-vestitis, antennis elongatis nigris nigro-ciliatis, areolâ submarginali tertiâ apice superiore productâ.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. 6 lin.)

Hy. pilicornis. *Leach.—Steph. Catal. 325. No. 3756.*

Blue-black; antennæ black, very long and slender, scarcely thickened at the apex, and ciliated with black; wings pale dusky, paler at the apex, the 3rd submarginal areolet produced on the upper apex; legs black, with a whitish pile.

Taken at Coombe wood in May, apparently very rare.

B. *Antennæ elongate, subclavate in the females, and nearly glabrous:—*

HYLOTOMA, St. Far.

†Sp. 2. Berberidis. *Corpore atro-cærulescente, alis cærulescente-fuscis, abdominis segmento ultimo ventrali (in femina) forcipis instar producto.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Hy. Berberidis. *Klug.—Steph. Catal. 326. No. 3757.*

Body blue-black, rather slender; wings bluish-brown; abdomen in the female with the terminal ventral segment with a process resembling forceps; antennæ black, slender.

Found by Dr. Leach in the west of England.

Sp. 3. Anglica. *Corpore atro-cærulescente, alis albidis fusciscente subnebulosis, antennis pedibusque nigris, his albido villosis.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Hy. Anglica. *Leach.—Steph. Catal. 326. No. 3758.*

Head, thorax, and abdomen shining blue-black; legs black, with a whitish pile; antennæ also black, rather stout; wings whitish, slightly clouded with brownish.

Taken at Darenth wood in May; not common.

Sp. 4. enodis. *Antennæ, capite, thorace, abdomine pedibusque atro-cæruleis, alis atro-cærulescentibus, apice albo-hyalinis.* (Long. corp. 4—5 lin.; Exp. Alar. 9—10 lin.)

Te. enodis. *Linné.—Hy. enodis. Steph. Catal. 326. No. 3759.*

Antennæ, head, thorax, abdomen, and legs, shining blue-black; wings also blue-black, with the apex hyaline and white.

Rare: found in the vicinity of London, and in the west of England, in May and June.

Sp. 5. violacea. *Atro-cærulea, albido-vestita, alis hyalinis, subfusciscentibus, maculâ substigmatè fuscâ.* (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Hy. violacea. *Klug.—Steph. Catal. 326. No. 3760.*

Deep shining blue-black, clothed with a whitish down; tibiæ and tarsi blackish; wings hyaline, slightly brown, with a darker spot on the disc near the stigma.

More abundant than the last, though not common: taken occa-



sionally at Coombe and Darenth woods towards the end of May and beginning of June.

Sp. 6. *cærulea*. *Corpore-cæruleo, alis albo hyalinis, tibiæ posticarum basi albicante, antennis nigris*. (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Hy. *cærulea*. *Klug*.—*Steph. Catal.* 326. No. 3761.

Blue, shining, with a faint whitish pile; palpi yellowish; antennæ and legs black, the latter with the tibiæ and tarsi paler, the base of the tibiæ faintly whitish; wings whitish hyaline, faintly stained with brownish, and with a darker cloud of the same in the second marginal areolet.

Also rather uncommon: taken within the metropolitan district in May and June.

Sp. 7. *ustulata*. *Corpore cærulescente, antennis nigris, mandibulis apice piccis, palpis, tibiis tarsisque lutco-albis, alis flavescentibus maculâ costali pone medium fusca*. (Long. corp. 4— $4\frac{1}{2}$ lin.; Exp. Alar. 7—9 lin.)

Te. *ustulata*. *Linne*.—Hy. *ustulata*. *Steph. Catal.* 326. No. 3762.

Body bluish; antennæ black; mandibles pitchy at the apex; palpi, tibiæ, and tarsi luteous-white; wings yellowish, with lutescent nervures, a distinct brown spot on the costa behind the middle, and adjoining the stigma: and at the apex is a faint cloud of the same hue.

Common on umbelliferous flowers in the woods throughout the metropolitan district; also in hedges, banks, &c. from May to July.

Sp. 8. *Leachii*. *Æneo-nigra, antennis nigris, subtus piccis, tibiis tarsisque albidis, alis hyalinis pallide fuscescentibus, maculâ costali pone medium fusca*. (Long. corp. 4— $4\frac{1}{2}$ lin.; Exp. Alar. $7\frac{1}{2}$ —8 lin.)

Hy. *Leachii*. *Steph. Catal.* 326. No. 3763.

Of a slightly brassy-black; antennæ black, with the under surface pitchy; palpi whitish: tibiæ and tarsi the same; wings hyaline, of a pale fuscescent tinge, with brownish nervures, a large spot of brown on the costa behind the middle, and a faint cloud at the apex.

Found at Darenth wood in June and July, apparently scarce.

Sp. 9. *Klugii*. *PLATE XXXIV. f. 4.—Subæneo-nigra, alis fuscescenti-fulvescentibus, nebula costali saturatiore, tibiis tarsisque luteis*. (Long. corp. $3\frac{3}{4}$ lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Hy. *Klugii*. *Leach*.—*Steph. Catal.* 326. No. 3764.

Of a somewhat brassy-black: antennæ black, in the male with long cilia; legs with brassy-black femora, and pale luteous tibiæ and tarsi; wings of a brownish-fulvescent hue, with dusky nervures, and a slightly darker spot on the costa adjoining the stigma.

Supposed to be the male of the following, but I possess both sexes of each species.

Taken at Birch wood, and in the vicinity of Darenth, but not common.

MANDIBULATA, VOL. VII., AUG. 31ST, 1835.

b

Sp. 10. *segmentaria*. *Corpore nigro-æneo, tibiis testaceo-albidis, abdominis segmentis apice tenuissimo albido marginatis, alis hyalinis, subferrugineis, nervis maculæque elongata ad apicem fuscis.* (Long. corp. 3—4½ lin.; Exp. Alar. 7½—9 lin.)

Cry. *segmentarius*. *Panzer.*—Hy. *segmentaria*. *Steph. Catal.* 326. No. 3765. Body brassy-black; antennæ black, with the basal joint whitish beneath; palpi pale; abdomen black, its apex with a whitish pile, and each segment with a narrow whitish or pale lutescent margin; tibiæ, extreme apex of the femora, and base of the tarsi pale testaceous-white; wings hyaline, slightly ferruginous, with the nervures, and a large irregularly-ovate spot at the apex of the costa fuscous.

Also rather scarce: taken at Darenth wood, and near Ripley, in May and June.

Sp. 11. *cyaneo-crocea*. *Ceruleo-nigra, abdomine tibiis femoribusque posticis, apice excepto, flavis; alis flavescentibus fascia transversâ stigmatæque fuscis.* (Long. corp. 3—4 lin.; Exp. Alar. 7½—8 lin.)

Te. *cyaneo-crocea*. *Forster.*—Hy. *cyaneo-crocea*. *Steph. Catal.* 326. No. 3766. Head and thorax blue-black, shining; abdomen yellow, with its extreme apex bluish; 4 anterior femora black; posterior tibiæ pale yellow, with the apex alone black; tarsi yellow, with the tips of the joints black; antennæ black; palpi fuscous; wings hyaline, yellowish, dusky at the apex, the stigma and a transverse fascia, united to it, fuscous.

The anterior tibiæ are sometimes pale yellow.

Abundant on umbelliferous plants throughout the metropolitan district in June, and at the beginning of July.

Sp. 12. *femoralis*. *Cyaneo-nigra, abdomine tibiisque flavis, alis flavescentibus stigmatæ fusco.* (Long. corp. 4 lin.; Exp. Alar. 7½—8 lin.)

Hy. *femoralis*. *Klug.*—*Steph. Catal.* 326. No. 3767.

Head and thorax violet-black; abdomen luteous, with its extreme apex black; legs pale luteous, with all the femora, and the tips of the posterior pair of tibiæ and tarsi black; antennæ black; palpi dull luteous; wings pale yellowish, with a brown stigma.

This is also a common species, and is found throughout the metropolitan district in June, frequenting the same haunts as the preceding.

Sp. 13. *Rosæ*. *Corpore flavo, capite thoracis dorso, pectore, alarum anticarum costâ et tarsorum annulis nigris.* (Long. corp. 3½—4½ lin.; Exp. Alar. 7—9 lin.)

Hy. *Rosæ*. *Fabricius.*—*Steph. Catal.* 326. No. 3768.—Te. *Rosæ*. *Donovan, v. v. pl.* 164.

Head black; thorax luteous, with the back and breast black; abdomen yellow; legs the same, but paler, with the apex of the two hinder tibiæ and of all the tarsi black; antennæ black; palpi luteous, wings hyaline, pale



luteous, with the apex pale, the costa towards the stigma, and this last, black.

Not very common, at least within the metropolitan district, where it occurs in June, about Darenth wood: also found in Norfolk.

Sp. 14. *Stephensii*. *Atro-violascens, alis hyalinis costa pedibusque nigricantibus, his albido villosis, femoribus 4 posticis abdomineque flavis.* (Long. corp. $2\frac{3}{4}$ —4 lin.; Exp. Alar. $6-8\frac{1}{2}$ lin.)

Hy. *Stephensii*. *Leach.*—*Curtis*, v. ii. pl. 65.—*Steph. Catal.* 327. No. 3769.

Head and thorax glossy violet-black; abdomen yellow; legs black, with whitish pile, and the 4 hinder femora pale yellow; wings hyaline fuscous, anterior with the costa to the stigma, including this last, dusky. Male with the antennæ rather long; female with the pleuræ yellow.

Taken at Darenth wood on umbelliferous plants, about the end of June, or beginning of July: not very common.

Sp. 15. *pagana*. *Atro-violacea, alis antennis pedibusque nigris, abdomine flavo.* (Long. corp. $5\frac{1}{2}$ —4 lin.; Exp. Alar. $6\frac{1}{2}$ —8 lin.)

Te. *pagana*. *Panzer.*—Hy. *pagana*. *Steph. Catal.* 327. No. 3770.

Head and thorax deep violet-black and shining; abdomen yellow; femora blue-black; tibiæ and tarsi black; wings brownish-black; antennæ black.

Rare: found at Darenth wood towards the middle and end of June.

GENUS VIII.—SCHIZOCERUS, Latreille.

Antennæ 3-jointed, 2 basal joints short, 3rd elongate, furcate, with numerous series of rigid hairs on each branch; in the female simple, filiform and naked: *mandibles* unidentate: *head* transverse, with a frontal tubercle: *ocelli* 3: *wings* ample, anterior with 1 perfect marginal areolet, and 3 imperfect nearly equal submarginal ones, the former with its nervure carried to the apex: *abdomen* rather short: *legs* simple; *tibiæ* with spines only at the apex.

Both sexes of the insects of this genus may be known from *Hylotoma* by having the marginal areolet of the anterior wings complete, and not partially divided by a nervure, in addition to their having the 4 hinder tibiæ not armed with a spur towards the middle of the inner margin, and other differences in the trophi: the males have a peculiarity in their antennæ, which are singularly furcate, the long terminal joint being divided into two long branches of equal length, which are strongly ciliated on both sides: in the females this joint is simple and filiform.

Sp. 1. *furcatus*. *Niger, abdomine flavo, segmento 1-mo nigricante, pedibus palpisque luteis.* (Long. corp. $2\frac{3}{4}$ — $3\frac{1}{2}$ lin.; Exp. Alar. $6-7\frac{1}{2}$ lin.)

Te. furcata. Villers.—Sch. *furcatus*. *Steph. Catal.* 327. No. 3771.

Head and thorax black, slightly shining; abdomen dull yellow, with the basal segment dusky or blackish; legs luteous; femora black at the extreme base; wings hyaline, fuscous; palpi also luteous; antennæ black and ciliated in the male.

A rare insect, and I believe not found within the metropolitan district; the only specimens I have seen having been taken in Somersetshire, in the vicinity of Bristol, in June.

Sp. 2. *pallipes*. *Æneo-niger, nitidus, antennis nigris, tibiis tarsisque pallidis, alis hyalinis fascia obscura substigmata pallide fuscescente*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5-5\frac{1}{2}$ lin.)

Cry. *pallipes*. Leach.—Sch. *pallipes*. *Curtis, v. ii. pl. 58.—Steph. Catal.* 327. No. 3772.

Head, thorax, and abdomen shining brassy-black; femora dusky-black, tibiæ and tarsi pale; wings hyaline, with a faint brownish fascia annexed to the stigma, which is fuscous; antennæ black, faintly ciliated in the male.

Apparently very rare: I have taken both sexes at Coombe wood in June, and the females at Birch wood, but I know of no other locality.

§ 3. *Antennæ* many-jointed, with a double series of pectinations beneath in the males; thickened towards the middle, with the apex acuminate and somewhat serrated within in the females; *anterior wings* with 1 ample marginal areolet and 4 submarginal ones, the 1st of the latter sometimes incomplete; *body* broad, depressed.

GENUS IX.—LOPHYRUS, Latreille.

Antennæ composed of numerous distinct articulations, the 2 basal ones straight and simple, the remainder placed obliquely, and in the males producing on each side a long ciliated ray, gradually decreasing in length to the apex, the 3 or 4 terminal joints having but one ray, and the extreme one being simple; in the female they are thickened in the middle, and slightly serrated within: *mandibles* tridentate: *head* transverse, wide in the males, small in the females: *ocelli* 3: *wings* ample, anterior with 1 marginal and 4 submarginal areolets, the first 2 of the latter with the divisional nervure imperfect: *abdomen* broad, depressed in the females: *legs* simple; *tibiæ* with a pair of acute spurs at the apex only. Larva with 16 prolegs.

There is considerable disparity in the sexes of this genus, but each may be readily known from the other genera of this family, by the antennæ alone; in the males these organs are strongly bipectinated (as in many *Lepidoptera*), the pectinations, or rays, diminishing in length to the apex of the antennæ, the terminal joint being simple; in the females they are thickened in the middle, and slightly atte-



nuated to the apex, and more or less serrated within: all the species appear to subsist in their larva state upon different plants of the fir kind.

Sp. 1. Pini. Mas; *ovatus subdepressus ater, alis posticis apice fuscescentibus, antennis thorace brevioribus, lanceolatis, radiis utrinque 20*:—fœmina; *albida, capite thoracis maculis abdominisque medio fuscis, antennarum articulis 20*. (Long. corp. ♂ $3\frac{1}{2}$ lin.; ♀ $4\frac{1}{2}$; Exp. Alar. ♂ 6 lin.; ♀ 9— $9\frac{1}{2}$ lin.)

Ten. Pini. Linnæ.—Lo. Pini. Curtis, v. ii. pl. 54, ♂ and ♀.—*Steph. Catal.* 327. No. 3773.

Male ovate, slightly depressed, black, slightly villose; palpi and two basal joints of the antennæ testaceous; antennæ shorter than the thorax, lanceolate, with 20 rays on each side and a simple terminal joint; tibiæ and tarsi pale, with the tips of the joints dusky; wings hyaline, with the nervures pale at the base, the stigma dusky; posterior with the extreme apex brownish. Female much depressed, whitish, or pale testaceous, with an irregular patch on the middle of the thorax, and of the abdomen, the breast, head, and antennæ black, except the 2 basal joints of the last, which are pale; the antennæ 20 jointed. Some examples of this sex are more distinctly spotted with black than others, and the spots vary in size.

Found in Scotland, and in Cumberland and Derbyshire; in the former country near Edinburgh and in Dumfriesshire; on the pine in June: it is not common.

Sp. 2. rufus. PLATE XXXV. f. 1. ♂; f. 2. ♀.—Mas; *corpore depresso-sublineari, nigro-nitido, abdomine subtus pedibusque rufis, antennis thorace duplo longioribus ensiformibus, radiis utrinque 25*:—fœmina; *corpore subcylindrico, elongato, rufo-testaceo unicolore, antennarum articulis 23*. (Long. corp. ♂ $3\frac{1}{2}$ —♀ 4 lin.; Exp. Alar. ♂ 7—♀ 9 lin.)

Lo. rufus. Klug.—*Steph. Catal.* 327. No. 3774.

Male with the body depressed, somewhat linear, shining black; abdomen beneath (except the apex) and the legs testaceous-red; antennæ twice the length of the thorax, sword-shaped, with 25 rays on each side, and a simple joint at the apex; wings hyaline, anterior with a faint brownish stigma. Female with the body subcylindric, elongate, and entirely of a testaceous-red; antennæ black, 23-jointed, the 2 basal joints testaceous.

The thorax and the base of the abdomen are occasionally spotted a little with black.

Not very uncommon in fir plantations within the metropolitan district. I have taken it in June near Ripley, and Cobham in Surrey, and also in Birch wood: it occurs likewise in Scotland.

†Sp. 3. pallidus. Mas; *ater, ovato-depressus, abdomine subtus rufo, pedibus pallidis, antennis thorace brevioribus, lanceolatis, radiis utrinque 18*:—fœmina;



pallide flavescens, thorace maculis, abdomine fasciis fuscis, antennarum articulis 18. (Long. corp. ♂ 3 lin.; ♀ 4 lin.:—Exp. Alar. ♂ 5 lin.; ♀ 7½ lin.)

Lo. pallidus. *Klug.—Steph. Catal.* 327. No. 3775.

Male ovate-depressed, black, with the abdomen red beneath; legs pale; antennæ shorter than the thorax, lanceolate, with 18 rays on each side.

Female pale yellowish; thorax with about 3 dorsal black spots; abdomen with brownish fasciæ; antennæ with 18 joints, the basal ones lutescent.

Taken in the larva state by Dr. Leach near Oban, in Scotland, and reared in June: also found by A. Cooper, Esq. near Cobham, in Surrey.

§ 4. *Antennæ* 9-jointed, moderate or elongated; *anterior wings* with 1 marginal and 3—4 submarginal areolets; *body* short.

GENUS X.—CLADIUS, *Leach*.

Antennæ with the 2 basal joints straight and short, the rest obliquely inserted, pilose in the males, and occasionally furnished with an elongate process on one side, giving a branched appearance; in the females simple and slightly pilose: *mandibles* unidentate: *head* transverse: *ocelli* 3: *wings* ample; *anterior* with 1 large marginal areolet, and 3 distinct submarginal ones, the 2nd short, and receiving a recurrent nervure in the middle, the 1st in some species obscurely subdivided by a very indistinct nervure, producing the appearance of 4 areolets: *legs* simple: *tibiæ* all with only a pair of spurs at the apex. Larva with 18 prolegs.

Although some of the species of this genus closely approximate to those of the 2 following genera, the difference in the structure of the antennæ, which, however, vary slightly in the species, and consequently require a division in the genus, exclusively of the variation in the neururation of the anterior wings, will sufficiently enable the reader to distinguish them, the antennæ being pilose in both sexes, and in all the males the 3rd joint is more or less eccentric; in the typical species that and the 3 following being all so constructed.

†Sp. 4. *Juniperi. Niger, nitidus, tibiis tarsisque pallidis antennis feminae* 16 *articulis, maris uno versu pectinatis, apice involutis, obtusis.* (Long. corp. ♂ 2½ lin.; ♀ 3 lin.:—Exp. Alar. ♂ 5½ lin.; ♀ 6 lin.)

Te. *Juniperi. Linné.—Turton (!)—Steph. Catal.* 328. No. 3776, *note*.

Shining black, with the tibiæ and tarsi pale; antennæ 16-jointed in the female, and testaceous; in the male with a series of pectinations, the apex simple, obtuse.

Turton indicates this as British, but I presume without authority, as I have never seen an indigenous specimen.



A. *Antennæ* of the male with elongate appendages to the 3rd, 4th, and 5th joints:—CLADIUS, *Leach*.

Sp. 1. *difformis*. *Niger, pedibus albidis, femoribus nigris, apice albidis, alis hyalinis, nervuris stigmatæque fuscis*. (Long. corp. 2—2½ lin.; Exp. Alar. 4—5 lin.)

Te. *difformis*. *Panzer*.—*Steph. Catal.* 328. No. 3777.

Head, thorax, abdomen, and antennæ black; femora also black at the base, the extreme apex, and the tibiæ and tarsi yellowish-white; wings hyaline, with the costa dusky at the base, the nervures and stigma brown. Female similar, excepting that the antennæ are simple.

The wings are sometimes entirely clouded with yellowish-brown.

The larva is said to feed on roses: it is green, with an ochreous head, and a darker green line along the sides.

Not uncommon in gardens and hedge banks throughout the metropolitan district, existing in the metropolis itself; also found near Bristol, and in the north of England, and in Scotland, in May and June.

B. *Antennæ* of the males with a minute appendage on the 3rd and 4th joints only:—NEMATUS, *p. Leach*.

Sp. 2. *rufipes*. *Niger, pedibus testaceis, alis hyalinis, nervuris piceis*. (Long. corp. 2½—3 lin.; Exp. Alar. 4—5½ lin.)

Cl. *rufipes*. *St. Fargeau*.—*Steph. Catal.* 328. No. 3778.

Head, thorax, abdomen, and antennæ black; legs testaceous, the extreme base of the femora sometimes dusky.

Sexes alike, excepting the male has an incurved appendage to the 3rd joint of the antennæ, and the female has the antennæ simple.

Taken at Darenth wood in June.

Sp. 3. *pallipes*. *Niger, pedibus pallidis, tarsis 2-bus posticis nigris, alis hyalinis, nervuris subfuscis*. (Long. corp. 2—2½ lin.; Exp. Alar. 3¼—4½ lin.)

Cl. *pallipes*. *St. Fargeau*.—*Steph. Catal.* 328. No. 3779.

Head, thorax, abdomen, and antennæ black; legs pale, with the two posterior tarsi black; wings hyaline, with brownish nervures and stigma.

Males with a small appendage at the apex of the 3rd and 4th joints of the antennæ, which are simple in the females.

Found at Coombe wood, about the end of June.

Sp. 4. *Morio*. *Niger, pedibus pallidis, femoribus nigris, alis hyalinis, nervuris fusciscentibus*. (Long. corp. 2—3 lin.; Exp. Alar. 4—5 lin.)

Cl. *Morio*. *St. Fargeau*.—*Steph. Catal.* 328. No. 3780.

Head, thorax, and antennæ black; legs pale, with the femora black; wings hyaline, the nervures and stigma brownish.

Male with a minute appendage at the apex of the 3rd and 4th joints of the antennæ.



Taken at Coombe and Darenth woods; also near Hertford and Dover, in May and June.

Sp. 5. *immunis*. *Niger, pedibus pallidis, femoribus posticis nigris, alis hyalinis nervuris subfuscis*. (Long. corp. 2—3 lin.; Exp. Alar. 4—4½ lin.)

Cl. *immunis*. *Steph. Catal.* 328. No. 3781.

Head, thorax, abdomen, and antennæ black; legs pale, with the posterior femora black; wings hyaline, with the nervures and stigma brownish.

Found in June at Hertford.

Sp. 6. *pilicornis*. *Niger, pedibus pallidis, tibiis posticis lineâ fuscâ latere interno, femorum tibiærumque apice albido-ochraceis*. (Long. corp. 3 lin.; Exp. Alar. 4—4½ lin.)

Cl. *pilicornis*. *Curtis, v. x. pl.* 457.—*Steph. Nomen.* 2d edit. col. 124.

Head, thorax, abdomen, and antennæ black; legs pale, with the tips of the femora and of the tibiæ whitish ochre, the hinder pair with a fuscous line on the inner side; tarsi brownish-ochre; wings pale yellowish-brown, with the costa and stigma darker; nervures pitchy.

The antennæ of the male are pilose, but not more so than in other species of the genus.

Found in the vicinity of the metropolis in June: taken on the 20th June last on Forest Hill, near Dulwich.

Sp. 7. *luteicornis*. *PLATE XXXVIII. f. 1.—Luteus, capite, thorace, pectore abdominisque basi nigris, alis lutescentibus apice pallidis*. (Long. corp. 3—3½ lin.; Exp. Alar. 5—6½ lin.)

Cl. *luteicornis*. *Steph. Catal.* 328. No. 3782.

Head and thorax black, the shoulders luteous; abdomen luteous, with a black spot at the base; breast black; legs luteous, with the apex of the hinder tibiæ and of the joints of the posterior tarsi fuscous; wings lutescent at the base, pale at the apex, the nervures pale testaceous, the stigma fuscous; palpi and antennæ pale luteous, the 2 basal joints of the last black.

Metathorax sometimes with 2 pale spots.

Apparently very rare: my specimens were taken at Darenth wood, in July, many years since.

GENUS XI.—PRISTIPHORA, Latreille.

Antennæ 9-jointed, rather short; simple, finely pubescent in the males, setaceous, 2 basal joints short, remainder decreasing in length from the 3rd joint: *mandibles* slightly dentate: *head* rather wide: *ocelli* 3: *wings* ample; anterior with 1 marginal and 3 submarginal areolets; the 1st elongate, large, 2nd small, quadrate; 3rd extending to the apex: *body* short, rather stout: *legs* simple in both sexes, 4 posterior *tibiæ* with 2 acute spurs at the apex.

Pristiphora appears to form an intermediate genus to Cladius and



Nematus, agreeing nearly in the neururation of the wings with the former, and in the simplicity of its antennæ with the latter: the males have these last organs but slightly pubescent, and are destitute of any appendage at the tip of the basal joints, and the females have them very short and slender, and glabrous, by which character either of the sexes may be known from *Cladius*; and from *Nematus*, the want of the minute, rounded, submarginal areolet, distinguish them; though, it must be admitted, that the nervure which subdivides this from the 2nd is occasionally very faint in *the true Ne. pallipes*.

A. *Anterior wings* with the 1st submarginal areolet large, and receiving 2 recurrent nervures; the 2nd small, quadrate.

Sp. 1. *Myosotidis*. *Nigra*, abdomine testaceo, segmentorum omnium lineis dorsalibus nigris, pedibus testaceis posticis femorum tibiæ et apice tarsis nigris. (Long. corp. 3 lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Te. *Myosotidis*. *Fabricius*.—Pr. *Myosotidis*. *Steph. Catal.* 382. No. 3783.

Black; thorax with pale shoulders; abdomen testaceous, all the segments with an abbreviated transverse black dorsal line, sometimes interrupted in the middle; legs pale testaceous, posterior with the extreme tip of the femora, and of the tibiæ and the tarsi black; wings hyaline, with pale nervures, and a brown stigma; mouth testaceous.

This appears to be a scarce insect: I have taken it in June at Darenth wood.

Sp. 2. *testacea*. *Nigra*, humeris punctis duobus metathoracis abdomineque testaceis, pedibus pallide testaceis, tibiæ et apice posticarum fuscis. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 5—6 lin.)

Pte. *testaceus*. *Jurine*.—Pr. *testacea*. *Steph. Catal.* 328. No. 3784.

Black: mouth testaceous; thorax with the shoulders and two spots on the metathorax luteous; abdomen pale testaceous, the basal segment dusky, or with a black transverse streak on its margin; legs pale testaceous, with the apex of the two hinder tibiæ fuscous; wings hyaline.

Not very common: found occasionally at Darenth wood in June, and in Devonshire.

Sp. 3. *pallipes*. *Nigra*, ore, punctoque metathorace ferrugineis, antennis testaceis subtilis pallidis articulis 2-bus baseos fuscis, pedibus pallidis. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 4— $5\frac{1}{2}$ lin.)

Pr. *pallipes*. *St. Fargeau*.—*Steph. Catal.* 328. No. 3785.

Black: mouth ferruginous, and a geminated spot of the same on the metathorax; legs pale; wings hyaline, with the costa pale, the nervures and stigma fuscous; antennæ testaceous above, pale beneath, with the 2 basal joints fuscous.

Found in the vicinity of London, about the middle of June.



Sp. 4. rufipes. *Nigra, pedibus testaceis, femorum basi nigris, labro testaceo, mandibulis fuscis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

Pr. rufipes. *St. Fargeau.—Steph. Catal. 328. No. 3786.*

Head, thorax, abdomen, and antennæ black; legs testaceous, with the base of the femora black; wings hyaline, with the nervures and stigma fuscous; labrum testaceous; mandibles fuscous.

Also taken in June, within the metropolitan district.

Sp. 5. testaceicornis. *Nigra, pedibus 4 anticis pallidis femoribus nigro maculatis, 2 posticis nigris tibiis basi late pallidis, antennis testaceis, articulis 2 baseos nigris.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

Pr. testaceicornis. *St. Fargeau.—Steph. Catal. 328. No. 3787.*

Head, thorax, and abdomen black; 4 anterior legs pale, with the femora clouded with black, the 2 hinder black, with the tibiæ broadly pale at the base; antennæ testaceous, with the 2 basal joints black; palpi also testaceous; wings hyaline, with the nervures and stigma fuscous.

Found, but rarely, near London, in June.

Sp. 6. fusca. *Nigra, pedibus 4 anticis pallidis 2 posticis nigris, tibiis basi late pallidis, ore fusco-testaceo.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Pr. fusca. *St. Fargeau.—Steph. Nomen. 2d edit. col. 124.*

Head, thorax, abdomen, and antennæ black; 4 anterior legs pale, 2 posterior black, with the tibiæ broadly pale at the base; wings hyaline, with the costa pale, and the nervures and stigma fuscous; mouth dusky-testaceous.

Taken in June near Darenth wood.

B. *Anterior wings* with the 1st submarginal areolet small, rounded; the 2nd very long, receiving 2 recurrent nervures.

Sp. 7. duplex. *Nigra, palpis, humeris, abdomine subtus et lateribus anoque pallidis, pedibus 4 anticis pallidis apice fuscis, 2 posticis fuscis, femorum tibiarumque apice pallidis.* (Long. corp. 2 lin.; Exp. Alar. 5 lin.)

Pr. varipes. *St. Fargeau.—Steph. Catal. 328. No. 3789.*

Head, antennæ, and thorax black; shoulders pale; abdomen above black; beneath and with the sides and apex pale; 4 anterior legs also pale, the tips fuscous; posterior fuscous, with the apex of the femora and tibiæ pale; wings hyaline, with the nervures and stigma fuscous, the costa pale luteous; mouth dusky-testaceous; palpi pale.

Found at Hertford, in June; apparently rare.

Sp. 8. atra. *Nigra, pedibus pallidis, femoribus basi nigris.* (Long. corp. 2 lin. Exp. Alar. $4\frac{1}{2}$ lin.)

Pr. atra. *St. Fargeau.—Steph. Nomen. 2d edit. col. 124.*

Head, thorax, abdomen, and antennæ black; legs pale, with the base of the femora black; wings hyaline, the nervures and stigma pale fuscous.

Taken within the metropolitan district, in June.



C. *Anterior wings* with the 2nd areolet small, receiving 1 recurrent nervure; the 3rd receiving 2.

Sp. 9. varipes. *Nigra, ore pedibusque albo variis; alis hyalinis.* (Long. corp. 2—2½ lin.; Exp. Alar. 4½—5½ lin.)

Pr. varipes. *St. Fargeau.—Steph. Catal. 328. No. 3708.*

Head, thorax, abdomen, and antennæ black; legs black, varied with white; mouth varied with white; wings hyaline.

Not common: found in June at Hertford.

GENUS XII.—NEMATUS, *Leach.*

Antennæ 9-jointed, elongate, slender, simple, 2 basal joints short, 3rd longest, remainder gradually diminishing in length to the apex: *head* small, transverse: *mandibles* dentate: *ocelli* 3: *wings* ample, anterior with 1 large marginal areolet, and 4 submarginal ones, the 1st small, rounded, the rest in general nearly equal to each other, the 2nd receiving 1 recurrent nervure, the 3rd 2; this last areolet is occasionally minute: *body* short, subcylindric in the males, broader and depressed in the females: *legs* simple: *tibiæ* with 2 sharp spurs at the apex only.

It appears to me that this genus may be distinguished from *Pristiphora* by the simplicity and nakedness of the antennæ, exclusively of the variation in the neururation of the anterior wings, which, although constructed upon the same model as in *Pristiphora*, differ in possessing a distinct rounded submarginal areolet; for the variations that occasionally take place in some of the first species, by the rudiments alone of a nervure being perceptible,* ought not to militate against the general rule, especially when we find there is a prevalent diversity of habit between the insects of the respective genera, *Pristiphora* being more closely allied to *Cladius* than to *Nematus*.

Sp. 1. pallipes. *Nigra, pedibus testaceis, alis hyalinis, nervuris pallide fuscis, stigmatibus fusco.* (Long. corp. 2½—3½ lin.; Exp. Alar. 5—7 lin.)

Ne. pallipes. *St. Fargeau.—Steph. Catal. 328. No. 3790.*

Head, thorax, abdomen, and antennæ black; legs pale; wings hyaline, whitish, with pale fuscous nervures; stigma brown.

Not uncommon throughout the metropolitan district in June, frequenting willows.

Sp. 2. bicolor. *Niger, ore albo vario, pedibus albo maculatis.* (Long. corp. 2½—3 lin.; Exp. Alar. 5—5½ lin.)

Ne. bicolor. *St. Fargeau Mon. 62.—Steph. Nomen. 2d edit. Appendix.*

* In my collection are numerous examples in almost every genus of the Terebrantia, of variations in the number of areolets.



Head, thorax, abdomen, and antennæ black; legs black, spotted with white wings hyaline, pale, with a yellowish stigma; mouth varied with white.

Taken at Hertford in July last.

Sp. 3. *crassicornis*. *Niger, pedibus testaceis, femorum basi nigris, antennis brevibus crassis, alis fusciscentibus, stigmatē saturatori.* (Long. corp. 3 lin.; Exp. Alar. 5—6 lin.)

Ne. *crassicornis*. *Steph. Catal.* 328. No. 3791.

Head, thorax, abdomen, and antennæ black, the last short and thickened, especially at the base; legs pale whitish, with the base of the femora black; the extreme tip of the hinder tibiæ and the entire posterior tarsi dusky-brown; wings yellowish-brown, the costa pale, and the stigma deep brown.

Found, but rarely, at Coombe wood, towards the middle of June.

Sp. 4. *grandis*. *Testaceus, antennis, capite, thoracis dorso pectoreque nigris, alis testaceis, nervuris fuscis.* (Long. corp. 4—4½ lin.; Exp. Alar. 6—8 lin.)

Ne. *grandis*. *St. Fargeau.—Steph. Catal.* 328. No. 3792.

Head and antennæ black; thorax testaceous, its back, metathorax, and middle of the breast black; abdomen pale testaceous, with the base brownish; legs and palpi pale testaceous; wings testaceous, with the nervures fuscous; stigma and costa testaceous-brown.

Not uncommon at Darenth wood and Ripley in June.

Sp. 5. *pectoralis*. *Testaceus, antennis thorace maculis 3-bus punctisque 2-bus dorsalibus, sternoque nigris, tarsis fuscis.* (Long. corp. 4 lin.; Exp. Alar. 6 lin.)

Ne. *pectoralis*. *St. Fargeau.—Steph. Catal.* 328. No. 3793.

Head testaceous, with the crown fuscous; antennæ black; thorax testaceous, with 3 spots and 2 dots on the back black; sternum black; abdomen and legs testaceous, tarsi fuscous; wings hyaline, with fuscous nervures; the costa and stigma pale.

Scarce? taken at Darenth wood in June.

Sp. 6. *clitellatus*? *Pallide testaceus, antennis vertice thoracis, dorso, femoribusque 4 anticis basi, nigris.* (Long. corp. 5½ lin.; Exp. Alar. 9—10 lin.)

Ne. *clitellatus*. *St. Fargeau?—Steph. Catal.* 328. No. 3794.

Head pale testaceous, with the crown and antennæ black; thorax black, with the shoulders, a streak on each side beneath the wings, and two dots on the metathorax pale testaceous; abdomen with the base brown above; legs testaceous, with the base of the four anterior black, and the posterior tarsi fuscous; wings hyaline, with the nervures, costa, and stigma fuscous.

This seems to differ from Ne. *clitellatus* in having the posterior tarsi, costa of the anterior wings, and the stigma fuscous; in that species, the former are said to be testaceous, and the latter 2 pale.

A rare species: found near Camberwell and in Darenth wood, towards the end of June.



Sp. 7. dimidiatus. *Testaceus, antennis supra capite thoracis dorso, tibiis tarsisque 2-bus posticis apice nigris.* (Long. corp. 4—5 lin.; Exp. Alar. 7—8 lin.)

Ne. dimidiatus. *St. Fargeau.—Steph. Catal. 329. No. 3796.*

Head black; apex of the clypeus, mouth and palpi luteous; mandibles fuscous at the tip; antennæ testaceous, with a black line above; thorax bright testaceous, with the disc more or less extensively black; abdomen testaceous; legs also testaceous, with the tips of the 2 posterior tibiæ and tarsi black; wings hyaline, with pitchy nervures, and a brown stigma.

Found in June at Darenth wood; also near Hertford.

Sp. 8. dorsalis. *Testaceus, oculis ocellisque nigris, thorace maculis 3-bus dorsalibus fuscis.* (Long. corp. 3—3½ lin.; Exp. Alar. 7—8 lin.)

Ne. dorsalis. *St. Fargeau.—Steph. Catal. 329. No. 3797.*

Head and antennæ testaceous; eyes and ocelli black; thorax testaceous, with three fuscous spots on the disc; abdomen and legs pale testaceous; wings hyaline, with the costa pale testaceous, the nervures and stigma fuscous.

Found near London in June.

Sp. 9. testaceus. *Corpore toto pallide testaceo, pedibus pallidioribus, alis flavescentibus, stigmat testaceo.* (Long. corp. 3—3½ lin.; Exp. Alar. 7—8 lin.)

Ne. testaceus. *Steph. Nomen. 2d edit. col. 124.*

Head, thorax, abdomen, and antennæ entirely pale testaceous, legs of a paler hue; wings hyaline, yellowish, with the nervures paler, and the stigma testaceous.

Found, not uncommonly, in the vicinity of London, in June.

Sp. 10. flavescens. *Testaceo-flavescens, pedibus pallidioribus, oculis ocellisque nigris.* (Long. corp. 3 lin.; Exp. Alar. 6½ lin.)

Ne. flavescens. *Steph. Catal. 329. No. 3799.*

Head, antennæ, thorax, and abdomen entirely pale testaceous-yellow; legs paler; eyes and ocelli deep black; tip of mandibles pitchy; wings pale, with yellowish stigma.

Apparently rare: it has been taken in the vicinity of London in June.

Sp. 11. luteus. *Testaceus, oculis ocellis sternoque nigris.* (Long. corp. 3—3½ lin.; Exp. Alar. 6½—7½ lin.)

Te. lutea. *Fabricius.—Ne. luteus. Steph. Catal. 329. No. 3798.*

Testaceous; eyes and ocelli black; thorax testaceous, sternum black; abdomen and legs immaculate testaceous; wings hyaline, with testaceous nervures and stigma, the latter brownish anteriorly.

Found, not commonly, near London and in Norfolk, in June.

Sp. 12. melanopsis. *Pallidus, vertice nigro, abdomine maculis dorsalibus fuscis.* (Long. corp. 3—3½ lin.; Exp. Alar. 6½—7½ lin.)



Ne. melanopsis. *St. Fargeau Mon.* 71.—*Steph. Nomen.* 2d edit. *Appendix.*

Head, thorax, antennæ, and abdomen very pale testaceous, the latter with some obscure fuscous spots on the back, especially the base; crown of the head black; legs very pale; wings hyaline, with pale nervures and stigma.

Also taken in June at Darenth wood.

Sp. 13. *viridis.* *Flavo-viridis, vertice thoracisque dorso subtestaceis, antennis supra, oculis ocellis lineâ abbreviatâ thoracis et maculis dorsalibus abdominis nigro-fuscis, tarsis omnibus fuscescentibus.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Ne. *viridis.* *Steph. Catal.* 329. No. 3802.

Pale yellowish-green, with the crown and thorax above somewhat testaceous; antennæ with a dusky line above; eyes and ocelli black; behind these last is a minute black dot on the crown; thorax with a single short black line in front in the middle, metathorax with two minute ones behind; abdomen with some irregular dusky spots at its base, and a longitudinal row of transverse dusky lines, diminishing in length to the apex; legs pale testaceous, with all the tarsi fuscous, wings with greenish nervures and stigma.

Of this large and conspicuous species I have seen my own specimen only, which was taken in the vicinity of London in June.

Sp. 14. *varius.* *Pallidus, antennis supra fuscis, vertice, thoracis dorso lineâque subalari nigris, abdomine lineâ dorsali interruptâ macularum testaceo-nigrarum.* (Long. corp. 3—4 lin.; Exp. Alar. 6—7 lin.)

Ne. *varius.* *St. Fargeau Mon.* 69.—*Steph. Nomen.* 2d edit. *Appendix.*

Head pale, crown black; antennæ pale, with the upper surface fuscous; thorax also pale, with the upper part and a streak beneath the wings black; abdomen above pale testaceous, with an interrupted dorsal line of testaceous-black spots, beneath pale; legs anteriorly pale; wings hyaline, with pale nervures.

Found, but not commonly, in the neighbourhood of the metropolis in June.

Sp. 15. *miliaris.* *Pallidus, vertice oculisque fuscis, thorace lineolis 3-bus nigris, abdomine ad basin maculis dorsalibus fuscis.* (Long. corp. $3-3\frac{1}{2}$ lin.; Exp. Alar. $6-7\frac{1}{4}$ lin.)

Te. *miliaris.* *Panzer.*—Ne. *miliaris.* *Steph. Catal.* 329. No. 3808.

Very pale testaceous; antennæ with a black streak above; eyes and vertex fuscous; thorax with 3 black streaks; abdomen with transverse black dorsal lines on the 4 or 5 basal segments; legs pale, immaculate; wings hyaline, with the nervures pale.

Not uncommon, in June, within the metropolitan district, occurring near Hertford and Ripley.



Sp. 16. *affinis*. *Niger, antennis subtus, orbitis oculorum, humeris, abdomine subtus et lateribus anoque testaceis, pedibus pallide testaceis, posticis apice fuscis*. (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.; Exp. Alar. 5 — $6\frac{1}{2}$ lin.)

Ne. *affinis*. *St. Fargeau*.—*Steph. Catal.* 329. No. 3805.

Head black; antennæ black, testaceous beneath; mouth pale; orbits testaceous; thorax with the shoulders testaceous; abdomen black, with the sides, apex, and under surface testaceous; legs pale testaceous, with the two hinder pair brown at the tip; wings hyaline, costa testaceous, nervures and stigma pale fuscous.

Taken, in June, at Coombe wood and other places within the metropolitan district.

Sp. 17. *oblitus*. *Testaceus, vertice abdominisque dorso nigris, thorace fusco vario, antennis supra fuscis*. (Long. corp. 3 lin.; Exp. Alar. 6 lin.)

Ne. *oblitus*. *St. Fargeau Mon.* 69. 209.—*Steph. Catal.* 329. No. 3806.

Head black; mouth pale; orbits testaceous; antennæ black, testaceous beneath; thorax black, with testaceous shoulders; abdomen black, with the under surface, sides, and apex testaceous; legs pale testaceous, the 2 posterior with the apex fuscous; wings hyaline, with the costa testaceous, and the nervures fuscous.

Also taken in the vicinity of London about the middle of June.

Sp. 18. *trimaculatus*. *Testaceus, capite, thoracis maculis 3-bus, sternoque nigris, pedibus posticis apice antennisque supra fuscis*. (Long. corp. 3 — $3\frac{1}{2}$ lin.; Exp. Alar. 6 lin.)

Ne. *trimaculatus*. *St. Fargeau Mon.* 69.—*Steph. Nomen.* 2d edit. col. 124.

Head black; mouth and a spot on each side towards the eye testaceous; antennæ testaceous, fuscous above; thorax testaceous, with 3 dorsal spots, placed anteriorly, and the sternum black; abdomen entirely testaceous, with the tip of the ovipositor black; legs pale testaceous, with the apex of the two posterior fuscous; wings hyaline, with the nervures pale.

Not uncommon: taken in the neighbourhood of London in June.

Sp. 19. *Salicis*. *Pallide testaceus, antennis supra vertice thoracisque dorso nigris, tarsis posticis fuscis*. (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ —7 lin.)

Te. *Salicis*. *Fabricius*.—Ne. *Salicis*. *Steph. Catal.* 329. No. 3795.

Pale-testaceous; antennæ above black, beneath bright testaceous; crown black; thorax black above; hinder tarsi fuscous; wings hyaline, with fuscous nervures and stigma.

Sternum sometimes black or fuscous.

Not uncommon in the vicinity of the metropolis in June.

Sp. 20. *fuscipennis*. *Niger, antennis subtus, ore, punctis 2-bus metathoracis abdominis apice, pedibusque testaceis, tibiis 2-bus posticis et tarsorum articulis*



omnibus apice fuscis, alis fuscis, apice hyalinis. (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 6—7 lin.)

Ne. fuscipennis. *St. Fargeau.—Steph. Nomen. 2d edit. col. 124.*

Head black; mouth and a spot on each side above the eyes testaceous; thorax black, with a geminated testaceous spot behind; abdomen rusty-testaceous, black at the base; legs testaceous, the 2 hinder tibiæ and tips of all the joints of the tarsi fuscous; wings brown at the base, the apex somewhat hyaline, the nervures fuscous, and the stigma testaceous.

Apparently rare: found at Birch wood, and at Coombe, in June.

Sp. 21. bipartitus. *Testaceus, antennis supra capite thoracis dorso scutello, sternoque et segmento 1-mo abdominis nigris, ore pallido.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. $4\frac{3}{4}$ —6 lin.)

Ne. bipartitus. *St. Fargeau.—Steph. Catal. 329. No. 3808.*

Antennæ black, testaceous beneath; head black, with the mouth, clypeus, and a spot on each side on the crown testaceous; thorax testaceous, its back, scutellum, and sternum black; abdomen bright testaceous, the 1st segment black, or with a transverse streak of that colour; legs entirely testaceous; wings hyaline, with testaceous nervures.

Taken in July within the metropolitan district, but rare.

Sp. 22. apicalis. *Niger, antennis subtus, ore, clypeo, humeris abdomine (basi excepta) pedibusque totis rufo-testaceis.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Me. apicalis. *Steph. Nomen. 2d edit. col. 124.*

Head black, with the orbits above, the mouth, and the antennæ beneath testaceous, the latter above black; thorax black, with the shoulders testaceous; abdomen light red-testaceous, with the two basal segments black; metathorax with two yellowish spots; legs entirely pale red-testaceous; wings hyaline, slightly fuscous, with the nervures pitchy, the costa and stigma pale testaceous, the base of the latter fuscous.

Found near London in June, at Coombe wood.

Sp. 23. Ribesii. *Testaceus, capite antennis supra thorace (humeris exceptis) sterno abdominisque basi nigris.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $5\frac{3}{4}$ lin.)

Ne. Ribesii. *Steph. Catal. 329. No. 3809.*

Head black, with the labrum and antennæ beneath testaceous; thorax black, the shoulders testaceous, abdomen testaceous, with the 2 basal segments black; sternum black, pleuræ pale testaceous; metathorax with 2 whitish elevated dots; legs totally pale testaceous; wings hyaline, whitish, with pale testaceous brown nervures, and the costa and stigma also testaceous, the latter of an uniform tint.

The larva feeds on the common red-currant.

Taken in gardens in the vicinity of the metropolis.



Sp. 24. *pavidus*. *Testaceus, antennis, vertice, thoracis dorso sternoque et maculâ subquadratâ basi abdominis nigris*. (Long. corp. 2—3½ lin.; Exp. Alar. 4½—6 lin.)

Ne. *pavidus*. *St. Fargeau Mon.* 65.—Ne. *bicolor*. *Steph. Catal.* 329. No. 3807.

Head testaceous, crown and antennæ black; thorax testaceous, with its back and the sternum black; abdomen testaceous, with a nearly square black spot on the basal segment; legs entirely testaceous; wings hyaline, with testaceous nervures and stigma, the last and costa fuscous in the females.

Taken at Hertford, and in other places within the metropolitan district, frequenting gardens, in June: it feeds, I believe, on the gooseberry.

Sp. 25. *interruptus*. *Niger, ore, clypeo, maculâque ad verticem, humeris pedibusque testaceis, abdomine testaceo segmentorum bascos lineâ transversali nigra*. (Long. corp. 3—4 lin.; Exp. Alar. 5—6½ lin.)

Ne. *interruptus*. *St. Fargeau*.—*Steph. Catal.* 329. No. 3810.

Head and antennæ black, with the mouth, clypeus, and a spot on each side of the crown testaceous; thorax black, with the shoulders testaceous; abdomen pale testaceous, with a transverse black line at the base of each segment; legs entirely testaceous; wings hyaline, with testaceous nervures.

Common in woods and copses within the metropolitan district in June: taken also in Scotland.

Sp. 26. *melanosternus*. *Pallide testaceus, antennis vertice, thoracis maculis 3-bus dorsalibus sternoque nigris, abdominis segmentis primis supra tarsisque fuscis*. (Long. corp. 2½—3 lin.; Exp. Alar. 6—7 lin.)

Ne. *melanosternus*. *St. Fargeau*.—*Steph. Nomen.* 2d edit. col. 124.

Head pale testaceous, antennæ and crown black; thorax also pale testaceous, with 3 black spots on its disc, sometimes closely approximating; sternum black; abdomen pale testaceous, with the anterior segments more or less fuscous at the base; legs pale testaceous, with fuscous tarsi; wings hyaline, with the nervures pale testaceous, costa and stigma pale greenish or testaceous.

Not uncommon at Darent wood in June; also found in Scotland.

Sp. 27. *Capreæ*. *Flavus, vertice, thoracis dorso, abdomineque supra nigris*. (Long. corp. 3—3½ lin.; Exp. Alar. 6—7½ lin.)

Te. *Capreæ*. *Fabricius*.—Ne. *Capreæ*. *Steph. Catal.* 329. No. 3801. *Albin. pl. 59. f. g. h. ?*

Head yellow, with the crown black; thorax also yellow, with its disc black; abdomen yellow, with its upper surface black; legs pale; wings hyaline, with the nervures yellow.

Taken near willows, not uncommonly, in June, within the metropolitan district.

MANDIBULATA, VOL. VII., AUGUST 31st, 1835.

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Sp. 28. vittatus. *Pallidus, antennis, ocellis, thoracis et metathoracis maculis 2-bus, segmentorum abdominis basi nigris.* (Long. corp. 3—4 lin.; Exp. Alar. 5—6½ lin.)

Ne. vittatus. *St. Fargeau.—Steph. Catal. 329. No. 3803.*

Head pale, with black ocelli and antennæ; thorax also pale, with the disc testaceous, and having 2 or 3 black spots, and 2 also on the metathorax; abdomen pale, with the base of all the segments broadly black, the margin pale; legs pale; wings hyaline, with the nervures and stigma testaceous.

Found at Coombe wood, and in Scotland, in June.

Sp. 29. fallax. *Pallide-testaceus, antennis, vertice, thorace, abdominisque basi supra nigris, hoc apice luteo, femoribus subts nigro-lineatis.* (Long. corp. 3—4 lin.; Exp. Alar. 6—7½ lin.)

Ne. fallax. *St. Fargeau.—Steph. Catal. 329. No. 3804.*

Head pale testaceous, antennæ and crown black; thorax black, with the shoulders and sides pale testaceous; abdomen black above, with the apex luteous, beneath pale testaceous; legs also pale testaceous, the femora beneath with black lines; wings hyaline, with pale nervures.

Variable: the head, entire thorax, and abdomen beneath being sometimes black, and the metathorax is occasionally whitish, spotted with black.

Also found in the vicinity of London in June, and in Scotland.

Sp. 30. tæniatus. *Niger, labro orbitisque oculorum verticali testaceis, thorace lineolâ anticâ, abdominisque segmentis omnibus tenuissime pallidis, femoribus 4 anticis pallido lineatis, tibiisque omnibus basi pallidis.* (Long. corp. 3½—4 lin.; Exp. Alar. 5½—6½ lin.)

Ne. tæniatus. *St. Fargeau Mon —Steph. Nomen. 2d edit. col. 124.*

Head and antennæ black; labrum and upper orbits of the eyes testaceous; thorax black, with a pale streak in front; abdomen black, with the extreme edge of all the segments whitish; legs black, with the 4 anterior femora with pale streaks in front, and the base of all the tarsi pale; wings hyaline; with black nervures, and the costa pale, stigma the same.

Not common: found in the vicinity of London; also in Norfolk and in Scotland, towards the end of June.

Sp. 31. gonymelas. *Pallide testaceus, antennis capite (maculis 2 verticalibus exceptis) thoracis disco, abdominis segmentorum basi, sterno, genibusque posticis nigris.* (Long. corp. 3½ lin.; Exp. Alar. 6½ lin.)

Ne. gonymelas. *Steph. Catal. 329. No. 3812.*

Head black, with a testaceous spot on each side adjoining the eyes above; mouth and clypeus also pale testaceous; thorax testaceous, with the disc and sternum black; abdomen pale testaceous, immaculate beneath, but each segment above with a broad transverse black streak at the base; legs pale testaceous, with the tarsi of the hinder pair fuscous, and their knees black; wings hyaline, with the nervures pale testaceous, the costa and stigma greenish.

Taken in June, near London.



Sp. 32. *Suessionensis*. *Niger, ore, pedibusque pallide testaceis, tarsis posticis fuscis*. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $5\frac{1}{2}$ —6 lin.)

Ne. *Suessionensis*. *St. Fargeau Mon.* 66. No. 196.—*Steph. Nomen.* 2d edit. col. 124.

Head, thorax, abdomen, and antennæ black; legs pale testaceous, with the posterior tarsi fuscous; mouth pale testaceous; wings hyaline, with the nervures and stigma whitish or pale.

Found, in June, within the metropolitan district, and at Dover.

Sp. 33. *analys*. *Niger, abdominis segmentorum marginibus et subtus apiceque testaceis, femorum apicibus tibiis tarsisque rufo-testaceis*. (Long. corp. 3— $3\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ — $7\frac{1}{2}$ lin.)

Ne. *analys*. *Steph. Catal.* 329. No. 3813.

Head and antennæ totally black; thorax also black, immaculate; abdomen above testaceous, with the base of all but the 2 apical segments black above, and the last 2 and entire under surface rufo-testaceous; sternum and pleuræ black; legs, with the coxæ, trochanters, and base of all the femora black, the apex of the last, and the entire tibiæ and tarsi bright rufo-testaceous; wings hyaline, pale, with the nervures pitchy, and the costa and stigma bright pale testaceous.

Taken in the neighbourhood of London in June, at Darenth wood, &c.

Sp. 34. *hæmorrhoidalis*. *Niger, clypeo maculâ utrinque ponè oculos, abdominisque apice albis, pedibus pallidis, coxis femorumque basi nigris*. (Long. corp. 3—4 lin.; Exp. Alar. $6\frac{1}{2}$ —8 lin.)

Ne. *hæmorrhoidalis*. *St. Fargeau Mon.* 65.—*Steph. Nomen.* 2d edit. col. 124.

Head and antennæ black; clypeus, the base of the mandibles, and a spot on each side behind the eyes white; thorax with a geminated yellow spot behind; abdomen black, with the extreme tip whitish above and white beneath; legs pale, with the coxæ and base of the femora black; wings hyaline.

Found near London, in June, and in Scotland.

Sp. 35. *fuscipennis*. *Niger, palpis, pedibus, abdominisque apice rufo-testaceis, alis basi fuscescentibus apice pallido, stigmate bicoloratâ*. (Long. corp. $3\frac{3}{4}$ lin.; Exp. Alar. $5\frac{3}{4}$ lin.)

Ne. *fuscipennis*. *Steph. Nomen.* 2d edit. col. 124.

Head, antennæ, and thorax bright shining black; palpi of a rather pitchy testaceous-red; abdomen bright pitchy testaceous-red, with the two basal segments above black; legs entirely testaceous-red; wings with the base pitchy-brownish, the apex hyaline and pale; nervures pitchy; costa and base of the stigma brown, apex of the latter testaceous.

Taken near Dartford in June, apparently rare.

Sp. 36. *melanostigma*. *Niger, pedibus pallidis, femoribus 4 posterioribus, tar-*



sisque posticis nigricantibus, alis hyalinis, stigmatе utro. (Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Ne. melanostigma. *Steph. Catal.* 329. No. 3811.

Black; legs pale, the 4 posterior fuscous, except at the extreme base and apex, and the 2 hinder tarsi entirely dusky; wings hyaline, with the nervures and costa fuscous, the stigma black.

Found near London, in June.

Sp. 37. ruficornis. *Niger, ore piceo, palpis pallidis, pedibus nigris pallido variis, antennis piceo-testaceis, articulis 2-bus baseos piceis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $4\frac{1}{2}$ — $5\frac{1}{2}$ lin.)

Ne. ruficornis. *St. Fargeau.—Steph. Catal.* 329. No. 3814.

Head black; mouth pitchy; palpi pale; antennæ pitchy-testaceous, with the 2 basal joints pitchy; thorax and abdomen entirely black; 4 anterior legs with the base of the femora black; 2 posterior with the femora black, pale at the base, their tibiæ pale, and tarsi black; wings hyaline, with the nervures, costa, and stigma fuscous.

Abundant throughout the metropolitan district, as at Hertford, Coombe, Darenth, Ripley, &c.; also at Dover and in Scotland, at the end of June and beginning of July.

Sp. 38. intercus. *Niger, ore, puncto ad alarum basin humerisque pallidis, oculorum orbitis posticis pedibusque testaceis.* (Long. corp. $2\frac{3}{4}$ — $3\frac{1}{4}$ lin.; Exp. Alar. 5 — $6\frac{1}{2}$ lin.)

Te. intercus. *Panzer.—Ne. intercus. Steph. Catal.* 329. No. 3816.

Head and antennæ black; mouth pale; orbits of the eyes testaceous behind; thorax black, with a dot at the base of the wings, and the shoulders pale; abdomen totally black; legs pale testaceous: wings hyaline, nervures and costa pale.

Also common in the neighbourhood of London in June, and taken at Dover: frequenting willows.

Sp. 39. gallicola. *Niger, nitidus, pedibus totis pallide rufescentibus, squamis pallide testaceis, stigmatе bicoloratâ.* (Long. corp. $1\frac{3}{4}$ —2 lin.; Exp. Alar. 4 — $4\frac{1}{2}$ lin.)

Ne. gallicola. *Westwood MS.—Steph. Nomen.* 2d. edit. col. 125.

Shining black; legs entirely of a very pale reddish tint, with the posterior tarsi a little dusky; scales of the wings pale testaceous; wings pale, the nervures slightly testaceous at the base, fuscous at the tip; costa pale fuscous, base of the stigma testaceous, apex fuscous.

Taken near London in June, the larva forming galls on the leaves of willows.

Sp. 40. proximus. *Niger, ore, puncto ad alarum basin tibiisque pallidis, femoribus tarsisque subfuscis, abdomine subtus lineâ luteâ mediâ.* (Long. corp. 2 — $2\frac{1}{4}$ lin.; Exp. Alar. $4\frac{1}{2}$ —5 lin.)



Ne. proximus. *St. Fargeau*.—*Steph. Catal.* 329. No. 3815.

Head, antennæ, and thorax black; mouth pale; dot at the base of the wings and the tibiæ also pale; femora and tarsi brownish; abdomen beneath with a luteous streak in the middle; wings hyaline, with the nervures fuscous, the costa and base of the stigma pale.

Less abundant than the last, but it occurs throughout the metropolitan district in June.

Sp. 41. niger. *Niger, collare, humeris punctisque duobus metathoracis luteis, pedibus fusco-testaceis, mandibulis apice ferrugineis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 5—6½ lin.)

Pte. niger. *Jurine*.—Ne. niger. *Steph. Catal.* 329. No. 3817.

Head and antennæ black; mandibles ferruginous at the tip; thorax black, the collar and shoulders, with 2 spots on the metathorax, luteous; abdomen black; legs dusky-testaceous; wings hyaline, with the nervures black.

Not common: found within the metropolitan district, in June.

Sp. 42. nigricornis. *Testaceus, antennis, vertice, thorace (humeris exceptis) abdominisque basi supra nigris, hoc apice luteo, pedibus pallide testaceis, tarsis posticis fuscis.* (Long. corp. 4½ lin.; Exp. Alar. 7½ lin.)

Ne. nigricornis. *St. Fargeau*.—*Steph. Catal.* 329. No. 3818.

Head pale testaceous, with the crown and antennæ black; thorax also black, with the shoulders pale testaceous; abdomen black above, with the apex luteous, beneath pale testaceous; legs pale testaceous, with the hinder tarsi fuscous; wings hyaline, with paler nervures.

Rare: found near London in June.

Sp. 43. lucidus. *Niger, ore luteo, humeris pedibusque testaceis, tarsis posticis nigris, abdominis segmentis 2-bus anterioribus maculâ utrinque testaceâ.* (Long. corp. 4½—5 lin.; Exp. Alar. 6—8 lin.)

Te. lucida. *Panzer*.—Ne. lucidus. *Steph. Catal.* 329. No. 3819.

Head and antennæ black; mouth luteous; thorax black, with testaceous shoulders; abdomen black, with a luteous spot on each side of the 2 basal segments; legs testaceous, with the hinder tarsi black; wings hyaline, with the stigma black, and the nervures dusky.

Also rare: taken occasionally at Darenth wood, about the beginning of June.

Sp. 44. cinctus. *Niger, mandibulis apice, palpis, humeris, pedibusque testaceis, tarsis posticis nigris, abdomine segmentis 2-do, 3-tio, et 4-to testaceis.* (Long. corp. 4½—5 lin.; Exp. Alar. 6¼—8½ lin.)

Ne. cinctus. *St. Fargeau Mon.* 66.—*Steph. Nomen.* 2d edit. Appendix.

Head and antennæ black; mandibles at the apex and the palpi testaceous; thorax black, with the shoulders testaceous; abdomen black, with the 2nd, 3rd, and 4th segments testaceous; legs also testaceous, with the 2 hinder tarsi black; wings hyaline, with fuscous nervures and stigma.



The male has some black spots on the testaceous segments of the abdomen.

More abundant than the last; found in the vicinity of London, at Coombe and Darenth woods, and also at Dover in the beginning of June.

Sp. 45. vicinus. *Niger, mandibulis apice palpisque piceo-nigris, pedibus testaceis, femoribus basi infumatis, tibiis 2-bus posticis apice tarsisque fuscis.* (Long. corp. $4\frac{1}{2}$ — $5\frac{1}{4}$ lin.; Exp. Alar. $7\frac{1}{2}$ — $9\frac{1}{4}$ lin.)

Ne. vicinus. *St. Fargeau.*—*Steph. Nomen. 2d edit. col. 125.*—*Ne. consobrinus. Steph. Catal. 329. No. 3820.*

Head and antennæ black; mandibles at the apex and the palpi pitchy-black; thorax and abdomen black; legs testaceous, with the base of the femora sometimes dusky, or black, the 2 hinder tibiæ at the apex, which is slightly dilated, and the tarsi fuscous; wings hyaline, with the costa and nervures at the base testaceous, brown at the tip.

The basal joint of the hinder tarsi is slightly dilated in this species.

Rare: taken occasionally at Darenth wood, in June.

GENUS XIII.—CRÆSUS, *Leach.*

Antennæ 9-jointed, simple in both sexes, slightly pilose in the males, basal joint short, 2nd shorter, 3rd longest, the remainder gradually decreasing in length to the apex, which is attenuated: *mandibles* unidentate: *labrum* rounded: *head* broad: *ocelli* 3: *abdomen* cylindric in the males; broader and somewhat carinated in the females: *wings* ample; anterior with 1 marginal, and 4 submarginal areolets, the 1st small, subquadrate, 2nd large, elongate, receiving 2 recurrent nervures, 3rd small, quadrate, 4th extending to the apex: 4 anterior *legs* simple; posterior rather stout, their tibiæ dilated at the apex; *tarsi* with the basal joint longest, considerably dilated and compressed, remaining joints small, simple.

Exclusively of other less conspicuous differences, *Cræsus* differs from *Nematus* in having the hinder tibiæ and the basal joint of the hinder tarsi considerably dilated and compressed, a structure that partially obtains in *Ne. vicinus*, but that insect is sufficiently removed by its general habit; and as there are evidently several good species of *Cræsus*, it ought clearly to be considered as distinct from *Nematus*, intervening forms, as elsewhere pointed out, not alone being sufficient to unite discordant genera.

Sp. 1. septentrionalis. *Niger, palpis piceis, abdominis medio tibiisque anterioribus ferrugineis, alis hyalinis pone medium subinfuscatis.* (Long. corp. 4 — $4\frac{1}{2}$ lin.; Exp. Alar. 9 — $9\frac{1}{2}$ lin.)

Te. septentrionalis. *Linné.*—*Cr. septentrionalis. Steph. Catal. 330. No. 3821.*

Black: palpi pitchy; abdomen with the 3rd to the 6th segments ferruginous, and in the females a spot on the 7th; anterior legs black at the base, the



apex of the femora, the tibiæ and tarsi pale reddish, intermediate with the femora black; tibiæ and tarsi pitchy-black; posterior black, with the tip of the coxæ, the trochanters and the base of the tibiæ pale ochreous, or whitish; wings hyaline, with the stigma blackish, and a faint fuscous cloud annexed thereto.

The intermediate segments of the abdomen are sometimes pitchy or blackish: probably referrible to a distinct species.

The larva of this species feeds on the gooseberry.

Found at Barnet; also at Darenth, near Hertford, Dublin, and in the north of England in June, but not very common.

Sp. 2. varus? *Niger, clypeo palpisque albidis, humeris piccis, abdominis medio femoribusque omnibus ferrugineis, posticis apice nigris.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Nem. varus. *Annales Soc. Ent. France (De Villaret)* i. 306. pl. xi. f. 8. ♂?—Cr. varus? *Steph. Nomen. 2nd edit. Appendix.*

Black; clypeus and palpi whitish; shoulders pitchy; abdomen black at the base, with the 3rd to the 5th, and base of the 6th segments ferruginous; 4 anterior legs pale ferruginous; posterior with the coxæ black; trochanters whitish; femora ferruginous, with the tips dusky; tibiæ black, with the base white; tarsi with the basal joint pitchy; wings hyaline, unclouded, the costa slightly reddish, nervures and stigma dusky.

Of this insect I have a single example, which was taken at Birch wood in the beginning of June.

Sp. 3. laticrus. *Niger, palpis rufescentibus, abdominis medio ferrugineo, alis hyalinis, pone medium fascia subferrugineo-fuscescente.* (Long. corp. $4\frac{1}{2}$ —5 lin.; Exp. Alar. $9\frac{1}{2}$ — $10\frac{1}{2}$ lin.)

Nem. laticrus. *Ann. Soc. Ent. France (De Villaret)* v. i. 307. pl. xi. f. 7. ♀.—Cr. laticrus. *Steph. Nomen. 2d edit. Appendix.*—Cr. septentrionalis. *Curtis, i. pl. 17. ♀?*

Black: palpi reddish; abdomen with the 3rd to the 6th segments ferruginous, a streak of the same at the base of the 2nd, and a bifid spot on the 7th; anterior legs black, with the apex of the femora ferruginous in front, the tibiæ and tarsi whitish-red, brownish at the tip; intermediate black, with the tibiæ and tarsi pitchy; the former whitish at the base; posterior black, with the tip of the coxæ, the trochanters, and the base of the tibiæ, ochreous-white, the latter brightest; wings hyaline, faintly reddish, with a distinct, somewhat obscurely ferruginous, clouded fascia beyond the middle, extending from the base of the stigma to the posterior margin.

I have one example of this fine insect that was taken near London, and a second I obtained from the Marshamian collection: it has, it would appear, been taken at Bungay in Suffolk, if my reference be correct.



- § 5. *Antennæ* short, 9 or 10-jointed, with the appearance of an 11th, thickened in the middle, and acuminate at the apex, the 3rd joint longer than the 4th; *body* short and stout.

GENUS XIV.—MESSA, *Leach*.

Antennæ rather slender, 9-jointed, two basal joints short and robust, 3rd elongate, 4th shorter, remainder gradually diminishing in length to the apex: *mandibles* small: *labrum* rounded: *head* transverse: *wings* ample; anterior with 1 marginal areolet, and 4 submarginal ones, the 1st small, rounded, 2nd elongate, 3rd quadrate, 4th extending to the apex: *body* short, acute at the apex: *legs* slender, simple, *tibiæ* with two short acute spurs at the tip.

From the other genera of this section *Messa* may be recognized by the number of areolets in the anterior wings, there being but 1 marginal, and 4 submarginal ones, thereby agreeing in neuration with the insects of the preceding section, from which, however, it differs in the antennæ, &c.

Sp. 1. *hortulana*. *Nigra, ore albo, pleuris pedibusque luteis*. (Long. corp. $1\frac{3}{4}$ lin.; Exp. Alar. $4\frac{1}{4}$ lin.)

Te. (Em.) *hortulana*. *Klug.*—*Me. hortulana*. *Steph. Catal.* 330. No. 3822. Black: antennæ brownish at the apex; labrum and clypeus white; mandibles white, with the apex pitchy; shoulders white; thorax with a yellowish pile; pleuræ luteous; legs also luteous; wings hyaline, with the nervures and stigma brownish.

Apparently very rare: found within the metropolitan district, in June, and in Devonshire.

GENUS XV.—FENUSA, *Leach*.

Antennæ short, somewhat clavate, 9-jointed, the 2 basal joints minute, 3rd elongate, 4th shorter, the remainder distinct, somewhat moniliform, gradually diminishing in length to the apex, which is obtuse: *labrum* emarginate: *mandibles* short, dentate within: *head* broad, transverse: *ocelli* 3: *wings* ample; anterior with 2 marginal areolets of nearly equal size, and with 3 dissimilar submarginal ones, the 1st elongate, narrow and curved, 2nd larger, broader, somewhat triangular, receiving 1 recurrent nervure; 3rd extending to the apex; *body* short and stout: *legs* simple; *tibiæ* with a pair of short acute spurs at the apex.

The want of a fourth submarginal areolet, combined with the presence of 2 marginal ones, and the short, subclavate, 9-jointed antennæ serve to distinguish this genus from its allies; the species of which it is composed are amongst the smallest of those included in this family.



Sp 1. *pumila*. *Nigra, nitida, alis nigricantibus, pedibus testaceis, femoribus basi nigro-fuscis*. (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. $3\frac{1}{2}$ — $4\frac{1}{2}$ lin.)

Te. (All.) *pumila*. *Klug.*—Fe. *pumila*. *Steph. Catal.* 330. No. 3823.

Glossy-black; mandibles dusky at the apex; abdomen with a palish margin to the 2nd joint; legs pale testaceous, with the femora (except at the apex) dusky-black; the base of the tibiæ sometimes whitish, and wings blackish, with the nervures darker, the costa and stigma black; antennæ slightly compressed, as long as the abdomen.

Not uncommon within the metropolitan district, on the borders of woods, especially about Darenth wood and near Ripley, in June.

Sp. 2. *nana*. *Nigra subnitida, collaris margine utrinque alarumque squamis albis, pedibus testaceis, femoribus basi fuscis, alis hyalinis medio subfuscis, antennæ thorace sublongioribus fuscis*. (Long. corp. $1\frac{3}{4}$ — $1\frac{1}{2}$ lin.; Exp. Alar. 4 — $4\frac{1}{4}$ lin.)

Te. (All.) *nana*. *Klug.*—Se. *nana*. *Steph. Catal.* 332. No. 3856.

Black, slightly shining; anterior margin of the collar and scales at the base of the wings white; legs testaceous, with the base of the femora fuscous; antennæ about as long as the thorax, fuscous; wings hyaline, slightly clouded with fuscous in the middle; nervures, costa and stigma brown.

Rare; found near London: a single example taken on the 20th of June last on Forest Hill, Dulwich.

Sp. 3. *pygmæa*. *Nigra, nitida, alis fusco-hyalinis, squamis pedumque tibiis tarsisque albis*. (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. $3\frac{1}{2}$ — 4 lin.)

Te. (All.) *pygmæa*. *Klug.*—Fe. *pygmæa*. *Steph. Catal.* 330. No. 3824.

Shining black; mandibles reddish-brown at the tip; legs short, with the extreme apex of the femora, the tibiæ and tarsi white, the tibiæ a little darker and whitish at the apex; wings hyaline-fuscous, with the nervures, costa and stigma darker, the basal scale white; antennæ as long as the thorax.

Less abundant than the last; found about the same period of the year in woods: I took a specimen at Forest Hill on the 28th of June last.

GENUS XVI.—ATHALIA, *Leach*.

Antennæ somewhat clavate, 10-jointed, the articulations rather indistinct, the 3rd joint longest, the 4th slightly shorter, the remainder very short, somewhat moniliform, the apical joint rather obtuse, with an obscure suture: *labrum* generally rounded in front: *mandibles* rather short and acute, bidentate: *head* transverse: *ocelli* 3: *wings* ample; anterior with 2 nearly equal marginal areolets, and 4 unequal submarginal ones, the 1st small, subangulated; 2nd also small, somewhat quadrate, 3rd elongate, irregular, 4th extending to the apex; the 2nd receiving 1 recurrent nervure, the 3rd 2:



body short, acute : legs slender, simple, the tibiæ furnished at the apex only, with 2 acute spurs ; tarsi with each joint generally tipped with black.

Athalia, by possessing 4 submarginal and 2 marginal areolets, with short 10-jointed antennæ, the terminal joint being apparently divided, &c. may be distinguished from Messa and Fenusa with facility : the species included in the genus have a great similarity to each other, and a very peculiar habit ; they are not very dissimilar in appearance to some species of Hylotoma, but the great discrepancy in the antennæ at once serves to discriminate them.

Sp. 1. spinarum. *Luteo-flava, thoracis dorso macula triangulari duplici, tibiis tarsorumque articulis apice nigris.* (Long. corp. 3½ lin. ; Exp. Alar. 7—8 lin.)

Te. spinarum. *Fabricius.*—At. spinarum. *Steph. Nomen. 2d edit. col. 125.*

Head pale luteous, with the crown black ; eyes the same ; antennæ fuscous above, yellow beneath, the 2 basal joints entirely luteous ; thorax luteous, with a triangular black patch on each side ; abdomen dusky-black at the base, the remainder bright luteous ; legs luteous, with the extreme tip of all the tibiæ, and of each joint of the tarsi black ; wings pale testaceous at the base, with the nervures the same, fuscous at the apex, which is pale ; costa and stigma pale testaceous.

This appears to be a very rare species ; my specimen was taken at Darenth wood, several years since, in June.

Sp. 2. Centifoliæ. *Luteo-flava, antennis, capite, thoracis dorso macula triangulari duplici, tibiis tarsorumque articulis apice nigris.* (Long. corp. 3—4 lin. ; Exp. Alar. 7—8½ lin.)

Te. Centifoliæ. *Panzer.*—At. Centifoliæ. *Steph. Nomen. 2d edit. col. 125.*

Head and antennæ black ; mouth yellowish ; thorax luteous, with a large triangular black patch on each side, extending to the metathorax ; abdomen pale luteous, with the base of the 1st segment black, and the tip of the ovipositor in the female ; legs pale luteous, with the extreme apex of the tibiæ and of each joint of the tarsi black ; wings pale testaceous at the base, colourless, and with nervures fuscous at the tip ; costa and stigma fuscous or blackish.

Not uncommon : found at Darenth and Coombe woods towards the end of June and in July.

Sp. 3. cordata. *Testacea, antennis, capite, thoracis disco, macula ad basin abdominis, tibiis tarsorumque articulis apice nigris, ore albido.* (Long. corp. 2—2½ lin. ; Exp. Alar. 5—6 lin.)

At. cordata. *St. Fargeau Mon. 22.*—*Steph. Nomen. 2d edit. col. 125.*

Antennæ and head black ; mouth and clypeus anteriorly whitish ; apex of the mandibles fuscous ; thorax black ; beneath in front and at the base of the wings testaceous ; abdomen testaceous, with a somewhat heart-shaped black spot at the base of the 1st segment ; legs testaceous, with the tips of the



tibiæ and of each joint of the tarsi black ; wings hyaline, with the nervures testaceous at the base, dusky or black at the apex, costa and stigma black.

Not uncommon in the neighbourhood of London, frequenting woods, &c. in June.

Sp. 4. *lineolata*. *Testacea, antennis, capite, thoracis dorso et lineola transversali infra, abdominis segmento 1-mo basi, tibiis 2-bus posticis et tarsorum 4 posteriorum articulis apice nigris.* (Long. corp. 2—2½ lin.; Exp. Alar. 5—6½ lin.)

Al. *lineolata*. *St. Fargeau Mon. 22.—Steph. Nomen. 2d edit. Appendix.*

Antennæ and head black ; mouth and clypeus white ; thorax black above, with the sides testaceous, beneath testaceous, with a transverse black streak ; abdomen testaceous, with the base of the 1st segment black ; legs testaceous, with the 2 hinder tibiæ at the apex, and the tips of each joint of the tarsi, black ; wings hyaline, the nervures testaceous at the base, blackish at the tip. The male has the antennæ luteous beneath, and the intermediate tarsi entirely luteous.

Abundant on the downs of Sussex, near Newhaven and Brighton, in the beginning of August.

Sp. 5. *ancilla*. *Testacea, antennis supra capite thoracis dorso, abdominis segmento 1-mo supra, tibiis tarsorumque articulis apice nigris.* (Long. corp. 2—3 lin.; Exp. Alar. 5½—6½ lin.)

At. *ancilla*. *St. Fargeau Mon. 22.—Steph. Nomen. 2d edit. Appendix.*

Antennæ black, beneath testaceous ; head black, with the mouth and clypeus whitish ; mandibles fuscous at the apex ; thorax testaceous, black above ; abdomen testaceous, with the 1st segment black above ; legs testaceous, with the apex of the tibiæ of each joint of the tarsi black ; wings hyaline, with the nervures, costa, and stigma testaceous. The male has the anterior legs entirely testaceous.

Also found within the metropolitan district, in July.

Sp. 6. *Suessionensis*. *Testacea, antennæ supra, capite, thorace posticè, abdominis segmento 1-mo supra, tibiis tarsorumque articulis apice nigris.* (Long. corp. 2½—3 lin.; Exp. Alar. 5—6 lin.)

At. *Suessionensis*. *St. Fargeau Mon. 22.—At. apicalis. Steph. Nomen. 2d edit. col. 125.*

Antennæ black, testaceous beneath ; head black, with the mouth and clypeus in front white ; thorax black, testaceous in front ; abdomen testaceous, with the 1st segment black above ; legs also testaceous, with the tips of the tibiæ and of the joints of the tarsi black ; wings pale testaceous, with the nervures concolorous.

Taken near Hertford in June.

Sp. 7. *Rosæ*. *Lutea, thoracis dorso tarsorumque annulis nigris, alis basi flavescens, costa dimidiatâ nigrâ.* (Long. corp. 2½—3½ lin.; Exp. Alar. 5½—7 lin.)



Te. Rosæ. *Linné*.—At. Rosæ. *Steph. Catal.* 330. No. 3826.

Head and antennæ black; thorax luteous, with its disc black; abdomen also luteous, with the base dusky; legs testaceous, with the extreme apex of the tibiæ and of the joints of the tarsi black; wings yellowish at the base, the apex pale; costa and stigma black.

Found, but not very commonly, at Darenth and Coombe woods, in June and July.

Sp. 8. *annulata*. *Lutea, antennis, capite, thorace toto, abdominisque 1-mo segmento, tarsisque posticis nigris, his albo annulatis*. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 5—6 lin.)

Hy. *annulata*. *Fabricius*.—At. *annulata*. *Steph. Catal.* 330. No. 3827.

Head and antennæ black; labrum white; thorax black, immaculate; abdomen yellow, with its basal joint black; legs yellow, the posterior black at the apex, with the tarsi annulated with whitish; wings hyaline, pale, with the costa black.

Also taken at Darenth wood in June, not very abundant.

Sp. 9. *lugens*. *Lutea, antennis, capite, thoracis dorso, abdominisque 1-mo segmento nigris, alis pedumque tibiis tarsisque nigris*. (Long. corp. $2\frac{3}{4}$ —3 lin.; Exp. Alar. 5—6 lin.)

Te. (All.) *lugens*. *Klug*.—At. *lugens*. *Steph. Catal.* 330. No. 3828.—At. Richardi. *St. Fargeau Mon.* 23?

Head and antennæ black; mouth and clypeus testaceous, with the mandibles fuscous at the tip; thorax black, with the shoulders testaceous; abdomen testaceous, with the basal segment black; legs pale luteous, with the 4 hinder tibiæ and tarsi dusky or blackish; wings dull fuscous, with darker nervures.

Apparently a rare species: it occurs occasionally on umbelliferous flowers at Coombe wood, in June.

Sp. 10. *abdominalis*. *Nigra, thoracis humeris et margine antico, abdomine (basi excepto) pedibusque totis testaceis*. (Long. corp. 3 lin.; Exp. Alar. $6\frac{1}{4}$ lin.)

At. *abdominalis*. *St. Fargeau*.—At. Richardi. *Steph. Catal.* 330. No. 3829.

Antennæ black, pitchy beneath; head black; labrum and apex of the mandibles testaceous-brown; thorax black, with the shoulders and collar testaceous; abdomen testaceous, with the 1st segment and base of the 2nd pitchy; legs entirely testaceous; wings brown-black, testaceous at the base, the costa testaceous, and stigma brownish.

This also appears to be a very rare species; it has occurred in the neighbourhood of London, in June.

GENUS XVII.—SELANDRIA, *Leach*.

Antennæ short, 9-jointed, 2 basal joints distinct, somewhat globose, remainder less distinct, the 3rd as long as the 4th and 5th united, the rest gradually



diminishing in length and thickness to the apex, the terminal joint being short, and somewhat conic: *mandibles* bidentate: *labrum* emarginate: *head* broad: *ocelli* 3: *wings* ample, anterior thin, with 2 marginal areolets, divided by a straight nervure, placed a little obliquely, and 4 submarginal ones, the 1st small rounded, 2nd and 3rd of equal size, the former receiving 1 and the latter 2 recurrent nervures, the 4th larger, extending to the apex of the wing: *body* broad, scarcely longer than the thorax, somewhat depressed and ovate in the females: *legs* simple, with a pair of short unequal spurs at the apex of the tibiæ alone.

Although in the structure of the wings there is great similarity between the insects of this genus and in those of *Allantus* and *Tenthredo*, nevertheless the brevity and stoutness of the antennæ, the shortness and ovate depressed bodies, the comparatively greater amplitude of the wings, in which the marginal areolet is generally divided by a *straight* nervure, will sufficiently distinguish them from those genera, as will the areolets of the wings* from those contained in the present section: the species are generally small, and of dark and sombre colours, some of the early ones, however, simulating the *Athaliæ*.

Sp. 1. *serva*. *Flava, antennis, capite thoracisque dorso sternoque nigris, alis hyalinis, basi costaque dimidiatâ flavis, stigmatе nigro*. (Long. corp. $2\frac{1}{2}$ — $5\frac{1}{4}$ lin.; Exp. Alar. $5\frac{1}{2}$ —12 lin.)

Hy. *serva*. *Fabricius*.—Se. *serva*. *Steph. Catal.* 330. No. 3830.

Head and antennæ black; palpi testaceous; thorax yellow or luteous, with its disc above and the sternum shining-black; abdomen and legs immaculate yellow, the last palest; wings hyaline, with the base and half the costa yellow, nervures the same, the apex of the latter fuscous, stigma black.

Not uncommon in marshy situations within the metropolitan district, in June and the beginning of July.

Sp. 2. *dorsalis*. *Luteo-flava, anticis capite thorace supra infraque abdominisque segmentorum omnium basi supra nigris, stigmatе fusco*. (Long. corp. 4— $5\frac{1}{2}$ lin.; Exp. Alar. 8—10 lin.)

Se. *dorsalis*. *Steph. Catal.* 330. No. 3831.

Head and antennæ black; thorax black above and beneath, the shoulders sometimes lutescent; abdomen luteous-yellow, with its basal segment almost entirely and the other segments at the base black; legs pale luteous-

* As before alluded to, the variations of these must not invalidate the rule; I possess an example of *Se. serva* with 2 marginal and 5 submarginal areolets, and a *Nematus vicinus* with 1 marginal and only 2 submarginal areolets.



yellow; wings pale, testaceous at the base, costa and nervures the same, the latter at the apex and the stigma fuscous.

Found in the neighbourhood of the metropolis in June.

Sp. 3. luteiventris. *Nigra, nitida, abdomine luteo, ano punctisque dorsalibus nigris, pedibus luteis, tarsis posticis nigricantibus, alis nigricanti-hyalinis.* (Long. corp. $2\frac{3}{4}$ —3 lin.; Exp. Alar. $5\frac{3}{4}$ — $6\frac{1}{2}$ lin.)

Te. (All.) luteiventris. *Klug.*—Se. luteiventris. *Steph. Catal.* 331. No. 3882. Antennæ, head, and thorax, entirely shining black; mouth pitchy; abdomen luteous, with the apex and some dorsal spots black; legs luteous, with the posterior tarsi dusky; wings hyaline, blackish, with the nervures, costa, and stigma darker.

Some examples have the abdomen more evidently spotted with black than others.

Not very uncommon: taken at Coombe and Darenth woods, in June.

Sp. 4. hyalina. *Nigra, abdomine luteo, basi apiceque nigro, pedibus testaceis, alis hyalinis.* (Long. corp. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.; Exp. Alar. $5\frac{1}{2}$ — $6\frac{1}{4}$ lin.)

Te. (All.) hyalina. *Klug.*—Se. hyalina. *Steph. Catal.* 331. No. 3834.

Antennæ, head, and thorax black; abdomen luteous, with the 2 basal and 2 apical joints black above, the basal one with a triangular yellowish spot; legs pale testaceous, with the tips of the hinder tibiæ and the hinder tarsi fuscous; wings hyaline, with nervures fuscous, costa and stigma blackish.

Not uncommon at Darenth wood in June, and also found at Coombe and Hertford.

Sp. 5. Spinolæ. *Nigra, nitida, ventre pedibusque luteis, alis fusco-hyalinis.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. $5\frac{1}{2}$ —6 lin.)

Te. (All.) Spinolæ. *Klug.*—Se. Spinolæ. *Steph. Catal.* 331. No. 3833.

Head, antennæ, and thorax black; abdomen luteous, with the 2 basal segments black; legs luteous, immaculate; wings hyaline, fuscous.

Rare: found at Coombe wood, in June.

Sp. 6. scapularis. *Nigra, antennis subtus, humeris abdomine pedibusque testaceis, alis subflavescentibus, stigmate testacea.* (Long. corp. $2\frac{3}{4}$ lin.; Exp. Alar. $5\frac{3}{4}$ lin.)

Se. scapularis. *Steph. Catal.* 331. No. 3835.

Antennæ above, head and thorax black, the former testaceous beneath; sides of the thorax and a portion of the pleura bright testaceous; abdomen testaceous, with the two basal joints black above; legs totally pale testaceous; wings hyaline, with a slightly yellowish tinge; nervures pale at the base, testaceous-brown at the apex; stigma testaceous.

Also rare: taken in June in the vicinity of London.



Sp. 7. ferruginea. *Ore, capite, antennis, abdomine pedibus alarumque (basi obscuratum) nervis flavescentibus; thorace in mare fusco-maculato.* (Long. corp. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.; Exp. Alar. $5\frac{1}{4}$ — $5\frac{3}{4}$ lin.)

Hy. ferruginea. *Fabricius.*—Se. ferruginea. *Steph. Catal.* 331. No. 3836.

Antennæ, head, mouth and thorax yellowish, or luteous, the latter with some irregular fuscous clouds or spots posteriorly in the male; abdomen pale yellowish; legs and nervures of the wings the same, the base of all the wings rather obscure; costa and stigma pale testaceous-yellow; eyes and ocelli black.

The antennæ above, ocelli, eyes, and 3 spots on the thorax—1 dorsal in front, and 2 lateral behind—are sometimes black, with the rest of the insect yellowish.

This variable species appears closely allied to *Ten. verticala* of St. Fargeau.

Apparently a rare insect: it has occurred near London in June, and at Darenth and Birch woods, and in Norfolk.

Sp. 8. brevis. *Obscure-testacea, thorace maculis, abdomine supra nigris.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

Te. (All.) brevis. *Klug.*—Se. brevis. *Steph. Nomen.* 2d edit. col. 125.

Dull testaceous; eyes black; thorax with some fuscous clouds, darkest in front; abdomen testaceous, black above; legs pale yellow; wings rather hyaline, with yellowish nervures, costa, and stigma.

Also rare: found, in June, near London.

Sp. 9. fulvicollis. *Pallide testacea, antennis capite, metathoracis maculis, sternoque nigris, thoracis disco fulvo, tarsis posticis apice obscure annulatis.* (Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Se. fulvicollis. *Steph. Nomen.* 2d edit. col. 125.

Head and antennæ entirely black; thorax dusky fulvous, the metathorax spotted with black, with two testaceous dots; sternum black; abdomen entirely pale testaceous; legs the same, but paler, with the tarsi obscurely annulated with dusky; wings hyaline, yellowish, with the nervures, stigma, and costa, pale testaceous.

Taken, but rarely, near London, in July.

Sp. 10. testudinea. *Lutea, capitis vertice, thoracis dorso, abdomineque supra fusco nigris.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Te. (All.) testudinea. *Klug.*—Se. testudinea. *Steph. Catal.* 331. No. 3637.

Antennæ and head luteous; crown black; thorax luteous beneath, its disc above black; metathorax with 2 whitish dots; abdomen black above, luteous beneath: the ovipositor also black; legs pale luteous; wings hyaline, with the nervures, costa, and stigma fuscous, the last with a pale cloud towards its apex.

Found at Hertford in June, apparently very rare.

Sp. 11. verna? *Nigra nitida, thorace antice humeris abdomine subtus pedibusque*



ferrugineis, alis hyalinis, costa stigmatæque pallidis. (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 7 lin.)

Te. (All.) verna. *Klug?*—Le. verna. *Steph. Catal.* 331. No. 3831.

Head and antennæ black; mouth pale; thorax ferruginous in front, with a large black lobe on each side extending to the base, and having a ferruginous spot on the scutellum, behind which is a ferruginous streak; sternum black; abdomen black above, ferruginous beneath; legs pale ferruginous; wings hyaline, pale, the nervures fuscous, costa and stigma pale.

Also, apparently, a scarce species; I have taken a single example near London, in June.

Sp. 12. fulvicornis. *Nigra nitida, antennis (totis seu apice) fulvis (seu fuscis), pedibus rufo-testaceis, alis hyalinis, costa fuscâ.* (Long. corp. $2-2\frac{1}{2}$ lin.; Exp. Alar. $5-5\frac{1}{2}$ lin.)

Te. fulvicornis. *Fabricius.*—Se. fulvicornis. *Steph. Catal.* 332. No. 3854.

Shining black; antennæ totally, or the apex alone, fulvous, or fuscous; legs testaceous-red; wings hyaline, with the costa brown.

Scarce: found in June within the metropolitan district.

Sp. 13. ephippium. *Nigra, nitida, thorace supra lateribusque sanguineis, tibiis basi late albis, alis subinfuscatiss.* (Long. corp. $2\frac{1}{2}-2\frac{1}{2}$ lin.; Exp. Alar. $5-5\frac{1}{2}$ lin.)

Te. ephippium. *Panzer.*—Se. ephippium. *Steph. Catal.* 331. No. 3839.

Head and antennæ black; thorax above and on the sides blood-red, with the sternum, the metathorax, and scutellum black; abdomen totally black; femora black; tibiæ dusky-black, with the base broadly white or pale; tarsi also dusky; wings somewhat hyaline, fuscous, with the nervures, costa, and stigma black.

Not uncommon throughout the metropolitan district in June, being frequently found on flowers at Coombe, Darenth, and Birch woods.

Sp. 14. adumbrata. *Scutello lævi, nigra subnitida, alis hyalinis, medio transversum subinfuscatiss, tibiis anticis testaceis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

Te. (All.) adumbrata. *Klug.*—Se. adumbrata. *Steph. Catal.* 331. No. 3840.

Entirely of a slightly shining black: the scutellum smooth, impunctate; anterior tibiæ testaceous; wings hyaline, with a transverse brownish cloud in the middle; nervures, costa, and stigma brownish; posterior wings a little tinted with brown at the apex.

This appears scarce; I had formerly taken a specimen near London, and in July last I found a second near Hertford.

Sp. 16. fuliginosa. *Lævis, nigra, nitida, alis nigricantibus unicoloribus, pedibus sericeis, anticorum tibiis mandibulisque ante apicem testaceis.* (Long. corp. $2\frac{3}{4}-3$ lin.; Exp. Alar. $6-6\frac{1}{2}$ lin.)



Te. fuliginosa. *Schrank*.—Se. fuliginosa. *Steph. Catal.* 331. No. 3813.

Smooth, shining, black; legs also black, with a silken pile, the 2 anterior with the extreme apex of the femora and their tibiæ pale testaceous; mandibles towards the tip also testaceous; wings uniform dusky-black, with black nervures, stigma, and costa. Metathorax sometimes with 2 pale dots.

Not uncommon at Darent wood in June.

Sp. 16. geniculata. *Nigra nitida, antennis thorace brevioribus, alis subhyalinis, pedibus fusco-nigris, geniculis albidis.* (Long. corp. $3\frac{1}{4}$ lin.; Exp. Alar. 6 lin.)

Te. geniculata. *Steph. Catal.* 331. No. 3841.

Shining black: antennæ shorter than the thorax, rather slender; legs brown-black, with the extreme tip of the femora and base of the tibiæ whitish; wings somewhat hyaline, with the nervures fuscous, the costa and stigma black; metathorax with 2 pale dots.

Found near Hertford in June.

Sp. 17. tibialis. *Nigra nitida, tibiis albis, alis subhyalinis nervuris fuscis, costâ stigmatæque nigris.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. 6 lin.)

Se. tibialis. *Steph. Catal.* 331. No. 3842.

Shining black: metathorax with 2 pale spots, and a faint triangular one at the base of the abdomen; legs black, with the extreme apex of the femora and the tibiæ, except the extreme tip, white; tarsi dusky; wings somewhat hyaline, with the nervures fuscous, and the costa and stigma black.

Also found in June, in the vicinity of the metropolis.

Sp. 18. brevicornis. *Antennis thorace brevioribus, lævis, nigra nitida, pedibus anticis antice testaceis, alis nigricantibus.* (Long. corp. $3-3\frac{1}{4}$ lin.; Exp. Alar. $6\frac{1}{4}-7$ lin.)

Te. (All.) brevicornis. *Klug.*—Se. brevicornis. *Steph. Catal.* 331. No. 3844.

Smooth, glossy black; antennæ shorter than the thorax; anterior legs testaceous in front; wings dusky, with fuscous nervures, and black costa and stigma.

Rare: taken at Darent wood, in June.

Sp. 19. albipes. *Lævis, nigra nitida, tibiis tarsisque omnibus punctisque duobus metathoracis albis, alis hyalinis.* (Long. corp. $3-3\frac{1}{4}$ lin.; Exp. Alar. $6-6\frac{1}{4}$ lin.)

Te. albipes. *Gmelin.*—Se. albipes. *Steph. Catal.* 331. No. 3845.

Smooth, shining black: metathorax with 2 pale or whitish dots; femora black, tibiæ and tarsi entirely white; wings hyaline, with the nervures, costa, and stigma black.

Also taken at Darent wood in June.

Sp. 20. stramineipes. *Nigra nitida, alarum squamis pedibusque pallide flavis, alis hyalinis, subfuscescentibus.* (Long. corp. $3-3\frac{1}{4}$ lin.; Exp. Alar. $6-6\frac{1}{2}$ lin.)

Te. (All.) stramineipes. *Klug.*—Se. stramineipes. *Steph. Catal.* 331. No. 3846.

MANDIBULATA, Vol. VII., Aug. 31st, 1835.

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Head and antennæ black; mouth pale; mandibles brown at the tip; thorax black, with 2 white dots on the metathorax; abdomen black; legs totally pale yellow; wings hyaline, with the nervures dusky, and the costa and stigma blackish; the basal scale yellow: in the 2nd submarginal areolet is a minute dusky point.

Common in the woods and in hedges within the metropolitan district, in June, especially at Coombe and Darenth woods.

Sp. 21. Betuleti. *Nigra nitida, pedibus testaceis, alis fusco-hyalinis, antennis thorace longioribus.* (Long. corp. $2\frac{1}{4}$ — $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{4}$ — $5\frac{1}{2}$ lin.)

Te. (All.) Betuleti. *Klug.*—Se. Betuleti. *Steph. Catal.* 331. No. 3847.

Shining black, with a fine silvery pile: legs entirely testaceous; wings hyaline, brownish, with the nervures, costa, and stigma black; their basal scale also black.

Metathorax sometimes with 2 white dots, a character frequently occurring in nearly all the species of this family, and nearly as often wanting.

Much less abundant than the last; found at Darenth wood, in June.

Sp. 22. funerea. *Nigra nitida, alis fuscescenti-hyalinis, basi obscurioribus, pedibus luteis, antennis thorace sublongioribus.* (Long. corp. $2\frac{1}{2}$ — $2\frac{1}{2}$ lin.; Exp. Alar. $4\frac{3}{4}$ — $5\frac{1}{2}$ lin.)

Te. (All.) funerea. *Klug Blatw.* 122.—Se. funerea. *Steph. Nomen.* 2d edit. *Appendix.*

Shining black: legs entirely luteous; antennæ rather longer than the thorax; mandibles brown at the apex; wings brownish-hyaline, with the base somewhat obscure, the nervures, costa, and stigma brown-black; the 2nd submarginal areolet with a minute black dot.

Taken at Coombe wood, but apparently rare, in June.

Sp. 23. Morio. *Nigra nitida, abdomine nigro-piceo, alis fuscescenti-hyalinis, pedibus pallidis.* (Long. corp. $1\frac{1}{8}$ — $1\frac{1}{2}$ lin.; Exp. Alar. 5— $5\frac{1}{4}$ lin.)

Te. Morio. *Fabricius.*—Se. Morio. *Steph. Catal.* 331. No. 3848.

Shining black: abdomen pitchy-black; legs pale, the femora slightly dusky in the middle; wings hyaline, fuscescent, with the nervures, costa, and stigma blackish; antennæ as long as the thorax.

Found, but not commonly, near London, towards the end of June.

Sp. 24. fuscua. *Nigra subnitida, alis hyalinis, pedibus testaceis, femoribus basi fuscis, antennis longitudine abdominis.* (Long. corp. $1\frac{1}{2}$ — $1\frac{3}{4}$ lin.; Exp. Alar. 4— $4\frac{1}{4}$ lin.)

Te. (All.) fuscua. *Klug.*—Se. fuscua. *Steph. Catal.* 332. No. 3849.

Black, slightly shining: mandibles reddish-brown at the tip; femora fuscous, their apex, with the tibiæ and tarsi testaceous; wings hyaline, the nervures



delicate, brownish; costa and stigma darker, a minute dot in the 2nd submarginal areolet; antennæ as long as the abdomen.

Also found near London in June, not common.

Sp. 25. *Æthiops. Lavis, nigra nitida, pedum anteriorum tibiis testaceis, alis obscure hyalinis.* (Long. corp. $2\frac{1}{2}$ — $2\frac{1}{2}$ lin.; Exp. Alar. 5 — $5\frac{1}{2}$ lin.)

Te. *Æthiops. Fabricius*—Se. *Æthiops. Steph. Catal.* 332. No. 3850.

Smooth, shining black: 4 anterior legs with the femora black, yellowish at the tip, the tibiæ testaceous; posterior legs dusky-black, with the knees, or tip of the femora and base of the tibiæ yellowish; wings obscurely hyaline, with the nervures, costa, and stigma black, and a black dot on the 2nd submarginal areolet.

Frequent at Coombe and Darenth woods, and in other places within the metropolitan district, in June.

Sp. 26. *cinereipes. Lævis, nigra, subnitida, tibiis omnibus cinereis basi albis, alis nigricantibus unicoloribus.* (Long. corp. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.; Exp. Alar. 6 — $6\frac{1}{2}$ lin.)

Te. (All.) *cinereipes. Klug.*—Se. *cinereipes. Steph. Catal.* 332. No. 3851.

Smooth, black, slightly shining: mandibles brownish at the tip; legs black, with all the tibiæ ashy, white at the base; wings blackish, of one colour; the nervures, costa, stigma, and a rather conspicuous dot in the 2nd submarginal areolet black; antennæ longer than the thorax.

Not uncommon at Darenth wood in June.

Sp. 27. *annulipes. Nigra nitida, pedum tibiis tarsisque basi albis, alis fusconigris, anticis apice hyalinis, antennis abdomine subbrevioribus.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $5\frac{1}{2}$ — $6\frac{1}{4}$ lin.)

Te. (All.) *annulipes. Klug.*—Se. *annulipes. Steph. Catal.* 322. No. 3852.

Shining black: legs dull black, with the basal half of all the tibiæ, and of the 1st joint of all the tarsi, white; wings dusky-black, the anterior hyaline at the apex; nervures, costa, and stigma black; antennæ scarcely so long as the abdomen.

This pretty species is also found at Darenth wood in June.

Sp. 28. *varipes. Corpore brevi, nigro; nitida, pedum anteriorum tibiis tarsisque, posticorum tibiis basi albis, alis hyalinis, medio subfuscis.* (Long. corp. $2\frac{3}{4}$ — $2\frac{3}{4}$ lin.; Exp. Alar. $5\frac{1}{4}$ — $5\frac{1}{2}$ lin.)

Te. (All.) *varipes. Klug.*—Se. *varipes. Steph. Catal.* 332. No. 3853.

Shining black: mandibles brown at the tip; legs dull black, with the anterior tibiæ and tarsi entirely, and the base of the posterior tibiæ white; wings hyaline, with a brownish cloud in the middle, the nervures and stigma also brownish, and in the 2nd submarginal areolet is a dusky spot.

Taken at Coombe wood in June, but apparently rare.



Sp. 29. alternipes. *Lævis, nigra, pedum anteriorum tibiis, posticorum geniculis pallidis, alis albo hyalinis.* (Long. corp. $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.; Exp. Alar. 6— $6\frac{1}{4}$ lin.)

Te. (All.) alternipes. *Klug.*—Se. alternipes. *Steph. Catal.* 332. No. 3858.

Smooth and black, shining: antennæ scarcely longer than the thorax; mandibles brown at the apex; anterior legs with the tips of the femora and the tibiæ yellowish-white; tarsi dusky; posterior legs with the knees alone pale; wings whitish hyaline, with the nervures and stigma brown; in the 2nd marginal areolet is a minute central black dot.

Not common: taken near London, at Darenth wood, in June.

Sp. 30. atra. *Nigra nitida, antennis thorace longioribus, pedibus fuscis anticis anticæ testaceis, posterioribus geniculis subochraceis alis fuscis, apice hyalino.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

Se. atra. *Steph. Nomen.* 2d edit. col. 126.

Shining black: mandibles reddish-pitchy; antennæ longer than the thorax; legs fuscous; the anterior testaceous at the front and extreme tip of the femora, and the front of the tibiæ; 4 posterior with a slight ochreous tinge at the joints; wings rather deep fuscous, with the apex pale; nervures and costa black, stigma brown, and in the 2nd submarginal areolet a small fuscous cloud.

Also scarce: found at Hertford in June.

Sp. 31. parvula. *Nigra, subnitida, alis hyalinis, pedibus alarumque stigmatè pallidis, antennis longitudine abdominis.* (Long. corp. 2 lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Te. (All.) parvula. *Klug Blatw.* 119.—Se. parvula. *Steph. Nomen.* 2d edit. Appendix.

Black, slightly shining: mandibles pale testaceous, black at the tip; the last segment of the abdomen above yellowish; legs pale, the apex of the tibiæ and of the tarsi dusky; wings hyaline, the nervures and stigma pale, the 3rd submarginal areolet small; antennæ as long as the abdomen.

Taken in June at Darenth wood.

Sp. 32. pusilla. *Nigra subnitida, pedibus pallidis femoribus basi fuscis, alis hyalinis, subobscuris, antennis abdomine brevioribus.* (Long. corp. $1\frac{3}{8}$ — $1\frac{1}{4}$ lin.; Exp. Alar. 4— $4\frac{1}{4}$ lin.)

Te. (All.) pusilla. *Klug.*—Se. pusilla. *Steph. Catal.* 332. No. 3855.

Black, slightly shining: mandibles dusky-brown at the apex; legs pale, with the base of the femora alone dusky; the hinder tibiæ at the apex and the tarsi being a little stained; wings hyaline, somewhat obscure, the nervures dusky-brown, stigma large, round, and blackish; in the 2nd submarginal areolet is a black dot; antennæ shorter than the abdomen.

Found at Coombe wood about the middle of June: scarce.

Sp. 33. cinxia. *Nigra nitida, pedum tibiis basi albis, alis infuscatiss, basi sub-*



hyalinis, antennis abdomine subbrevioribus. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

Te. (All.) cinxia. *Klug Blatw.* 117.—Se. consorta. *Steph. Nomen.* 2d edit. col. 126.

Shining black: mandibles pitchy-brown, with the tips black; legs brownish, with the base of the tibiæ white; wings clouded, the base somewhat hyaline, nervures and stigma brownish-black; antennæ somewhat shorter than the abdomen.

Also apparently uncommon; taken in June at Darent wood.

Sp. 34. *tenuicornis.* *Nigra nitida, pedibus albicantibus, coxis femorumque basi fuscis, alis albo hyalinis, antennis longitudine abdominis.* (Long. corp. $2-2\frac{1}{4}$ lin.; Exp. Alar. $5\frac{1}{4}-5\frac{1}{2}$ lin.)

Te. (All.) *tenuicornis.* *Klug.*—Se. *tenuicornis.* *Steph. Catal.* 332. No. 3857.

Shining black: mandibles brown at the apex; legs whitish-yellow, with the coxæ and base of the femora dusky; the base of the tibiæ white; wings hyaline, white, with pale brown nervures and stigma, and a minute dusky dot in the 2nd submarginal areolet; antennæ as long as the abdomen.

Also scarce, and found in June at Darent wood.

Sp. 35. *lineolata.* *Atra, collaris margine, alarum squamis, pedumque tibiis tarsisque albis, abdominis segmentis tenuissime albido marginatis, antennis abdomine brevioribus.* (Long. corp. 3 lin.; Exp. Alar. $6-6\frac{1}{2}$ lin.)

Te. (All.) *lineolata.* *Klug.*—Se. *lineolata.* *Steph. Catal.* 332. No. 3860.

Black: collar with its anterior margin white; abdomen with all the segments narrowly edged with white, and each segment with a spot of a greyish gloss on each side: femora black, with the apex, the tibiæ, and tarsi, also white, with a yellowish-brown tinge towards the apex; wings whitish, hyaline, with the nervures and stigma dull brown, the basal scales white.

Found near London and in Devonshire, in June, apparently scarce.

Sp. 36. *Klugii.* *Nigra, abdomine utrinque maculis ovatis pallidis segmentorumque marginibus tenuissime albo marginatis, femorum anteriorum apice et tibiis anterioribus antice geniculisque omnibus albis.* (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Se. *Klugii.* *Steph. Nomen.* 2d edit. Appendix.

Black, slightly shining: collar with a faint whitish line on each side; abdomen with the margins of each segment narrowly edged with white, and on each side of the 2nd, 3rd, and 4th, an elongate somewhat ovate pale ashy spot; anterior legs with the tips of the femora and the anterior tibiæ anteriorly white; knees of the other legs also white; wings hyaline, with brown nervures, costa, and stigma.

This remarkable species—which greatly resembles a *Dolerus*—I found many years since at Darent wood, in June: it appears rare.



Sp. 37. pulchella. *Nigra subnitida, collare utrinque pedibusque testaceis, abdominis segmentorum marginibus latè albis.* (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Se. pulchella. *Steph. Catal.* 332. No. 3864.

Black, slightly shining: collar on both sides pale testaceous; scales of the wings the same; abdomen with each segment above and below broadly margined with white, the apical one luteous; legs bright testaceous; tarsi entirely fuscous; wings hyaline, pale, with the nervures brownish; the costa and stigma pale.

Rare: found near London.

Sp. 38. uncta. *Nigra subnitida, collare utrinque albo marginato, pedibus pallidis.* (Long. corp. $2\frac{3}{4}$ — $2\frac{1}{2}$ lin.; Exp. Alar. $5\frac{3}{4}$ —6 lin.)

Te. (All.) uncta. *Klug.*—Se. uncta. *Steph. Catal.* 332. No. 3863.

Black, slightly shining: antennæ shorter than the abdomen; mandibles brownish at the apex; thorax with the collar on each side edged with white; abdomen with a slightly glossy pile; legs pale, a little dusky at the apex of the tibiæ, and the anterior tarsi faintly brownish; wings pale, hyaline, glossy, with the nervures, costa, and stigma, pale brown, the basal scale whitish.

Also rare: taken near London, and in Devonshire, in June.

Sp. 39. biloba. *Nigra, ore collare utrinque pedibus alarum squamis pedibusque pallide testaceis, thorace ferrugineo, macula bilobâ nigra posticâ, mandibulis rufis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 6 lin.)

Se. biloba. *Steph. Nomen.* 2d edit. col. 126.

Head and antennæ black; mouth pale testaceous; mandibles rufous; thorax with the collar pale testaceous on each side, the disc bright ferruginous, with a bilobed black patch behind; abdomen black, its extreme apex above luteous, and below somewhat pitchy; legs pale testaceous, with the hinder tibiæ whitish, their tips dusky; posterior tarsi also whitish, with the apex of each joint dusky; wings very clear hyaline, with pitchy nervures, and brownish testaceous costa and stigma.

Taken in the vicinity of London, in June, but apparently rare.

Sp. 40. ovata. *Capite thoracisque lateribus punctato-scabris, nigra subnitida, thoracis dorso rufo, geniculis albis, alis hyalinis medio transversim subinfus-catis.* (Long. corp. 4 — $4\frac{1}{2}$ lin.; Exp. Alar. 8 — $8\frac{1}{2}$ lin.)

Te. ovata. *Linné.*—Se. ovata. *Steph. Catal.* 332. No. 3859.

Head and sides of the thorax ruggedly-punctured; of a somewhat shining black; the thorax above broadly and irregularly rufous; abdomen black; legs black, with the knees white; wings hyaline, slightly suffused with a transverse fuscous cloud in the middle; antennæ black, with the 3 or 4 terminal joints streaked with white.

Not very uncommon in June at Darent and Birch woods, and occasionally found at Coombe and near Hertford,



GENUS XVIII.—HEMICHROA* *mihi*.

Antennæ setaceous, 9-jointed, elongate, 2 basal joints short, remainder slender, 3rd and 4th long, of equal length, 5th rather shorter, the rest gradually diminishing in length: *clypeus* deeply notched: *labrum* rounded: *mandibles* bidentate within: *maxillary palpi* with the 2 basal joints short, 3rd broad and longer, 2 following more elongate, 6 slender and curved; labial with the 3rd joint dilated: *head* large, produced between the antennæ: *eyes* small: *ocelli* 3: *wings* rather short, broad, ample, with 2 nearly equal marginal areolets, divided by a straight nervure, and 4 submarginal ones, the 1st small, rounded; 2nd longest, receiving 2 recurrent nervures; 3rd small, elongate-quadrate; 4th extending to the apex; *abdomen* short, somewhat robust: *legs* short, simple: *tibiæ* with 2 spurs at the apex only.

This genus differs not only in general habit—as may be seen by the figures (pl. xxxviii. f. 2.)—from *Selandria*, but also in the structure and slenderness of its antennæ, wings, &c.: the latter are particularly prone to vary, especially the marginal areolet, scarcely two examples occurring precisely alike; in some there is only 1 areolet, others have 2, and some have the rudiments merely of the separating nervure, while in others it extends either half way or nearly to the margin: in general the species are of contrasted colours.

Sp. 1. Alni. PLATE xxxviii. f. 2.—*Nigra, capite thoraceque rufo-testaceis, pedibus anticis subtestaceis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. $8-8\frac{1}{2}$ lin.)

Te. Alni. Linné.—Se. Alni. Steph. Catal. 332. No. 3861.

Head testaceous-red; eyes, ocelli, and antennæ black, the basal joints of the last reddish beneath: mandibles brownish or dusky; thorax testaceous-red; abdomen rich shining-black; legs black, anterior somewhat testaceous; wings hyaline, the nervures brownish, and the costa and stigma yellowish-brown.

Not common; taken at Darenth and Birch woods occasionally towards the end of June, and at Forest Hill on the 28th of July last.

Sp. 2. rufa. *Luteo-rufa, antennis, sterno, femoribusque posticis nigris, tibiis posticis albidis, apice cum tarsis fuscis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. $8-8\frac{1}{2}$ lin.)

Te. rufa. Panzer.—Se. rufa. Steph. Catal. 332. No. 3862.

Head luteous-red; antennæ dusky-black; eyes and ocelli black; thorax rufous above, with a dusky or blackish patch behind the scutellum, and

* *Εμμεν* dimidiatus, κρῶα color.



with a large black or pitchy spot beneath on the sternum; abdomen and legs rufous; the hinder femora black, and their tibiæ whitish, with the extreme apex and the tarsi fuscous, with the nervures, a minute dot in the 2nd submarginal areolet, and the stigma brownish.

Also rather uncommon: taken in June, at Darenth wood, and in Norfolk.

Sp. 3. Stigma. *Rufa, antennis, sterno, femoribusque omnibus basi nigris, alis fuscis apice hyalinis, stigmatè pieeo.* (Long. corp. 3 lin.; Exp. Alar. 6 lin.)

Se. Stigma. *Steph. Nomen. 2d edit. col. 126.*

Head rufous, with the antennæ, eyes, and ocelli black; thorax rufous dusky behind; abdomen rufous; legs the same, with the base of all the femora black; the tibiæ pale; hinder tarsi fuscous; wings fuscous at the base, the apex hyaline, nervures dusky; the stigma pitchy-black.

Found near Ripley in June.

GENUS XIX.—SCIAPTERYX* *mihi*.

Antennæ 9-jointed, irregular, rather short and stout, pilose, basal joint robust, 2nd smaller, subglobose, 3rd as long as the 4th and 5th united, the last somewhat longer than the 6th, which with the remainder gradually diminish in length and thickness, the apical one being smallest and rather obtuse: *clypeus* and *labrum* emarginated: *head* broad, large, rough: *eyes* small: *ocelli* 3: *wings* short, broad, punctured; anterior with 2 marginal areolets, divided by a curved nervure, and with 6 submarginal ones, the basal one small, rounded; 2nd narrow, receiving 1 recurrent nervure; 3rd somewhat triangular, receiving 2 recurrent nervures; 4th not extending to the apex of the wings: *abdomen* short, stout, depressed, broad, acute at the apex: *legs* short, simple: *tibiæ* furnished at the tip alone with 2 short obtuse spurs.

In this genus the antennæ are short, stout, and, as it were, somewhat distorted, the articulations being irregular; the body is broad, depressed, and rugose; the wings short, broad, thick, the anterior with the marginal areolets divided by a curved nervure, as in *Allantus*, by which characters combined it may be known from the other genera of this section.

Sp. 1. *costalis. Capite thoraceque punctatis, abdomine lævi; nigra, abdomine segmentis utrinque, ultimis margine toto lacteis, alis anticis subfuscis costâ maculâque ochraceis.* (Long. corp. $4\frac{1}{4}$ — $4\frac{3}{4}$ lin.: Exp. Alar. 9 — $9\frac{1}{4}$ lin.)

Te. *costalis. Fabricius.*—Se. *costalis. Steph. Catal. 332. No. 3865.*

* Σκια umbra, πτερον ala.—The numbers of this genus and the preceding one are reversed in the table, page 5.



Head and thorax much punctured and black, the palpi, orbits of the eyes, and line beneath the antennæ, with the shoulders, white; abdomen smooth, black, with the 4 anterior segments milky-white on each side, and the remainder entirely bordered with the same; legs black, white anteriorly; wings thick, somewhat fuscous, with the costa and stigma ochreous, tinged with ferruginous; nervures brown.

Not common: found early in April at Hertford; also at Coombe wood and near Bristol.

§ 6. *Antennæ* 9-jointed, moderate, or elongate; *body* moderate or elongate, generally the latter; anterior *wings* with 2 marginal areolets.

GENUS XX.—ALLANTUS, *Panzer*.

Antennæ somewhat clavate, or setaceous, 9-jointed, the 3rd joint longer than the 4th, the remainder gradually decreasing in length: *mandibles* 2- or 4-dentate: *labrum* rounded: *head* broad, subquadrate, deeply emarginate behind: *eyes* rather large: *ocelli* 3: *wings* somewhat long and slender, ample; anterior with 2 marginal areolets, divided by a curved nervure, the basal areolet being somewhat lanceolate, the apical one ax-shaped; and 4 submarginal ones, the 1st small, somewhat angulated, 2nd narrow, receiving 1 recurrent nervure, 3rd triangular, receiving 2 recurrent nervures, 4th scarcely extending to the apex: *abdomen* elongate: *legs* slender; posterior, especially in the males, elongate, and in that sex the hinder tarsi are dilated at the base; the *tibiæ* furnished at the apex with 2 long acute spurs.

This is rather an extensive genus, and may be readily known from the others belonging to this section by the structure of its antennæ and wings: it appears, however, to require considerable subdivision, but probably all may with propriety be retained under one genus: the species are generally of large size, and the males—especially in the 1st section—differ much from the females, and have the posterior tarsi dilated, and generally of a dark hue: they are extremely voracious in their final state, devouring other insects.

A. *Antennæ* short, somewhat clavate at the tip.

a. *Antennæ* entirely, or nearly all, yellow.

Sp. 1. *Scrophulariæ*. *Niger*, *abdomine cingulis* 6, 1-mo remoto, *collare scutellæque flavis*, *pedum tibiis tarsisque luteis*. (Long. corp. 6—6½ lin.; Exp. Alar. 11½—12 lin.)

Tc. *Scrophulariæ*. *Linne*.—Al. *Scrophulariæ*. *Samouelle*, pl. 8. f. 2.—*Steph. Catal.* 332. No. 3866.

Black: antennæ luteous-red; labrum and clypeus yellow; sides and front of the collar, a spot in front, above the anterior legs, scutellum, and streak



behind on the metathorax also yellow; abdomen with the 1st, 4th to 8th segments broadly edged with yellow, the 2nd and 3rd sometimes with a minute streak only on each side; femora black, the 2 anterior luteous in front, with their coxæ and the 2 hinder ones spotted with luteous, tibiæ and tarsi entirely luteous; wings reddish-yellow, clouded with brownish towards the apex.

Occasionally found in plenty, in July, on umbelliferous plants within the metropolitan district: I once met with it abundantly at Dover in the beginning of July.

Sp. 2. *annulatus*. *Niger*, *abdomine fasciis* 8, *2-da late interruptâ*, *thoracis scutello*, *collare pedumque tibiis tarsisque flavis*. (Long. corp. 7—7½ lin.; Exp. Alar. 12½—13 lin.)

Te. (All.) *annulata*. *Klug*.—All. *annulata*. *Steph. Catal.* 333. No. 3867.

Black: antennæ fulvous, 2 or 3 of the basal joints black on the inner side; labrum yellow; front and sides of the collar and scutellum luteous; abdomen with the margins of all the segments broadly edged with yellow, the 2nd interrupted; femora black, the 4 anterior with a yellow streak in front; tibiæ and tarsi luteous-yellow; wings luteous, with the apex slightly clouded.

The male has the 2 hinder femora with a yellow streak below, a spot on the anterior coxæ, and the entire posterior ones, yellow.

Taken near Hornsey wood in April 1811, and apparently very rare.

b. *Antennæ with the basal joint alone yellow, or testaceous.*

Sp. 3. *vespiformis*. *Ater*, *squamis ferrugineis*, *pedibus ferrugineo variis*; *collare*, *abdomine cingulis tribus*, *1-mo remoto*, *anoque flavis*. (Long. corp. 5½—6 lin.; Exp. Alar. 10—11 lin.)

Te. *vespiformis*. *Latreille*.—All. *tricinctus*. *Steph. Catal.* 333. No. 3868.

Black: base of the antennæ pale testaceous; clypeus yellow at the base; margins of the collar yellow; abdomen with the 1st, 4th, and 5th segments broadly edged with yellow, the apex luteous; femora black, ferruginous at the base and apex, tibiæ and tarsi ferruginous, dusky towards the tip; wings somewhat hyaline, with the costal portion rather obscure; nervures fuscous, costa and scales at the base ferruginous.

The male has the labrum and entire clypeus yellow, the base of the antennæ and the femora entirely black.

In some examples the 3rd, 6th, and 7th segments of the abdomen have the margins more or less edged with yellow.

Apparently rather scarce: I have taken it, towards the end of June, at Darenth, and at Dover and Ripley.

Sp. 4. *Viennensis*. *Niger*, *collare*, *pedum tibiis abdominis fasciis* 3-bus, *1-ma remota*, *anoque flavis*. (Long. corp. 5½—5¾ lin.; Exp. Alar. 10—10½ lin.)



Te. Viennensis. *Punzer*.—All. Viennensis. *Steph. Catal.* 333. No. 3869.

Black: antennæ with the basal joint yellow; clypeus, 2 large spots on the sides of the collar, the scutellum, the margins of the 1st, 4th, and 5th segments of the abdomen and the apex also yellow; femora black; base, tip, and coxæ yellow; tibiæ yellow at the base, luteous at the apex; tarsi luteous; wings hyaline, brownish at the apex, nervures and stigma testaceous.

Male with the labrum, and 4 anterior legs, with their coxæ, &c. yellow, the femora of the latter black in the middle above; and the 5th segment of the abdomen not edged with yellow.

The other abdominal segments (except the 2nd) are occasionally slightly edged with yellow, or the belt on the 5th is sometimes divided; the scutellum is occasionally marked with 2 yellow dots.

Taken at Coombe wood, in July, and in Norfolk, but not common.

Sp. 5. zonula. *Niger*, abdomine fascia baseos, cingulo medio anoque flavis, pedibus anterioribus totis flavis, posticis flavo variis. (Long. corp. 4—4½ lin. : Exp. Alar. 8½—9 lin.)

Te. (All.) zonula. *Klug*.—All. zonula. *Steph. Catal.* 333. No. 3870.

Black: antennæ with the basal joint yellow; mouth and clypeus luteous; margins of the collar the same; abdomen yellowish beneath, the 1st segment alone narrowly edged with yellow, the 5th entirely yellow, and a spot of the same on the 7th and 8th; legs yellow, the tips of the 4 posterior tibiæ and the hinder femora above black; wings hyaline, with fuscous nervures.

The male has the intermediate and posterior tarsi black, and the anterior tarsi with the tips of the joints brownish.

Found at Darenth wood, in July, but not common.

Sp. 6. Zona. *Niger*, abdomine fasciâ baseos, cingulisque duobus approximatis ad apicem flavis, pedibus flavo-variis. (Long. corp. 5—5½ lin.; Exp. Alar. 9—9½ lin.)

Te. (All.) Zona. *Klug*.—All. Zona. *Steph. Catal.* 333. No. 3871.

Black: antennæ with the basal joint yellow; mouth and clypeus, with the collar on each side, and the scutellum also yellow; the margins of the 1st, 4th, and 5th segments of the abdomen, a spot on the 8th, and the apex, luteous; legs luteous, with a spot on the femora, and the apex of the tibiæ and tarsi black; wings hyaline, with the apex fuscous.

Male with the labrum, base of the mandibles, and the 4 anterior femora beneath yellow, the tibiæ and tarsi luteous.

Also found in July at Darenth wood, but rare.

Sp. 7. arcuatus. *Niger*, segmentorum abdominis omnium marginibus, 2-ndi et 7-imi interruptis flavis, pedibus flavis, femoribus supra, tibiis apice nigris. (Long. corp. 4¼—5¼ lin.; Exp. Alar. 9—9½ lin.)



Te. arcuatus. *Forster*.—All. arcuatus. *Steph. Catal.* 333. No. 3872.

Black: antennæ black, generally yellow beneath; mouth and clypeus yellowish; sides of the collar and some spots on the sides of the thorax luteous; abdomen with the 1st, 4th to 6th, and the 8th segments above more or less broadly edged with greenish-yellow, the others spotted with the same on the sides, beneath yellow on the sides, and the ventral segments bordered with the same; legs bright yellow, with the trochanters, femora above, and tips of the tibiæ and tarsi black; wings hyaline, with fuscous nervures.

The male has the abdomen beneath entirely yellow, and the segments above more broadly edged with the same; the posterior tibiæ and tarsi are black above.

An extremely variable insect: sometimes all the femora, or only the 2 anterior, 2 intermediate, or 4 anterior ones, are entirely yellow; at others the scutellum is yellow; the trochanters are occasionally without the black spot, and at times only 1 or 2 pair are spotless, &c.

Extremely abundant throughout the metropolitan district, on umbelliferous flowers, during the end of June and beginning of July.

c. *Antennæ* entirely black.

Sp. 8. *tenulus*. *Ater*, *abdomine fasciis duabus mediis, pedumque tibiis tarsisque flavis*. (Long. corp. $5\frac{1}{2}$ — $5\frac{3}{4}$ lin.; Exp. Alar. 11—12 lin.)

Te. *tenula*. *Scopoli*.—All. *tenulus*. *Steph. Catal.* 333. No. 3873.

Antennæ and head black; mandibles brown at the apex; thorax with a yellow streak on each side; abdomen black, with the 3rd and 4th segments edged with yellow above and on the sides; femora black, the anterior with a yellow streak at the tip above; tibiæ and tarsi yellow, with the apex black; wings yellowish, with the tip brownish; stigma yellowish-testaceous.

The male has the yellow margin of the 4th segment of the abdomen interrupted.

Apparently very rare: taken near London in July.

Sp. 9. *rusticus*. *Niger*, *pedibus anterioribus flavis, posticis flavo variis (in mare ante apicem albis)*; *abdomine (fœmina) fasciis 3-bus flavis, posticis 2-bus interruptis (maris immaculato)*. (Long. corp. $5\frac{1}{2}$ — $5\frac{1}{2}$ lin.; Exp. Alar. $10\frac{1}{2}$ — $11\frac{1}{2}$ lin.)

Te. *rusticus*. *Linne*.—All. *rusticus*. *Steph. Catal.* 333. No. 3874.

Black: mouth and clypeus luteous; thorax with its sides and the scale of the wings yellow; abdomen with the basal segment edged with yellow, the 5th and 6th with a large spot on both sides of each, forming an interrupted double yellow fascia, and the terminal joint also yellow above; anterior legs entirely pale yellow; posterior with the femora yellow at the base and black at the apex; tibiæ black, with a yellow spot on the outer edge towards the apex; tarsi black, and of the 4 anterior legs fuscous above; wings fuscous.



The male has the mouth and clypeus white; the thorax and abdomen entirely black, the posterior legs black, with the coxæ beneath, trochanters and base of the femora yellow, their tibiæ with the 2nd to the 4th joints white.

Not uncommon at Darenth wood, in June, on umbelliferous flowers; also found at Coombe wood, &c. and at other places within the metropolitan district.

Sp. 10. duodecimpunctatus. *Niger, thorace abdomineque albo-punctatis, pedibus albo-variis, alis stigmatе testaceo aut fusco.* (Long. corp. 4—5 lin.; Exp. Alar. 9—10½ lin.)

Te. 12-punctata. *Linné.*—All. 12-punctatus. *Steph. Catal.* 333. No. 3875.

Black: labrum and clypeus yellowish; shoulders and scutellum white; abdomen with a triangular white dot on each side of the 4th, 5th, and 6th segments, and the apical segment also white; legs black; 4 anterior tibiæ white, with a black streak beneath, the apex of the femora above also white, and a spot of the same at the base of the hinder coxæ and a streak on the outside of the posterior tibiæ towards the apex; wings yellowish, with the stigma pale testaceous.

The male has the 4 anterior legs white, their femora and tibiæ with a broad black line behind: the 4 posterior coxæ have a large white spot on each; the 2 hinder legs are black, with a white streak at the base of their femora; wings with the stigma fuscous.

Equally abundant with the last within the metropolitan district, frequenting the same localities, &c.

Sp. 11. ferus. *Niger, thoracis humeris, scutello, abdomine lineolis duabus et macula laterali, tibiisque albis.* (Long. corp. 4½ lin.; Exp. Alar. 10 lin.)

Te. fera. *Fabricius.*—All. ferus. *Steph. Nomen.* 2d edit. col. 126.

Black: labrum, the sides of the thorax, scutellum, a line on each side of the 5th and 6th segments of the abdomen, and the apex of the last white; at the base on each side is a large white spot; tibiæ white; wings obscure, with a fuscous stigma.

The male has the 4 anterior femora whitish in front, and the thorax and abdomen entirely black, as well as the hinder tibiæ.

Probably a variety of the foregoing species.

Found with the foregoing at Darenth and Coombe woods.

Sp. 12. albicinctus. *Niger, collare et abdominis segmento 1-mo margine albis, ore pedibusque albo variis.* (Long. corp. 4½—4¾ lin.; Exp. Alar. 9—9½ lin.)

Te. (All.) albicincta. *Klug.*—All. albicinctus. *Steph. Catal.* 333. No. 3876.

Black: labrum, apex of the clypeus, and 2 minute dots on the crown, the margins of the collar and apex of the scutellum clear white; the basal segment of the abdomen with its edge, and the apical one above, also white; anterior legs black, with the base and apex of the femora, tibiæ anteriorly, and base of the tarsi below white; intermediate black, with the coxæ and



base of the femora, the tibiæ towards the apex and in front also white ; posterior black, with the tibiæ in the middle and trochanters white ; wings hyaline, with black nervures.

The male is destitute of the white dots on the crown, and has the legs more varied with white ; the margins of the abdominal segments beneath are also white.

Less abundant than the 2 foregoing insects, but not uncommon at Darenth wood, towards the middle or end of June.

Sp. 13. Ribis. *Niger, pedibus albo variis.* (Long. corp. $4\frac{1}{2}$ lin. ; Exp. Alar. $8-8\frac{1}{2}$ lin.)

Te. Ribis. *Schrank.*—All. Ribis. *Steph. Catal.* 334. No. 3877.

Black : apex of the labrum white ; mandibles spotted with the same ; 4 anterior legs black, with the base and apex of the femora white, and the tibiæ and tarsi white in front ; 4 posterior black, with the coxæ, a large patch at their base, trochanters, and base of the femora, knees, and apex of the tibiæ also white ; wings hyaline, with the nervures black.

The male has the labrum dusky.

Also found, but not very commonly, at Darenth wood in June.

Sp. 14. Punctum. *Niger, collare scutelloque flavis, abdomine albo punctato, pedibus albo variis, posticorum femoribus sanguineis.* (Long. corp. $4\frac{1}{2}$ lin. ; Exp. Alar. $7\frac{1}{2}-8$ lin.)

Te. punctum-album. *Linné.*—All. Punctum. *Steph. Catal.* 334. No. 3878.

Black : collar and scutellum yellowish ; abdomen with a white spot on the sides of the 3rd to the 7th segments, and one on the back of the terminal one ; anterior legs white, with the femora black ; intermediate white, striped with black ; posterior black, with blood-red femora, the base and apex of which are sometimes dusky ; tibiæ at the tip, and coxæ at the base, spotted with white ; wings hyaline, with fuscous nervures.

Rather scarce : found at Darenth wood in June, and near Dover, and at Coombe.

†Sp. 15. hæmatopus. *Niger, abdomine punctis albis, pedibus sanguineo variis.* (Long. corp. 5 lin. ; Exp. Alar. 10 lin.)

Te. hæmatopus. *Panzer.*—All. hæmatopus? *Steph. Catal.* 334. No. 3879.

Black : margin of the clypeus, labrum, and mouth luteous ; scutellum generally white ; abdomen with a white spot on each side of the 5th and 6th segments ; 4 anterior legs rusty-luteous, posterior ferruginous, with the knees black ; all the tarsi black.

Male with the 4 anterior legs lemon-colour, the posterior femora with a black streak.

I do not know that this is British, the following species having been hitherto confounded with it in English cabinets.



Sp. 16. *strigosa*. *Ater, pedibus, abdominisque medio supra rufis, ore, margine collaris, scutello et maculis ad apicem abdominis flavis.* (Long. corp. 5—5½ lin.; Exp. Alar. 6—6½ lin.)

Te. *strigosa*. *Fabricius E. S. Sup. 217.*—All. *strigosa*. *Steph. Nomen. 2d. edit. Appendix.*

Black: mouth and clypeus yellowish; margin of the collar and scutellum the same; abdomen with the 3rd and 4th segments red above; the 6th with an elongate yellowish-white spot on each side, and the 7th with a similar, but smaller, spot, the terminal joint also whitish-yellow; 4 anterior legs pale testaceous; posterior bright testaceous-red, with the coxæ, base of the tibiæ, and the tarsi black.

The male has the 3rd to the 5th joints of the abdomen red, their anterior legs, and a spot on the breast yellow, with their coxæ lemon-yellow.

Variable: some examples have the 4th segment of the abdomen entirely black; others with a small red dorsal spot only there, and in rare instances the 3rd segment has only a similar mark, thereby closely approximating to *Al. hæmatopus*.

Apparently rare: taken at Darenth wood, near Dover, and in Devonshire, in June; also at Coombe.

Sp. 17. *blandus*. *Niger, abdomine medio rufo, coxis posticis maculâ albâ notatis.* (Long. corp. 5¼—5½ lin.; Exp. Alar. 10½—11 lin.)

Te. *blanda*. *Fabricius.*—All. *blandus*. *Steph. Catal. 340. No. 3880.*

Black: mandibles white at the base, labrum and clypeus sometimes varied with the same; abdomen with the 2nd to the 5th segments rusty-testaceous; anterior pair of legs with a white stripe, 2 posterior coxæ with a large white patch at the base; wings brownish, with darker nervures.

The male is black, with the labrum, the 2 anterior pair of legs in part, the hinder femora at the base, and all the coxæ, and a patch at the base of the posterior ones, white; the abdomen with the intermediate segments ferruginous at the sides only: sometimes the posterior legs and femora are entirely black.

Abundant on umbelliferous flowers, throughout the metropolitan district, in June.

Sp. 18. *neglectus*. *Ater, abdominis medio rufo.* (Long. corp. 5¼—5½ lin.; Exp. Alar. 10½—11 lin.)

Black: mandibles testaceous at the apex; abdomen with the 2nd, 3rd, and base of the 4th segments—sometimes also the 5th—testaceous-red; anterior legs with the femora and tibiæ white in front.

Both sexes are alike in colour.

Also common throughout the metropolitan district in June and the beginning of July.



Sp. 19. cinctus. *Niger, abdominis segmento 3-tio, et 4-to lateribus anoque flavis, pedibus flavo-variis.* (Long. corp. 5—6 lin. Exp. Alar. $5\frac{1}{2}$ — $11\frac{1}{2}$ lin.)

Te. cincta. *Panzer.*—All. cinctus. *Steph. Catal.* 334. No. 3882.

Black: labrum and clypeus luteous; mandibles reddish; abdomen with the 3rd segment entirely yellow above and on the sides, the 4th and 5th on the sides above, the 6th to the last yellow on the back; 4 anterior legs luteous, their femora black behind; 2 hinder femora black, coxæ and trochanters yellow; tibiæ yellow, black at the tip; tarsi dusky, with a testaceous streak within; wings hyaline yellowish, with the nervures fuscous.

Male with the head beneath and under surface pale yellow; the abdomen with the 3rd and 4th segments yellow, the latter interrupted with black on the back, and the terminal joint with a narrow yellow edge; legs yellow, with a black streak throughout the upper edge of each.

Abundant on flowers throughout the metropolitan district, at the end of June and beginning of July; found also at Dover.

Sp. 20. zonatus. *Niger, collaris margine utrinque, scutello abdomineque medio flavis.* (Long. corp. 6— $6\frac{1}{2}$ lin.; Exp. Alar. 10— $13\frac{1}{4}$ lin.)

Te. zonata. *Panzer.*—All. zonatus. *Steph. Catal.* 334. No. 3883.

Black: labrum and clypeus bright-yellow; scutellum and margins of the collar, with the wing scales also yellow; abdomen with the 4th and 5th segments and edge of the 3rd, and the last pale yellow; legs yellow, with the femora and tips of all the tibiæ black; wings hyaline, pale testaceous, with the nervures and stigma fuscous.

Male with the abdomen nearly entirely yellow, the basal and penultimate segments being black, and the 2nd segment black in the middle; legs yellow, with the 4 anterior femora black behind, the posterior femora, their tibiæ, and basal joint of the tarsi above also black.

Frequently taken at Darenth wood, but not very common elsewhere, about the end of June and beginning of July. In Scotland.

†Sp. 21. flavicornis. *Luteus, capite, abdominisque apice nigris, ore et maculâ ad basin cozarum posticarum flavis; alis apice nigricantibus.* (Long. corp. $6\frac{1}{4}$ lin.; Exp. Alar. $12\frac{1}{2}$ lin.)

Te. flavicornis. *Fabricius.*—All. flavicornis. *Steph. Catal.* 334. No. 3884.

Antennæ yellow; head black; mouth and clypeus pale yellow; disc of thorax and abdomen yellow, the tip of the last broadly black; legs yellow, with the hinder femora black, yellow at the tip, and a whitish-yellow spot at the base of their coxæ; wings yellowish-hyaline, with the tip brownish.

Male with the legs entirely yellow, the apex of the abdomen less broadly tipped with black, and that of the wings pale fuscous.

Taken near Plymouth: apparently rare.



B. *Antennæ* not thickened at the apex.a. *Antennæ* white at the tip.

Sp. 22. *conspicuus*. *Abdomine pedibusque late rufis, capitis vertice, thoracis dorso, pedibus supra et antennarum basi nigris, ceterum albidis.* (Long. corp. 6 lin.; Exp. Alar. 11 lin.)

Te. (All.) *conspicuus*. *Klug.*—All. *conspicuus*. *Steph. Catal.* 334. No. 3885.

Antennæ black, white at the tip; head pale luteous, black above and behind; thorax pale testaceous, with the disc above black; abdomen pale testaceous-red, with the basal joint fuscous; legs testaceous, with a black streak on the femora and tibiæ; wings hyaline, with brown nervures.

The sexes resemble each other in colour, and are both variable; the 2 basal segments of the abdomen are sometimes black, and occasionally the terminal joint of the antennæ; the collar is at times yellowish, and the head pale behind the eyes.

Not uncommon, within the metropolitan district, towards the end of June, frequenting woods; also found at Dover.

Sp. 24. *laticinctus*. *Niger, capite antice, collare squamisque albidis, abdominis medio tibiis tarsisque rufis, alis stigmatibus subtestaceo.* (Long. corp. 6 lin.; Exp. Alar. 11—11½ lin.)

All. *laticinctus*. *Steph. Nomen.* 2d edit. *Appendix.*

Black: head in front whitish; collar and wing-scales the same; abdomen with the 3rd, 4th, and 5th segments, and the sides of the 2nd light testaceous-red; anterior pair of legs pale rufous; intermediate also red, with the base and upper edge of the femora black; posterior with the femora black, the tibiæ and tarsi red; anterior coxæ pale, and tip of the antennæ white; wings hyaline, slightly fuscous towards the apex, nervures fuscous; costa and stigma pale brownish-testaceous.

Found, not uncommonly, at Darenth and Birch woods, in June and the beginning of July.

Sp. 23. *rufiventris*. *Niger, æneo-nitidus, capite antice, collare squamisque albis, abdomine pedumque tibiis tarsisque rufis, alis stigmatibus pallido.* (Long. corp. 6 lin.; Exp. Alar. 11½ lin.)

Te. *rufiventris*. *Fabricius.*—All. *rufiventris*. *Steph. Catal.* 335. No. 3886.

Black, with a brassy tinge; front of the head, the collar, and wing-scales white; abdomen red, with the basal segment brassy-black; tibiæ and tarsi red, with a blackish streak above; wings hyaline, with the nervures brown and the stigma pale.

The following species, which was formerly received by Leach from Klug, by the name All. *rufiventris*, appears totally distinct from this, which I am not aware has ever been found in Britain.

MANDIBULATA, VOL. VII., AUGUST 31ST, 1835.

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Sp. 25. *balteatus*. *Niger*, abdomine medio rufo, capite anticè albo nigro punctato, pedibus rufis, coxis femoribusque supra nigris, stigmate fusco. (Long. corp. $5\frac{1}{4}$ lin.; Exp. Alar. $9\frac{1}{2}$ —10 lin.)

Te. (All.) *balteata*. *Klug Blattw.* 171.—*Al. balteatus*. *Steph. Nomen.* 2d edit. *Appendix*.

Black: apex of the antennæ and head in front white, the latter with some black dots on the front; the mandibles white, with the tip brown; abdomen red, with the 2 basal and 2 apical segments black; legs red, the coxæ and femora above black; wings hyaline, with the nervures and stigma fuscous.

Rare: taken in the north of England, and in Scotland, in June.

Sp. 26. *solitarius*. *Niger*, ore, scutello, maculæque duplici utrinque ad basin coxarum posticarum albis, pedibus piceo-variis. (Long. corp. $6\frac{1}{2}$ —7 lin.; Exp. Alar. $12\frac{1}{2}$ —13 lin.)

Te. *solitaria*. *Scopoli*.—*All. solitarius*. *Steph. Catal.* 335. No. 3887.—*Te. (All.) pellucida*. *Klug Blattw.* 177 ♂.

Black: apex of the antennæ white; mouth and clypeus white; mandibles pitchy at the apex; the 1st segment of the abdomen with a white spot on each side beneath; 4 anterior legs with the femora black, pitchy above; tibiæ and tarsi testaceous, with a dusky line; posterior femora black, with the tibiæ and tarsi pitchy; at the base of the coxæ a white patch; wings hyaline, fuscous, the stigma dusky.

The male has the 4 intermediate segments of the abdomen, and the 4 anterior legs beneath whitish.

Not uncommon in the vicinity of London, on flowers, &c. in June.

Sp. 27. *aterrimus*. *Niger*, ore, maculæque duplici ad basin coxarum posticarum albis, pedibus anterioribus testaceo-variis. (Long. corp. 7 lin.; Exp. Alar. 12—13 lin.)

All. aterrimus. *Steph. Catal.* 335. No. 3888.

Black: tip of the antennæ, mouth and clypeus white; abdomen with a large white patch on the sides of the basal segment; anterior and intermediate legs bright testaceous, the femora beneath and tibiæ behind black; posterior legs black, with a round white dot at the base of the coxæ; wings hyaline, with fuscous nervures and a dusky stigma.

Male with the 2nd to the 4th segments of the abdomen pale reddish.

Common, in the neighbourhood of London, about the end of June, frequenting flowers on the sides of woods, &c.

Sp. 28. *lividus*. *Niger*, ore maculæque duplici ad basin coxarum posticarum albis, pedibus ferrugineo-variis, abdomine apice rufo; alis stigmate testaceo apice fusco. (Long. corp. 6— $6\frac{1}{2}$ lin.; Exp. Alar. 12—13 lin.)

Te. *livida*. *Linne*.—*All. lividus*. *Steph. Catal.* 335. No. 3892.

Black: apex of the antennæ, mouth and clypeus white; abdomen with a white spot on each side of the basal segment, the 5th and following segments



bright testaceous; legs also testaceous or ferruginous, the 2 anterior tibiæ and tarsi palest, and with a black streak behind; the 4 posterior tarsi with the terminal joint whitish, and the hinder coxæ with a large white spot at the base; posterior femora and the base of the others sometimes black; wings hyaline, with fuscous nervures; the stigma testaceous, with the tip fuscous.

Male with the abdomen beneath entirely testaceous, and the apex above from the 3rd segment, which has a pale dorsal spot; the anterior legs are whitish in front, and all the femora are white at the base, and the coxæ have a white spot.

Extremely common, on flowers in June, throughout the metropolitan district; also taken in Devonshire and in Scotland.

Sp. 29. Colon. *Niger ore, maculæque duplici ad basin coxarum posticarum albis, abdominis apice, pedibus alarumque squamis rufis, stigmate fusco.* (Long. corp. 5—5½ lin.; Exp. Alar. 10—10½ lin.)

Te. (All.) Colon. *Klug.*—All. Colon. *Steph. Catal.* 335. No. 3889.

Black: mouth and apex of the antennæ white; abdomen with a white spot on each side of the basal segment, the four terminal segments red; legs also red, the femora with a black line on the upper side; tibiæ with the apex and the tarsi dusky; at the base of the posterior coxæ is a small white dot; wings hyaline, with the nervures and stigma brown.

The male has the 3rd to the 7th segments of the abdomen pale reddish.

Rather scarce: taken in June near London.

Sp. 30. Coryli. *Niger, ore maculaque duplici ad basin coxarum posticarum albis, abdomine medio rufo, alis stigmate pallido.* (Long. corp. 4½ lin.; Exp. Alar. 8½—9 lin.)

Te. Coryli. *Panzer.*—All. Coryli. *Steph. Catal.* 335. No. 3890.

Black; the 4 terminal joints of the antennæ, mouth, clypeus at the tip, and base of the mandibles white; abdomen with an ochreous spot on each side of the basal segment; the 4th, 5th, and 6th segments dull testaceous; femora black, 4 anterior tibiæ and tarsi white, with a black streak behind; 2 hinder testaceous, with a white spot on the last joint of the tarsi, and a larger one at the base of the coxæ; wings brownish, with the nervures fuscous and the stigma pale.

The male has the 4th, 5th, and 6th segments of the abdomen, and the 4 anterior legs pale; the latter have a black streak behind.

Taken in June, within the metropolitan district.

Sp. 31. bipunctulus. *Niger, labro, punctulisque binis ad basin coxarum posticarum albis, pedibus piceo-variis, alis stigmate fusco.* (Long. corp. 5—5½ lin.; Exp. Alar. 9½—10 lin.)

Te. (All.) bipunctula. *Klug.*—All. bipunctulus. *Steph. Catal.* 335. No. 3891.

Black: apex of the antennæ, labrum, and base of the mandibles white, tip of



the latter brown; legs pitchy, with the upper edge of the 4 anterior femora and tibiæ dusky; tarsi also dusky; posterior femora brown-black, with the apex brownish, the tibiæ and tarsi pitchy, with the tip dusky; and at the base of the posterior coxæ are 2 minute white dots; wings hyaline, the nervures and stigma brown.

Not common: found in June near Dover.

Sp. 32. *velox*. *Niger, ore, maculaque utrinque ad basin coxarum posticarum albis, pedibus rufis, alis stigmatibus fusco.* (Long. corp. 5—5½ lin.; Exp. Alar. 8½—9 lin.)

Te. (All.) *velox*. *Klug Blattw.*—All. *velox*. *Steph. Nomen. 2d edit. Appendix.* Black: tip of the antennæ and mouth white; abdomen entirely deep glossy black, without any spot on the basal segment; legs bright red, with the coxæ, trochanters, tips of tibiæ behind, and upper edge of the tarsal joints black; at the base of the hinder coxæ is a small white spot; wings clear hyaline, with the nervures and stigma brown-black.

Rare: taken at Birch wood and in Scotland, in June.

b. *Antennæ entirely black or of a dark hue.*

Sp. 33. *ater*. *Niger, ore albo, pedibus rufo-testaceis tarsis posticis nigris: mas, abdomine medio obscure testaceo.* (Long. corp. 4¼—5 lin.; Exp. Alar. 9½—10¼ lin.)

Te. *atra*. *Linné.*—All. *ater*. *Steph. Catal. 335. No. 3893.*

Black, shining: clypeus, labrum, and mandibles white, the tip of the last dusky or black; wing scales ferruginous; legs testaceous-red, coxæ and trochanters varied with black; hinder tarsi black; wings hyaline, the nervures and stigma fuscous.

Male with the 3rd to the 6th segments of the abdomen dull testaceous, legs bright testaceous, the femora with a black streak behind, and the posterior tibiæ at the apex, and their tarsi brownish-black; face slightly spotted with black.

Taken, in June, at Darent wood; also at Coombe, but rarely.

Sp. 34. *dispar*. *Niger, ore, collaris margine, punctoque ad basin coxarum posticarum albis, pedibus alarumque squamis rufis: mas, abdomine medio ferrugineo.* (Long. corp. 5—5½ lin.; Exp. Alar. 10½—11 lin.)

Te. (All.) *dispar*. *Klug Blattw. 196.*—Te. *solitarius* β. *Schrank 658 ♂.*—Al. *dispar*. *Steph. Nomen. 2d edit. Appendix.*

Black: clypeus, labrum, and mandibles white, the latter brownish at the tip; margin of the collar also white; wing scales red; abdomen with a small white dot on each side of the 1st segment at the base of the posterior coxæ; legs red, with the tip of the hinder tibiæ and their tarsi black; wings hyaline, with the nervures and stigma brownish-black.

The male has the 3rd to the 5th segments entirely, the margin of the 2nd, and the base of the 6th, ferruginous; a pale streak beneath the eyes, and a



black one behind each of the femora and at the apex of the posterior tibiæ; the anterior legs are rather pale.

Found likewise at Darenth wood in June and the beginning of July, not uncommonly.

Sp. 35. mandibularis. *Niger, mandibulis maculæque simplici ad basin coxarum posticarum albis, pedibus anterioribus rufis.* (Long. corp. 6 lin.; Exp. Alar. 13 lin.)

Te. mandibularis. *Panzer.*—All. mandibularis. *Steph. Catal.* 335. No. 3894. Black: mandibles white, brown at the tip; abdomen with a single white spot on each side of the 1st segment at the base of the posterior coxæ; 4 anterior legs bright rufous; posterior pair black; wings hyaline, brownish.

The sexes resemble each other.

Apparently very rare; I have a pair which was taken at Darenth wood in July.

Sp. 36. punctulatus. *Viridis, capitis vertice, thoracisque dorso maculis, abdomine punctis ad marginem subtilissimis nigris.* (Long. corp. 4—5½ lin.; Exp. Alar. 8—10½ lin.)

Te. (All.) punctulata. *Klug.*—All. punctulatus. *Steph. Catal.* 335. No. 3898. Light green: antennæ with a spot on the basal joint and a line on the remainder black; crown of the head with an irregular black mark; thorax more or less varied with black on the disc; abdomen clear green, the base of the first 2 or 3 segments with a delicate transverse black line, and each segment with 2 minute approximating, or geminated, black dots, on each lateral margin; the centre of the segments immaculate; legs with a slender black streak above; the apex of the tarsal joints dusky; wings hyaline, with the nervures fuscous, costa and stigma green. Sexes alike.

Abundant in June, on flowers, within the metropolitan district.

Sp. 37. viridis. *Virescente-flavescens, subtus niger, collare scutelloque flavescens, thoracis lateribus pedibusque infra nigro lineatis, stigmate fusco.* (Long. corp. 6—6½ lin.; Exp. Alar. 12½—13 lin.)

Te. viridis. *Linne.*—All. viridis. *Steph. Catal.* 335. No. 3896.

Beneath greenish-yellow; antennæ and head above black; disc of the thorax black, the sides with a black streak beneath; scutellum and collar pale yellowish-green; abdomen with the sides and the extreme edge of each segment greenish; legs green, the femora and tibiæ with a black streak behind; tarsi black; wings fuscous, with the nervures and stigma dark fuscous.

Male with the abdomen greenish, the base of each segment with a rounded black patch.

Also very common, within the metropolitan district, in June, on flowers, &c.



Sp. 38. *scalaris*. *Viridis, capitis vertice thoracisque dorso maculis, abdomine lineâ punctorum nigrorum, alis costâ stigmatique viridibus*. (Long. corp. 4—5 $\frac{3}{4}$ lin.; Exp. Alar. 7 $\frac{1}{2}$ —10 $\frac{1}{2}$ lin.)

Te. (All.) *scalaris*. *Klug.*—All. *scalaris*. *Steph. Catal.* 335. No. 3897.—Te. *viridis*. *Donovan, v. xiii. pl. 444.*

Green: antennæ black above; crown of the head more or less varied with black; disc of the thorax the same; abdomen with a line of black dots extending from the base to the apex along the centre, frequently expanded transversely so as to form a broad longitudinal dorsal streak, leaving the margins and sides of the abdomen always spotless; all intermediate shades occur from a few simple dots; legs with a black streak throughout above, and the apex of the joints of the tarsi also black; wings hyaline, nervures fuscous, the costa and stigma green.

The sexes resemble each other, but both are extremely prone to vary.

Taken very commonly on flowers, in June and July, within the metropolitan district.

Sp. 39. *pictus*? *Flavo-viridis, capitis vertice, thoracis maculis, pectoris plagâ, abdominisque dorso nigris, pedibus nigro lineatis, tarsis fuscis*. (Long. corp. 3—3 $\frac{1}{2}$ lin.; Exp. Alar. 6 $\frac{1}{2}$ —7 lin.)

Te. (All.) *pictus*? *Klug.*—All. *pictus*. *Steph. Catal.* 335. No. 3899.

Yellowish-green: antennæ above and the 2nd joint black; crown black; thorax more or less varied with black; abdomen black above, with the sides, apex, and extreme margins of the segments greenish; legs with a black streak above, tarsi fuscous; wings hyaline, nervures fuscous; stigma pale, with the apex brownish.

Less abundant than the 3 preceding species, occurring occasionally at Darenth wood and near Dover, in June.

Sp. 40. *Tiliæ*. *Luteus, thorace maculis duabus, abdominis segmento 1-mo, macularum striga dorsali, ano, tarsisque posticis nigris*. (Long. corp. 5 lin.; Exp. Alar. 9—10 lin.)

All. *Tiliæ*. *Panzer.*—*Steph. Catal.* 335. No. 3895.

Luteous: mandibles brown; forehead ferruginous; crown dusky; thorax with the disc ferruginous, with 2 oblique black streaks; abdomen with the basal segment and part of the 2nd black, the former with a yellowish border; the terminal one also black, and the intermediate ones with a row of spots down the back; two hinder tarsi dusky, or black; wings hyaline, with yellowish nervures; stigma dusky, pale at the base.

Male with the antennæ dusky at the tip, the disc of the thorax immaculate, the abdominal row of spots larger, and the tarsi all yellow.

Not very common: found at Darenth and Coombe woods occasionally in June.



Sp. 41. *lateralis*. *Corpore subcylindrico nigro, abdomine medio rufo, lateribus albo, pedibus rufis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 7 lin.)

Te. *lateralis*. *Fabricius*.—All. *lateralis*. *Steph. Catal.* 336. No. 3904.

Black: antennæ pale beneath; labrum, mandibles at the base, and inner orbits of the eyes yellowish-white; collar and wing scales the same; abdomen with the sides white, and the 3rd to the 6th segments red; legs red; coxæ black, edged with white; base of femora whitish; the hinder tibiæ at the extreme apex and their tarsi dusky; wings hyaline, yellowish, with the nervures and stigma brown, the base of the last yellowish.

Male pale whitish-yellow beneath, the upper half of the femora black.

Taken within the metropolitan district, in June, not uncommonly; also near Bristol and in Devonshire.

Sp. 42. *Aucupariæ*. *Corpore subcylindrico, nigro, collare utrinque alarumque squamis albis, abdominis medio pedibusque rufis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $6\frac{3}{4}$ —7 lin.)

Te. (All.) *Aucupariæ*. *Klug*.—All. *Aucupariæ*. *Steph. Catal.* 336. No. 3903.

Black: antennæ pale beneath; labrum white; mandibles brown; margins of the collar and wing scales white; abdomen with the 3rd to the 6th segments red; legs red, the hinder tarsi fuscous; wings hyaline, with the nervures and stigma brown, the latter yellowish at the base.

The male has a black streak on the femora.

Less abundant than the foregoing: it occurs at Darenth and Coombe woods in June, and in the New Forest.

Sp. 43. *bicolor*? *Niger nitidus, alarum squamis albis, abdominis segmentis intermediis pedibusque luteis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Te. (All.) *bicolor*. *Klug*?—All. *bicolor*. *Steph. Catal.* 336. No. 3902.

Shining-black: antennæ shorter than the abdomen; labrum white at the tip, mandibles brown; collar and wing scales whitish; abdomen with the 3rd, 4th, and 5th segments red; legs red, with the tips of the coxæ and trochanters yellowish; wings hyaline, with the nervures and stigma brownish.

Rare: found within the metropolitan district, at Darenth, &c. in June.

Sp. 44. *nitidus*. *Niger nitidus, abdominis segmentis 3-bus intermediis pedibusque rufis.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Te. (All.) *nitidus*. *Klug*.—All. *nitidus*. *Steph. Catal.* 336. No. 3901.

Shining black: abdomen with the 3rd, 4th, and 5th segments red; legs also red, coxæ dusky, with the apex and trochanters whitish; anterior femora at the base, and the others at the apex blackish; apex of hinder tibiæ and the tarsi dusky; wings yellowish, with the nervures and stigma brown-black.

Also rare: taken at Birch wood and in Devonshire, towards the end of June.



Sp. 45. *agilis*. *Antennis thorace sublongioribus, corpore violaceo-nigro, labro mandibulisque fusco-testaceis, pedibus cum condylis luteis, tarsis posticis nigris.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Te. (All.) *agilis*. *Klug.*—All. *agilis*. *Steph. Catal.* 336. No. 3900.

Shining, somewhat violet-black; antennæ rather longer than the thorax; labrum and mandibles testaceous-brown; legs pale testaceous, with a yellow hue, the coxæ and trochanters pale luteous; the 4 anterior femora with a dusky cloud above, and the 2 hinder tarsi black; wings yellowish, with the nervures and stigma brownish, the base of the last pale.

Not common: found at Darenth wood in July.

Sp. 46. *rufipes*. *Niger, nitidus, mandibulis pedibusque ferrugineis, tarsis 2 posticis nigris.* (Long. corp. $3-3\frac{3}{4}$ lin.; Exp. Alar. $6-7\frac{1}{4}$ lin.)

Te. *rufipes*. *Ziegler.*—*St. Fargeau Mon.* 81.—All. *rufipes*. *Steph. Nomen.* 2d edit. col. 127.

Shining black: mandibles dusky ferruginous; legs bright ferruginous, with the 2 hinder tarsi black; wings hyaline, slightly fuscous; the nervures, costa, and stigma fuscous.

Abundant in woods, within the metropolitan district, in June; also found in Scotland.

Sp. 47. *melanocephalus*. *Pallide luteus, capite pectorisque macula nigris, alis hyalinis.* (Long. corp. 3 lin.; Exp. Alar. 7 lin.)

Te. *melanocephala*. *Fabricius.*—All. *melanocephalus*. *Steph. Catal.* 336. No. 3905.

Pale luteous: antennæ with a black line above; head black; mouth and clypeus pale; mandibles pitchy at the tip; thorax pale, with 3 black spots; metathorax dusky; abdomen pale, its base dusky; legs yellowish; breast with a black spot in the middle; wings hyaline, the nervures dusky, stigma pale; in the 2nd submarginal areolet is a black dot.

The male has the basal segment of the abdomen varied with black, and the 2 apical joints spotted with the same.

Not common: found at Coombe wood in June.

GENUS XXI.—TENTHREDO *Auctorum*.

Antennæ 9-jointed, generally rather long and slender, especially in the 1st section, the basal joint robust, and, with the 2nd, short, 3rd and 4th longest, each of equal length, 5th rather shorter, remainder very gradually decreasing in length and thickness: *labrum* rounded: *mandibles* 4-dentate: *clypeus* scarcely emarginated: *head* broad: *eyes* small: *ocelli* 3: *wings* ample; anterior rather long, with 2 marginal areolets, divided by a slightly curved nervure, and 4 submarginal ones, of which the 1st is somewhat rhombic, the 2nd longest and narrow, receiving 1 recurrent nervure, the 3rd triangular, receiving 2 recurrent nervures, and the 4th extending to the apex: *abdomen* rather long, somewhat obtuse at the tip in the males, a little depressed and



acute in the females: *legs* simple; posterior rather elongate; *tibiæ* furnished with a pair of longish acute spurs at the apex only: *tarsi* slender.

Although the characters, drawn from the antennæ—assigned by Leach to discriminate these insects from *Allantus*—may not, upon a rigid examination of every species, appear sufficient to warrant their separation into two genera, nevertheless there is manifestly too great a diversity of habit between them to associate them together; there is, moreover, considerable modification in the trophi, and, amongst other external differences, the clypeus is scarcely emarginated in these insects, whereas in those of the foregoing genus it is in general deeply notched: the true Tenthredines are very prone to vary;—they are most of them distinguished by having the stigma of the anterior wings of two colours, and the middle of the abdomen frequently red.

A. *Antennæ* very long and slender; posterior *legs* considerably elongated.

Sp. 1. Rapæ. *Supra nigra, capite thoraceque albo variis, subtus albida nigro maculata.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 7—7 $\frac{1}{2}$ lin.)

Te. Rapæ. *Linné?*—*Steph. Catal.* 336. No. 3906.

Above black; antennæ pale beneath; head white, with the crown black; thorax varied with white, the anterior portion with a white mark resembling a Roman V; scutellum and spots behind also white; wing scales black; abdomen above with a triangular white spot on the basal segment, and the other segments occasionally with a very narrow white margin, beneath whitish, variegated with black; legs pale, 4 anterior with a black streak, 2 posterior with the femora at the apex, the tibiæ and tarsi black; wings hyaline, the costa pale, nervures and stigma black.

The male is more slender, and has the hinder legs more elongated.

Variable, some examples being more variegated with white and black than others. I possess one example with only 2 submarginal areolets in the anterior wings.

Abundant at Darenth and Coombe woods, and in other places within the metropolitan district, in June; also found in Norfolk and in Scotland.

Sp. 2. *simulans.* *Supra nigra, capite thoraceque maculis, abdomine striis transversis anoque albis, subtus tota flava.* (Long. corp. $3\frac{1}{4}$ —4 lin.; Exp. Alar. $7\frac{1}{4}$ —8 lin.)

Te. (All.) *simulans.* *Klug.*—*Steph. Catal.* 336. No. 3907.

Above black; antennæ with the 2 basal joints pale beneath; head yellowish, with black spots; thorax black, spotted with yellowish-white, as in Te. Rapæ; collar and wing scales yellowish; abdomen with the 5 or 6 last segments edged with whitish-yellow above, and entirely yellow beneath;



legs yellow, with a slender black line on the apex of the femora and along the 4 anterior tibiæ and tarsi, the posterior tibiæ with a line at the base, and the apex black, having a yellow ring towards the tip; tarsi fuscous, 4 anterior ones palish at the base of the joints; wings hyaline, with the nervures and stigma fuscous.

The male has the legs scarcely streaked with black, and the pale markings predominate throughout.

Rather scarce: found at Darenth wood towards the end of June.

Sp. 3. antennata. *Supra nigra, capite thoraceque flavo variegatis, subtus tota flava.* (Long. corp. 4 lin.; Exp. Alar. 9—9½ lin.)

Te. (All.) antennata. *Klug.—Steph. Catal. 336. No. 3908.*

Above black; antennæ with a pale line beneath; head yellow, variegated with black; thorax black, varied with yellow as in the foregoing; collar and wing scales yellow, the latter black at the tip; abdomen black above, the sides and under part entirely yellow; legs pale yellow, the 4 anterior with a short black streak at the apex of the femora, and a fine line down the tibiæ and tarsi; posterior femora with a short black streak at the apex within; tibiæ with a black line, interrupted towards the apex; tarsi black above, with the base of the joints pale; spurs yellow; wings hyaline, very clear, white; nervures fuscous; stigma fuscous, with the base pale.

Male nearly similar, but the legs, especially the posterior, are darker.

Also rather scarce: found at Darenth wood, and in its vicinity, in June.

Sp. 4. variegata. *PLATE xxxviii. f. 3.—Supra nigra, flavo-varia, subtus flava, pectore maculâ utrinque nigra, femoribus tibiisque posticis rufis.* (Long. corp. 4½ lin.; Exp. Alar. 9½ lin.)

Te. (All.) variegata. *Klug.—Steph. Catal. 336. No. 3909.*

Black above; two basal joints of the antennæ pale; head yellow, varied with black on the crown; thorax black, or variegated with yellow, as in the foregoing species; collar black; wing scales yellow, black at the apex; abdomen with the margins of each segment above yellowish, the colour dilated triangularly in the middle of the back; 2 anterior legs pale yellowish, with a black dot at the apex of the femora, and a streak of the same on the tibiæ and tarsi; intermediate pale testaceous, with a similar spot and streak; posterior bright testaceous, the apex of the tibiæ and the tarsi black, the basal joint of the latter pale at its insertion; posterior coxæ large, with a black patch on their inner side; breast with a black spot on each side; wings hyaline, the nervures and stigma fuscous.

Apparently very scarce: I have a specimen that was taken at Darenth wood, and another found in Devonshire.



B. *Antennæ* moderate, rather stout; *hinder legs* not remarkably elongated.

a. Body more or less depressed.

Sp. 5. *nassata*. *Luteo-testacea, ore clypeoque luteis, dorso fusco vario, scutello hæcæque infra flavescentibus.* (Long. corp. 4—6½ lin.; Exp. Alar. 3½—12 lin.)

Te. *nassata*. *Linné.—Steph. Catal. 336. No. 3910.*

Testaceous, with a luteous tinge; mouth and clypeus pale luteous; thorax slightly ferruginous on the disc, which is occasionally varied with fuscous; scutellum and a line beneath yellowish; abdomen testaceous, with a blackish line at the base of the 2 or 3 basal segments, and sometimes some dusky dots down the back; legs testaceous, the coxæ sometimes varied with black; wings hyaline, with the nervures fuscous, stigma brownish, with the base pale.

The male has the 2 basal joints of the antennæ, and the disc of the thorax, variegated with black; the nervures of several of the basal segments of the abdomen are also frequently black.

Extremely abundant on flowers throughout the metropolitan district: common also in other parts of the country, during the end of June and beginning of July; also in Scotland.

Sp. 6. *melanorhæa*. *Luteo-pallida, vertice nigro variâ; thoracis disco fusco, scutello pallido, abdominis segmentis maculâ dorsali fuscâ.* (Long. corp. 5—6 lin.; Exp. Alar. 10—12 lin.)

Te. *melanorhæa*. *Gmelin.—Steph. Catal. 336. No. 3911.*

Pale luteous; crown of the head varied with black; disc of the thorax fuscous; scutellum pale, with a yellowish tinge; abdomen with a fuscous spot on the back of each segment, sometimes very broad, and forming transverse fasciæ; legs pale luteous, immaculate; wings hyaline, with pale nervures, the stigma dusky, with the base pale.

Not common; found within the metropolitan district in June.

Sp. 7. *Rubi*. *Ferrugineo-lutea, vertice, thoracis dorso abdominisque segmento 1-mo nigris.* (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Al. *Rubi*. *Panzer Faun. Ins. Germ. Init. xci. f. 14.—Te. Rubi. Steph. Nomen. 2d edit. col. 127.*

Rusty-luteous: antennæ with the 2 basal joints above blackish; crown black; thorax with the disc dusky, with 2 oblique pale streaks; abdomen with the basal segment black, the 2 following with black dorsal spots, the rest with a minute black dot on each side; femora striped with black above; wings hyaline, yellowish, with the nervures fuscous, the costa and stigma luteous.

Also scarce; found near London, and, I believe, in Norfolk, about the middle of June.

Sp. 8. *fulviceps*. *Nigra, capite luteo-fulvo, vertice nigro, labio scutelloque flavis,*



abdomine segmentis 3-tio ad 6-tam rufis, pedibus posticis fuscis. (Long. corp. 4 lin.; Exp. Alar. 9 lin.)

Te. fulviceps. *Steph. Nomen. 2d edit. Appendix.*

Black: antennæ pitchy beneath; head of a tawny-luteous, with the crown black; labrum yellow; scutellum and dots beneath also yellow; abdomen depressed, with the 3rd to the 6th segments bright unspotted red; anterior legs pale testaceous; posterior dusky, with black femora; sternum pitchy; wings hyaline, with fuscous nervures and stigma, the latter rather pale at the base.

Apparently very rare; I have a single example that was taken near Bristol.

Sp. 9. *ambigua. Nigra, antennæ abdomine brevioribus nigris, alis stigmatibus semialbo, scutello punctisque subscutellaribus albis, abdomine medio rufo.* (Long. corp. 5—5½ lin.; Exp. Alar. 9—9½ lin.)

Te. (All.) *ambigua. Klug.—Steph. Catal. 336. No. 3912.*

Black: antennæ pitchy beneath; mouth and orbits of the eyes luteous; thorax with the margins of the collar, a line in front, the scutellum, and a dot behind, luteous; abdomen with the 3rd, 4th, and the basal half of the 5th segments pale testaceous; femora black; hinder tibiæ yellowish, with black apex; the anterior tibiæ yellowish; wings hyaline, nervures and stigma brownish.

Common on flowers, in June, in the woods about London, especially at Darenth and its vicinity; found also in Scotland.

Sp. 10. *scutellaris. Nigra, abdominis medio pedibusque rufis, ore, scutello, orbitisque internis luteis, femoribus 2-bus posticis nigris.* (Long. corp. 5—5½ lin.; Exp. Alar. 10—11 lin.)

Te. *scutellaris. Fabricius.—Steph. Catal. 336. No. 3913.*

Black: antennæ testaceous, fuscous above; mouth, clypeus, inner orbits of the eyes, and the scutellum, luteous; abdomen with the 3rd to the 5th, and the base of the 6th segments red; legs testaceous-red, with the 2 hinder femora black; wings hyaline, with the nervures pale fuscous, the stigma darker, with its base pale.

The male has the intermediate segments of the abdomen of a dirty-testaceous, and the inusures black.

Not uncommon at Coombe wood, in June, and occasionally taken at Darenth and Birch woods.

Sp. 11. *Pavida. Nigra, abdominis segmentis 3-bus, pedibusque anticis testaceis, ore, scutello orbitisque internis albis, femoribus posticis nigris.* (Long. corp. 5½ lin.; Exp. Alar. 10½ lin.)

Te. *Pavida. Fabricius.—Steph. Catal. 336. No. 3914.*

Black: antennæ pitchy beneath; mouth, clypeus, and orbits of the eyes, white; scutellum also white; abdomen with the 3rd, 4th, and 5th segments



testaceous; 4 anterior legs pale testaceous; hinder pair with the femora black; tibiæ dull testaceous, and the tarsi fuscous; wings hyaline, fuscous-cent, with the nervures darker; stigma fuscous, pale at the base.

Male with the intermediate segments of the abdomen dull testaceous, obscurely clouded with dusky at the base of each.

Very abundant in the neighbourhood of the metropolis, frequenting flowers on the borders of woods and hedges, in June.

Sp. 12. *ornata*. *Nigra, abdominis segmentis 5-que testaceis lineâ dorsali punctorum nigrorum, ore luteo, collare scutelloque albidis; pedibus testaceis.* (Long. corp. 5—5½ lin.; Exp. Alar. 10—10½ lin.)

Te. *ornata*. *St. Fargeau.—Steph. Catal. 336. No. 3915.*

Black: antennæ pitchy beneath; clypeus luteous, with a black patch, labrum and base of the mandibles also luteous; collar and scutellum whitish; abdomen with the 3rd to the 7th segments testaceous, with a row of black spots down their centre; legs entirely testaceous; wings hyaline, with the nervures fuscous, and the stigma darker at the apex, pale at the base.

Apparently rare; taken in the vicinity of the metropolis, and near Dover, in the beginning of June.

Sp. 13. *neglecta*. *Nigra, abdomine segmentis 3-tio ad 6-tam testaceis, dorso plus minusve nigro, ore scutello orbitisque internis luteis, femoribus nigro-variis.* (Long. corp. 5—5½ lin.; Exp. Alar. 10—11 lin.)

Te. *neglecta*. *St. Fargeau Mon. 77.—Te. subinterrupta. Steph. Catal. 337. No. 3916.*

Black: antennæ pitchy beneath; mouth, clypeus, and inner orbits of the eyes pale yellow; collar, scutellum, and spot beneath luteous; abdomen with the 3rd to the 6th segments pale testaceous, more or less black on the back; legs pale testaceous, the femora more or less black at the base, the hinder pair and their tibiæ entirely so; posterior tarsi dusky at the base, pale towards the tip; wings hyaline, the stigma fuscous, pale at the base.

Not uncommon in the woods about London, and throughout the metropolitan district, in the beginning of June.

Sp. 14. *spretta*. *Nigra, ore, scutello orbitisque internis albis, abdomine segmentis 3-tio ad 6-tam subtus piceo-testaceis, supra piceo nigris.* (Long. corp. 5¼—5½ lin.; Exp. Alar. 10—10½ lin.)

Te. *spretta*. *St. Fargeau Mon. 78.—Steph. Nomen. 2d edit. Appendix.*

Black: antennæ pitchy beneath; mouth, clypeus, and inner orbits of the eyes whitish; scutellum and dots beneath yellowish; abdomen with the 3rd to the 6th segment beneath pitchy-testaceous, above pitchy-black; legs pale testaceous, with the 2 hinder femora brown, or dusky; wings hyaline, with the nervures pale fuscous, stigma the same, paler at the base.

Not very common; taken at Darenth wood in June.



Sp. 15. *tristis*. *Nigra, ore, collaris margine, orbitis, scutello et punctis scutellaribus margineque segmento 1-mo abdominis flavis, abdomine segmentis 3—5 utrinque macula testaceâ.* (Long. corp. 5—5½ lin.; Exp. Alar. 9—9½ lin.)

Te. *tristis*. *Mus. Marsham.—Steph. Catal. 337. No. 3917.*

Black: antennæ with a fuscous line beneath; mouth pale yellow; orbits and margin of the collar also the same; scutellum, 4 spots behind it placed tetragonally, and the margin of the 1st segment of the abdomen, bright yellow, the 3rd to the 7th segments with a more or less enlarged triangular testaceous spot on each side, most conspicuous on the 4th and 5th segments, beneath entirely pitchy; legs testaceous, the base of the intermediate femora, and the hinder ones entirely black; hinder tarsi fuscous; wings hyaline, with the nervures fuscous, and the stigma paler, with its base whitish.

Seemingly very scarce: I obtained a pair from the Marshamian collection, and others subsequently captured in the vicinity of London, in June: found also in Scotland.

Sp. 16. *labiata*. *Nigra, ore anticè scutelloque albis, abdominis segmentis 3-tio ad 7-ma testaceis, immaculatis.* (Long. corp. 5½ lin.; Exp. Alar. 9 lin.)

Te. *labiata*. *St. Fargeau Mon. 78.—Te. apicalis. Steph. Nomen. 2d edit. col. 128.*

Black: mouth white in front; clypeus black, sometimes with luteous spots towards the base; scutellum whitish; abdomen with the 3rd to the 7th segments bright, unspotted, testaceous; legs testaceous, the intermediate femora beneath and the hinder entirely black; posterior tibiæ and tarsi fuscous; wings hyaline, with fuscous nervures and stigma, the base of the last pale.

Scarce: I procured a pair from Mr. Bainbridge's collection, that occurred in the vicinity of London.

Sp. 17. *caliginosa*. *Atra nitida, ore, scutello et maculis subscutellaribus flavis, pedibus anticis tibiisque intermediis obscure testaceis.* (Long. corp. 5¼—6 lin.; Exp. Alar. 8½—11 lin.)

Te. *caliginosa*. *Steph. Catal. 337. No. 3918.*

Deep shining black: antennæ pitchy beneath; mouth, labrum, and clypeus bright yellow; scutellum and 4 dots beneath also yellow; anterior legs (except the extreme base of the femora) and intermediate tibiæ dull testaceous, the former palest in front, the rest of the legs black, with the hinder tibiæ somewhat pitchy; wings hyaline, with the nervures and stigma pale fuscous, the base of the latter white.

Not very uncommon within the metropolitan district in June.

Sp. 18. *microcephala*. *Nigra, nitida, clypeo labro mandibulisque albidis, palpis pedibusque testaceis, orbitis internis tenuè albis.* (Long. corp. 5—6 lin.; Exp. Alar. 10—11 lin.)



Te. microcephala. *St. Fargeau Mon.* 80.—*Faun. F. pl.* 4. f. 1.—Te. fulvipes. *Steph. Catal.* 337. No. 3920.

Shining black: clypeus, labrum, and mandibles whitish; palpi testaceous; scutellum whitish; abdomen entirely black; legs bright testaceous, with the hinder tarsi fuscous; wings hyaline, with the nervures and stigma fuscous, the latter pale at the base.

Taken, not very commonly, at Darenth wood in June; also found in Scotland.

Sp. 19. ignobilis. *Nigra, ore flavo, abdominis segmentis 3-tio 4-to et 5-to, pedibusque rufis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 10—11 lin.)

Te. ignobilis. *Klug?*—*Steph. Catal.* 337. No. 3921.

Black: labrum, clypeus, and mandibles yellow, the tip of the last brown; scutellum pale; abdomen with the 3rd, 4th, and 5th segments clear red; legs also red, the coxæ black, the apex of the hinder tibiæ and their tarsi sometimes dusky; wings hyaline, with the nervures dusky, and the stigma brownish.

The 5th segment of the abdomen is sometimes dusky at the apex above, or entirely black.

Not very common; found at Darenth and Birch woods, in June.

Sp. 20. Coquebertii. *Nigra, antennis abdomine subbrevioribus nigris, alis stigmatem semialbo scutello punctisque subscutellaribus albis, abdomine rufo, basi nigra.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 8—9 lin.)

Te. Coquebertii. *Klug.*—*Steph. Catal.* 337. No. 3919.

Black: antennæ somewhat shorter than the abdomen; labrum, clypeus, and base of the mandibles white, apex of the last brown; scutellum and dots behind white; abdomen with the 2 basal joints black, the rest red; legs red-brown, intermediate dusky, hinder ones black; wings hyaline, with the nervures fuscous; stigma fuscous, with the base white.

Apparently rare: I have a specimen that was caught at Darenth wood at the end of June.

Sp. 21. dimidiata. *Nigra, ore, scutello et maculis subscutellaris flavo-albidis, abdominis apice pedibusque rufis.* (Long. corp. 6—7 lin.; Exp. Alar. 11—12½ lin.)

Te. dimidiata. *Fabricius.*—*Steph. Catal.* 337. No. 3923.

Black: mouth and clypeus whitish-yellow; scutellum and 4 spots behind also yellowish; abdomen with the 2 basal segments black, the remainder bright testaceous-red; legs testaceous-red, with the posterior tarsi fuscous; wings hyaline, with the nervures fuscous, stigma the same, pale at the base.

Male with the hinder legs black, and with a faint white line on the inner orbits of the eyes.

Common within the metropolitan district in June.



Sp. 22. analis. *Nigra, ore, orbitis internis, scutello et maculis scutellaribus flavis, abdominis apice pedibusque rufis.* (Long. corp. 6—7 lin.; Exp. Alar. 11—12 lin.)

Te. analis. *Steph. Catal. 337. No. 3922.*

Black: mouth, inner orbits of the eyes, the scutellum, and 4 dots behind pale yellow; abdomen with the 3 or 4 basal segments black, the remainder dull testaceous; legs red; the base of the femora and the hinder tarsi dusky; wings hyaline, with the nervures and stigma brownish, the last pale at the base.—This may be an extreme variety of the preceding.

Also common within the metropolitan district in June.

Sp. 23. femoralis. *Nigra, ore, orbitis internis, scutello et maculis subscutellaribus flavis, abdominis apice pedibus anticis et tibiis intermediis rufotestaceis.* (Long. corp. 6½ lin.; Exp. Alar. 11 lin.)

Te. femoralis. *Steph. Nomen. 2d edit. col. 128.*

Black: mouth, inner orbits of the eyes, scutellum, and spots behind the last yellow; abdomen with the 4 basal segments glossy black, the remainder bright testaceous-red; anterior legs entirely testaceous; intermediate with the femora black, and the tibiæ and tarsi red; posterior totally black; wings hyaline, with fuscous nervures and stigma, the last pale at the base.

Taken near London, and at Dover, in June: not common.

b. Body more or less cylindric.

Sp. 24. socia. *Nigra, palpis, alarum squamis abdomine (basi excepto) pedibusque luteis, alis subhyalinis.* (Long. corp. 3½ lin.; Exp. Alar. 6 lin.)

Te. (All.) socia. *Klug.—Steph. Catal. 337. No. 7924.*

Head, antennæ, and thorax black; palpi and wing scales bright luteous; abdomen with the 2 basal segments black above, the rest, and the edge of the second segment, and all beneath bright luteous; legs also entirely bright luteous; wings somewhat hyaline, with the nervures fuscous, the stigma slightly testaceous; in the 2nd submarginal areolet is a black dot.

Very rare: found near London in June.

Sp. 25. Geeri. *Lutea, abdominis dorso verticeque fusco, alis stigmatibus pallide testaceo.* (Long. corp. 3½ lin.; Exp. Alar. 7 lin.)

Te. (All.) Geeri. *Klug.—Steph. Catal. 337. No. 3925.*

Pale luteous: tip of the mandibles, eyes, crown, and ocelli black; thorax with a black patch in front; metathorax black on the sides; abdomen slightly depressed, with the basal segments more or less fuscous at the base of each on the back; the apical ones clear; under surface and legs totally pale luteous.

The male has the thorax immaculate anteriorly, and the body cylindric.

Taken at Coombe wood, at the end of May, apparently very rare.

Sp. 26. cingulata. *Nigra, antennis articulis 2-bus basi rufis abdomine segmentis, primo excepto, margine flavis.* (Long. corp. 5 lin.; Exp. Alar. 9 lin.)



Te. cingulata. *Fabricius.*—*Steph. Catal.* 337. No. 3927.

Black: antennæ with the 2 basal joints pale rufous; palpi pale; wing scales pale luteous; abdomen rather pitchy, with all but the basal segment distinctly edged with pale yellow; legs pale, with the base of the femora black; that of the tibiæ whitish-yellow, and the tarsi dusky; wings hyaline, slightly lutescent, the nervures, costa, and stigma yellowish, the latter with a brownish tinge: in the second submarginal areolet is a dusky dot, situated posteriorly.

Extremely abundant within the metropolitan district, especially at Coombe wood, in the beginning of June; but, although I have taken it in the last locality by hundreds, I have not seen the male, which—so far as I can make out by his German account—appears to be the case with Klug.

Sp. 27. *xanthocera.* *Nigra, antennis luteis apice nigris, abdomine segmentis, 1-mo excepto, margine flavo-albidis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Te. xanthocera. *Steph. Catal.* 337. No. 3926.

Black: antennæ luteous, the 3 apical joints black; palpi pale; labrum and mandibles brown, the latter black at the tip; scales of the wings yellow; abdomen deep black, with all but the basal segment rather broadly edged with yellowish-white; legs pale testaceous, the tip of the hinder femora and base of the tibiæ whitish; the 4 posterior femora black at the base; wings hyaline, yellowish, with the nervures, costa, and stigma darker: in the middle of the second submarginal areolet is a brownish dot.

Taken near London, in June, but rare.

Sp. 28. *atricornis.* *Nigra, abdomine subdepresso segmentis, 1-mo excepto, margine tenuissime pallidis, pedibus flavescentibus, femorum basi nigris.* (Long. corp. 5 lin.; Exp. Alar. 9 lin.)

Te. atricornis. *Steph. Catal.* 337. No. 3928.

Black: palpi reddish; wing scales luteous; abdomen somewhat depressed, pitchy, with all but the basal segment narrowly edged with very pale yellowish-white; legs pale yellowish, the base of the tibiæ whitish, and of the femora black; wings hyaline, the nervures fuscous, and the costa and stigma brownish: towards the apex of the second submarginal areolet is a minute blackish dot.

Also found near London, but rarely, in June.

GENUS XXII.—DOSYTHEUS, *Leach.*

Antennæ 9-jointed, filiform, moderately long, the 2 basal joints short and rather stoutest, 3rd considerably longer than the 4th, which is scarcely longer than the 5th, that and the remainder scarcely diminishing in length and thickness to the apex, the terminal joint being rather the shortest: *mandibles* emar-
MANDIBULATA, VOL. VII., AUG. 31ST, 1835. f



ginate; *labrum* rounded; *clypeus* deeply notched: *head* broad, produced between the antennæ: *eyes* a little prominent: *ocelli* 3: *wings* rather short; anterior with 2 marginal areolets, divided by a straight nervure, and 3 sub-marginal ones, the 1st small, somewhat rounded; 2nd longest, and narrow, receiving 3 recurrent nervures; 3rd broad, extending to the apex of the wing: *abdomen* rather short and stout, depressed and obtuse in the males, somewhat carinated and acute in the females; colours generally bright; *legs* simple, short; posterior *tibiæ* with a pair of spurs at the apex only.

The same remark, as to the relative proportion of the 3rd and 4th joints of the antennæ, will apply to one or two of the species of this genus and of *Dolerus*, but like the two foregoing there is considerable diversity of habit between the respective insects, the *Dosythei* invariably having the middle of the abdomen red, contrasted with black, whereas the *Doleri* have that part entirely black, and the sexes are scarcely dissimilar to each other, as in *Dosytheus*. I shall therefore follow Leach in considering them distinct, a consideration borne out by a slight modification of the trophi in the two genera.

Sp. 1. *Eglanderæ*. *Rufus, capite pectore pleuris (maris thorace toto) abdominisque* 1-mo segmento (*in mare, et apice*) *nitido nigris, pedibus anterioribus luteis, posticis nigris, tibiis luteis, alis subnigricantibus.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{3}{4}$ — $8\frac{1}{2}$ lin.)

Te. (Dole.) *Eglanderæ*. *Klug.*—*Dos. Eglanderæ. Steph. Catal.* 337. No. 3920. Head and thorax finely punctured, the former black, and the last red in the female, but black in the male; abdomen red, with the basal segment, and a spot on the 8th, black; anterior legs dull testaceous, with the tarsi dusky; posterior black, with the tibiæ pale luteous; wings somewhat blackish, or deep fuscous, with the nervures and costa black.

Taken at Darenth wood, and at Coombe, in June and July, but not common.

Sp. 2. *anticus*. *Niger, thorace antico abdomineque basi exceptâ rufis, alis hyalinis.* (Long. corp. 5— $5\frac{1}{2}$ lin.; Exp. Alar. 10— $10\frac{1}{2}$ lin.)

Te. (Dole.) *antica. Klug Blattw.* 232.—*Dole. ferrugatus. St. Fargeau Mon.* 122.—*Dos. ferrugatus. Steph. Nomen.* 2d edit. col. 128.

Dull black, slightly pubescent; head and thorax finely punctured, the last with a large triangular lobate spot in front ferruginous, leaving the sides and the rest of the disc black; abdomen pale ferruginous, with the extreme base of the 1st segment black, the rest of it dusky; legs entirely black; wings hyaline, with the nervures and stigma black.

Taken at Ripley, and near Hertford, in June.

Sp. 3. *lateritius*. *Rufus, capite, pectore, scutello pedibusque nigris, alis hyalinis.* (Long. corp. 5— $5\frac{1}{2}$ lin.; Exp. Alar. 10—11 lin.)



Te. (Dole.) lateritius. *Klug.*—*Dos. lateritius.* *Steph. Catal.* 337. *No.* 3929. Head black, punctured; thorax also punctured, rufous, with the extreme hinder portion and the scutellum black; abdomen rufous; legs totally black; antennæ shorter than the abdomen, black; wings hyaline, with a slight fuscous cloud, the nervures and costa deep black.

Rather scarce: found in the marshy places near the village of Darenth, and also on the banks of the canal near Sydenham, in June.

Sp. 4. hyalinalis. *Niger, collare thoracque supra rufis, abdomine flavo, 1-mo segmento atro, pedum anteriorum genubus rufis, alis hyalinis.* (*Long. corp.* 4 lin.; *Exp. Alar.* 7—7½ lin.)

Se. hyalinalis. *Steph. Nomen.* 2d edit. col. 128.

Head and antennæ black, the latter short; thorax with its disc above and the collar bright red; scutellum black; abdomen with its basal segment black, the next clear yellow, in the males, with the 3 terminal joints black; legs black, anterior pair with the knees and in front testaceous, intermediate with the knees only testaceous, posterior entirely black; wings hyaline, very clear, with the nervures and stigma black.

Not common; taken at Hertford in June.

Sp. 5. fulviventris. *Niger, thorace supra antice abdomincque ferrugineis, hoc segmento 1-mo basi nigro, genubus anticis ferrugineis.* (*Long. corp.* 4 lin.; *Exp. Alar.* 8 lin.)

Te. fulviventris. *Scopoli.*—*Dos. fulviventris.* *Steph. Catal.* 337. *No.* 3932.

Black: thorax in front to the middle of the disc bright ferruginous, the rest black; abdomen bright ferruginous, with the base of the 1st segment black; legs black, the 4 anterior knees ferruginous; wings fuscous, with the nervures and stigma black; antennæ slender, shorter than the abdomen.

Not very common in the vicinity of the metropolis in June, at Coombe wood, &c.

Sp. 6. Bajulus. *Niger, abdominis apice, collare et thorace antice rufo-ferrugineis, in hac macula nigra.* (*Long. corp.* 4½ lin.; *Exp. Alar.* 8½ lin.)

Dole. Bajulus. *St. Fargeau Mon.* 121.—*Dos. Bajulus.* *Steph. Nomen.* 2d edit. col. 128.

Head and thorax finely punctured, the former black, the last with its sides, scutellum, and portion beneath also black, the anterior part ferruginous-red, with a triangular black patch in the middle of the marginal front; abdomen bright ferruginous, with the basal segment black; legs black, the femora ferruginous at the apex; wings hyaline, with the nervures black.

Taken in June at Darenth wood, and in Norfolk.

Sp. 7. xanthopus. *Rufo-ferrugineus, capite, antennis, metathorace, scutello, pectore, abdominis segmento 1-mo, femorumque posteriorum basi nigris.* (*Long. corp.* 4½ lin.; *Exp. Alar.* 8 lin.)



Dos. xanthopus. *Steph. Catal.* 337. No. 3933.

Head and antennæ black; thorax bright ferruginous, with the metathorax, scutellum, and breast black; abdomen ferruginous, its basal segment black; femora bright rufous, the 2 hinder pair with the base more or less black; tibiæ also bright rufous, their apex dusky; tarsi dusky; wings hyaline, with the nervures, costa, and stigma black.

Taken at Hertford in June.

Sp. 8. triplicatus. *Rufo-ferrugineus, capite, sterno, thoracis dorso maculis 3-bus, pedibusque nigris, alis hyalinis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. $10-10\frac{1}{2}$ lin.)

Te. (Dole.) triplicatus. *Klug Blattw.* 233.—Dole. 3-maculatus. *St. Fargeau.*

—Dos. 3-maculatus. *Steph. Catal.* 337. No. 3931.

Head and thorax punctured, the former black; the latter rusty-red, with 3 dorsal spots, placed 1 in front, and 1 on each side; the antennæ also black; abdomen ferruginous, with a spot at the extreme apex beneath black; legs black; antennæ the same; wings hyaline, with black nervures and stigma, their basal scales rufous.

Found in the neighbourhood of the metropolis about the middle of June.

Sp. 9. madidus. *Antennis abdomine longioribus, niger, subpubescens, abdominis medio flavo.* (Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Dole. madidus. *Klug Blattw.* 233.—Dos. madidus. *Steph. Nomen.* 2d edit. col. 128.

Dull black, slightly pubescent; mandibles brown at the apex; abdomen with the 2nd to the 5th segments bright or reddish yellow, the remainder black; legs dull black, with a whitish pubescence; wings hyaline, dusky at the tips; nervures and stigma black; antennæ longer than the abdomen.

Found at Darenth wood in June, and near Windsor.

Sp. 10. timidus. *Antennis abdomine brevioribus, capite thoraceque subtilissime punctatis, niger, abdominis medio tibiisque rufis.* (Long. corp. 6 lin.; Exp. Alar. 11 lin.)

Te. (Dole.) timidus. *Klug.*—Dos. timidus. *Steph. Catal.* 338. No. 3935.

Black: head and thorax finely punctured; abdomen with the 2 basal segments black, the 3 following red, the remainder black; legs red, the base of the femora, and of the hinder tibiæ, and the tarsi black; wings hyaline, nervures fuscous; antennæ shorter than the abdomen.

The male has the apex of the 5th segment of the abdomen black.

Taken at Coombe wood in July, but rarely; also in Hants.

Sp. 11. Junci. *Niger, abdominis medio luteo, pedum tibiis testaceis, alis hyalinis.* (Long. corp. $3\frac{1}{2}-4$ lin.; Exp. Alar. $6\frac{1}{2}-8$ lin.)

Dos. Junci. *Steph. Catal.* 337. No. 3934.

Black: head and thorax finely punctured; abdomen with the 2nd to the 6th segments bright luteous, the rest black; anterior legs testaceous, with the



base of the femora black, intermediate and posterior black, with the tibiæ testaceous; antennæ shorter than the abdomen, black; wings somewhat hyaline, rather dusky, with the nervures and stigma fuscous.

Taken in Devonshire, and near Windsor, in June.

Sp. 12. *tristis*. *Antennis abdomine brevioribus, capite thoraceque subtilissime punctatis, niger, abdominis medio alarum squamis pedumque anteriorum tibiis totis, posticorum apice rufis.* (Long. corp. $4\frac{3}{4}$ lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Te. *tristis*. *Panzer*.—*Dos. tristis*. *Steph. Catal.* 338. No. 3936.

Black: head and thorax finely punctured; abdomen with the 2nd to the 5th segments testaceous-red; 4 anterior femora black, their tips, the tibiæ and basal joints of the tarsi testaceous; the base of the hinder tibiæ also testaceous, the rest of the legs and of the tarsi black; wings hyaline, with the nervures black, their scales rufous; antennæ shorter than the abdomen.

Apparently rare: taken in June, near Dover, and in Devonshire.

Sp. 13. *dubius*. *Antennis abdomine brevioribus, capite thoraceque subtilissime punctatis, niger, abdominis medio pedibusque anterioribus rufis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 11 lin.)

Dole. *dubius*. *Klug*.—*Dos. dubius*. *Steph. Nomen.* 2d edit. col. 128.

Black: head and thorax very finely punctured; abdomen with the 2nd to the 5th segments, and the base of the 6th, bright testaceous-red; the remainder black; the anterior legs at the base, and the 4 hinder ones, entirely red; the tip of the anterior femora and their tibiæ and tarsi red; wings hyaline, dusky at the apex; nervures and stigma black; antennæ shorter than the abdomen.

Found, though rarely, in July, in the vicinity of London.

Sp. 14. *fuscipennis*. *Niger nitidus, abdominis medio rufo, alis nigricantibus.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{4}$ lin.)

Dos. fuscipennis. *Steph. Nomen.* 2d edit. *Appendix*.

Head, thorax, legs, and antennæ entirely deep glossy black, with a delicate whitish pubescence; abdomen the same, with the 3rd, 4th, and 5th segments bright red; wings somewhat hyaline, blackish, with the nervures and stigma deep black.

Found in the south of Scotland.

GENUS XXIII.—DOLERUS, *Leach*.

Antennæ rather short and stout, 9-jointed, the 2 basal joints short, and somewhat more robust; 3rd and 4th long, and equal in length, 5th and remainder gradually shortening and diminishing in length, the terminal one being a little attenuated at the apex, and about half as long as the 3rd: *mandibles* 4-dentate: *head* broad: *eyes* rather prominent: *ocelli* 3: *wings* ample, anterior long, with 2 marginal areolets, divided by a straight nervure, the



basal one longest, the 2nd nearly triangular, and 3 submarginal areolets, the 1st small and rounded, 2nd very long, curved and receiving 2 recurrent nervures; 3rd extending to the apex: *abdomen* rather stout, never fasciated with bright colours, elongate in the males, and somewhat cylindric; more robust, and acute at the apex in the females: *legs* shortish, with 2 short, acute, spurs at the apex of the tibiæ only. Larva with 16 prolegs.

As before alluded to, the insects of this genus may be known from the *Dosythei* by the abdomen being always black, or having tints of that colour, and never fasciated with red or yellow in the middle, a character invariably present in the *Dosythei*, which, although the structure of the antennæ may not in all cases be sufficient to distinguish the two genera, will at once enable the reader to discriminate them from each other: and from *Emphytus* the small, rounded, 1st submarginal areolet, is a conspicuous mark of distinction.

Sp. 1. *hæmatodes*. *Corpore nigro-cyaneo, micante, apice cano pubescente, collare sanguineo*. (Long. corp. $4\frac{1}{2}$ —5 lin.; Exp. Alar. 9—10 lin.)

Te. *hæmatodes*. *Schränk.*—Dol. *hæmatodes*. *Steph. Catal.* 338. No. 3937.—
Te. *collaris*. *Donovan, v. xiii. pl. 441. f. 1.*

Deep black, with a slight hoary pubescence, thickest at the apex of the abdomen, which has a blue gloss, and the exterior edges of the segments occasionally whitish; collar bright red; wings hyaline, with black nervures and stigma.

Not uncommon towards the middle of June at Darenth wood, and found also in Norfolk.

Sp. 2. *Anthracinus*. *Antennis abdomine brevioribus, capite thoraceque punctatis; ovatus, aterrimus*. (Long. corp. 4 lin.; Exp. Alar. 9 lin.)

Te. (Dol.) *Anthracinus*. *Klug.*—*Steph. Catal.* 338. No. 3938.

Ovate: body black, clothed with a delicate ashy pubescence; head and thorax strongly punctured, deep black; antennæ shorter than the abdomen; mandibles black; abdomen and legs also black; wings hyaline, the nervures, costa, and stigma black; tubercles of the metathorax pale.

Apparently very rare, taken in June at Darenth wood.

Sp. 3. *niger*. *Antennis longitudine abdominis, capite thoraceque punctatis, niger lateribus apiceque cano-subpubescens, abdomine segmentis margine subpellucidis*. (Long. corp. 4—5 lin.; Exp. Alar. 8—11 lin.)

Te. *nigra*. *Linné.*—Dol. *niger*. *Steph. Catal.* 338. No. 3939.

Deep black, with a fine hoary pubescence, especially on the sides and apex of the abdomen, the segments of which are slightly pellucid on their extreme edges; head and thorax punctate; mandibles brown at the tip; antennæ as long or longer than the abdomen; wings hyaline, with the nervures, costa, and stigma black.

Not very common; found at Darenth wood in June.



Sp. 4. *coracinus*. *Antennis abdomine brevioribus, ovatus, cyaneo-niger, nitidus, alis hyalinis*. (Long. corp. 4—4½ lin.; Exp. Alar. 8—8½ lin.)

Te. (Dol.) *coracinus*. *Klug.—Steph. Catal. 338. No. 3941.*

Ovate, shining, bluish-black; head and thorax punctate; mandibles black; metathoracic tubercles whitish; wings hyaline, the nervures and stigma brownish-black; antennæ somewhat shorter than the abdomen, which has a rich gloss.

Not uncommon at Darenth wood and near Dover, about the middle of June.

Sp. 5. *fumosus*. *Antennis longitudine abdominis, niger, subpubescens, abdomine segmentis margine haud pellucidis, alis infumatis*. (Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Dol. *fumosus*. *Steph. Catal. 338. No. 3940.*

Deep black, with a slightly ashy pubescence; antennæ as long or longer than the abdomen, which is entirely black; mandibles black; metathoracic tubercles pale or white; wings hyaline, fuscous, with the nervures and stigma brownish-black.

Scarce; taken in June at Hertford.

Sp. 6. *palmaris*. *Antennis abdomine brevioribus, niger, subtus apiceque cano-pubescens, pedum anticorum tibiis antice testaceis, alis hyalinis*. (Long. corp. 4 lin.; Exp. Alar. 8½ lin.)

Te. (Dol.) *palmaris*. *Klug.—Steph. Catal. 338. No. 3942.*

Black, with a slight hoary pubescence beneath, and at the apex of the abdomen; this last has a conspicuous irregular white patch on the basal segment; the tips of the anterior femora and the anterior tibiæ, especially in front, are pale testaceous, the rest of the legs black; metathoracic tubercles white; antennæ shorter than the abdomen; wings hyaline, with the nervures and stigma black.

The male has an ovate white spot on the 5th segment of the abdomen, and sometimes a minute dot of the same colour on the margin of all the preceding segments.

Also rather scarce; found at Hertford in June, and at Darenth wood.

Sp. 7. *picipes*. *Niger, subtus apiceque cano pubescens, antennis pedibusque nigro piceis, alis albo-hyalinis stigmate margine dilutioni*. (Long. corp. 3½ lin.; Exp. Alar. 7½ lin.)

Te. (Dol.) *picipes*. *Klug.—Steph. Catal. 338. No. 3943.*

Black: head and thorax finely punctate; antennæ pitchy-black, shorter than the abdomen; mandibles brown at the tip; metathoracic tubercles whitish; legs pitchy-black, with the knees paler; wings hyaline, whitish, with the nervures pale; stigma brownish, with the edges paler.

Not common; found near London, in Epping Forest, August 1792.



Sp. 8. gonager. *Niger, nitidus, femoribus apice tibiisque basi luteo-testaceis.*
(Long. corp. 4—5 lin.; Exp. Alar. $8\frac{1}{2}$ — $9\frac{1}{2}$ lin.)

Te. gonagra. *Fabricius*.—Dol. gonager. *Steph. Catal.* 338. No. 3244.

Shining black, clothed with a thickish pubescence; head and thorax finely punctured; all the femora at the apex, and the tibiæ at the base, bright testaceous; metathoracic tubercles white; wings hyaline, with the nervures and stigma black, slightly tinted with fuscous towards the apex.

Abundant throughout the metropolitan district towards the end of June; found also at Dover, and in Norfolk and Scotland.

Sp. 9. vestigialis. *Niger, nitidus, femoribus totis, tibiis basi, luteis, alis hyalinis.*
(Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Te. (Dol.) vestigialis. *Klug*.—*Steph. Catal.* 338. No. 3915.

Shining black, clothed with a faint whitish pubescence; head and thorax finely punctured, the former rather small in proportion; femora entirely luteous, and the extreme base of the tibiæ the same; the rest of the tibiæ and the tarsi black; metathoracic spots white; wings hyaline, with fuscous nervures and black stigma.

Male with the tibiæ, except the apex of the hinder ones entirely rufous.

Rare; I have taken it at Coombe wood in June, and obtained it from Birch wood.

GENUS XXIV.—EMPHYTUS, *Leach*.

Antennæ filiform, 9-jointed, basal joint somewhat robust, 2nd small, 3 following nearly of equal length, more slender than the foregoing, the remainder gradually diminishing in length and thickness, the terminal joint ovate: *labrum* somewhat orbicular: *head* transverse: *eyes* prominent: *ocelli* 3: *thorax* ovate, subconvex: *wings* rather short, anterior with 2 marginal and 3 submarginal areolets, the former divided by a slightly curved nervure; of the others, the 1st is elongate, somewhat linear and bent, receiving 1 recurrent nervure; the 2nd short, nearly triangular, receiving 2 recurrent nervures; the 3rd extending to the tip of the wings: *abdomen* rather long, somewhat cylindric, obtuse in the males; rather depressed, broad and carinated in the females; *legs* slender; *tibiæ* with a pair of short spurs at the apex only. Larvæ with 16 prolegs.

This genus differs from the 2 foregoing, which have only 3 submarginal areolets in the anterior wings, by having the 1st considerably elongated, and the 2nd small; it also differs much in habit, and the species are often adorned with lively colours; the wings are rather short in proportion to the body: the sexes frequently vary considerably from each other.



Sp. 1. succinctus. *Niger, abdominis cingulis duobus anoque albis, pedibus albo variis, antennis apice rufescentibus.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Te. (Em.) cincta. *Klug.*—*Steph. Catal.* 338. No. 3246.

Black: apical half of the antennæ reddish; labrum ferruginous on its edges; abdomen with the basal segment, the apex of the 5th, and the terminal one above white; femora black; the extreme tip, and sometimes base, with the tibiæ white, the apex of the hinder ones black; tarsi reddish-white; wings hyaline, with a fuscous patch at the apex, their basal scales white.

Not uncommon, in June and July, throughout the metropolitan district; also found in Devonshire, and near Bristol.

Sp. 2. cingulatus. *Niger, ore, collaris margine, squamis, abdominis segmento 5-to, genubusque albis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Dol. cingulatus. *St. Fargeau Mon.* 117.—Em. cingulatus. *Steph. Nomen.* 2d edit. *Appendix.*

Black: mouth, margins of the collar, wing scales, metathoracic tubercles, a triangular spot at the base of the abdomen, the 5th segment of the last both above and below, the 4 anterior femora, with their coxæ, the base of the posterior and of all the tibiæ white; the 4 anterior femora with a faint black line above, and the middle of the posterior also black; rest of tibiæ pale testaceous; tarsi brownish; wings hyaline, nervures and stigma fuscous, the last pale at the base.

Taken at Hertford in July.

Sp. 3. perla. *Niger, capitis clypeo, collare, alarumque squamis albis, pedibus pallidis, abdomine macula dorsali luteâ, medio subtus testaceo.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 5 — $5\frac{1}{2}$ lin.)

Te. (Em.) perla? *Klug.*—*Steph. Nomen.* 2d edit. *Appendix.*

Black: clypeus, collar, wing scales, and metathoracic tubercles white; abdomen with a yellowish triangular spot at the base of the 1st segment above, and the 4th and 5th segments beneath testaceous; legs pale, the hinder femora black towards the apex; tibiæ reddish-brown towards the tip; tarsi also dusky above; wings hyaline, nervures, costa, and stigma brown.

Probably the male of the foregoing species.

Also found at Hertford, in June.

Sp. 4. cinctus. *Niger, abdomine (in fæminâ) fasciâ albâ, tibiis rufescentibus (in fæminâ) basi albis.* (Long. corp. 4 lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Te. cincta. *Linné.*—Em. cinctus. *Steph. Catal.* 338. No. 3947.

Black: metathoracic tubercles, triangular spot at the base of the abdomen, and the 5th segment of the latter above and its sides white; femora black, their apex white; tibiæ reddish, with the base white; tarsi also reddish; wings hyaline, nervures and stigma brown-black, the costa and base of the last yellowish.

The male wants the white fascia on the abdomen, and the base of the posterior tibiæ is not white.



The hinder coxæ and trochanters are sometimes white, and the base of the 5th segment of the abdomen black.

Common towards the end of May, and in June and July, in woods and gardens throughout the metropolitan district; also taken near Bristol.

Sp. 5. *togatus*. *Niger, alarum squamis abdominisque fascia (in femina) albis, pedibus anterioribus totis posticorum tibiis rufescentibus, his basi albis.* (Long. corp. $4\frac{1}{2}$ —5 lin.; Exp. Alar. $6\frac{1}{2}$ —7 lin.)

Te. *togata*. *Fabricius*.—Em. *togatus*. *Steph. Catal.* 338. No. 3948.

Black: wing scales, metathoracic tubercles, triangular spot at the base of the abdomen, and the 5th segment of the abdomen above white; legs reddish, the middle and posterior femora black, the base of the latter and of their tibiæ white, tarsi brownish; wings hyaline, nervures and stigma dull brown, base of the last pale.

The male wants the white fascia on the 5th segment of the abdomen, and has the legs entirely rufous.

Less abundant than the last; found at Darenth wood in June and July.

Sp. 6. *melanarius*. *Niger, pedibus rufis, solis capitulis albis, alarum stigmatibus semialbo.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{4}$ lin.)

Te. (Em.) *melanarius*. *Klug*.—*Steph. Catal.* 338. No. 3949.

Black: antennæ slender and rather short; the tip of the mandibles brown; metathoracic tubercles white; legs red, pale at the tip, the base of the hinder femora black; tarsi dusky; wings hyaline, the nervures and tip of the stigma brown, base of the last white.

Rare: found at Darenth wood in July.

Sp. 7. *didymus*. *Niger, pedibus totis rufescentibus, alis stigmatibus semi-pallido.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

Te. (Em.) *dieymus*. *Klug Blattw.* 220.—*Steph. Nomen.* 2d edit. Appendix.

Black: antennæ rather short and thick; metathoracic tubercles white; legs black at their base, the apex of the femora, the tibiæ and tarsi pale red; wings hyaline, with their tips and the latter dusky, the anterior ones brightest, with the nervures and apex of the stigma fuscous, the base of the last pale.

Also rare: taken at Birch wood in June.

Sp. 8. *filiformis*. *Niger, pedibus alarumque costa luteis, stigmatibus fusco, squamis albis.* (Long. corp. 4 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Te. (Em.) *filiformis*. *Klug*.—*Steph. Catal.* 339. No. 3957.

Black, with a dark pubescence; metathoracic tubercles pale testaceous; wing scales whitish; wings hyaline, the costa yellow, nervures yellowish



at the base, fuscous at the tip, the stigma of the latter colour; legs dull luteous, with the tips of the tibiæ and the tarsi dusky.

Not very uncommon. found in June and July at Darenth wood.

Sp. 9. tibialis. *Niger, pedum femoribus luteis, tibiis basi antennæ ante apicem albis.* (Long. corp. 4—5 lin.; Exp. Alar. 8—9 lin.)

Te. tibialis. *Panzer.*—Em. tibialis. *Steph. Catal.* 339. No. 3958.

Black: wing scales and metathoracic tubercles yellowish; femora bright testaceous, or luteous, 4 anterior dusky at the base; tibiæ testaceous, broadly white at the base, posterior black at the apex; hinder tarsi also black; wings hyaline, with the nervures fuscous, stigma blackish; antennæ with the 6th to the 8th joints white.

Not uncommon, in June and July, at Darenth and Coombe woods: found also near Bristol, and in Scotland.

Sp. 10. rufocinctus. *Niger, abdomine rufo-fasciato, pedum tibiis tarsisque luteis, condylis albis.* (Long. corp. $4\frac{1}{2}$ — $5\frac{1}{2}$ lin.; Exp. Alar. 7—8 lin.)

Te. (Em.) rufocinctus. *Klug.*—*Steph. Catal.* 339. No. 3950.—Em. fasciatus. *Curtis, v. x. pl.* 436 ♀.

Black: metathoracic tubercles and wing scales white; mouth brownish; abdomen with the 4th and 5th segments and the base of the 6th orange-red, and (in one of my specimens) 2 spots, of the same colour, at the base of the 3rd; apex of anterior and intermediate femora, and of the posterior coxæ and their hinder trochanters entirely white; tibiæ and tarsi testaceous, the latter rather dusky; wings hyaline, with the nervures and stigma brown-black.

Taken at Darenth wood and near Bristol in June; also at Glanvilles' Wootton.

Sp. 11. calceatus. *Niger, abdominis medio pedibusque luteis, femoribus basi nigris.* (Long. corp. 4—5 lin.; Exp. Alar. $6\frac{1}{2}$ —7 lin.)

Te. (Em.) calceatus. *Klug.*—*Steph. Catal.* 332. No. 3951.

Black: mandibles brown at the tip; metathoracic tubercles white; abdomen with the 4th and 5th segments bright orange-red; femora all black at the base; the apex with the tibiæ and tarsi orange-red, the latter dusky above and at the tip; wings hyaline, with the nervures and stigma fuscous, the base of the last pale.

Found at Darenth and Birch woods, and near Bristol and Dover, in July; also in Battersea fields.

Sp. 12. serotinus. *Niger, abdomine pedibusque flavis, alarum squamis subtectis.* (Long. corp. 4— $4\frac{1}{2}$ lin.; Exp. Alar. 8— $8\frac{1}{2}$ lin.)

Te. (Em.) serotinus. *Klug.*—*Steph. Catal.* 339. No. 3955.

Black: metathoracic tubercles and wing scales pale testaceous; abdomen, except the 2 basal segments above, and the base of the segments beneath,



which are black, bright luteous-yellow; legs the same, with the apex of the hinder tibiæ and the tarsi dusky; wings hyaline, yellowish at the base, with the nervures fuscous, stigma pale fuscous. There is sometimes a pale testaceous streak between the eyes, on each side.

Not uncommon, in June and July, in hedges and woods within the metropolitan district.

†Sp. 13. *cereus*. *Niger, nitidus, abdomine pleuris pedibus alarumque squamis flavis*. (Long. corp. 4 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Te. (Em.) *cerea*. *Klug.—Steph. Catal. 339. No. 3956.*

Black, shining; head with an obscure testaceous line on each side between the eyes; pleuræ and wing scales yellow; metathoracic tubercles pale; abdomen with the 1st and base of the 2nd segment black, the rest yellow; legs yellow, the base of the hinder trochanters black; the hinder tibiæ and tarsi black at the apex; wings hyaline, with the nervures and stigma brown.

Rare: found in Devonshire in July.

Sp. 14. *immersus*. *Niger, abdomine utrinque macularum grisearum serie, pedibus luteis*. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $5\frac{1}{2}$ —6 lin.)

Te. (Em.) *immersus*. *Klug.—Steph. Catal. 339. No. 3960.*

Black: collar on its margins and wing scales yellowish; metathoracic tubercles pale; abdomen with 2 griseous spots on each of the 4 basal segments, forming a row on both sides; legs reddish-yellow, with black coxæ and trochanters; wings hyaline, pale, with the nervures and stigma pale brownish.

Also scarce; taken in the vicinity of London in June.

Sp. 15. *impressus*. *Niger, nitidus, abdominis singulo segmento puncto utrinque cinereo subimpresso*. (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

Te. (All.) *impressa*. *Klug.—Em. impressus. Steph. Catal. 339. No. 3961.*

Black: mouth pale; collar white on the margins; abdomen long, each segment with an ashy dot of a rounded form and somewhat impressed; legs black, the anterior with the tibiæ pale, hinder pair with the knees only pale; wings hyaline, with the nervures, stigma, and a dot on the basal areolet black.

In my specimen the right wing has 4 submarginal areolets and the left only 3, the nervure forming the 4th is, however, very pale.

Taken in Norfolk: apparently rare.

Sp. 16. *pallimaculatus?* *Niger, abdomine utrinque macularum pallidarum serie, pedibus nigris*. (Long. corp. $2\frac{3}{4}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Dol. *pallimacula*. *St. Fargeau Mon. 117?—Em. pallimaculatus. Steph. Nomen. 2d. edit. Appendix.*

Black: collar and metathoracic tubercles pale; abdomen on each side with



about 5 pale spots, placed in a row, one on each segment, from the 2nd ; legs black, 4 anterior pale in front, and the posterior with the knees pale ; wings hyaline, with the nervures and stigma dusky.

Not common : found at Coombe wood in July, and in Dorsetshire.

Sp. 17. *patellatus*. *Niger, pedum genubus, anticorumque tibiis testaceis, alis stigmatе fusco*. (Long. corp. 3 lin. ; Exp. Alar. $5\frac{1}{2}$ lin.)

Te. (Em.) *patellatus*. *Klug.—Steph. Catal. 339. No. 3959.*

Black : antennæ longer than the thorax ; metathoracic tubercles and wing scales whitish ; legs black, the apex of the femora yellowish, the anterior tibiæ and tarsi dull testaceous ; wings hyaline, with the nervures black.

Taken within the metropolitan district in June and July, and near Dover, and in the Isle of Portland, in May.

Sp. 18. *nigricans*. *Fusco-niger, ore pedibusque testaceis*. (Long. corp. 2 lin. ; Exp. Alar. 4 lin.)

Te. (Em.) *nigricans*. *Klug.—Steph. Catal. 339. No. 3952.*

Blackish-brown : antennæ as long as the abdomen ; labrum and tips of the mandibles testaceous ; legs pale testaceous, with dusky trochanters ; wing scales yellowish ; wings hyaline, with the nervures and stigma brownish.

Found near London in gardens and about hedges, not common, in June.

Sp. 19. *coronatus*. *Nigra nitidus, labro, alarum squamis pedibusque albis*. (Long. corp. 3 lin. ; Exp. Alar. 6 lin.)

Te. (Em.) *coronatus*. *Klug.—Steph. Catal. 339. No. 3953.*

Black, shining : labrum and wing scales white ; the metathoracic tubercles fuscous ; trochanters black at the base, the apex, tibiæ, and tarsi white ; wings hyaline, with the nervures and stigma brown-black.

Taken at Dover in July, and occasionally at Darenth wood.

Sp. 20. *gilvipes*. *Niger, pedibus pallido variis*. (Long. corp. $2\frac{1}{2}$ lin. ; Exp. Alar. $5\frac{1}{2}$ —6 lin.)

Te. (Em.) *gilvipes*. *Klug.—Steph. Catal. 339. No. 3954.*

Shining black : palpi, wing scales, metathoracic tubercles and legs pale ; posterior femora sometimes black towards the tip ; wings hyaline, with the nervures and stigma black.

Taken at Dover and at Darenth wood in June.



GENUS XXV.—HETERARTHURUS* *mihi*.

Antennæ 12- to 15-jointed, the 1st and 2nd short, 3rd nearly twice as long as the 4th, remainder short and distinct: *wings* ample; anterior with 2 marginal areolets and 4 submarginal ones, the transverse nervures which form the first areolet only commenced; the 2nd areolet receiving 1 recurrent nervure; the 3rd receiving 2.

I have employed the above generic name to designate the only British species of this genus, inasmuch as I have not seen the insect, and without a comparison of it with the other discordant Tenthredinideous insects included by Klug in his division, none of which I know, I am at a loss to say how far it may differ in habit—the British species forms the type of the genus *Decatria* (Westwood), which name, of course, may be eventually employed, should the insect prove different from the other species alluded to above.

†Sp. 1. ochropoda. *Niger, nitidus, antennarum articulis 2-bus basalibus pedibusque flavescens, alis (præsertim ad basin) infumatis, antennis 13-articulatis.* (Long. corp. $2\frac{2}{3}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Te. (Emp.) ochropoda. *Klug Blattw.* 211.—*Decatria fuscipennis.* Westwood, in *Lardner's Cyclop.* (adhuc inedit.)—Het. ochropoda. *Steph. Nomen.* 2d edit. Appendix.

Shining black: 2 basal joints of the antennæ pale yellow; mandibles brown, with the base white; wing scales and metathoracic tubercles white; coxæ and trochanters black, the latter pale yellowish at the tips; femora and tibiæ yellowish, the latter palest at the base; wings dusky at the base, hyaline at the apex.

There was a specimen of this species in Mr. Ingpen's collection, which I believe he found in Kent.

GENUS XXVI.—MELICERTA† *mihi*.

Antennæ slender, the 2 basal joints short, of equal length, the 3rd linear, nearly as long again as the 4th, the 5th and 6th almost equal in length, and rather shorter than the 4th (remainder broken off); *labrum* transverse, entire: *clypeus* not emarginated: *head* broader than the thorax, slightly produced in front between the *eyes*, the latter rather large: *ocelli* 3: *thorax* somewhat globose: *wings* shortish; anterior with 2 marginal areolets, the basal one small, ovate-triangular, the other ample, and 3 submarginal ones, the 1st elongate curved, receiving 1 recurrent nervure; 2nd shorter, some-

* 'Ετερονη diversitas, αρθρον articulus.

† Melicerta, Nomen viri.



what ovate, shuttle-shaped, with the ends truncate, and receiving 2 recurrent nervures; 3rd extending to the apex: *abdomen* long and somewhat cylindrical: *legs* slender, simple, with 2 minute sharp spurs at the apex of the tibiæ.

This genus not only differs in general habit from *Emphytus*, but the structure of the wings is totally dissimilar—somewhat resembling that of *Dolerus* and *Dosytheus*, inasmuch as the 1st submarginal areolet is elongated, the 2nd small; but the great difference in the antennæ, form of thorax, abdomen, and legs, in addition to the total diversity of colour, sufficiently point out its distinction from those genera and from *Emphytus*, with which it has been improperly associated.

Sp. 1. ochroleucus. *Albido-luteus, pedibus pallidioribus capite pleuræque strigis 2-bus atris, thorace lineis 2-bus anticis, abdominis segmentorumque basi fuscis.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

N. G. ochroleucus. *Steph. Catal.* 339. No. 3962.—*Mel. ochroleucus. Steph. Nomen.* 2d edit. col. 129.

Yellowish-white: head deep shining black; labrum and antennæ ochreous; thorax with 2 abbreviated fuscous streaks in front, and 2 deep black streaks on the sides beneath the wings; abdomen paler than the thorax, the base of each segment, excepting the terminal one, with a broad fuscous fascia; legs entirely pale ochreous-white; wings hyaline, pale ochreous, with the nervures and stigma yellowish.

Taken in Devonshire, apparently rare, I believe in June.

§ 7. *Antennæ* composed of numerous articulations, moderate or elongated: *body* moderate, depressed: *wings* with 2 marginal and 4 submarginal areolets: posterior *tibiæ* with spurs in the middle.

GENUS XXVII.—TARPA, *Fabricius*.

Antennæ pectinated or serrated, the 2 basal joints straight, the remainder obliquely inserted; 1st and 3rd joints elongate, the 2nd very short, the rest moderate: *mandibles* large, deeply bidentate at the apex: *labrum* elongate, its *palpi* with the joints equal: *head* suborbiculate, as large as the thorax: *eyes* moderate: *ocelli* 3: *wings* short, broad, rounded at the apex; anterior with 2 marginal areolets, the basal one semicircular, the other thrice as large; and 4 submarginal ones, the 1st small, the 2 next nearly equal to each other, the 2nd receiving 1 recurrent nervure, the 3rd receiving 2, the 4th not extending to the apex: *legs* slender; the 4 posterior *tibiæ* with 2 spurs at the apex, and 2 in the middle, on the inner edge.

Tarpa differs, not only in general habit, from *Lyda*, but in several minor variations of structure, of which one of the most conspicuous



external ones consists in the 4 hinder tibiæ possessing each but a single pair of rather elongate sharp spurs in the middle of their inner edge; *Lyda* having in addition thereto a single one placed higher up towards the femora; the antennæ are also very different in the two genera, the body less depressed in *Tarpa*, the wings not so ample, &c.

†Sp. 1. *cephalotes*? *Atra*, capite maculis, collaris marginibus utrinque maculisque prope scutellum binis, abdomine fasciis maculisque flavis. (Long. corp. 5—5½ lin.; Exp. Alar. 10—11 lin.)

Te. *cephalotes*. *Fabricius*?—*Steph. Catal.* 339. No. 3963.

Deep black: head with 3 spots between the eyes, and an interrupted line behind, the margins of the collar on each side, and 2 streaks near the scutellum, a dot on the pleuræ, the basal segment of the abdomen entirely, and the hinder margin of the 4th to the 8th, and 2 fasciæ beneath yellow; antennæ ferruginous, with the 2nd joint and the apex black; legs testaceous, with the tibiæ yellow, and the 4 anterior femora at the base, all the coxæ, and the hinder pair of spurs, black.

Found near Bristol, but very rare.

Sp. 2. *Panzeri*. *Atra*, antennarum scapo, capitis maculis, thoracis lobo antico, macula dorsali triquetra maculisque scutellaribus, abdominis punctis lateralibus fasciisque posticis flavis. (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Ta. *Panzeri*. *Leach*.—*Steph. Catal.* 339. No. 3964.

Black: head with 3 spots between the eyes and an interrupted line behind, the margins of the collar on both sides, 2 streaks on the disc, and 2 near the scutellum, a dot on the pleuræ, abdomen with its membrane, and the hinder margin of all the segments—the 2 first interrupted—2 ventral fasciæ, and the legs, yellow; the 4 anterior femora black at the base; tarsi luteous; antennæ ferruginous, with the basal joint yellow.

Taken at Woodland, near Plymouth, by Dr. Leach, to whom I am indebted for the species.

†Sp. 3. *Fabricii*. *Atra*, capitis maculis, thorace margine antico, maculisque prope scutellum binis abdomine fasciis maculisque albidis. (Long. corp. 7 lin.; Exp. Alar. 12¼ lin.)

Ta. *Fabricii*. *Leach*.—*Samouelle* 266. (!)—*Steph. Catal.* 339. No. 3965, note.

Black: head with 2 spots between the eyes, the hinder margin on both sides, the anterior angles of the thorax, and 2 streaks near the scutellum, with a dot on the pleuræ, abdomen with its membrane, 2 fasciæ, a dot on each side the apex and ventral fasciæ whitish; antennæ ferruginous, with the 2 basal joints deep black; legs luteous, with all the coxæ and the base of the 4 anterior femora black.

Introduced by Samouelle as British, but improperly.



GENUS XXVIII.—LYDA, *Fabricius*.

Antennæ setaceous, consisting of numerous articulations, stoutest in the males, the basal joint most robust, 2nd minute, 3rd not longer than the 1st, the remainder very gradually decreasing in length and thickness to the end, the terminal joint being minute: *clypeus* semicircular, nearly concealing the mouth: *mandibles* strongly bidentate: *head* very large, somewhat orbicular, or, viewed from above, subquadrate: *eyes* small, prominent: *ocelli* 3: *thorax* broad, slightly convex: *wings* large and broad; anterior with 2 marginal areolets, the 3 basal ones being complete, the 1st smallest, nearly triangular, the 2nd elongate and curved, the 2nd nearly parallelogrammic, the 4th incomplete, not extending to the apex: *abdomen* generally broad and depressed, terminal joint elongate in the male; *ovipositor* short: *legs* slender, shortish; the 4 posterior *tibiæ* with a single spur in the middle, 2 below the middle and 2 at the apex. Larvæ gregarious, without prolegs, the apex terminated with 2 horn-like protuberances.

The conspicuous and generally beautiful insects included in this fine genus may be readily known from *Tarpa*, by having the antennæ simple, the body broader and more depressed, the wings also broader, and the areolets somewhat dissimilar; and, in addition, the 4 posterior *tibiæ* have only 1 spur in the middle, a pair below the middle, and another pair at the apex. The species are mostly very rare, although the larvæ are gregarious, which must account for some of them being somewhat common in particular localities, as hereafter mentioned.

Sp. 1. *Sylvatica*. *Atra, antennis, articulo basali supra excepto, thoracis maculis, pedibusque luteis, femorum basi coxisque nigris*. (Long. corp. $\frac{3}{2}$ — $5\frac{1}{2}$ lin.; Exp. Alar. $7\frac{1}{2}$ — $9\frac{1}{4}$ lin.)

Te. *Sylvatica*. *Linne.*—Ly. *Sylvatica*. *Steph. Catal.* 340. No. 3966.

Antennæ luteous, with the basal joint black above; head black, with a spot behind, and the palpi luteous; mandibles testaceous; thorax black, with the wing scales and scutellum luteous; abdomen black; legs luteous, with the base of the femora and the coxæ black; wings hyaline, slightly flavescent, with the nervures brownish, and stigma black.

Male with the antennæ longer, and the upper margin of the clypeus narrowly edged with yellow.

Not very uncommon: taken in June and July in hedges on the borders of woods within the metropolitan district, and in Devonshire.

Sp. 2. *Stigma*. *Nigra, antennis luteis, collaris margine, capitis thoracisque maculis pedibusque flavis, femorum posticorum basi coxisque nigris*. (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Ly. *Stigma*. *Steph. Catal.* 340. No. 3967.

MANDIBULATA, VOL. VII., 30TH SEPT., 1835.

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Antennæ luteous; head black, with a streak behind the eyes yellow; palpi luteous; mandibles testaceous; thorax black, with the margins of the collar yellow; the wing scales, scutellum, and spot behind also yellow; abdomen black, the 2nd segment faintly edged with yellow; anterior legs entirely yellow, posterior the same, with the base of the femora and the coxæ black; wings hyaline, with the nervures yellowish, and stigma deep black.

Found at Birch wood in June.

Sp. 4. *fumipennis*. *Nigra, antennis fuscis, basi flavis immaculatis, alis subinfumatis*. (Long. corp. 5 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ly. *fumipennis*. *Curtis, fo. 381.—Steph. Nomen. 2d edit. col. 129.*

“Antennæ fuscous towards the apex, yellow at the base, without any black spot on the upper side of the 1st joint, and the wings are stained brownish, instead of a yellow tint:” otherwise similar to Ly. *Sylvatica*.—*Curtis, l. c.*

Taken in a garden in Norfolk, by Mr. Curtis.

Sp. 5. *pratensis*. *Capite thoraceque nigro flavoque variis, abdomine nigro, margine ferrugineo*. (Long. corp. 5 lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ly. *pratensis*. *Fabricius.—Steph. Catal. 340. No. 3969.*

Head and thorax black, varied with yellow; abdomen black above, with the sides more or less yellow, beneath luteous; legs luteous, the femora black at the base above; wings hyaline, with the nervures and stigma yellow; antennæ dusky luteous, with the basal joint black at its origin.

Rare: taken at Darenth wood in June.

Sp. 6. *marginata*. *Nigra, capite testaceo vertice nigro, collure thoraceque subtus pallide testaceis, abdomine testaceo marginato, pedibus pallidis*. (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Ly. *marginata*. *St. Fargeau Mon. 12.—Steph. Nomen. 2d edit. col. 129.*

Head and antennæ pale testaceous, crown black; thorax black, with the collar and under surface pale testaceous; abdomen above black, with the margin alone very narrowly edged with testaceous; legs pale; wings hyaline.

Also rare; found in Devonshire and in Pembrokeshire, by Capt. Blomer.

†Sp. 3. *Cynosbati*. *Nigra, pedibus testaceis, posticis nigro alboque annulatis*.

Te. *Cynosbati*. *Linné.—Turton (!)—Ly. Cynosbati. Steph. Catal. 340. No. 3978, note.*

Antennæ, head, and thorax black; abdomen linear and black; legs testaceous, the posterior ones annulated with black and white.

Indicated by Turton as British, but without any authority.



Sp. 7. varia. *Ferruginea, capite luteo nigro vario, thorace nigro luteo vario, abdominis segmentis 1-mo toto, 2-do, 3-tio, 7-timo, 8-vo, basi nigris, femoribus tibiisque luteis.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ly. varia. *St. Fargeau Mon. 9.—Faun. F.* pl. 14. f. 4.*

Antennæ ferruginous, paler beneath; the basal joint luteous, with a black streak above; head luteous, varied with black; mandibles luteous, with the apex ferruginous; thorax black, varied with luteous; scutellum also luteous; abdomen ferruginous, with the 1st segment entirely, the 2nd except the margin, and the 3rd, 7th, and 8th at the base black; legs luteous, with the tarsi pale ferruginous; wings hyaline, with fuscous nervures, and yellow stigma.

Not common: found in the vicinity of Darenth wood in June.

Sp. 8. fallax. *Lutea, vertice, thoracis dorso, sterno, abdominis basi et apice nigris, segmentis intermediis anoque testaceis, antennis tarsisque testaceis.* (Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Ly. fallax. *St. Fargeau Mon. 13.—Ly. tæniata. Steph. Nomen. 2d edit. col. 129.*

Antennæ luteous, with the base luteous, and a faint dusky line above; head pale luteous, with the vertex entirely yellow, in some a faint yellow lunule behind the eyes; thorax black above, beneath and sides luteous, with a black sternum; abdomen entirely luteous beneath, above with the 1st and 2nd segments black, the 3rd black, with a testaceous spot on each side, 4th and 5th testaceous, with the base black in the middle, the rest black, with testaceous sides, and the apex also testaceous; legs luteous, with the tarsi testaceous; wings hyaline, with the costa and stigma luteous, and nervures testaceous.

Also scarce: taken in Scotland, at the end of June.

Sp. 9. hortorum. *Atra, abdomine medio rufo, scutello pedibusque pallidis.* (Long. corp. $5\frac{1}{4}$ lin.; Exp. Alar. 10 lin.)

Ly. hortorum. *Klug?—Steph. Catal. 340. No. 3973.*

Antennæ luteous, the basal joint black, and the 2nd testaceous; head black, with a minute yellow dot on the inner orbit of the eyes on the crown; mandibles testaceous; thorax black, with the wing scales and a spot before them yellow, the scutellum and a spot on the metathorax whitish; abdomen black, with the 3rd to the 5th segments, the margins of the 6th, and back of the 2nd bright red; the 3 intermediate with a minute black dot on each side; legs whitish-yellow; wings hyaline, the nervures pale testaceous, stigma black.

* It may be necessary to state that the references to this work in my Catalogue were made from an actual examination of a copy (now in Mr. Hope's possession) in the winter of 1828.



Rather scarce: taken at Coombe wood towards the end of June, and at Hertford in July.

Sp. 10. Arbustorum. *Nigra, abdomine medio rufo, scutello punctoque alarum albidis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Te. Arbustorum. *Fabricius.*—Ly. Arbustorum. *Steph. Catal.* 335. No. 3975. Antennæ and head black; mouth luteous; thorax black, with the collar and scutellum whitish; abdomen black, with the 3rd to the 5th segments ferruginous; legs testaceous; wings hyaline, with the nervures and stigma fuscous, the latter whitish at the base.

Probably a variety of the preceding species.

Also taken in hedges at Coombe wood at the end of June or beginning of July.

Sp. 11. cingulata. *Nigra, capite postice utrinque lunulâ albida, abdominis medio rufo-testaceo, nigro fasciato, pedibus antennisque pallide testaceis, his basi nigris.* (Long. corp. 5 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Pa. cingulata. *Latreille.*—Ly. cingulata. *Steph. Catal.* 340. No. 3979.

Antennæ pale testaceous, with the 2 basal joints black, the terminal ones fuscous; head black, with a whitish lunule on each side behind the eyes; palpi pale; mandibles testaceous; margins of the collar and scutellum whitish; abdomen black, the 3rd segment rusty-testaceous on the margin, the 2 following of the same hue with the base black; the extreme edge of all the segments beneath whitish; wings yellowish, or pale testaceous, hyaline, with the nervures and stigma black.

Very scarce: taken near Darenth wood in June.

Sp. 12. inanita. *Atra, capite antice et postice utrinque, alarum stigmatibusque pallidis, abdominis medio rufo.* (Long. corp. 5 lin.; Exp. Alar. $9\frac{1}{2}$ — $10\frac{1}{2}$ lin.)

Te. inanita. *Villers.*—Ly. inanita. *Steph. Catal.* 340. No. 3974.

Head black; mouth and a spot behind each eye testaceous; thorax black; abdomen black, with the 2nd to the 5th, and the last, segments pale testaceous; legs entirely pale testaceous; antennæ the same; wings hyaline, with the nervures and stigma brown, the last pale at the base.

Male with the basal joint of the antennæ luteous; abdomen black, with the 4th and 5th segments, a spot on each side of the 3rd, the lateral margins of the hinder ones, and the terminal one pale luteous, all beneath luteous; sides of the thorax (or collar) luteous; legs pale luteous.

Taken at Birch wood and at Hammersmith towards the end of May and the beginning of June, but rare.

Sp. 13. Sylvarum. *Pallide ochracea, capite thoraceque nigro punctatis, sterno abdomineque supra nigris hujus segmentorum marginibus tenuissimè flavis.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Ly. sylvarum. *Steph. Catal.* 340. No. 3971.



Head pale ochreous, with 2 subquadrate black spots on the face and 6 on the crown; mandibles dusky at the tip; thorax of a paler tint, with a black streak in the middle in front, 1 on each side at the base of the wings, 3 confluent ones on the middle of the disc before the scutellum, and the metathorax entirely black; collar and pleuræ yellow; sternum black; abdomen yellow beneath, black above, with the margin of each segment narrowly edged with pale yellow, expanding into a small dot on the sides, which are brighter yellow; legs pale yellow, with a black streak on all the femora behind; apex of the tibiæ and the tarsi rather orange; antennæ luteous, with the 2 basal joints yellow, and spotted with black above; wings hyaline, with a slight yellowish tinge; nervures and stigma very pale yellow.

Apparently very rare: I have seen but my own specimen, which was taken in the vicinity of the metropolis, in June.

Sp. 15. aurita. *Atra capitis clypeo maculaque genarum, antennis pedibus abdomineque flavis.* (Long. corp. 5 lin.; Exp. Alar. 10 lin.)

Ly. aurita. *Klug.*—*Steph. Catal.* 340. No. 3968.

Head black, with the clypeus and a spot on the cheeks yellow; thorax black; abdomen yellow, its 1st segment and a spot on the 2nd black; legs and antennæ yellow; wings hyaline, with the nervures and stigma yellow.

Also rare, and found near London in June.

Sp. 16. depressa. *Capite thoraceque nigro flavoque variis, abdomine pedibusque flavescens.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Te. depressa. *Schrank.*—Ly. depressa. *Steph. Catal.* 340. No. 3970.

Head and thorax varied with yellow; sternum black, with an oblique yellow streak on both sides; abdomen yellowish, with the 1st and 2nd segments occasionally black; legs luteous-yellow; wings yellow, with the nervures and stigma of a saffron hue; antennæ luteo-testaceous.

Rare: taken at Coombe, Darenth, and Birch woods, and near Manchester in June and the beginning of July.

Sp. 17. flaviventris. *Capite thoraceque luteo nigroque variis, pedibus abdomineque flavescens, hoc basi supra nigro.* (Long. corp. $5-6\frac{1}{2}$ lin.; Exp. Alar. $11\frac{1}{2}-12\frac{1}{2}$ lin.)

Te. flaviventris. *Retzius.*—Ly. flaviventris. *Steph. Nomen.* 2d edit. *Appendix.* Antennæ fuscous, luteous at the base; head and thorax black, varied with

†Sp. 14. flava. *Lutea, oculis nigris.*

Te. flava. *Linné.*—*Turton (!)*—Ly. flava. *Steph. Catal.* 340. No. 3972, note. Entirely yellow, with black eyes; body inflated; wings somewhat hyaline, with the nervures and stigma pale testaceous.

Introduced as British by Turton, but improperly.



luteous; abdomen yellow, with the 2 basal segments more or less black on the back, the remainder fuscous at the base; legs luteous, the 4 anterior femora spotted with black; wings fuscous, especially at the apex, with the nervures black.

Taken at Darent wood, in July, but very rare.

Sp. 18. *Betulæ*. PLATE XXXV. f. 3.—*Lutea, thorace anoque nigris, alis fuscis, disco hyalino, flavo venoso.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. $12\frac{1}{2}$ lin.)

Te. *Betulæ*. Linné.—Ly. *Betulæ*. Steph. Catal. 340. No. 3980.

Antennæ and head bright pale testaceous, with a subquadrate spot on the crown and the mandibles at the tip black; thorax with the collar bright testaceous, the disc, sternum, metathorax, and scutellum deep black; abdomen pale testaceous, with the 1st and apical segments, and a transverse line on the 8th, black; legs pale testaceous; wings hyaline on the disc, with the nervures yellowish, and a distinct curved transverse fuscous fascia towards the apex, the stigma luteous.

This splendid insect is found at Birch wood in July, but appears to be very rare: it has also been taken in Devonshire.

Sp. 19. *lutescens*. *Nigra, thoracis dorso maculis tribus testaceis, abdomine flavo, pallide marginato, segmentisque 2-bus basalibus atris.* (Long. corp. 5 lin.; Exp. Alar. 11 lin.)

Ly. *lutescens*. St. Fargeau.—Steph. Catal. 340. No. 3977.

Antennæ black, testaceous beneath; head black, with a spot between the antennæ, the mandibles and the palpi luteous; thorax black, with a testaceous spot on each side of the disc, and 1 on the scutellum; abdomen luteous, with the sides paler, and the 2 basal segments black; legs pale luteous; wings somewhat fuscous, with a transverse cloud towards the apex.

Found, but very rarely, in the vicinity of the metropolis.

Sp. 20. *fasciata*. *Nigra, macula frontali, abdominis apice, pedibusque flavis, alis infuscatis fascia transversali pone medium saturatiore.* (Long. corp. 5½ lin.; Exp. Alar. 11½ lin.)

Ly. *fasciata*. Curtis, v. ix. pl. 381.—Steph. Nomen. 2d edit. col. 129.

Head black; mouth and a somewhat triangular spot between the antennæ, and sometimes a dot behind each eye, yellow; mandibles ferruginous at the tip; wing scales yellow; abdomen black at the base, the membrane at the edge of the basal segment yellowish, the 5th luteous in the middle, the remainder entirely so, and all from the 3rd with a yellow spot on each side; legs yellow, base of coxæ and of the 4 anterior femora black; tarsi fulvous; antennæ luteous at the base; wings yellowish-brown, anterior with a darker fascia arising at the stigma, which, with the nervures, is pitchy-black.

Taken at Darent wood in the beginning of June, and at Ripley on the 30th of May last, in a garden.



Sp. 21. erythrocephala. PLATE xxxviii. f. 4.—*Cærulea, alis fuscis, capite (fæmineo) rubro (masculo antice testaceo)*. (Long. corp. $4\frac{1}{4}$ lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Te. erythrocephala. Linné.—Ly. erythrocephala. Steph. Catal. 340. No. 3981. Antennæ black; head bright testaceous, with the apex of the mandibles and a quadrate patch on the crown, in which the ocelli are placed, blue-black; thorax and abdomen also entirely rich blue-black; legs the same, with the tip of the anterior femora and the tibiæ ferruginous; wings violet-brown.

The male has the head blue-black, with the mouth and all beneath the antennæ testaceous.

Extremely rare: found in June near Bristol, and in the west of England.

§ 8. *Labrum* minute. *Antennæ* consisting of numerous articulations, about 21, clavate, or filiform: *collar* long and narrow: *ovipositor* exerted.

GENUS XXIX.—CEPHUS, Latreille.

Antennæ moderate, slightly clavate, thickening gradually from the base to near the apex; basal joint largest, globose; 2nd very short, subglobose; 3rd, 4th, and 5th elongate, 4th being longest, 6th to the 9th gradually decreasing in length, the remainder very short and transverse, apical one ovate: *palpi* with the penultimate joint short, oval, sometimes eccentric: *mandibles* 3-dentate, the intermediate tooth shortest: *head* transverse, broad, produced between the antennæ: *eyes* large, prominent: *ocelli* 3: *wings* ample, anterior broad at the apex, with 2 marginal areolets, the 1st small, of an elongate lozenge-shape, the 2nd large, elongate-lanceolate, and 4 submarginal ones, nearly equal, the 3rd being somewhat the smallest, and receiving 2 recurrent nervures, the 2nd and the 4th extending to the apex: *abdomen* elongate, cylindric and obtuse in the males, compressed at the apex, and with an exerted ovipositor in the females: *legs* nearly equal, slender, posterior rather longest; intermediate *tibiæ* with a single spur in the middle, posterior with 2 in addition to 2 at the apex of all. Larva elongate, with obsolete legs: feeds on the stalks of corn and buds of fruit-trees: pupa changes within the stalks.

†Sp. 22. Populi. *Atro-cærulea, collare luteo, abdomine luteo maculis transversalibus atris, antennis pedibusque nigris, tibiis anticis luteis*.

Te. Populi. Linné.—Turton (!)—Ly. Populi. Steph. Catal. 340. No. 3976, note.

Antennæ black; head bluish, with the mouth yellow; thorax also deep blue, with the sides (or collar) luteous; abdomen luteous, the back with transverse black spots; legs black, with the anterior tarsi luteous; wings fuscous.

Also introduced, but erroneously, by Turton, as British.



Cephus differs chiefly from Janus by having the antennæ distinctly clavate; the neuration of the wings is also discordant; the abdomen of the males more cylindric, not being dilated towards the apex, which is obtuse, and in the females that joint is considerably compressed towards the tip, and the ovipositor is exerted: the penultimate joint of the palpi is very small, and is frequently produced on one side, a character that does not appear to have been previously noticed: the species frequent flowers.

Sp. 1. Troglodyta. *Ater nitidus, abdomine punctis aliquot fasciisque duabus flavis, alis stigmatè testaceo.* (Long. corp. 6 lin.; Exp. Alar. 10 lin.)

Li. Troglodyta. *Fabricius.*—Sy. niger. *Harris Ex. pl. xxviii. f. 2.*—Ce. Troglodyta. *Steph. Catal. 341. No. 3982.*

Black, shining: mandibles yellow in the middle, the apex ferruginous; thorax with a small yellow dot on each side beneath the wings, and a larger triangular one of the same colour on each side of the metathorax; abdomen with a large triangular yellow patch on the basal segment, a minute yellow dot on each side of the margin of the 2nd, the 3rd and 4th each with a broad marginal yellow band, 5th immaculate, 6th with a very broad marginal band, the 7th with an interrupted one, both yellow; legs black; tibiæ and tarsi pale testaceous, the hinder tibiæ with the apex black; wings hyaline, iridescent, nervures ferruginous, stigma testaceous.

It varies in having the fasciæ on the abdomen more or less obscure, and in having the posterior tibiæ entirely pale testaceous.

Scarce: taken occasionally at Hertford, and in other places within the metropolitan district, about the end of June.

Sp. 2. quinque-fasciatus. *Ater nitidus, collaris margine abdomineque fasciis 5, tibiis tarsisque totis, flavis, alis stigmatè flavescente.* (Long. corp. 5½—7 lin.; Exp. Alar. 9¼—11 lin.)

Ce. 5-fasciatus. *Steph. Catal. 341. No. 3983.*

Shining black: head with a minute angulated yellow mark between the antennæ on the clypeus, and a dot of the same on the inner orbits on the crown; thorax with the margin of the collar yellow, and a spot of the same on each side of the metathorax; abdomen with a triangular patch on the 1st segment, the 3rd, 4th, 6th, 7th, and 8th segments with a broad entire marginal band, and the 2nd and 5th with a minute dot on each side, all yellow; legs black, with the extreme apex of the femora and the tibiæ and tarsi entirely yellow; wings hyaline, yellowish, with the nervures and the stigma brighter.

Male with the front of the head luteous, with a spot on the clypeus, and a streak on each side and at the base of the mandibles black, the 2nd segment of the abdomen immaculate, and the abdomen itself linear.

Taken in the west of England, near Bristol, I believe, but apparently very rare, in the beginning of June.



Sp. 3. *Satyrus*. *Niger*, *abdomine segmento 2-do utrinque puncto*, 3-tio, 5-to, et 6-to *posticæ fasciæ flavis*. (Long. corp. 6 lin.; Exp. Alar. 10½ lin.)

As. *Satyrus*. *Panzer*.—Ce. *Satyrus*. *Steph. Catal.* 341. No. 3984.

Black: mandibles at the base and palpi luteo-testaceous; scutellum with a minute white dot; abdomen with a triangular yellow patch at the apex of the basal segment, a dot of the same on each side of the 2nd, the 3rd, 5th, and 6th each with a narrow yellow margin; femora black; tibiæ and tarsi testaceous; wings hyaline, yellowish; nervures and stigma brighter.

Found at Darenth wood in June; rare.

Sp. 4. *atripes*. *Ater nitidus*, *abdominis segmentis 3, 4 et 5 tenuissimè flavo marginatis*, *pedibus nigris*, *tibiis tarsisque anticis testaceis*. (Long. corp. 3½ lin.; Exp. Alar. 5 lin.)

Ce. *atripes*. *Steph. Nomen.* 2d edit. col. 130.

Shining black: mandibles yellow at the base; palpi yellow, with the terminal joint black; thorax with a yellow dot on each side below the wings; abdomen linear, with a triangular yellow membrane at the base, the 3rd, 4th, and 5th segments narrowly edged with pale yellow, the 1st the broadest; on the extreme lateral margins of the 6th is a short yellowish streak; legs black, anterior with the tibiæ and tarsi testaceous; wings hyaline, the nervures and stigma brownish.

Rare: taken near London in June.

Sp. 5. *pallipes*. *Ater, nitidus*, *tibiis tarsisque omnibus testaceis*. (Long. corp. 3 lin.; Exp. Alar. 5½ lin.)

Ce. *pallipes*. *Klug*.—*Steph. Catal.* 341. No. 3986.

Shining black: head smooth; mandibles testaceous, fuscous at the base; palpi testaceous; abdomen smooth, slightly pubescent, with a yellow triangular patch on the basal segment; femora deep black; tibiæ and tarsi testaceous, the posterior ones fuscous at the apex; wings hyaline, iridescent, with the nervures fuscous, and the stigma brownish; antennæ black, with the tip fuscous.

Also scarce: a pair was taken by me many years since at Hertford at the end of June.

Sp. 6. *pygmæus*. *Ater nitidus* (*pectore in mare*), *abdomine fasciis (anoque in mare) flavis*, *tibiis tarsisque 4 anticis testaceis*. (Long. corp. 3—3½ lin.; Exp. Alar. 5—5½ lin.)

Si. *pygmæus*. *Linné*.—Ce. *pygmæus*. *Steph. Catal.* 341. No. 3985.

Shining black: head smooth; mandibles yellow, black at the base, the extreme apex ferruginous; palpi testaceous, with the terminal joint black; eyes brownish; abdomen with a large triangular pale patch at the base, the 4th, 6th, and 7th segments with a yellow margin, the first of which is broadest, the last very narrow and sometimes wanting; femora dull black, the 4 anterior tibiæ and tarsi testaceous; wings hyaline, iridescent, with the nervures and stigma brownish.



Male with the mouth entirely yellow, the thorax beneath, and the base and anterior part of the femora, with the terminal segment of the abdomen, yellow.

Abundant, in hedges on flowers, especially of the privet, at Darenth wood and near Hertford especially; also at Dover, Ripley, in Devonshire, &c. in June, the males comparatively uncommon.

Sp. 7. *floralis*. *Ater, nitidus, abdomine fasciis anoque luteis, pectore nigro, tibiis tarsisque 4 anticis flavis*. (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Ce. *floralis*. *Klug.—Steph. Catal. 341. No. 3987.*

Shining black: head faintly punctured; mandibles yellow, with the apex fuscous; palpi fuscous, with the base yellow; ocelli and eyes brownish; abdomen black, with a triangular yellow patch at its base, the 4th and 5th segments with a broad luteous margin, the 6th with a narrow one, varied on each side, 7th with a small narrow border, interrupted on the sides, the 8th with a luteous spot on each side, and the 9th entirely yellow; legs black, the 4 anterior tibiæ and tarsi yellow, posterior tibiæ yellowish at the base; wings hyaline, iridescent; nervures and stigma fuscous.

Rare: I have a male from Darenth wood and the female from Norfolk; they were taken in June.

Sp. 8. *analis*. *Ater nitidus ano luteo, tibiis tarsisque 2-bus anticis flavis*. (Long. corp. 3 lin.; Exp. Alar. 5½ lin.)

Ce. *analis*. *Klug.—Steph. Catal. 341. No. 3988.*

Shining black: mandibles yellow, edged with black above; abdomen finely punctured, with a pale yellowish triangular patch on the basal segment, and the terminal one luteous; legs black, the 2 anterior tibiæ and tarsi testaceous; wings hyaline, the nervures fuscous, with the stigma fuscous.

Rare; found in June near London.

Sp. 9. *tabidus*. *Ater, nitidus, abdominis lateribus luteo maculatis, tibiis anticis anticè testaceis*. (Long. corp. 3½ lin.; Exp. Alar. 5¾—6 lin.)

Si. *tabidus*. *Fabricius.—Ce. tabidus. Steph. Catal. 341. No. 3989.*

Shining black: head slightly punctured; mandibles yellow, the tips brownish; palpi testaceous, with the base ferruginous; eyes and ocelli brownish, the latter very glossy; thorax with a minute yellow dot beneath the wings; abdomen slightly pubescent, and very faintly punctured, with a large distinct luteous spot on each segment at the extreme lateral margin, and the sheaths of the ovipositor also yellow; legs black, with the tibiæ and tarsi of the anterior pair testaceous in front, the extreme joint of the tarsi black; wings subhyaline, slightly fuscous, with the nervures and stigma darker.

Not very common, but greatly distributed: I have taken it at Hertford, Cambridge, and near Whittlesea Mere, in June and the beginning of July; it also occurs at Dover and near Southgate.



Sp. 10. immaculatus. *Niger, nitidus, immaculatus, tibiis tarsisque anterioribus testaceis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

Ce. immaculatus. *Steph. Catal.* 341. No. 3991.

Shining black: mandibles yellow at the base; abdomen totally immaculate; femora black, the anterior at the tip, with all the tibiæ and the anterior tarsi testaceous, the intermediate tarsi and the posterior tibiæ at the apex fuscous, the hinder tarsi black; wings subhyaline, fuscous, with the nervures and stigma darker.

Taken, in June, near Bristol.

Sp. 11. pusillus. *Ater, nitidus, abdomine piceo, segmentis 5 et 6 lineâ utrinque anoque flavis, femoribus nigris, tibiis tarsisque flavo testaceis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Ce. pusillus. *Steph. Catal.* 341. No. 3990.

Shining black: antennæ testaceous at the apex, especially beneath; mandibles testaceous at the tip; palpi pitchy; thorax immaculate; abdomen pitchy-black, with an elongate streak on each side of the 5th and 6th segments, and the terminal segment yellow; femora black, the anterior in front, intermediate at the apex, and all the tibiæ and tarsi testaceous-yellow; the hinder tarsi brownish above; wings hyaline, with the nervures and stigma fuscous.

Found, but very rarely, in the neighbourhood of London in June, and also at Bristol.

GENUS XXX.—JANUS *mihi*.

Antennæ rather long and filiform, consisting of numerous articulations, basal joint robust, subglobose, 2nd rather smaller, globose, 3rd longer than the 4th, which is slender and elongate, 5th rather shorter, 6th and following gradually diminishing in length and thickness, terminal one obtuse: *palpi* unequal; maxillary with the penultimate joint very short, inserted eccentrically, the apical one slender and acute: *mandibles* bidentate: *head* rather small, subglobose, a little produced in front: *ocelli* 3: *collar* moderate: *wings* long and broad; anterior with 2 marginal areolets, the basal one elongate-quadrate, placed obliquely, the apical one elongate-lanceolate-acute; and 4 submarginal areolets, the 1st irregularly triangular, 2nd elongate triangular, receiving 2 recurrent nervures; the 3rd subquadrate, receiving 1 recurrent nervure; the 4th larger, extending to the apex: *abdomen* short, narrow at the base, and dilated at the tip, which is obtuse and rounded in the males, slightly compressed and acute in the females, with a short exerted ovipositor: *legs* slender; hinder pair stoutest and elongate; 4 posterior *tibiæ* with spurs in the middle.

The long filiform antennæ of the insects I have included in this genus, combined with the difference in the structure of the trophi, and the dissimilarity of the areolets of the wings, the abbreviated



subclavate abdomen, especially of the males, which is scarcely compressed in the females, appear sufficient to remove them from *Cephus*.

Sp. 1. *connectens*. PLATE XXXVII. f. 2.—*Ater nitidus*, *pedibus flavo-testaceis*, *tarsis posticis fuscis*, *antennis infra luteis*. (Long. corp. $2\frac{3}{4}$ lin.; Exp. Alar. 6 lin.)

Ja. *connectens*. *Steph. Catal.* 341. No. 3992.

Shining black: antennæ luteous beneath, especially at the apex: mandibles yellow at the base, the apex pitchy; palpi pitchy; thorax with a minute yellow dot on each side beneath the base of the wings; abdomen with the membrane yellowish, the extreme tip above testaceous, and the 3 or 4 last segments beneath yellowish; femora and tibiæ all entirely testaceous-yellow; 4 anterior tarsi the same, the hinder pair fuscous; wings hyaline, with the nervures, costa, and stigma yellowish-brown.

Extremely rare, apparently: taken near Hertford in June.

Sp. 2. *femoratus*. *Ater nitidus*, *pedibus obscure rufo-testaceis*, *tibiis posticis apice tarsisque posterioribus nigris*, *tibiis intermediis et posticis basi flavis*. (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Ce. *femoratus*. *Curtis*, v. vii. pl. 301.—*Steph. Nomen*. 2d edit. col. 130.

Shining black: tip of the mandibles testaceous; palpi pitchy; abdomen with the basal membrane pale yellow; legs dull testaceous, the hinder femora dusky at the tip, posterior tibiæ black at the apex, their base, and that of the intermediate ones, yellow; the 4 posterior tarsi and the tips of the anterior ones black; wings hyaline, iridescent, the nervures, costa, and stigma pitchy.

The hinder femora and the middle of the 4 anterior ones are sometimes black, and the nervures, costa, and stigma of the anterior wings are very dark:—probably a distinct species.

Also rare: it has been taken in Devonshire and in the New Forest in June; and the variety at Darenth wood at the same time of the year.

FAMILY II.—XIPHYDRIIDÆ, *Leach*.

Wings with the marginal areolets complete: *mandibles* rather short, denticulate within: *labium* entire, or wanting: maxillary *palpi* with 4 joints, labial with 3 or 4: *ovipositor* inclosed between 2 serrated lamellæ, and considerably exerted: *antennæ* various. Larva cylindric, fleshy, apterous.

The insects of this family, as their name implies, are found in wood, in which they appear to perforate cylindrical holes, like those of the following; but the larvæ, &c. have not hitherto been described, I believe.



There are two genera only found in Britain, which may be thus distinguished by external characters:—

<i>Antennæ</i> fractæ, art ^o 3-tio valde elongato; <i>tibiis</i> posticis in medio spinosis :	31. XYELA.
haud fractæ; <i>tibiis</i> omnibus in medio inermibus :	32. XIPHYDRIA.

GENUS XXXI.—XYELA, *Dalman*.

Antennæ rather long, 12-jointed, slightly elbowed beyond the 3rd joint, the basal joint robust, cylindric; 2nd short, obconic; 3rd also robust, cylindric, equal in length to the remaining joints, all of which are minute, the terminal one being least: *palpi* unequal, maxillary very long, 4-jointed, the terminal one half as long as the 3rd, flat: *mandibles* 3-dentate: *head* transverse, depressed: *ocelli* 3: *collar* short: *wings* short, broad, especially the posterior; anterior with 3 marginal areolets, the 1st small, at the base of the stigma, which is large, the other 2 placed obliquely beyond the stigma; and 3 submarginal ones, the 1st receiving 1 recurrent nervure, the 2nd 2, and the 3rd being smaller, and extending nearly to the apex; disc and posterior wings distinctly areolated: *abdomen* short, subcylindric, elongate at the apex in the males, rather acute, and furnished with a long sword-shaped ovipositor in the females: *legs* simple, placed far behind: *tibiæ* with a spur at the apex, the 4 posterior ones with a spur in the middle, and the hinder pair with 2 bristles on the outer edge.

The very singular structure of the antennæ of this genus is amply sufficient to distinguish it from Xiphydria, from which it also greatly differs in its ample wings, all of which have numerous areolets, the anterior with 3 marginal and 3 submarginal ones; the maxillary palpi are long and slender; the tibiæ armed with spurs; the ovipositor in the females very different, &c.

Sp. 1. *pusilla*. *Nigro-fusca, capite thoraceque luteo maculatis, abdominis segmentorum marginibus anoque pallide luteis, pedibus pallidis*. (Long. corp. $1\frac{1}{2}$ — $1\frac{3}{4}$ lin.; Exp. Alar. 3—4 lin.)

Xy. *pusilla*. *Dalman*.—*Curtis*, v. i. pl. 30.—*Steph. Catal.* 341. No. 3993.

Head and thorax brown-black; clypeus and orbits luteous; the disc of the thorax with 2 luteous spots; abdomen with a yellow dot on the back of the 2 basal segments, the remainder with the margins pale, except the last, which is entirely pale luteous; legs pale, with the femora dusky; antennæ fuscous, testaceous beneath; wings hyaline, rather tawny, with the nervures and stigma darker. Ovipositor as long as the abdomen, and pale ochreous.

Found at the end of June near Hertford, in the vicinity of a fir grove; also taken in Norfolk upon umbelliferous plants in July, and in Worcestershire and in the south of Scotland.



GENUS XXXII.—XIPHYDRIA, *Latreille*.

Antennæ setaceous, consisting of about 17 joints, of which the basal one is longest and slightly thickened, the 2nd minute subglobose, 3rd nearly as long as the 1st, but slender, remainder gradually decreasing in length, and the terminal ones very indistinctly articulated: *palpi* short, maxillary slender, the 3 terminal joints of equal length, the last obliquely truncate and acuminate: *mandibles* bidentate: *head* large, orbiculate, petiolated, *forehead* elevated: *ocelli* 3: *thorax* broader than the head: *collar* elongate: *wings* rather long; anterior with 2 subequal marginal areolets, and 4 submarginal ones, the 1st subquadrate, 3 following gradually increasing in width, the 2nd receiving 1, and the 3rd 2, recurrent nervures: *abdomen* somewhat cylindric, flat and rounded at the apex in the males, convex above and subulated in the females, and furnished with an exserted, compressed, subserrated ovipositor: *legs* slender, compressed; anterior tibiae shortest, all armed with 2 spurs at the apex, but without any in the middle.

Compared with the foregoing genus, these insects are gigantic, but, like all xylophagous species, they are subject to very great variations in size: without noticing other characters of distinction between them, they may be known from the *Xyelæ* by having 2 distinct marginal, and 4 complete submarginal areolets in the anterior wings: they are generally found in the vicinity of willows, flying by day.

Sp. 1. *Camelus*. *Niger, abdominis lateribus albo maculatis, pedibus testaceis, tarsis apice fuscis.* (Long. corp. ♂ 3—6 lin.; ♀ 7—9 lin.; Exp. Alar. ♂ $4\frac{1}{2}$ —8 lin.; ♀ 11—14 lin.)

Si. *Camelus*. *Linné*.—Xi. *Camelus*. *Steph. Catal.* 342. No. 3994.

Black, shining: head glabrous, forehead rough, with an oblong white streak on each side of the crown, a small one behind each eye, and a smaller one at the base of each mandible; thorax rough, with a minute white dot at the insertion of the wings on each side; abdomen with the 2 basal segments finely punctured, the 6 following glabrous and shining, each with a triangular white dot on both sides, the 1st and 3rd being smallest, terminal segment rough and immaculate; legs testaceous, with the apex of the tarsi black; wings hyaline, slightly clouded towards the apex; antennæ sometimes with the basal joints ferruginous.

Male with the white dots on the abdomen smaller and equal; but they vary in number in both sexes, and the insects also vary greatly in size.

Less abundant than the next, and I believe not found in the southern part of the kingdom: it appears to be plentiful near Newcastle-on-Tyne, as I am informed by Mr. Wailes, who first kindly supplied me with specimens; and also taken in the south of Scotland, about the end of June.



Sp. 2. Dromedarius. *Niger, abdominis medio rufo, lateribus albo punctatis, pedibus ferrugineis, tibiis posticis basi albis.* (Long. corp. ♂ 4—6 lin.; ♀ 5—9 lin.; Exp. Alar. ♂ 5—6½ lin.; ♀ 8—13 lin.)

Si. Dromedarius. *Fabricius.*—*Donovan, v. xiv. pl. 483.*—Xi. Dromedarius. *Steph. Catal. 342. No. 3995.*

Black, shining: forehead rough, with 2 oblong white streaks on the crown, 2 small ones behind the eye, and 4 beneath; thorax rough, with a white crescent on each side before the wings; abdomen with the 2 basal segments rough with punctures, immaculate, the 6 following glabrous, shining dull red, with a white dot on both sides of each segment, the terminal one largest; legs ferruginous, the tibiæ white at the base; tarsi with the basal joint pale, the remainder brownish; wings hyaline, with fuscous nervures, and a little clouded with fuscous at the tips. Ovipositor red, with black sheaths.

Male with only 1 or 2 segments of the abdomen red: both sexes vary considerably in size, and the number of white dots on the sides of the abdomen varies also.

Taken in marshy places, where willows abound, in the vicinity of London, as in Battersea and Rotherhithe fields; near Fulham; also in the New Forest and in Norfolk, from May to July: not uncommon.

FAMILY III.—URO CERIDÆ, *Leach.*

Wings with distinct marginal areolets: *mandibles* short: *labium* entire, not lobate: maxillary *palpi* long and 5-jointed, or short, with 1 or 2 joints; labial short, with from 1 to 4 joints: *ovipositor* filiform, inclosed in a groove beneath the abdomen, or arising from a deep cleft beneath the 6th segment, and extending backwards considerably beyond the apex of the abdomen: *antennæ* various.

The insects of this family are also xylophagous, but they differ too much in structure to be associated with the foregoing, as may be observed by the characters above given: like those insects they differ considerably in size; the larger species of the group are very destructive, and at times commit sad havock amongst timber trees, especially those of the fir kind, but, happily for the proprietors, they are comparatively rare in this country, occurring only in a few distinct localities, but in them they are sometimes far too numerous: they are very active and lively, and fly with rapidity, making a loud humming noise.

In Britain 2 genera only have hitherto been discriminated, but the genus *Sirex* offers such considerable variations in the structure of its trophi, &c. as may probably warrant its subdivision into more:—the 2 already distinguished may be thus known:—



<i>Ala antica</i> areola 1 marginali :	.	.	.	.	.	33. ORYSSUS.
areolis 2-bus marginales :	.	.	.	.	.	34. SIREX.

GENUS XXXIII.—ORYSSUS, *Latreille*.

Antennæ filiform, 11-jointed in the males, basal joint large, 2nd joint short, obconic; 3rd also obconic, longer; 4th and remainder nearly equal in length, the terminal one acute; 10-jointed in the female, the basal joint robust, subglobose, 2nd short, 3rd elongate, subclavate, 4th and 5th short, 6th longer than either of the others, 2 following each about as long as the 3rd, 9th rather longer and broader, obliquely truncate, 10th small, slender; *palpi* very unequal, maxillary 5-jointed, labial 3-jointed: *mandibles* rounded, not dentate: *head* large, orbicular: *ocelli* 3: *thorax* rather narrower than the head: *wings* short; anterior with 1 marginal and 2 submarginal areolets, the last imperfect: *abdomen* broad, slightly clavate, with the *ovipositor* concealed in a groove beneath: *legs* rather short: *tibiæ* furnished with a pair of spurs at the apex, anterior in the female with a deep suture: *tarsi* 5-jointed, anterior in the female 3-jointed.

The singular antennæ of these insects, united to the paucity of the number of articulations, the single marginal areolet in the anterior wings, the great length of the maxillary palpi, which are distinctly 5-jointed, the simple rounded mandibles, &c. sufficiently indicate the difference of this fine genus from the following.

†Sp. 1. *coronatus*. *Niger, abdomine rufo-ferrugineo basi nigro, alis ante apicem late fuscis puncto costali hyalino.* (Long. corp. 5½—6 lin.; Exp. Alar. 8—10 lin.)

Or. *coronatus*. *Latreille.—Steph. Catal. 342. No. 3996.—Curtis, v. x. pl. 460.*

Head black, slightly shining, with a white line on each side from the eyes to the insertion of the antennæ; eyes fuscous; thorax black, rough, immaculate; abdomen with the 2 basal segments the same, the remainder smooth and rusty-red, the extreme tip blackish beneath; femora black, with a spot at the apex, and the base of the tibiæ white, the apex of the latter and the whole of the anterior black, the intermediate and posterior ferruginous within; tarsi lutescent; wings hyaline, the anterior with an undefined fuscous fascia towards the apex, in which on the costa, adjoining the stigma, which is pitchy-black, is a clear spot; nervures pitchy; antennæ with the base and apex black, the intermediate joints white above.

Two examples only of this fine insect have hitherto, so far as I am aware, been taken in Britain; the first was caught in July, 1817, at Darenth wood, by Dr. Leach, while in company with me, on a collecting excursion; the other was also taken subsequently in Devonshire, by the same distinguished naturalist.



GENUS XXXIV.—SIREX, *Linne*.

Antennæ filiform or setaceous, as long or longer than the thorax, articulations varying from 17 to 25, generally most in the female; the 1st and 3rd joints longest, of equal length, the former robust, 2nd minute globose, 4th shorter than the 3rd, the remainder very gradually diminishing in length: *palpi* unequal, very short, maxillary ciliated and 2- or 1-jointed; labial thrice as long and more slender, very pilose, with 4, 3, or 2 joints, the terminal one robust: *mandibles* thick, 3-dentate: *head* moderate, semiglobose: *eyes* small: *ocelli* 3: *thorax* rather wider than the head, the anterior angle or collar produced: *wings* with 2 marginal and 2 submarginal areolets: *abdomen* long, cylindric, terminating in an elongate point, and in the female with an elongate *ovipositor* arising from beneath the 6th segment, and extending considerably beyond the apex of the abdominal appendage: *legs* moderate; posterior pair slender in the females, in the males with their tibiæ and tarsi much dilated. Larva soft, cylindric, with six legs, the terminal segment rounded, and plicate, armed with a short spine: pupa foliculated.

As before alluded to, the insects of this conspicuous genus differ considerably in parts (the trophi) that are usually considered as being of great moment in the determination of genera, but there appear so many preponderating external characters of similarity as not to warrant the separation of the discordant species; I shall therefore merely indicate their discrepancies from Klug. The larvæ feed on the inner substance of fir trees, boring large cylindrical holes, and committing sad havoc where they abound.

A. *Maxillary palpi* biarticulate; *labial* 4-articulate.

Sp. 1. *gigas*. *Capite nigro, maculâ pone oculos utrinque flavâ, abdomine (in fâmina) flavo, segmentis 2-do, 7-mo, 8-vo nigris, 1-mo et 9-no basi fuscescens-tibus*. (Long. corp. ♂ 1 unc. 3 lin.; ♀ ovip. incl. 9 lin.—1 unc. $5\frac{1}{2}$ lin.; Exp. Alar. ♀ 16 lin.—2 unc. 2 lin.)

Si. *gigas*. *Linne*.—*Samouelle*, pl. 8. f. 3 ♀.—*Steph. Catal.* 342. N^o. 3997.

Head pilose black, with an obscure luteous spot below the antennæ, and a large yellow lateral oval glabrous one on each side behind the eyes: mandibles ferruginous at the base; ocelli yellow; eyes fuscous; thorax black; abdomen a little silky above, the base of the 1st segment brownish, the 2nd entirely yellow above, 7th and 8th the same, 9th yellow above and below, excepting the base of the upper surface, which is brownish, its appendage also yellow; ovipositor ferruginous; femora black, 4 anterior yellow at the tips; tibiæ and tarsi entirely yellow; wings hyaline, yellowish, with the nervures and costa ferruginous, stigma dusky-black; antennæ luteous.

Male with the abdomen luteous, the 1st and last segment and its appendage black; the hinder pair of tibiæ and tarsi fuscous, pale at the base.

Extremely variable in size.

MANDIBULATA, VOL. VII., SEPT. 30TH, 1835.

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This magnificent insect occurs in various parts of Britain, from the end of July to the middle of September, but, although greatly diffused, is nevertheless very rare: it has been frequently found in and near London, in Kent, Berks, Wilts, Norfolk, near Edinburgh, Exeter, and Gloucester.

Sp. 2. *bizonatus*. PLATE xxxvi. upper left fig.—*Capite nigro, macula pone oculos utrinque flavâ, abdomine nigro, segmentis 2-do et 7-mo et basi 8-vi flavis.* (Long. corp. ♀ ovip. incl. 12—16½ lin.; Exp. Alar. ♀ 18—21 lin.)

Si. *bizonatus*. *Steph. Catal.* 342. No. 3998.

Head black, pubescent, with a large glabrous yellow spot at each side behind the eyes, and an obscure one on the clypeus; ocelli black; thorax black, immaculate; abdomen black, with the 2nd and 7th segments entirely luteous above, with the base of the 8th and the appendage to the 9th the same, this last segment totally black; femora black, anterior pair with the extreme tip luteous; tibiæ and tarsi also luteous, the posterior tibia black at the apex; antennæ luteous; wings hyaline, with the nervures and stigma pale testaceous; ovipositor black.

I have several examples of this fine insect—perfectly agreeing with each other—that were taken in and near London in August.

†Sp. 3. *augur*. *Capite fusco, postice late flavo.* (Long. corp. 3½ lin.; Exp. Alar. 2 unc. 1 lin.)

Si. *augur*. *Klug.—Donovan, v. xii. pl. 440.—Steph. Catal.* 342. No. 3999.

Head fuscous, yellow entirely behind the eyes, the latter fuscous; thorax brownish-yellow above, blackish beneath, with a large yellowish patch beneath the wings; abdomen yellow, with the 3rd, 4th, and 5th segments entirely, and the margins of the 6th and 7th, black; beneath brownish, except the last segment, which is yellow; legs yellow, posterior femora brownish at the base, the hinder tibiæ fuscous at the apex; wings yellowish, hyaline, nervures and stigma ferruginous; antennæ yellow.

Male with the basal joint of the antennæ fuscous; the abdomen tawny, with its base and apex black; the legs fuscous, with the base of the tibiæ and tarsi slightly yellowish.

Donovan gives this as a British species, but I have not yet seen an example.

Sp. 4. *Juvenus*. *Capite atro cæruleo immaculato, abdomine atro-cæruleo, aut rufu-fulvo basi (apiceque sæpissimè) atro cæruleo.* (Long. corp. ♂ 7 lin.—1 unc. 4 lin.; ♀ ovip. incl. 6 lin.—1 unc. 6 lin.; Exp. Alar. ♂ 10 lin.—1 unc. 8 lin.; ♀ 9 lin.—2 unc. 1 lin.)

Si. *Juvenus*. *Linné.—Curtis, v. vi. pl. 253 ♂ and ♀.—Steph. Catal.* 342. No. 4000.

Head punctate, villose, deep immaculate blue-black; mandibles black; ocelli fulvous; thorax also deep blue-black, villose and punctate; abdomen



robust, silky, finely punctured and deep blue-black above and below; the appendage at the apex short and conical; ovipositor also blue-black; femora rusty-red, with a blue gloss at the base; tibiæ testaceous; tarsi also testaceous, with the terminal joint fuscous; antennæ black; wings hyaline, pale testaceous, with the limb dusky, the nervures, costa, and stigma ferruginous, the last darkest.

Male blue-black, with the margins of the 3rd segment, and the whole of the 4th, 5th, 6th, and 7th red; the hinder tibiæ and tarsi dilated, compressed and dark blue-black; the penultimate joint of the tarsi red.

Both sexes vary in having the femora sometimes entirely red, at others more or less clouded with blue-black; the tibiæ are occasionally clouded with the same on the outer side; the number of joints in the antennæ appears to be variable, and the blue colour is frequently enlivened by tints of brightish green.

Male varies with the 6 basal joints of the antennæ bright red, the abdomen rufous, with the 2 basal joints and a patch at the base of the 3rd blue-black, the appendage only to the 9th also blue-black, legs as above.

This sex also varies in having the antennæ totally black, and the abdomen, with the exception of the 2 basal segments, bright red: this has been called *Si. nigricornis* of Fabricius, which is an American insect, and from which it differs in several particulars.

This beautiful and extremely variable insect is decidedly the most common, at least in this country, of the genus; it occurs near Birch

B. Maxillary palpi unarticulate; labial triarticulate.

†Sp. 5. Spectrum. *Niger, liturâ ante alas utrinque testaceâ.* (Long. corp. 1 unc. 1—2 lin.; Exp. Alar. 1 unc. 6 lin.)

Si. Spectrum. *Linné.*—*Stewart (!)*—*Steph. Catal.* 343. No. 4001, note.

Head hirsute in front, glabrous behind, deep black, with a testaceous spot on each side behind the eyes, which are brownish; thorax black, with the lateral margin crenulated and testaceous; abdomen finely punctate-striate transversely, its anal appendage rather long, acute, the base attenuated; ovipositor ferruginous; legs pale lutescent, the femora slightly ferruginous beneath; the terminal joint of the tarsi dusky; wings hyaline, with the margins slightly clouded, anterior with a faint transverse fascia towards the apex; costa pale, stigma fuscous.

Male with a triangular testaceous spot at the base of the mandibles; femora ferruginous, with the apex fuscous; the 4 anterior tibiæ testaceous, with the tip above fuscous; the posterior glossy-black, with the base whitish; tarsi with the apex dusky.

Stewart gives this as British, but I believe upon insufficient authority, arising from the circumstance of Donovan having misapplied the name to *Pimpla instigator*.



wood, on Bessell's green, beyond Darenth, at Cobham, in profusion near Shrewsbury, and at York; also occasionally in Norfolk, Suffolk, &c. from the end of July to the middle of September.

C. Maxillary palpi uniarticulate; *labial* biarticulate.

Sp. 6. Magus. *Atro-cærulescens*, *alis fusco nebulosis maculâ costali testaceâ; antennis apice (in fæminis) albis.* (Long. corp. ♀ ovip. incl. 1 unc. 4 lin.; Exp. Alar. ♀ 1 unc. 6 lin.)

Si. Magus. *Fabricius*.—*Steph. Catal.* 343. No. 4002.

Head blue-black, pubescent, occiput with a fovea, and forehead with two tubercles; thorax also pubescent and blue-black, rough; abdomen above finely punctured, silky, blue-black; the 2nd and 3rd segments with a minute whitish dot, and an elongate streak on the sides; the 4 following with a minute spot only, the 8th with a white rhombic spot, the rest immaculate; femora blue-black, tibiæ brownish-blue, with the base whitish; tarsi with the basal joint bluish-brown at the tip, the base whitish, the 3 following joints bluish-brown, the 5th whitish; claws brown; antennæ glossy-black, with the 9 terminal joints white.

Male said to have the antennæ totally black, the abdomen immaculate, and the legs entirely blue-black.

Taken, but very rarely, in the vicinity of London.

Subdivision B. of the TEREBRANTIA embraces those insects which form the genus *Ichneumon* of Linne, and may be considered as a sub-section by the name

PUPOPHAGA, *Latreille*,

Which have, as stated in page 4, the *abdomen* united to the thorax by a distinct peduncle.

This is a very extensive subdivision, and is again further divisible into 2 distinct sections, and into several families, which I shall treat of in the order given in my Catalogue, although probably not quite natural, as the 1st of these appears to have but little affinity with the preceding, and would rather seem to connect the Cynipidæ with the Ichneumonidæ, while the last (as *Pimpla*) are evidently allied to the Uroceridæ.

The 1st section upon which I shall treat contains the following families, which may be thus cursorily distinguished; premising that the group itself may be generally recognized by the posterior wings being furnished with distinct (frequently radiating) nervures—a character scarcely found in the 2nd section, and never wanting



except in the 8th family in the present, which offers so many other peculiarities as will almost remove it to the 2nd section.

<i>Antennae</i> 13-14-articulatæ:	.	.	.	.	.	4. EVANIIDÆ.
15-50-articulatæ,						
<i>Alis anticis</i> areolâ 1-mâ magnâ:	.	.	.	.	.	5. ICHNEUMONIDÆ.
areolis 2-bus longitudinalibus.						
<i>Palpis maxillaribus</i> 5-articulatis:	.	.	.	.	.	6. BRACONIDÆ.
4-articulatis:	.	.	.	.	.	7. ALYSIIDÆ.
6-articulatis:	.	.	.	.	.	8. APHIDIIDÆ.

FAMILY IV.—EVANIIDÆ, *Leach.*

Antennae with 13 or 14 articulations, filiform, or very slightly attenuated: *mandibles* denticulate: *maxillary palpi* filiform or setaceous, 6-jointed; *labial* 4-jointed: *head* vertical: *ocelli* 3: *collar* very short: *thorax* very convex: *metathorax* shelving: *abdomen* inserted beneath the scutellum; short and clavate, or elongate and somewhat linear: posterior *tibiae* sometimes clavate.

The insects included in this family vary much among themselves, the 2 typical genera having the abdomen remarkably small in comparison with the great bulk of the trunk: it is oval, compressed, and abruptly supported by a slender elongate peduncle, which is inserted close to the base of the scutellum, whereas, in the other genus, the abdomen is considerably elongate, and of a gradually clavate form, inserted by its smaller end beneath the scutellum; the ovipositor of the female is exserted, and the habit of the insect tends towards the Glyptæ, Xylonomi, &c. amongst the Ichneumonidæ, while the typical forms resemble the Cynipidæ.

The following genera are found in Britain:—

Abdomen breve, abrupte petiolato,
Alæ anticæ areolis discoidalibus : 35. *EVANIA*.
nullis : 36. *BRACHYGASTER*.
elongatum, gladatim clavatum :
Alæ anticæ areolis submarginalibus 2 : 38. *FÆNUS*.
1 : 37. *PAXYLOMA*.

GENUS XXXV.—EVANIA, *Fabricius*.

Antennae approximating, slightly attenuated towards the apex, 13-jointed, basal joint elongate, subclavate, 2nd minute, 3rd as long as the basal, 4th slightly shorter, the remainder gradually decreasing to the 12th, the terminal one as long as the 6th: *palpi* unequal; *labial* with the penultimate joint sometimes dilated: *head* transverse; *metathorax* abruptly shelving:



GENUS XXXVI.—BRACHYGASTER, *Leach.*

Antennæ approximating, slightly thickened towards the apex, 13-jointed, basal joint longest, a little shortest at the apex, 2nd minute, 3rd not much longer, the remainder gradually diminishing in length: *head* subglobose, transverse above: *eyes* not prominent: *thorax* glabrous: *wings* short, anterior with the discoidal areolets and apical nervures obliterated: *abdomen* 3-articulate,

abdomen very short, compressed, consisting of 4 segments, arising from an elongate very distinct peduncle, which is inserted immediately below the scutellum: *ovipositor* not exerted: *wings* moderate; anterior with 2 or 3 distinct areolets on the disc, and the apical nervures conspicuous, with 1 marginal areolet: *legs* elongate: *tibiæ* not clavate, with a pair of spurs at the apex.

From *Brachygaster* these insects differ, as pointed out by Latreille, manifestly by having the anterior wings furnished with distinct areolets on the disc, and 1 large marginal one, besides having the nervures continued nearly to the apex: the antennæ are of a different form, and the proportions of the joints dissimilar, as well as those of the palpi: the *Evania* seem destined to keep within bounds the true *Blattæ*, and as I believe that genus of insects not to be an aboriginal native, their parasites certainly cannot be; I therefore place the species (of both which I possess English examples) at the foot of the page, in accordance with my usual plan.

Sp. 1. *appendigaster*. *Toto atra, corpore pube canescente tenuissime tecto.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $\frac{6}{12}$ —7 lin.)

Sp. *appendigaster*. *Linnæ.—Donovan, v. 13. pl. 329.—Ev. appendigaster. Steph. Catal. 343. No. 4003.*

Entirely deep black, very delicately clothed with an ashy pile; thorax deeply punctured; abdomen glabrous and very glossy; legs and antennæ black; wings with a dark stigma.

I possess a single specimen of this insect, which was taken in London.

Sp. 2. *flavicornis*. *Nigra, tibiis 4 anticis tarsisque omnibus obscure rufis, alarum squamis geniculis posticis antennisque lætæ rufis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Ev. flavicornis. Curtis ?—Steph. Nomen. 2d edit. col. 131.

Black, with an ashy pile; antennæ and wing scales light red; 4 anterior tibiæ dull red, lighter at the base; tarsi also dull red, the hinder pair somewhat pitchy, and the apex of the posterior femora and base of the tibiæ also red, the rest of the tibiæ pitchy; thorax deeply punctured; abdomen glabrous beneath; wings fuscous, with the stigma dark.

I have a pair of this species, which was taken, along with others now in the British Museum, at Bristol.



compressed, inserted by a long slender peduncle below the scutellum: *ovipositor* not exerted: *legs* moderate: *tibiæ* not clavate, with a pair of spurs at the apex.

These minute insects, at a first glance, resemble some of the Chalcidæ, from the paucity of nervures in their anterior wings, their short antennæ, and petiolated abdomen: from the true Evaniæ they may be known by the antennæ being faintly thickened towards the apex, and by having the 3rd joint scarcely longer than the 2nd, as well as the anterior wings being destitute of discoidal areolets: the indigenous species are probably parasitic upon the insects of the genus *Ectobius*, and as this last genus is rather numerous, there are probably many species, but, as yet, 2 only have been detected.

Sp. 1. *minutus*. *Totus niger, alis hyalinis*. (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. 3 lin.)

Ev. *minuta*. *Olivier*.—Br. *minuta*. *Steph. Catal.* 343. No. 4004.

Black, shining, coarsely punctured; head, trunk, and petiole with a slightly hoary pubescence; abdomen glabrous, smooth, glossy; legs black, anterior pair slightly pitchy in front.

My specimen of this insect was taken by Mr. Dale, who finds this species on Parley Heath in September.

†Sp. 2. *fulvipes*. *Niger, tibiis tarsisque anterioribus fulvis*. (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. 3 lin.)

Ev. *fulvipes*. *Curtis, v. vi. pl. 257*.—*Steph. Catal.* 343. No. 4005.

“Black, shining, variolous; antennæ rather thickened towards the apex; head, trunk, and petiole pubescent, the femora transverse-globose; abdomen ovate, very shining; four anterior legs with the apex of the thighs, the tibiæ and tarsi fulvous.”—*Curtis, l. c.*

Taken near Dorchester, and near Heron Court, Hants, in August.

GENUS XXXVII.—PAXYLOMA, *De Brebisson*.

“*Antennæ* filiform, not so long as the body, 13-jointed, basal joint rather the stoutest and chalice-shaped, 2nd globose, 3rd long, the remainder decreasing in length: *palpi* minute: *head* transverse: *eyes* large: *thorax* small and globose: *abdomen* long and clavate: *ovipositor* shorter than the groove that receives it: superior (anterior) wings with a long narrow stigma placed in the marginal cell (areolet), which is of the same form; submarginal cell 1, arising at the angle of the marginal one, and extending to the posterior margin; discoidal cells 2, the superior one reaching the stigma; posterior legs rather long; coxæ and thighs slender; tibiæ rather clavate; tarsi thicker than the thighs, the basal joint longest, very long in the 1st and 2nd pair.”—*Curtis, l. c.*



Mr. Haliday, in the place quoted, suspects this genus is referrible to this family: as I have never seen the insect, I shall follow his opinion, as from the description it evidently differs much from the Braconidæ. Mr. Shuckard informs me it is the *Paxyloma* De Breb.

†Sp. 1. apicalis. *Ochraceus, antennarum apice capite thoracis dorso abdominisque apice nigris.* (Long. corp. $1\frac{1}{2}$ lin.)

Plancus apicalis. *Ent. Mag. (Curtis) v. i. 188.—Vide E. M. (Haliday) v. iii. p. 22.*

“Ochreous, shining; antennæ, excepting the 2 basal joints, and head, excepting the mouth, blackish; back of thorax and apex of abdomen black, the base and middle of the latter fuscous; stigma and nervures brown; legs pale ochre; posterior pair testaceous.”—*Curtis, l. c.*

Supposed to have been taken near London.

GENUS XXXVIII.—FŒNUS, *Fabricius*.

Antennæ approximating, short, straight, filiform, 15-jointed in the males, 14-jointed in the females; basal joint short, ovate, rather stoutest; 2nd smallest, minute; 4th longer than the 3rd, 5th almost as long, the remainder gradually decreasing in length to the apical one, which is somewhat longer than the 4th: *palpi* rather unequal, filiform: *head* orbicular, attached by a distinct neck: *thorax* narrow, compressed: *wings* rather short; anterior with 1 large marginal areolet, 2 large submarginal ones, and 3 small irregular ones on the disc: *abdomen* elongate, compressed, narrow, clavate, very slender at the base: *ovipositor* exerted, long: *legs* short, posterior longest, their *tibiæ* clavate, with a single spine at the apex, the anterior with one towards the apex: *tarsi* moderate.

The long clavate abdomen of both sexes of this genus, and their clavate hinder tibiæ, combined with the exerted ovipositor of the females, the dissimilarity in the neuration of the wings, &c. sufficiently indicate their distinction from the 3 preceding genera. These insects frequent sandy situations, and are probably parasitic upon *Pompili* and other *Sphægiform* insects, *Stelis phæoptera*, &c.

Sp. 1. *Jaculator. Niger, subnitidus, abdominis segmentis 2-do, 3-tio et 4-to pallide rufis, tibiis tarsisque posticis annulo albo.* (Long. corp. ♂ 5—6 lin.; ♀ ovip. incl. 1 unc. 1 lin.; Exp. Alar. $6\frac{1}{2}$ —7 lin.)

Si. *Jaculator. Linné.—Fœ. Jaculator. Steph. Catal. 343. No. 4006.*

Black, slightly glossy: head very minutely punctured; thorax coarsely reticulate-punctate; abdomen with the 2nd, 3rd, and 4th segments pale red; ovipositor about as long as the rest of the insect, reddish; legs black, the 4 anterior tibiæ whitish at the base, the hinder pair with a white ring near the base, and on the basal joint of the tarsi; wings hyaline, white.



The 4th segment of the abdomen is sometimes dusky, or fuscous above; and the male wants the white ring on the posterior tarsi.

Taken in several places within the metropolitan district, as in Battersea fields, Barnes Common, Darenth and Coombe woods, &c.; also at Rochester, near Bristol, and in Norfolk, towards the end of June.

Sp. 2. assectator. *Nigris, abdomine segmento 2-do, 3-tio, 4-toque latere rufis, pedibus piceo-nigris, tibiis basi albidis.* (Long. corp. ♂ 4—6 lin.; ♀ ovip. incl. 8—9 lin.; Exp. Alar. 6—6½ lin.)

Te. assectator. *Linné.*—Fæ. assectator. *Steph. Catal.* 343. No. 4007.—*Curtis*, v. ix. pl. 423.

Dull- or pitchy-black, with a slight silken pile: head and thorax very minutely punctured, and the latter with coarse punctures; abdomen with an indistinct reddish fascia on the 2nd, 3rd, and 4th segments, most distinct on the sides; ovipositor less than half the length of the abdomen; legs dull or pitchy-black, with a pale ring at or near the base of the tibiæ; tarsi slightly rufescent.

Less abundant than the last: found at Bessell's green, near Darenth wood, in the Isle of Wight, Devonshire, &c. about the end of June.

FAMILY V.—ICHNEUMONIDÆ,* *Leach.*

Abdomen attached to the thorax by a part of its transverse diameter: *antennæ* filiform or setaceous, consisting of from 15 to 50 articulations, or upwards:

* The arrival at this point of my subject allows me the opportunity of introducing some remarks upon the general nature of these Illustrations. It will be seen, upon a reference to the Introduction in my 1st vol., that I there state it to be my intention to introduce into these pages all the species that had previously been recorded as British, placing such as appeared, from my experience, to have been improperly, or accidentally, introduced at the bottom of the page; but, with regard to the group now under consideration, I must depart from that resolution, as, for some untenable reason, *all* the species contained in Gravenhorst's *Ichneumonologia Europæa* were for a period of at least 2 years given to the world as indigenous; I shall therefore merely introduce those species only which I have ascertained, with considerable labour, to be really found in this country, following Gravenhorst's arrangement, with one or two very trifling alterations; as, from the vastness of modern entomological science—my own collection now verging upon 100,000 specimens—I am not ashamed to acknowledge my ignorance of this and some other groups that have within these few years been extensively investigated by others; it



palpi filiform, maxillary usually 5-jointed: *mandibles* bidentate, or notched: anterior wings with the first submarginal areolet very large, the 2 discoidal ones situated longitudinally one above the other, the outer one as broad at its base as the apex of the external humeral one: *ovipositor* either concealed, or more or less exserted, often above twice the length of the insect, slender, setaceous. Larvæ elongate, fleshy, subsisting upon the fatty portions of other living larvæ—chiefly of the Lepidoptera—in which they frequently change to pupa, these last are sometimes enveloped in a tough glossy silken cocoon, or in one of an open texture.

The insects contained in this very extensive and difficult family appear destined to keep within due bounds the larvæ of other insects, especially those of the Lepidoptera, upon which they subsist

would therefore be presumptuous in me to venture upon breaking up the labours of Gravenhorst, &c. without the probability of improving them; but, so far as the mere ascertainment of the indigenous species allows, I conceive the object of *my* investigations will be fully answered in these pages, as I have been unremitting in my endeavours to detect as many as possible, though, from the immense extent of, and great difficulty attendant upon many parts of, the subject, I cannot expect to make other than an approximation to the truth. With regard to another matter, I must again refer to the Introduction to my 1st vol., wherein it is observed “that I have endeavoured to steer the middle course, and to give such distinctive characters as will apparently separate from its affinities any particular insect that has come under my observation,” “as minute descriptions are the province of the monographer alone, and are ill calculated for a work of this nature;” and shall merely remark, with reference to the additional observations in the Entomological Magazine, vol. iii. p. 170, to which, or other criticisms, I have *doubtless a right* to reply—that although I never attempted to compare my labours with those of Kirby and Gylenhal, therein referred to, it may be stated that the descriptions of the latter author occupy upon an average above a page each—viz. 2,190 species in 2,630 pages—and those of the former, with their accompanying notes, from 1 to 12 pages—210 species in 377 pages, and a volume upon the sections;—hence the length of time alluded to by me in the postscript to my 5th volume, as required for the completion of this work upon a similar plan (exclusively of the additional expense): and although in that postscript I alluded to the fact of Mr. Shuckard’s inability to ascertain certain species of *Andrena*, &c. by means of the “*Monographia Apum Angliæ*,” a position corrected by me in my vol. vi. p. 19, it may be added, that *those insects* are of a peculiar habit, and speedily alter by age during life, and hence the same species assumes so many phases, that it becomes almost impossible, from the description of a single example of a long-excluded individual, however accurate—and the accuracy of Mr. Kirby “is beyond all praise,”—to give a definition that shall correspond with a recently disclosed one, a cause that does



during the life of the latter, which have, however, in general, sufficient vitality left to enable them to change to pupæ; though sometimes the young Ichneumons may be observed worming themselves out of their living prey: they are themselves subject to the attacks of other

not operate in other families: how far, therefore, the calculations made in regard to my unpublished labours depend upon *similar circumstances* the candid entomologist will be best able to appreciate, especially as it is assumed that because the descriptions are *not printed, they cannot be written !!!* And with respect to the *mere assertion* that the result of an investigation of Gyllenhal's descriptions is constantly satisfactory, I presume that my innate stupidity, or *want of tact*, prevents me from profiting in that manner, as *I* have been unable to determine satisfactorily numerous species described by him, as a reference to the 2nd edition of my Nomenclature will render manifest! These critiques, combined with the simultaneous actions of the writer, aroused *my* sensibility!! I shall conclude this note by adding that every person has clearly an unquestionable right, to a certain extent, of availing himself of the *published* labours of his predecessors. I have therefore, as also stated in my Introduction and elsewhere, openly taken advantage thereof, and have as constantly referred to the authors—either through the medium of my Catalogue or of these pages—where any information may have been thus obtained; and in drawing up the descriptions either of the genera or of the species, I have (where practicable) invariably taken the best previous description, and have either endeavoured to extract its principal points, when too diffuse, or to augment them, when too scanty, so as to correspond with the insects in my cabinets; a proceeding equally adopted by those persons who affect pure originality, as may be seen by a comparison of their labours with those of their predecessors. These remarks are elicited in consequence of a recent reiteration of the charge against me for not acknowledging *particular* sources whence I may have obtained information,† as a retort for previous observations of mine, but the point is widely different, as my remarks apply solely to such writers as *obtain by artifice the unpublished notes* of others, and subsequently incorporate them with, and claim them as, their own. I complain not of the profuse employment of the localities *discovered* by me, and published in these pages, or of the extraction of any other information therefrom, whether taken from a purchased copy, or from one presented to a public library!!

† To prevent the reader from being misled by an erroneous statement, it is necessary that I should notice a remark by Mr. Curtis, under *his* genus (559) *NASCIA*, who states “that Hübner divides the species (included under *Margaritia*) into 16 genera, to which Mr. Stephens has added another;” and upon these false data proceeds to add a lengthened tirade about the puerility of forming genera upon trifling characters. Now, upon referring to Hübner, it



parasites (Chalcididæ, &c.) thus realizing, in some measure, the statement of the poet, that—

“Great fleas and little fleas have smaller fleas to bite ’em,

“The smaller fleas have lesser fleas, so on ad infinitum.”

The British species, which amount to several hundreds, are divisible into numerous genera, but, for reasons stated in the note, I shall follow Gravenhorst, and commence by an abridgment of his tabular view of the indigenous genera, with a few slight additions.

Abdomen convexum aut depressum, petiolatum aut subsessile.

Capite transverso: *scutello* elevato: . . . 48. TROGUS.
plano.

Pedibus posticis haud simul validis et elongatis.

Aculeo fœminæ abscondito, aut subexserto.

Cellula 5-angulari, rarissime 3-angulari aut nulla.

Abdomine cylindrico: . . . 40. ISCHNUS.
ovato, aut oblongo.

Cellula distincta:

Areola exteriore incompletâ: . . . 41. STILPNUS.
completâ: . . . 39. ICHNEUMON.

Cellula nulla:

Alis longis: . . . 43. MICROLEPTES.
brevissimis: . . . 42. BRACHYPTERUS.

Cellula parva 3-angulari, aut irregulari vel nulla.

will be found that the insects alluded to are divided by him into only 12 genera (vide vol. iv. p. 417) 10 of which I have condensed into 1, viz. *Margaritia*!! from *one section* of which Mr. Curtis has removed one of the species as a *genus* (*Nascia*) because its maxillæ are rather short!!! whereas in a previous folio (555) he there unites discordant groups, in one portion of which the maxillæ are short, and in the other “long and perfect,” exclusively of differing in other respects, as well as in outline, which he, in folios 207, &c., states to be a good character in the discrimination of Lepidopterous genera!!! I will only add, that so far from coinciding with Hübner, I have (as may be readily seen upon a reference to the 4th vol. of *Haustellata* throughout, and to the forthcoming 2nd part of my *Nomenclature*) in very numerous instances reduced *his genera* to mere subdivisions, not employing them as genera, as Mr. Curtis so disingenuously infers!!

With these observations, referring also to what I have stated in the Appendix to the 4th vol. above referred to, I close all further notice of the numerous attacks that have or may be made regarding these Illustrations, hoping, from the progress I have already made, by unwearied application, and the continued blessing of good health, to bring them to a conclusion by this day twelvemonths, without designedly abbreviating *one tittle* for the purpose of compressing them within “an inconvenient length”!



- Abdomine* petiolato nitidulo lævi : . 44. **MESOLEPTUS.**
subsessili :
- Facie* planâ, *tarsis posticis* gracilibus : 45. **TRYPHON.**
crassiusculis : 47. **SCOLOBATES.**
protuberante : . . . 46. **EXOCHUS.**
- Aculeo* fœminæ exserto.
- Apteri* : 56. **PEZOMACHUS.**
- Alati* :
- Abdomine* petiolato.
- Cellulâ* majore rhombea : . . 59. **MESOCHORUS.**
minore aut nullâ.
incompleta 5-angulari : 54. **HEMITELES.**
completâ aut nullâ.
nulla aut 3-angulari,
Scutello apice obtuso : 58. **ISCHNOCEROS.**
spinoso : 55. **AGRIOTYPUS.**
minuta 4-atâ . . . 53. **MESOSTENUS.**
5-angulari :
- Pedibus* et *antennis* subcrassiusculis : . 52. **PHYGADEUON.**
gracilibus.
- Metathorace* acute-spinoso : . 50. **HOPLISMENUS.**
mutico (aculeo longo) . 51. **CRYPTUS.**
- Abdomine* subsessili ;
- Areolâ* interioris nervo infero recto : . 60. **PLECTISCUS.**
angulato : 57. **PHYTODIETUS.**
- Pedibus* posticis validis, elongatis : . . . 88. **ACENITES.**
- Abdomen* compressum, aut subcompressum.
- Abdomine* sessili, aut subsessili :
- Cellulâ* distincta,
parvâ 3-angulari : . . 77. **COLEOCENTRUS.**
majore, rhombea :
- Abdomine* sessili : . . . 75. **BANCHUS.**
subpetiolato (*aculeo* brevi) : . . 76. **EXETASTES.**
- Cellulâ* nullâ : *pedibus* posticis crassis : . . 78. **AROTES.**
- Abdomine* petiolato.
- Femoribus* posticis crassis : . . . 84. **PACHYMERUS.**
simplicibus :
- Tarsis* posticis crassis : . . . 81. **ANOMALON.**
omnibus gracilioribus :
- Areolâ* radialis, permagna, 3-angulari : . . 86. **PORIZON.**
- Abdominis* segmentis intermediis transversis : 67. **PIMPLA.**
elongatis : 68. **EPHIALTES.**
- Cellulâ* nullâ.
- Abdominis* segmentis transversim impressis.
- Pedibus* crassiusculis : . . . 65. **SCHIZOPYGA.**
mediocribus.
- Abdomine* ♀ & apice subtus, fisso : . 64. **POLYSPHINCTA.**
integro : . 66. **CLISTOPYGA.**



- Abdominis* segmentis intermediis oblique bi-
lineatis : . . . 61. GLYPTA.
Thorace transversim ruguloso : . . . 69. RHYSSEA.
Abdomine convexo, opaco, scabro : . . . 70. TRACHYDERMA.
depresso, segmento 1-mo æquilato plano
Antennis medio incrassatis : . . . 74. EUCEROS.
simplicibus.
Pedibus crassiusculis : . . . 73. ORTHOCENTRUS.
subgracilibus : . . . 72. BASSUS.
Capite globoso, aut subgloboso.
Cellula triangulari : . . . 49. ALOMYA.
nulla aut 5-angulari.
Femoribus simplicibus.
Cellula pentagona : . . . 92. ECHTHIRUS.
nulla, *facie* 4-ata : . . . 89. XYLOMOMUS.
versus os angustata : 90. XORIDES.
posticis crassis, dentatis : . . . 91. ODONTOMERUS.
Abdomen convexum, aut depressum, sessile.
Abdomine convexo, nitido :
Scutello transverso, 4-angulari : . . . 71. PELTASTES.
3-angulari, aut orbiculari.
Thorace lævi, *abdominis* segmentis lævibus :
Antennis crenulatis : . . . 63. LAMPRONOTA.
haud crenulatis : . . . 62. STILBONOTA.
Thorace lævi, *abdominis* segmentis incisic aut tuberculatis.
Cellula distincta,
angustâ, sublanceolatâ.
Areolâ interiore nervo uno recurrente.
Abdomine subcompresso.
Cellula 3-angulari aut nullâ : . . . 70. CAMPOPLEX.
5-angulari : . . . 87. ATRACTODES.
perfectè compresso.
Cellula 3-angulari (*abdominis* segmento 1-mo conico) 80. PANISCUS.
nullâ : . . . 85. CREMASTUS.
Areolâ interiore nervis 2-bus recurrentibus.
Thorace lævi :
Areolâ submarginali 1-mâ simplice : . . . 82. OPHION.
maculatâ : . . . 83. ENICOSPILUS.

GENUS XXXIX.—ICHNEUMON, *Auctorum*.

Antennæ moderate, more slender and generally more porrected in the males than in the females, in which sex they are frequently involuted at the apex, and sometimes faintly dilated in the middle: *head* transverse, rather narrower than the thorax: *eyes* prominent: *thorax* rather gibbous: *scutellum* flat, triangular, with the apex obtuse or truncate, or somewhat quadrate: *abdomen* oblong or subovate, with its basal segment more or less gibbose,



rough and opaque, supported by a rather long, linear peduncle, having an obtuse angle in its middle: apex of the abdomen rather acute: *ovipositor* concealed, or merely exposed at the apex: *wings* moderate, the cellule* for the most part 5-angular, rarely 3-angular, or pyramidal, or somewhat 4-angular: *legs* moderate.

Of this fine genus, which embraces many of the more conspicuous insects of the family, above 200 species appear to occur in Britain: the principal characters of distinction, as pointed out by Gravenhorst, consist in the abdomen being oblong or subovate, with its first segment somewhat globulous and rough, the peduncle long, linear, and bent; the cellule (or second submarginal areolet) tending to 5-angular; the antennæ and legs of moderate length; and the ovipositor hidden, or but very slightly exposed.

§ I. *Scutellum* and *abdomen* entirely black, or dark.

Sp. 1. *Monticola*. *Niger, metathorace subspinoso, abdomine atro-ceruleo, antennis albo annulatis.* (Long. corp. 8—9 lin.; Exp. Alar. 12—13 lin.)

Tr. *Monticola*. *Gravenhorst*, i. 108.—*Steph. Nomen*. 2d. edit. col. 131.

Black: antennæ with the 10th to 18th joints white; metathorax shagreened with two acuminate tubercles; abdomen deep blue, with the 1st segment deeply channelled, the 2nd punctured and somewhat opaque, the rest shining: anterior legs with the tibiæ and tarsi straw-coloured in front; wings hyaline, slightly stained, stigma ferruginous; scales and costa black; cellule 5-angular.

This fine insect appears to be very rare; the only examples I have seen were captured in South Wales, in July.

Sp. 2. *comitator*. *Niger, orbitis oculorum internis pallidis, antennarum annulo albo.* (Long. corp. 5—7 lin.; Exp. Alar. 9—10½ lin.)

Ic. *comitator*. *Linné*.—*Steph. Catal.* 346. No. 4322.

Black: inner orbits of the eyes above more or less whitish, or ferruginous, and sometimes a minute dot on the occipital edge; antennæ half the length of the abdomen, the tip curved inwards, the 9th to 15th articulations white above and on the sides, the following rusty or fuscous beneath; abdomen oblong-ovate, black or bluish, the 2nd segment sometimes of a dusky-black, with the extreme margins chestnut; anterior legs with the apex of the femora, and their under side, and that of the tibiæ dull-yellowish, the last sometimes fuscous; middle femora at the apex beneath, and the tibiæ beneath, rusty; posterior for the most part black, the femora beneath and

* The small areolet on the disc of the anterior wings, or the central submarginal one, when 3 are present, represented in plate xxxix., beneath the figures.



base of the tibiæ sometimes a little rusty; 4 anterior tarsi ferruginous beneath, posterior fuscous; wings hyaline, smoky, scales and stigma red, brown, or black, costa fuscous.

The number of pale joints of the antennæ varies a little.

Larva feeds on the larvæ of Bombycidæ and of *Abraxas grossulariata*, &c.

Not uncommon, within the metropolitan district, in gardens, woods, &c. in June and July: also in Scotland.

Sp. 3. *alboguttatus*. *Niger, puncto marginali segmento 3-tii et 4-ti, annuloque antennarum albidis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 9—10 lin.)

Ic. *alboguttatus*. *Gravenhorst.—Steph. Catal. 346. No. 4323.*

Black: frontal orbits of the eyes white; antennæ with the 10th to 14th joints white above and on the sides; thorax with a white dot beneath the wings; abdomen shining blue-black, with the extreme edges of 2nd to 4th segments rusty, the 3rd and 4th with a minute glaucescent marginal spot; the lower edge of the anterior tibiæ and a dot at the tip of the femora whitish, the middle femora the same; wings hyaline, slightly smoky, with the stigma, costa, and scales fuscous, the cellule somewhat triangular.

Apparently very rare: taken in the New Forest in June.

Sp. 4. *nigritarius*. *Niger, tibiis anticis subtus dilutè rufis, antennis albo annulatis.* (Long. corp. $4\frac{1}{2}$ — $6\frac{1}{2}$ lin.; Exp. Alar. 10—11 lin.)

Ic. *nigritarius*. *Gravenhorst.—Steph. Catal. 346. No. 4324.*

Black: antennæ porrect, rather shorter than the body; all from the 13th to 18th joints, or the greater portion only, more or less white; abdomen with the 2nd to 6th segments of equal width, the 2nd to 4th sometimes with the extreme edge castaneous; legs moderate, anterior with the femora beneath entirely, or the tip only, reddish, or yellowish, tibiæ the same, fuscous above; middle femora with the apex and tibiæ entirely or on the inner side the same, and the posterior ones towards the base reddish; wings hyaline, smoky, the stigma black, pitchy, or red; costa fuscous; cellule 5- or somewhat 3-angular.

Larva subsists on that of *Plusiæ Gamma*, *Festucæ*, and other *Noctuidæ*.

Not uncommon in woods and hedges, upon umbelliferous flowers within the metropolitan district, in June and July.

Sp. 5. *tenuicornis*. *Niger, antennarum annulo et parte orbitalium internarum oculorum albis, femoribus anticis rufo-maculatis, tibiis anticis subtus flavis, cellula 3-angulari.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

Ic. *tenuicornis*. *Gravenhorst, i. 115.—Steph. Nomen. 2d edit. col. 131.*

Black: head with a white dot on the sides near the clypeus, and another on the orbits above, the inner orbit more or less distinctly whitish; antennæ porrect, nearly as long as the body, slender, the 13th to 16th joints white; abdomen with the 1st segment acuminate and punctured, its peduncle rather short, 2nd segment more or less punctured, with the margin shining, the



remainder more glossy; legs with the anterior femora beneath rufous, or with the extreme tip chestnut, tibiæ with the apex red, the inner edge yellowish; middle femora reddish beneath, tibiæ with the inner margin on the apex externally yellow; wings hyaline, sometimes smoky, with the stigma, costa, and scales fuscous, the cellule 3-angular, with nearly equal sides.

Rare; taken in Norfolk.

Sp. 6. nigrocyaneus. *Nigro-cyaneus, annulo antennarum albo, cellula 3-angulari* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

Ic. nigrocyaneus. *Gravenhorst*, i. 117.—*Steph. Nomen*. 2d edit. col. 131.

Blue-black: mouth fuscous; antennæ with the 11th to the 15th joints white above and on the sides; abdomen bluish, shining; anterior legs with the inner side of the femora and of the tibiæ pale yellowish; wings smoky-hyaline, with the stigma, costa, and scales black, the cellule 3-angular.

Larva feeds on that of *Plusia Festuæ*.

My specimen of this beautiful species was taken in Plaistow Marshes, in the larva of *Plusia Festuæ*.

Sp. 7. pallifrons. *Niger, punctis ad alarum radicem, tibiisque latere externo albis; mas facie albâ; fœmina annulo antennarum albo.* (Long. corp. 4—6 lin.; Exp. Alar. $7\frac{1}{2}$ — $8\frac{1}{2}$ lin.)

Ic. pallifrons. *Gravenhorst*, i. 117.—*Steph. Nomen*. 2d edit. col. 131.

Black: an interrupted faint line round the orbits and palpi white; labrum rufescent; antennæ half as long as the body, curved inwards at the tip, with the 9th to the 14th articulations white above and on the sides; thorax with a spot before, and another fainter one, beneath the wings, white; apex of anterior femora ferruginous, their tibiæ within whitish, with the apex ferruginous, and a white dot near the base without; 4 posterior with a white ring near the base, broadest on the hinder pair; tarsi fuscous; wings somewhat smoky-hyaline, with the stigma pitchy or ferruginous, the costa and scales fuscous; cellule, generally, 5-angular.

Male with the face, clypeus, palpi, and mostly a portion of the outer orbits white; antennæ as long as the body, fuscous, with the basal joint beneath whitish, the remainder more or less ferruginous; legs nearly as in the female, but more ferruginous within.

Taken, but not very commonly, in the vicinity of London and in Shropshire.

Sp. 8. fasciatus. *Niger, tibiis tarsisque, nec non orbitis oculorum internis et puncto ad alarum radicem albis.* (Long. corp. $7\frac{1}{2}$ lin.; Exp. Alar. $11\frac{1}{2}$ lin.)

Ic. fasciatus. *Gmelin*.—*Steph. Nomen*. 2d edit. col. 131.

Black: palpi, spot on the mandibles, inner orbits, and a dot on the occipital orbits, white; antennæ with the under side of the basal joint more or less white; thorax with a white dot above and beneath the wings; abdomen

MANDIBULATA, VOL. VII., SEPT. 30TH, 1835.

i



punctured, the 1st and 2nd segments longitudinally aciculated; anterior femora beneath and middle of the tip pale yellow; 4 anterior tibiæ whitish, with the outer edge towards the apex black, posterior pair white, black at the tip; tarsi white, 4 anterior with the tips of the joints reddish or brownish, posterior whitish, with the basal joint black at the tip, the other joints more or less black; wings rather smoky-hyaline, with the stigma fuscous; cellule somewhat 5-angular.

Posterior tibiæ sometimes dusky.

Very rare: found in July in the New Forest.

Sp. 9. *lineator*. *Niger, orbitis oculorum internis et lineolis duabus ante scutellum albis*; fœmina *annulo albo antennarum*. (Long. corp. $5\frac{1}{4}$ — $7\frac{1}{2}$ lin.; Exp. Alar. $9\frac{1}{2}$ —11 lin.)

Ic. *lineator*. *Fabricius*.—*Steph. Catal.* 346. No. 4325.—Ic. *nigrator*. *Fab.*—*Steph. Catal.* No. 4326, var. ♀.—Ic. *narrator*. *Fab.*—*Steph. Catal.* 4327, var. ♂. Black: palpi pale, or dusky; mandibles sometimes with a reddish or yellowish spot; inner orbits of the eyes, and a dot on the occipital orbits, white; antennæ about half the length of the abdomen, incurved at the tip, with the 10th to 16th joints, in part, or all, white above and on the sides; thorax with a dot or streak before the wings (on the collar), and one beneath, sometimes wanting, as well as a dot or streak on each side of the base of the scutellum white; abdomen punctured, somewhat opaque, more glossy towards the apex, frequently bluish or violaceous, with the extreme edge of the 2nd to 5th segments at times ferruginous; 4 anterior femora beneath at the apex, and the tibiæ within red, or ferruginous; posterior femora sometimes chestnut beneath, and their tibiæ red towards the base; wings hyaline, with the stigma, scales, and costa black, or ferruginous.

Male, with the inner orbits of the eyes very broadly white, and the outer ones narrowly so; antennæ porrect, black; legs with the femora and tibiæ beneath inclining to pale yellow instead of red; but both sexes vary a little in these respects, as well as in wanting the 2 streaks at the base of the scutellum, or white orbits.

Abundant within the metropolitan district, the larvæ subsisting upon those of the Bombycidæ: found towards the end of June and in July.

Sp. 10. *nigerrimus*. *Ater nitidus, tibiis anticis interne albis*. (Long. corp. 6 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ic. *nigerrimus*. *Steph. Nomen*. 2d edit. Appendix.

Deep glossy black: head and thorax immaculate; abdomen rich blue-black, opaque at the base, the terminal segments rather shining; legs slender, anterior tibiæ white within, and the extreme base of the 2nd pair whitish; antennæ rather slender, black; wings smoky-hyaline, with the stigma, costa, and scales black; cellule nearly triangular.

Rare: taken in Shropshire by the Rev. F. W. Hope, to whom I



am particularly indebted, not only for his liberality throughout, but especially as regards the Ichneumonidæ, by the presentation of numerous species, and the loan of the original specimens received by him from Gravenhorst.

Sp. 11. *castigator*. *Niger, femoribus tibiisque rufis, stigmatibus alarum vinaceo, aut nigro.* (Long. corp. 4—7½ lin.; Exp. Alar. 9—10 lin.)

Ic. *castigator*. *Fabricius.—Steph. Catal. 347. No. 4359.*

Black: antennæ of the male porrect, of the female incurved at the apex and rather shorter, rarely entirely black or totally red, with only the 4 basal ones red below, for the most part the 3rd to 15th joints are red, the rest fuscous; metathorax with 2 spines; abdomen of the male nearly twice as long as the thorax, and narrow, slightly shining, with the 2nd to 5th segments of equal width; of the female rather longer than the thorax, ovate, very slightly compressed towards the apex, the 2nd segment with a fine chestnut edge; legs dull red, with the coxæ and trochanters, and the apex of the hinder tibiæ and the hinder tarsi black; wings yellowish-hyaline, rarely smoky, with the stigma luteous, or ferruginous, in rare instances black, costa and scales fuscous or black.

Sometimes the inner orbits of the eyes are reddish or whitish, or there is a white dot only on the occiput: the mandibles are occasionally red in the middle; and the wings fuscescent.

Larvæ feed on those of *Vanessæ Atalanta*, *Io*, *Cynthia Cardui*, &c.

Not uncommon within the metropolitan district, towards the end of June and beginning of July; found also in Shropshire and South Wales.

Sp. 12. *compunctor*. *Niger, orbitis oculorum internis late albis, stigmatibus atro, femoribus tibiisque rufis, antennis subtus ferrugineis.* (Long. corp. 7½ lin.; Exp. Alar. 12 lin.)

Ic. *compunctor*. *Marsh MSS.—Steph. Catal. 346. No. 4334.—Ic. calceatorius? Steph. Catal. 347. No. 4354.*

Black: inner orbits of the eyes broadly white; scutellum gibbous, nearly black; abdomen opaque, punctured, with the apex rather shining, and the extreme edge of some of the segments reddish, legs bright red, coxæ and 4 anterior trochanters black, also the apex of the posterior tibiæ, and the hinder tarsi; posterior trochanters black at the base and at the apex; antennæ beneath ferruginous; wings hyaline, with the costa and stigma deep black, scales pitchy; cellule somewhat 3-angular.

Scarce: found within the metropolitan district.

Sp. 13. *rufipes*. *Niger, femoribus tibiisque rufis, antennis rufis, basi apiceque nigris: femina antennarum annulo albo.* (Long. corp. 5—6½ lin.; Exp. Alar. 8—10½ lin.)

Ic. *rufipes*. *Steph. Nomen. 2d edit. Appendix.*



Black: mandibles with a reddish spot; thorax with a reddish dot before the wings; metathorax unarmed; abdomen slender in the male, very glossy, and smooth, impunctate; opaque and punctured on the basal segments in the female, glossy and slightly compressed at the apex, the 2nd and 3rd segments sometimes faintly edged with chestnut; legs bright red, with the coxæ and trochanters black; hinder tibiæ at the tip, and their tarsi and the extreme apex of the 4 anterior tarsi black; antennæ with the basal joint black, 16 or 18 following bright red, remainder black; in the female the basal joint is black, the 6 or 7 following red, then 5 or 6 white, and the remainder black; wings hyaline, with the costa and stigma reddish-brown; scales black.

The intermediate basal joints of the antennæ are sometimes brownish-red.

Not very uncommon within the metropolitan district, occurring in July at Coombe wood and Hertford, and in Salop.

Sp. 14. *bilineatus*. *Niger*, abdomine nigro-cærulescente, femoribus tibiisque rufis; fœmina antennis albo-annulatis. (Long. corp. 4—6½ lin.; Exp. Alar. 7—9 lin.)

Ic. *bilineatus*. *Gravenhorst*.—*Steph. Catal.* 346. No. 4329.

Black: inner orbits of the eyes more or less distinctly white, and in the females the outer ones slightly so; antennæ with the 9th to 15th joints more or less white above and on the sides; thorax with a white dot under the wings, sometimes obsolete; abdomen bluish-black, finely punctured, with the 2nd and 3rd segments roughly aciculated; legs red, coxæ and trochanters black, tarsi of the posterior and apex of the tibiæ dusky or black; wings smoky-hyaline, with the stigma, costa, and scales fuscous or black.

Male with the centre of the mandibles red; the scutellum with 2 pale obscure white dots on the scutellum; the antennæ porrect and black.

Not very common: found near London and in Shropshire, in June.

Sp. 15. *Æthiops*. *Niger*, femoribus rufis, antennarum annulo albo. (Long. corp. 4½ lin.; Exp. Alar. 7 lin.)

Ic. *Æthiops*. *Gravenhorst*, i. 130.—*Steph. Nomen*. 2d edit. col. 131.

Black: antennæ shorter than the body, porrect, curved at the apex, the 12th to 17th joints white on the sides and above; abdomen rather longer than the head and thorax united, and a little narrower, with the 2nd to 5th segments of equal width; legs red, coxæ and trochanters with the hinder tarsi, and frequently the tibiæ at the apex and the extreme tips of the femora fuscous; wings hyaline, with the scales, costa, and stigma fuscous or black, or the last sometimes ferruginous; cellule 5-angular, or somewhat triangular.

Rare: taken near London, and in Norfolk, in June.

Sp. 16. *opticus*. *Niger*, orbitis oculorum, articulo 1-mo antennarum, punctis ad



alarum radicem albis, pedibus anterioribus subtus ferrugineis. (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 10 lin.)

Ic. opticus. *Gravenhorst*, i. 131.—*Steph. Nomen*. 2d edit. col. 131.

Black: palpi sometimes pale, the internal and part of the external orbits white; antennæ with the basal joints whitish beneath, the remainder sometimes ferruginous; thorax with a minute white dot beneath the wings, and sometimes another below; 4 anterior femora ferruginous beneath, tibiæ the same, or yellowish, with the outer edge fuscous; anterior tarsi ferruginous, fuscous above, posterior fuscous; wings smoky-hyaline, with the stigma, costa, and scales fuscous, or black; cellule somewhat triangular, or nearly 5-angular.

Found, near London, in July, but uncommonly.

Sp. 17. albimanus. *Niger, facie, ore, articulo 1-mo antennarum, orbitisque externis, albis, pedum anteriorum tibiis et latere infero femorum et coxarum albis, abdomine nitido subsericante.* (Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Ic. albimanus. *Gravenhorst*, i. 132.—*Steph. Nomen*. 2d edit. col. 131.

Black: face, mouth, and a faint streak on the outer orbits white; antennæ filiform, porrect, shorter than the body, with the 1st joint white beneath; thorax with a small streak beneath the wings and another before them white; abdomen with the 2nd to 6th segments nearly of equal breadth, shining, smooth, with a grisescent silky pile; anterior legs with the coxæ, trochanters, and femora black, white beneath, tibiæ and tarsi dull white, the middle ones fuscous above, posterior black, with the 3 last joints of the tarsi red; wings hyaline, the costa and stigma black, scales black, testaceous at the apex, cellule 5-angular.

Also found near London, in June and July, not common, and in Shropshire.

Sp. 18. corruscator. *Niger, orbitis oculorum internis tibiisque anterioribus flavis, abdomine nitido subsericante.* (Long. corp. $5-5\frac{1}{2}$ lin.; Exp. Alar. 10—11 lin.)

Ic. corruscator. *Linne.*—*Steph. Catal.* 345. No. 4312.

Black: palpi and mandibles in the middle yellowish or red; clypeus sometimes yellow, inner orbits of the eyes and a part of the outer ones yellow; antennæ porrect, generally rusty-brown beneath, with the basal joint black; abdomen long and narrow, with the 1st segment small, smooth, shining, the peduncle slender; the 2nd to the 5th of equal width, the 2nd and sometimes the 3rd with the extreme edge reddish; 4 anterior femora beneath, either entirely, or at the apex only red; anterior tibiæ yellow, with the outer margin brown or brownish, posterior sometimes pitchy-brown towards the base.

Abundant near London, in June and July.

Sp. 19. maculifrons. *Niger, facie et orbitis oculorum externis pro parte pallide flavis, fronte maculâ nigra; femoribus tibiisque anterioribus rufis.* (Long. corp. $4\frac{1}{2}-5\frac{1}{2}$ lin.; Exp. Alar. 8—10 lin.)

Ic. maculifrons. *Steph. Nomen*. 2d edit. Appendix.



Black: face and a portion of the outer orbits of the eyes pale yellowish; front with a large black patch; palpi whitish-yellow; abdomen rather slender, somewhat silky, opaque and punctured at the base, shining and impunctate at the apex; anterior legs and tarsi light red, with the coxæ and trochanters, and the posterior legs and tarsi entirely black; antennæ with the basal joint whitish, or pale yellow beneath; wings hyaline, sometimes slightly stained; scales and costa blackish; stigma pale reddish-brown.

In some examples the face is almost entirely black, and the basal joint of the antennæ immaculate.

Larva feeds on that of *Biston prodromarius*.

Not common: found near London in June, and in Salop.

Sp. 20. *tristis*. *Niger, femoribus omnibus et tibiis anterioribus rufis, stigmatе nigro, cellula 3-angulari*. (Long. corp. 5—6 lin.; Exp. Alar. 10—11½ lin.)

Ich. *tristis*. *Gravenhorst*, i. 136.—*Steph. Nomen. 2d edit. col. 131*.

Black: antennæ about half the length of the body, with the 3rd to 14th joints ferruginous beneath; abdomen rather longer and narrower than the head and thorax, the 1st segment punctured, a little coarctate towards the base, and rather broader than the peduncle, which is stoutish; legs moderate, red, coxæ and trochanters black, posterior tibiæ fuscous or black, with the extreme base red; hinder tarsi black; wings hyaline, with the stigma, costa, and scales black; cellule 3-angular.

Somewhat rare: taken in June near London.

Sp. 21. *rubellus*. *Niger, femoribus tibiisque rufis, stigmatе piceo, segmenti 2-di margine summo castaneo; fœmina antennis rufis, annulo albo obsoleto*. (Long. corp. 2¼—3½ lin.; Exp. Alar. 6½ lin.)

Ich. *rubellus*. *Gmelin*.—*Steph. Nomen. 2d edit. col. 131*.

Black: antennæ rather slender, in the females red, with the basal joint fuscous, 10th to 12th above whitish; palpi red; abdomen silky, finely punctured, the extreme margins of the 2nd, and frequently of the 3rd segments chestnut; legs red, coxæ and trochanters black, anterior beneath red in the female, posterior generally with the extreme tip of the femora and of the tibiæ black; tarsi black, with the 1st and 2nd joints red; wings smoky-hyaline, the stigma and costa fuscous or pitchy; in the female somewhat luteous; scales yellow or gilvous, sometimes brownish at the base, but rarely entirely brown.

Not common: taken within the metropolitan district in June.

Sp. 22. *rufifrons*. *Niger, facie rufescente, tibiis femoribusque anterioribus gilvis, antennis albo-annulatis*. (Long. corp. 3¼ lin.; Exp. Alar. 7 lin.)

Ich. *rufifrons*. *Gravenhorst*, i. 139.—*Steph. Nomen. 2d edit. col. 131*.

Black: orbits, face (which is gibbous), labrum and mandibles chestnut; palpi fuscous; thorax with a short line beneath the scutellum, a dot beneath the wings, and the upper margins of the collar, of a faint bay-colour; abdomen ovate, black-brown, the 2nd segment with 2 very obsolete dots at the base, and the extreme edge chestnut, the 6th and 7th with the extreme margin



whitish, the basal one smooth and rather narrowed towards the base; ovipositor black, slightly exerted; legs rather thickened; anterior ochreous, rusty-brown above, the coxæ and trochanters black; posterior pair rusty-brown, with the extreme tips of the trochanters and of the femora, as well as the base of the tibiæ and the spines at the apex rusty; antennæ filiform, with the tip incurved, basal joint chestnut beneath, 2nd to 8th black, 9th to 13th white, the rest black; wings hyaline, with the costa and stigma black; scales ferruginous; cellule somewhat triangular.

This is most probably a *Phygadeuon*.

Rare: found near London in July.

Sp. 23. clericus. *Niger, facie et punctis ad radicem alarum albis, femoribus tibiisque rufis, posticis apice nigris.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 10 lin.)

Ic. clericus. *Gravenhorst*, i. 140.—*Steph. Nomen*. 2d edit. col. 131.

Black: mouth and face white; labrum and tip of the mandibles ferruginous, with a minute black dot impressed on the sides of the clypeus; thorax with 2 very minute white dots on each side, one before, the other beneath, the wings; legs red, coxæ and trochanters black, posterior with the apex of the femora and of the tibiæ, and the tarsi black; wings hyaline, somewhat smoky; stigma, costa, and scales black; cellule somewhat triangular.

Rare: taken near London in July.

Sp. 24. canaliculatus. *Niger, facie flavâ, femoribus tibiisque rufis, vertice subquadrato.* (Long. corp. 5 lin.; Exp. Alar. 7 lin.)

Ic. canaliculatus. *Gravenhorst*, i. 141.—*Steph. Nomen*. 2d edit. col. 131.

Black: head with the crown subquadrate and somewhat transverse, not narrowed towards the neck; face, mouth, and spot on the cheeks white; mandibles rusty at the tip; palpi yellowish; abdomen with the 1st segment a little dilated towards the apex, rough, opaque, with 2 elevated lines, the 2nd with the base rough, with 2 elevated longitudinal parallel lines, the space between somewhat broadly channelled, the apex and the remaining segments smooth and rather shining; legs red, anterior with the coxæ black above, beneath red, with a yellow spot; trochanters black, beneath straw-colour, middle coxæ black, trochanters as in the anterior, posterior with the coxæ black, the trochanters black, with the tip red; tibiæ dusky, beneath and towards the base bay; tarsi dusky; antennæ porrect, the basal joint white beneath; wings hyaline, costa and stigma fuscous, scales white; cellule somewhat triangular.

Also rare, and found in the neighbourhood of London, in June.

Sp. 25. stimulator. *Niger, femoribus tibiisque rufis; fœmina coxis posticis calcaratis, antennis subannulatis; mas coxis muticis, anticis oreque flavis.* (Long. corp. $2\frac{1}{2}$ —4 $\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Ic. stimulator. *Gravenhorst*, i. 143.—*Steph. Nomen*. 2d edit. col. 131.

Black: palpi and mandibles red; antennæ incurved at the apex, red and fer-



ruginous, or black, with the basal joint black, the 2nd to 10th generally dusky at the base, 11th to 13th whitish; thorax, usually, with a minute white dot before the wings; abdomen with the 2nd to 4th segments of equal width, the 1st smoothish, 4 following with the extreme edge reddish; ovipositor slightly exerted; legs stoutish, red, coxæ at the base above, or entirely, black, the posterior armed with a more or less elongate acute tooth, the hinder tarsi and extreme tip of the tibiæ dusky; wings with the stigma and costa brown, scales yellowish; cellule 5-angular.

The male has the mouth and dot before the wings yellow; antennæ porrect, not annulated; the legs red, with the anterior coxæ yellow, the middle ochreous or black, with a red spot, the posterior black, the 4 anterior trochanters yellow, posterior red, the apex of the hinder femora and of the tibiæ and the tarsi black; coxæ unarmed.

Not very uncommon in gardens and woods in June, within the metropolitan district; found also in Salop and in Norfolk.

Sp. 26. *brunnicornis*. *Niger, antennis ferrugineis, pedibus rufis; mas geniculis posticis nigris.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. 5—6 lin.)

Ic. *brunnicornis*. *Gravenhorst, i. 145.—Steph. Nomen. 2d edit. col. 131.*

Black: palpi pale yellow; the male with the mouth and face entirely pale yellow, in which sex is a small white dot before the wings; abdomen blackish, finely punctured, with the edges of the 2nd and 3rd segments reddish; females occasionally with the edges of all slightly reddish; legs red, trochanters generally paler, the tips of the hinder tibiæ and of the tarsi blackish; of the male red, anterior with the coxæ and trochanters pale yellow; posterior with the coxæ either red, or with a brown spot, sometimes yellowish; trochanters red or yellowish, the extreme tip of the femora black, and the apex of the tibiæ and of the joints of the tarsi also black; wings hyaline, stigma and costa pale pitchy; scales yellow; cellule 5- or 3-angular.

Found, not rarely, near London, in June and July.

Sp. 27. *brevicornis*. *Niger, pedibus rufis, antennarum annulo albo.* (Long. corp. 3— $3\frac{3}{4}$ lin.; Exp. Alar. 6 lin.)

Ic. *brevicornis*. *Gravenhorst, i. 146.—Steph. Nomen. 2d edit. col. 131.*

Black, rather slender: antennæ somewhat setaceous, slender, half the length of the body, rusty-brown, with the 11th and 12th joints white, the 3rd red; posterior legs with the coxæ brown and the extreme tip of the tibiæ blackish; wings slightly smoky-hyaline, stigma yellowish-pitchy, the costa straw-coloured towards the base, scales pitchy or white; cellule 5-angular.

Scarce: found in June near London.

Sp. 28. *maculicornis*. *Niger, pedibus rufis, antennis porrectis macula alba, ore flavo.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Ic. *maculicornis*. *Steph. Nomen. 2d edit. col. 131.*



Black: mouth yellow; antennæ slender, porrect, dusky-black, paler at the base, with the 12th and 13th joints white above; thorax with a white dot on each side beneath the wings, and another at the base before them; abdomen rather slender, acute at the apex, with the margins of all the segments chestnut; legs including coxæ and trochanters, pale red, the posterior tarsi with the base of the joints paler; wings hyaline, costa and stigma black, scales yellow.

Taken near London, in July, but rarely; also, I believe, near Andover.

Sp. 29. annulator. *Niger, femoribus tibiisque rufis, his extra albis, annulo antennarum albo, abdomine fusco, aut rufo aut badio.* (Long. corp. 2—4½ lin.; Exp. Alar. 5—7½ lin.)

Ic. annulator. *Fabricius.*—*Steph. Catal.* 350. No. 4451.

Black: labrum and middle of the mandibles, and often the clypeus, ferruginous; palpi fuscous, paler at the tip; apex of the scutellum and a dot beneath the wings frequently chestnut; abdomen variable, ovate, brown-black, with the extreme margins of the segments sometimes chestnut, or the entire surface chestnut, or bright red, with all intermediate shades; legs rather short, red, with black coxæ and trochanters, sometimes red or chestnut beneath; posterior femora with the apex occasionally dusky; 4 anterior tibiæ with a white dot in the middle; posterior ferruginous beneath, with the apex blackish, the middle portion white without, tarsi fuscous; antennæ filiform, involuted, 1st joint black, sometimes red beneath, the following fuscous, with the 8th to 14th more or less white, with a fuscous dot beneath; wings subhyaline, stigma and costa generally dull ferruginous, scales fuscous, or yellowish.

Femora sometimes black.

Of this variable insect, all the variations of which are females, I suspect Ic. fabricator (which is almost equally variable, and of which only the males are known) to be the opposite sex.

Extremely abundant, in gardens, woods, &c. throughout the metropolitan district, in June: frequent also in Salop, the New Forest, Norfolk, &c.

Sp. 30. tibiator. *Niger, femoribus anticis pro parte rufis, tibiis anticis rufis, posterioribus extra albis.* (Long. corp. 2½ lin.; Exp. Alar. 4½ lin.)

Ic. tibiator. *Gravenhorst*, i. 151.—*Steph. Nomen.* 2d edit. col. 131.

Black: antennæ porrect, somewhat setaceous, rather more than half the length of the body; abdomen with the basal segment smooth, slightly channelled, a little constricted towards the base, with the lateral tubercles minute, peduncle as long as the joint, and about half as slender, 2nd to 5th segments somewhat equal in width, the 2nd occasionally with the extreme margin chestnut; legs rather slender; anterior red, with the coxæ, trochanters, and convex side of the femora black; tarsi brownish; 4 posterior legs black,



with the tip of the middle femora rusty, the tibiæ white in the middle without; wings hyaline, iridescent; stigma yellowish or fuscous, costa fuscous, scales yellowish or black; cellule 5-angular.

Found, but rarely, near London, in June.

Sp. 31. *pumilus*. *Niger*, *antennis ferrugineis, apice et articulo 1-mo nigris, femoribus tibiisque antieis subtus stramineis, segmentis intermediis plerumque margine summo castaneis*. (Long. corp. 2—2½ lin.; Exp. Alar. 4½—5 lin.)

Ic. *pumilus*. *Gravenhorst*, i. 152.—*Steph. Nomen*. 2d edit. col. 132.

Black: mouth ferruginous, palpi paler; antennæ filiform, involuted, dull ferruginous, paler beneath, and brownish towards the tip, the basal joint black; abdomen oblong, black, sometimes with the extreme margins of the segments chestnut; legs moderate, brown-black, anterior sometimes red, or dull yellow, coxæ black, the convex portion of the femora for the most part dusky or black; middle generally with the tarsi, the inner edge of the tibiæ, and the tip of the femora ochreous; posterior with the tarsi, and the tip of the femora, in general, rusty or red; tibiæ black, with the base more or less bay; wings with the stigma black or pitchy, the costa and scales brown, the latter sometimes yellow.

Common throughout the metropolitan district, in June and July, at Darenth, Hertford, &c. and in Salop.

§ II. *Scutellum* and *abdomen* black, the apex of the latter with white dots or marks.

Sp. 32. *cessator*. *Niger, femoribus tibiisque rufis, posticis apice nigris*. (Long. corp. 6½ lin.; Exp. Alar. 13 lin.)

Ic. *cessator*. *Müller*.—Ic. *custodiator*. *Steph. Catal.* 347. No. 4360.

Black: metathorax punctured irregularly, with two minute rather acute tubercles; abdomen silky, acute at the apex, the 3 basal segments punctured, the following shining, the 6th and 7th each with a white dorsal spot; legs bright red, or pale saffron, the coxæ and trochanters black; the apex of the hinder trochanters red, and of their tibiæ, as well as the posterior tarsi, black; wings rather smoky-hyaline, with the stigma ferruginous or brown, the costa and scales black or brown.

Very rare: I have the insect from the vicinity of the metropolis, captured in June: it occurs also in Norfolk.

Sp. 33. *leucopygus*. *Niger, femoribus tibiisque rufis, posticis apice nigris, annulo antennarum albo*. (Long. corp. 3½—4 lin.; Exp. Alar. 7—7½ lin.)

Ic. *leucopygus*. *Gravenhorst*, i. 156.—*Steph. Nomen*. 2d edit. col. 132.

Black: antennæ with the 9th to 15th joints white, with a brown dot beneath; abdomen with the 1st and 2nd segments edged with reddish, the 6th and 7th with the back entirely white; legs red, coxæ and trochanters black; anterior femora with the convex edge, and the posterior with the apex dusky; the hinder tibiæ black at the tip, and their tarsi fuscous; wings



smoky-hyaline, with the stigma pale red, the costa and scales fuscous; cellule somewhat triangular.

Femora sometimes dusky or blackish.

Also rare, and taken in June near London, and in Warwickshire.

†Sp. 34. *transfuga*. *Niger, femoribus tibiis anterioribus et antennarum medio rufis, ano subalbo notato.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Ic. *transfuga*. *Gravenhorst*, i. 158.—*Steph. Nomen*. 2d edit. col. 132.

Black: palpi fuscous; antennæ with the 4th to 6th joints entirely, and the 7th and 8th above, rusty-red; abdomen glossy, the 7th segment obsoletely white; legs with the coxæ and trochanters black, the posterior ones above chestnut-red; femora chestnut-red, anterior black at the base; anterior tibiæ chestnut-red, posterior dusky, dull chestnut towards the base, 4 anterior tarsi reddish, posterior fuscous; wings smoky-hyaline, with the stigma, costa, and scales black.

Rare: taken in Shropshire, and near London, in June.

§ III. *Scutellum* pale, or with pale marks; *abdomen* totally black.

Sp. 35. *fossorius*. *Niger, subsericeus, stigmatæ, femoribus tibiisque dilute croceis; mas facie et antennarum articulo 1-mo infernè flavis; fœmina antennarum annulo albido.* (Long. corp. $6\frac{3}{4}$ —8 lin.; Exp. Alar. 11—13 lin.)

Ic. *fossorius*. *Linné*.—*Steph. Catal*. 346. No. 4331.

Silky-black: face and mouth yellow, mostly with an impressed black dot on the sides of the clypeus, rarely 2 on the face; thorax generally with a white dot before the wings and another below; scutellum white, or with only the tip, a spot on the tip, or 2 minute dots of that colour, or totally black; abdomen with the 1st segment rather swollen, with a slender peduncle, the 2nd to 6th nearly equal in width; legs dull saffron red; the coxæ and trochanters black, the 4 anterior yellow beneath; hinder tarsi and tibiæ dusky at the apex; antennæ porrect, slightly curved at the tip, with the basal joint white beneath; wings ochreous-hyaline, the stigma and costa saffron-red, the last sometimes fuscous; scales fuscous or black, occasionally with a white dot.

Female with the antennæ incurved, ferruginous below, with the 9th to 16th joints generally white above; thorax with a yellowish dot beneath the wings; abdomen rather narrowed towards the tip, and faintly compressed, its 7th segment with an obscure yellowish line, and the 2nd and 3rd segments opaque.

Abundant in the vicinity of London, on flowers, &c. in June and July.

Sp. 36. *cognatus*. *Niger, femoribus tibiisque rufis; fœmina antennarum annulo albo.* (Long. corp. $5\frac{3}{4}$ —8 lin.; Exp. Alar. 11—13 lin.)

Ic. *cognatus*. *Steph. Catal*. 346. No. 4332.

Black: mandibles generally reddish in the middle; thorax often with a streak



below the wings, a dot before them, and a transverse streak below the scutellum white, or testaceous; scutellum white; abdomen rather slender, 2nd and 3rd segments slightly opaque, the rest more glossy, and the margin of the 2nd in the females usually chestnut; legs bright or saffron-red; the coxæ and trochanters black; tibiæ frequently whitish-yellow, with the tip straw-colour, posterior generally black at the tip; the hinder tarsi black, with the basal joint rusty; antennæ porrect in the male, incurved at the tip in the female, with the 8th to 11th joints more or less white above, brown or rusty beneath, the 4th to 8th generally ferruginous below; wings with the stigma brown-black, or pitchy, costa brown or red, scales black or brown, sometimes yellowish.

Also common near London, during the summer, frequenting umbelliferous flowers, &c. by wood-sides and hedges.

Sp. 37. *crassicornis*. *Niger, femoribus tibiisque rufis, scutello lineâque transversali metathorace albis, antennis brevioribus, crassioribus.* (Long. corp. 7 lin.; Exp. Alar. $11\frac{1}{2}$ lin.)

Ic. *crassicornis*. *Steph. Nomen. 2d edit. Appendix.*

Black: mandibles reddish at the apex; thorax with a white dot before the wings; scutellum white, with a transverse streak of the same hue behind, on the metathorax; abdomen oblong-ovate, slightly silky, and glossy at the apex; legs pale red, coxæ and trochanters black; the extreme tip of the hinder tibiæ dusky, and the posterior tarsi black; antennæ short, rather thick, attenuated at the apex, and porrect; wings smoky-hyaline, the costa and stigma fuscous; scales black, with a white dot.

Taken near London, in June, I believe at Hertford.

Sp. 38. *trucidator*. *Niger, abdomine cæruleo-nigro, femoribus tibiisque rufis, posticis fusco maculatis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 11 lin.)

Ic. *trucidator*. *Gravenhorst, i. 172.—Steph. Nomen. 2d edit. col. 132.—Ic. sepiatorius. Marsham MS.—Steph. Catal. 347. No. 4358.*

Black: antennæ rather short; scutellum with a white dot at the apex; abdomen glossy blue-black, with the basal segment a little dilated towards the apex; legs slender, red; coxæ and trochanters black; posterior femora, with the base, apex, and inner side fuscous; tibiæ fuscous, with the base and inner margins reddish; tarsi black; wings with the stigma, costa, and scales fuscous; cellule somewhat triangular.

Seemingly very rare: found in July near London.

Sp. 39. *albosignatus*? *Niger, orbitis oculorum internis albis, femoribus tibiisque rufis, posticorum apice nigro.* (Long. corp. 5 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Ic. *albosignatus*. *Gravenhorst, i. 167?—Steph. Nomen. 2d edit. col. 132.*

Slender, black: palpi fuscous; inner orbits of the eyes towards the antennæ whitish; thorax with a minute white dot before the wings; scutellum white; abdomen with the margin of the basal segment faintly chestnut; legs pale red, with the coxæ and trochanters black, the intermediate and posterior



tarsi, and tips of the hinder femora and of the tibiæ, black; wings smoky-hyaline, with the stigma, costa, and scales fuscous; cellule somewhat triangular.

Rare: found in the north of England, and in Scotland.

Sp. 40. multicolor. *Niger, orbitis oculorum internis et puncto ad alarum radicem albis, stigmatē, femoribus, tibiisque rufis; fœm. annulo antennarum albo.* (Long. corp. $7\frac{1}{4}$ lin.; Exp. Alar. 13 lin.)

Ic. multicolor. *Gravenhorst.*—*Steph. Catal.* 346. No. 4333.

Black: mandibles ferruginous; inner orbits white; thorax of the male with a streak below the wings, of the female with a dot before and 2 dots on the back white; scutellum entirely white in the female, with the tip only so in the male; abdomen opaque, with the 6th and 7th segments glossy, the 2nd in the male sometimes obscurely chestnut; legs pale red, the coxæ and trochanters black, posterior with the tarsi black, the basal joint sometimes reddish in the male, and in that sex the apex and femora sometimes black; antennæ with the 3rd to 10th joints rusty-brown, the 11th to 16th white above; wings hyaline, smoky, or somewhat reddish, with the stigma fuscous or pitchy, sometimes dull yellowish in the male; costa fuscous; scales black, occasionally with a white dot.

Found, but very rarely, within the metropolitan district, in July.

Sp. 41. monostagon. *Niger, orbitis oculorum internis albidis, stigmatē fusco, femoribus tibiisque rufis.* (Long. corp. 6 lin.; Exp. Alar. 11 lin.)

Ic. monostagon. *Gravenhorst.*—*Steph. Catal.* 346. No. 4335.

Black: palpi dirty-whitish; inner orbits of the eyes and a spot on the sides of the clypeus dull white; thorax with a minute dot beneath the wings; scutellum white at the tip; abdomen somewhat opaque, with the apex shining; legs red, coxæ and trochanters, as well as the hinder tarsi and apex of their tibiæ black, middle tarsi fuscous; wings hyaline, a little stained towards the apex, the stigma, costa, and scales dusky.

Also taken occasionally, within the metropolitan district, in June.

Sp. 42. albicillus. *Niger, facie, coxis anticis, lineis duabus ante scutellum, lineaque ante alis albis, femoribus tibiisque rufis, posticis fuscescentibus.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 10 lin.)

Ic. albicillus. *Gravenhorst, i.* 177.—*Steph. Catal.* 346. No. 4336.

Black: mouth, orbits, and face white, the last with a black cloud; the basal joint of the antennæ also white; thorax with a streak before the wings, a shorter one beneath, and one on each side of the scutellum, with a transverse one behind the latter, and its lateral margins, white; abdomen blue-black, with the 2nd to 6th segments a little depressed on the back, and with the extreme margins red; legs with the anterior coxæ dirty-white, trochanters black, femora and tibiæ dull red, pale straw beneath, tarsi whitish; middle with the coxæ and trochanters black, femora chestnut, beneath straw-colour,



tibiæ red, straw-colour beneath, tarsi pale straw; posterior with the coxæ and trochanters black, femora dusky, with the inner edge chestnut, tibiæ and tarsi brown; wings hyaline, with the stigma and costa pitchy-straw, scales white; cellule somewhat 3-angular.

Rare: taken near London, in July.

Sp. 43. femorator. *Niger, femoribus anterioribus tibiisque omnibus rufis, horum posticorum apice fuscis, scutelli apice albo.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ic. femorator. *Steph. Nomen. 2d edit. Appendix.*

Black: head rather small; palpi fuscous; scutellum with a triangular white spot at the apex; abdomen obscure black, slightly shining towards the apex, which is obtuse; coxæ and trochanters all black; 4 anterior femora, tibiæ, and tarsi, light red; posterior femora black; tibiæ dull red, with the tip fuscous; tarsi black; antennæ porrect, black; wings smoky-hyaline, darkest at the apex; costa, stigma, and scales black; cellule triangular.

Found, but rarely, in June, near London.

Sp. 44. trilineatus? *Niger, orbitis oculorum internis, punctis ad alarum radicem, scutellique margine laterali albis, stigmate fusco, femoribus tibiisque anterioribus rufis.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ic. trilineatus. *Gmelin?—Steph. Nomen. 2d edit. col. 132.*

Black: palpi, spot on the mandibles, and the inner orbits of the eyes broadly white, the outer orbits in part faintly whitish; basal joint of the antennæ with a white dot beneath, the following slightly rufoescent; thorax with a white streak before the wings; scutellum with the lateral margins and apex obsoletely white, or with a minute white dot, rarely black; abdomen black, opaque at the base, glossy and bluish towards the apex, which is acute; coxæ and trochanters and posterior legs entirely black; 4 anterior femora chestnut, with the base and middle partly black, their tibiæ chestnut-red; tarsi a little dusky towards the apex; wings hyaline, with the costa, stigma, and scales black; cellule nearly 3-angular.

Females said by Gravenhorst to have a white ring on the antennæ, which are curved.

Taken, but rarely, near London, in July.

Sp. 45. pedatorius. *Niger, femoribus tibiisque rufis, harum posticis apicem versus nigris; mas facie flava; fœm. antennis albo annulatis.* (Long. corp. 4—5 lin.; Exp. Alar. $9\frac{1}{2}$ — $10\frac{1}{2}$ lin.)

Ic. pedatorius. *Fabricius.—Ic. annulator. Steph. Catal. 346. No. 4337.*

Black: mouth, face, and outer orbits yellow; in the female the inner orbits alone faintly yellow, or whitish; thorax generally with a white dot beneath the wings; scutellum with a whitish or yellow dot at the tip; abdomen rather narrow, with the 2nd to 4th segments of equal width, the 2nd in the males generally slightly edged with chestnut; legs moderate, red, coxæ and trochanters black; apex of posterior tibiæ and hinder tarsi black;



middle tarsi brownish; antennæ of the male porrect, with the basal joint yellow beneath; of the female slightly curved at the apex, with the 11th to 15th joints, and occasionally one or two others, white above, fuscous beneath; wings hyaline, iridescent; stigma brown or rusty, costa brown, scales white or yellowish in the males, black in the females; cellule somewhat 3-angular.

The male has one, or more, pair of the coxæ frequently marked with a white dot.

Also rare, and found within the metropolitan district, in June.

Sp. 46. ochropis. *Niger, annulo antennarum albo, femoribus tibiisque rufis, thorace rufo, aut albopicto; mas facie et scutello albidis; fœmina facie et scutello rubro pictis.* (Long. corp. 5—5½ lin.; Exp. Alar. 8½—9½ lin.)

Ic. ochropis. *Gmelin.—Steph. Nomen. 2d edit. col. 132.*

Black; mouth and face white; antennæ porrect, basal joint white beneath, then about 13 pale red, 4 or 5 entirely white, and the rest black; thorax with a dot before and beneath the wings, and a transverse streak beneath the scutellum whitish, or reddish; scutellum whitish, or red, with the centre yellow; abdomen slender, finely punctured, entirely black, or with some of the basal segments faintly edged with chestnut; legs red; hinder coxæ sometimes blackish above, or all the coxæ and the trochanters at the base black; posterior tarsi sometimes fuscous at the tip; wings with the costa and scales pitchy; stigma rather ochreous; cellule somewhat 3-angular.

Female with the inner orbits and face more or less reddish or bay; antennæ incurved, the basal joint black, 6 or 7 following black or brown, then about as many white, and the remainder black; scutellum entirely, or at the apex, red-bay; abdomen black, or dull bay, with the margins of the segments sometimes paler, the 7th entirely, and the edge of the 6th, white; ovipositor slightly exserted; legs with the coxæ dusky; wings somewhat yellowish.

Larvæ feed on that of *Abraxas Grossulariata*.

Not uncommon in June, in the vicinity of London; found also in Salop.

Sp. 47. fabricator. *Niger, scutelli apice, facieque albis, antennis inferne, femoribus tibiisque rufis.* (Long. corp. 3½—6½ lin.; Exp. Alar. 6½—12 lin.)

Ic. fabricator. *Fabricius.—Steph. Catal. 347. No. 4351.*

Black: mouth, face, and generally a portion of the outer orbits of the eyes yellowish-white; antennæ porrect, above fuscous, basal joint yellow or red; remainder reddish, with the apical ones sometimes fuscous beneath; thorax sometimes with a dot before and a streak beneath the wings, and, rarely, another transverse one below the scutellum yellowish; scutellum with the extreme apex or 2 minute dots yellowish; rarely immaculate; abdomen with 2 more or less distinct elevated lines on the basal segment, the 2nd with the base aciculated, and with 2 obsolete red dots, and the extreme edge sometimes chestnut; legs reddish, more or less bright; coxæ and



trochanters black, anterior occasionally reddish beneath; posterior with the tarsi, and at times the apex of the tibiæ and femora black or dusky; wings hyaline, with the stigma, costa, and scales brown or pitchy, sometimes reddish; cellule obscurely 3-angular, or 5-angular.

Extremely variable in size: the face is more or less spotted with black, and the antennæ are sometimes entirely black, excepting the white under side of the basal joint.

I suspect this insect to be the male of *Ic. annulator*, as stated in p. 137.

Extremely abundant, within the metropolitan district, about June, in hedges and on umbelliferous flowers; taken also near Dover, in the New Forest, Salop, &c.

Sp. 48. *fulvipes*. *Niger, trochanteribus femoribus tibiis tarsisque anterioribus pallide rufis, scutelli apice facieque albis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ —5 lin.)

Ic. fulvipes. *Steph. Nomen. 2d edit. col. 132.*

Black: face and basal joint of the antennæ beneath white; thorax with a minute dot beneath the wings, and the apex of the scutellum white; abdomen glossy, with the margin of the 2nd segment slightly edged with chestnut; legs, excepting the coxæ, which are black, pale red, the extreme tip of the hinder tibiæ and the hinder tarsi fuscous; wings hyaline, with the costa and scales fuscous, stigma pale reddish.

Taken at Hertford, in July.

Sp. 49. *albifrons*, *Niger, facie et scutelli apice albis, femoribus tibiisque anterioribus pallide rufis.* (Long. corp. $3\frac{1}{2}$ —6 $\frac{1}{4}$ lin.; Exp. Alar. 10—11 $\frac{1}{2}$ lin.)

Ic. albifrons. *Steph. Nomen. 2d edit. Appendix.*

Black: face white, external orbits of the eyes above slightly so; thorax with an obscure whitish streak before the wings, and the apex of the scutellum also whitish, sometimes with 2 dots only of that colour; abdomen with the basal segments rough, and with 2 faintly elevated lines, the apical ones smooth and glossy; 4 anterior femora and tibiæ pale red, coxæ, trochanters, and hinder legs black; intermediate tarsi and femora at the base behind dusky; antennæ black, with the basal joint white in the middle beneath; wings hyaline, slightly fuscous, with the costa, stigma, and scales black.

Found near London, and in Salop, in June.

Sp. 50. *dissimilis*. *Niger, antennarum annulo albo, femoribus tibiisque rufis, posticis apice nigris; mas facie et scutelli apice albis; fœmina orbitis oculorum internis et scutelli apice rufescentibus.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5—6 lin.)

Ic. dissimilis. *Gravenhorst, i. 190.—Steph. Nomen. 2d edit. col. 132.*

Black: male with the mouth and face white; female with the inner orbits reddish or whitish; antennæ of the male porrect, basal joint reddish beneath, 13th to 17th white, remainder ferruginous; of the female curved, with a few



white joints in the middle; thorax with an obscure white streak at the base of the wings; scutellum white at the tip of the male, and of the female entirely white; abdomen with the extreme margin of the 2nd segment chestnut, and sometimes with the edges of all the segments of the females; the ovipositor slightly exserted; legs red, coxæ and trochanters black; the posterior with the extreme tips of the femora, tibiæ, and joints of the tarsi, black; wings hyaline, slightly smoky in the male, the costa, stigma, and scales, pitchy or brown, paler in the female.

Taken, but rarely, near London; also, I believe, in Wiltshire.

Sp. 51. *candidatus*. *Niger, pedibus rufis, coxis, trochanteribus, facie, punctisque ad alarum radicem, albis.* (Long. corp. 3½ lin.; Exp. Alar. 5 lin.)

Ic. *candidatus*. *Gravenhorst*, i. 193.—*Steph. Nomen*. 2d edit. col. 132.

Black: mouth and face white; antennæ porrect, with the basal joint white, the rest rusty-brown; thorax with 2 white dots at the base of the wings; scutellum white at the apex; abdomen with the basal segment shining, the following silky; 4 anterior legs pale saffron, with the coxæ and trochanters white; posterior red, the coxæ fuscous, with the tip white, trochanters white, the extreme apex of the femora and of the tibiæ and tarsi fuscous; wings hyaline, the costa and stigma fuscous, the scales white; cellule 5-angular.

Taken at Hertford in June; rare.

Sp. 52. *iridipennis*. *Niger, femoribus tibtisque rufis, lineâ albâ ante alas: mas facie et antennarum articulo 1-mo subtus albo; fœmina orbitis oculorum internis et antennarum annulo albis.* (Long. corp. 3—3¼ lin.; Exp. Alar. 5½ lin.)

Ic. *iridipennis*. *Gravenhorst*, i. 194.—*Steph. Nomen*. 2d edit. col. 132.

Black: mouth, face, frontal orbits of the eyes, and sometimes a portion of the exterior ones yellowish-white; of the female the inner orbits towards the antennæ and a portion of the outer above are white; thorax with a white line before the wings, and occasionally a transverse one below the scutellum, which is pale yellow; abdomen sometimes with the extreme edge of the 2nd segment, and a dot at its basal angles chestnut; legs red; coxæ and trochanters usually black, 4 anterior of the male more or less spotted with white; the extreme tip of the hinder femora and tibiæ, in this sex, frequently dusky; antennæ also porrect, with the basal joint yellow or white beneath; of the female with 3 or 4 of the middle joints white above; wings more or less hyaline, iridescent, the stigma and costa pitchy or straw-colour; cellule somewhat 3-angular.

Found in June at Hertford, and again in July last.

Sp. 53. *pallidatorius*. *Niger, facie albâ, pedibus anterioribus stramineis, femoribus externè obscuris, posticis nigris, tibiærum basi albâ.* (Long. corp. 5½ lin.; Exp. Alar. 10 lin.)

Ic. *pallidatorius*. *Gravenhorst*, i. 196.—*Steph. Nomen*. 2d edit. col. 132.

Black: face, mouth, and part of the outer orbits above, white; antennæ

MANDIBULATA, VOL. VII., 30TH SEPT., 1835. k



reddish-brown beneath, with the basal joint whitish; thorax with a line below the scutellum, a streak before, and a dot beneath the wings, as well as one on the breast, white; scutellum more or less white; abdomen dusky-black, silky, with the margin of the 2nd segment and a spot on each side at the base chestnut; the other segments more or less faintly bordered with the same; 4 anterior legs straw-colour, with the coxæ and trochanters whitish, the femora dusky within; tarsi whitish, with the basal joint fuscous; posterior legs dusky-black, with the base of the femora, and the apex of the coxæ and trochanters sometimes whitish-yellow, as are also the base of the tibiæ and the middle of the tarsi; wings hyaline, iridescent, with the stigma and costa pitchy-brown, scales whitish, with occasionally a black dot; cellule somewhat 3-angular.

Rare: taken in June at Darenth wood.

Sp. 54. *umbraculosus*. *Niger, scutelli margine laterali, orbitisque oculorum internis, albis: mas punctis albis ad radicem alarum; fœmina antennarum annulo albo.* (Long. corp. 6—6½ lin.; Exp. Alar. 10—11 lin.)

Ic. *umbraculosus*. *Gravenhorst, i. 199.—Steph. Nomen. 2d edit. col. 132.*

Black: inner orbits of the eyes, and sometimes a portion of the outer and a spot on the mandibles white; antennæ of the male with the basal joint frequently white beneath; of the female with about 6 joints towards the middle white; thorax with a streak before and dot beneath the wings white; scutellum with its lateral margins more or less distinctly white; abdomen of the male blue-black, with the incisions sometimes obscurely chestnut; of the female black, or very faintly bluish; ovipositor scarcely exerted: legs black; anterior femora of the male somewhat rusty or straw-coloured beneath, and of the female at the apex only; tibiæ brown or black, beneath straw-coloured in the male, rusty in the female; middle in this sex fuscous beneath, in the male as in the anterior, and the posterior with the tibiæ somewhat rusty-brown towards the base; wings smoky-hyaline, with the costa, stigma, and scale brown; cellule mostly 3-angular.

Larva feeds on that of *Eyprepia caja* and *Abraxas grossulariata*.

Very common, within the metropolitan district, in June and July; also found in the New Forest and in Salop.

Sp. 55. *luctuosus*. *Niger, scutelli apice, orbitisque oculorum internis albis.* (Long. corp. 6—7½ lin.; Exp. Alar. 12 lin.)

Ic. *luctuosus*. *Gravenhorst.—Steph. Catal. 347. No. 4348.*

Black: palpi and inner orbits white; thorax generally with a white dot beneath the wings, and another before; metathorax impressed; scutellum either almost entirely white, or at the apex only, sometimes with merely 2 dots; abdomen fuscous or black, with the incisures distinctly or obsoletely chestnut; legs black, 4 anterior with the inner edge of the femora and tibiæ straw-coloured; wings smoky-hyaline, with the stigma and costa brown, or pitchy; scales fuscous; cellule 5-angular.

Taken at Darenth wood, apparently rare, in June.



Sp. 56. *gemellus*. *Niger, punctis duobus apicalibus scutelli, duobus ad radicem alarum, orbitis oculorum, et antennarum articulo 1-mo subtus albis.* (Long. corp. 5—6 lin.; Exp. Alar. 10 lin.)

Ic. *gemellus*. *Gravenhorst, i. 201.—Steph. Nomen. 2d. edit. col. 132.*

Black: palpi, a spot on the mandibles, and the orbits of the eyes, internally and externally, white; antennæ beneath, with the basal joint white, the remainder reddish; thorax with a dot before and another behind the wings, and scutellum with 2 minute dots at the apex also white; abdomen with the 2nd, 3rd, and sometimes the 4th segments slightly rufescent at the incisures; legs black, 4 anterior, with the tibiæ and tarsi, and sometimes the outer edge of the femora reddish, or straw-coloured, the 4 hinder tibiæ more or less dusky, with the posterior pair rusty towards the base; wings smoky-hyaline, with the stigma, costa, and scales fuscous; cellule 3-angular.

Found near London in June, not common.

Sp. 57. *binotatus*. *Niger, facie albâ maculâ nigrâ, thoracis lineâ laterali lateribus scutelli orbitisque oculorum externis albidis.* (Long. corp. 5½ lin.; Exp. Alar. 9 lin.)

Ic. *binotatus*. *Steph. Nomen. 2d edit. col. 132.*

Black: palpi fuscous; face white, with a large costal black patch; outer orbits broadly whitish; thorax with a broad white streak on the margin of the collar, and a line below the wings ochreous; scutellum with its lateral margins whitish; abdomen bluish-black, opaque, and delicately punctured; legs black; anterior coxæ with a white spot, their femora at the apex and tibiæ in front also white; middle femora and tibiæ the same, rusty-brown without; hinder tibiæ slightly brownish towards the apex; 4 anterior tarsi pale, posterior black; wings smoky-hyaline, with the stigma, costa, and scales black.

Rare: I possess 2 specimens taken many years since near London.

Sp. 58. *dumeticola*. *Niger, sericeus, orbitis oculorum internis, punctis duobus ad alarum radicem albis, tibiis anterioribus infernè flavis.* (Long. corp. 4—5 lin.; Exp. Alar. 8—9½ lin.)

Ic. *dumeticola*. *Gravenhorst, i. 203.—Steph. Nomen. 2d edit. col. 132.*

Silky-black: palpi, spot on the mandibles, side of the clypeus, and inner orbits white; antennæ dull ferruginous beneath, with the basal joint black; thorax with a minute white dot before the wings and another below them; scutellum more or less white; abdomen ovate-lanceolate, finely punctured, with the extreme margin of the 2nd and 3rd segments dull ferruginous, or straw-coloured; legs black, 4 anterior, with the base of the tibiæ and one side of them, with that of the tarsi, whitish; anterior femora internally, and middle at the apex, straw-coloured; tibial spines all white; wings smoky-hyaline;



stigma and costa brown, scales the same, with a white dot, or entirely white; cellule 3-angular.

Also uncommon: taken at Coombe wood, in July.

Sp. 59. *dolorosus*. *Niger, orbitis oculorum lineaque ante alas flavis, annulo antennarum albo, pedibus anterioribus piceis*. (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 9 lin.)

Ic. *dolorosus*. *Gravenhorst*, i. 204.—*Steph. Nomen*. 2d edit. col. 204.

Black: palpi and dot on the mandibles straw-colour, a spot on the sides of the clypeus, the inner, and part of the outer orbits yellow; antennæ with the 10th to 13th joints white, with a brown dot beneath, the basal one straw-coloured beneath; thorax with the margin of the collar, a streak before the wings, another beneath them, a transverse one below the scutellum, and this last, yellow; abdomen with the extreme edges of the 2nd, 6th, and 7th segments somewhat straw-coloured; legs black; anterior femora pitchy-brown, dull straw-colour beneath, tibiæ pitchy-straw, paler beneath; middle femora blackish-brown, with the apex and the tibiæ beneath straw-colour, the tibiæ outside, and the tarsi fuscous; wings hyaline, the stigma and costa black; scales yellowish, with the base black.

Scarce: found in June near London.

Sp. 60. *funereus*. *Niger, annulo antennarum albo*. (Long. corp. 6—7 lin.; Exp. Alar. $13\frac{1}{4}$ lin.)

Ic. *funereus*. *Fourcroy*, ii. p. 406.—*Steph. Nomen*. 2d edit. col. 132.

Black: mandibles frequently chestnut; antennæ with the 9th to the 13th or 16th joints white, with a dusky spot beneath; abdomen with the apex obtuse, shining, the 2nd and 3rd segments somewhat opaque; legs variable, the anterior femora and tibiæ more or less ferruginous or straw-coloured within; the middle dusky beneath, and the posterior somewhat ferruginous at the base, with a pale obsolete dot towards the inner edge; 4 anterior tarsi ferruginous, posterior fuscous; wings slightly hyaline, or yellowish, with the stigma straw-colour, or rusty, rarely brown; the costa and scales fuscous, or black; cellule 5-angular.

Also very rare: taken in July, at Darent wood.

Sp. 61. *leucocerus*. *Niger, antennarum annulo, orbitis oculorum internis punctisque ad radicem alarum albis, abdomine cærulescente*. (Long. corp. $6\frac{1}{2}$ —8 lin.; Exp. Alar. 14—16 lin.)

Ic. *leucocerus*. *Gravenhorst*.—*Steph. Catal*. 346. No. 4339.

Black: facial orbits and a lateral spot on the clypeus white; in the female the frontal orbits alone whitish; antennæ porrect, involuted in the female, with about 7 of the central joints white, more in the female than in the male; thorax with the upper margins of the collar, a dot before, and another beneath the wings white; scutellum white, edged with black in the female;



abdomen blue-black, opaque, glossy at the apex; legs black, 4 anterior femora with a reddish or straw-coloured spot at the apex beneath; anterior tibiæ pale straw beneath, middle either entirely fuscous, or rusty beneath; wings smoky-hyaline; stigma red or fuscous, costa and scales black; cellule somewhat 5-angular.

Not common: found near London, and in the north of England, in July.

Sp. 62. *Pratensis*. *Niger, lineis duabus albis ad radicem alarum, pedum anteriorum tibiis et femorum latere altero dilute rufis.* (Long. corp. $6\frac{1}{4}$ lin.; Exp. Alar. $12\frac{1}{2}$ lin.)

Ic. *Pratensis*. *Gravenhorst*, i. 212.—*Steph. Nomen*. 2d edit. col. 132.

Black: antennæ about half the length of the body; thorax with a line before the wings, and a streak beneath white; scutellum also white; abdomen somewhat silky, with the extreme margins of the 2nd and 3rd segments pitchy-straw; legs black, 4 anterior with the tibiæ and tarsi straw-colour; femora red within, posterior somewhat silky, with the tibiæ dull straw-colour, fuscous externally at the apex; wings smoky-hyaline, stigma pitchy, costa black, scales white; cellule 5-angular.

Also found, but very rarely, within the metropolitan district, in July.

Sp. 63. *semiorbitalis*. *Niger, orbitis internis oculorum et articulo 1-mo antennarum subtus albis, pedum anteriorum tarsis tibiis et femorum latere altero dilute croceis.* (Long. corp. $5\frac{1}{2}$ —6 lin.; Exp. Alar. $10\frac{1}{2}$ —11 lin.)

Ic. *semiorbitalis*. *Gravenhorst*.—*Steph. Catal.* 346. No. 4338.

Black: palpi pitchy; facial orbits and 2 small dots between the antennæ white, the latter rusty-brown beneath, with the basal joint white; thorax immaculate, or with 2 obscure whitish streaks at the base of the wings; scutellum white; abdomen very finely punctured, opaque, with the 2nd and 3rd segments chestnut on the extreme edge; legs black, anterior with the tibiæ and tarsi, and the inside of the femora, dull saffron, the middle femora beneath and towards the apex, and the tibiæ, dull saffron, the last black at the tip, the hinder tibiæ dull straw, with the apex and extreme base black; wings somewhat hyaline, stigma and costa brown, scales black; cellule somewhat 3-angular.

Taken in June and July near London, but rare.

Sp. 64. *lugens*. *Niger, puncto albo ad radicem alarum; fœmina antennarum annulo albo.* (Long. corp. $7\frac{1}{2}$ —9 lin.; Exp. Alar. $13\frac{1}{2}$ lin.)

Ic. *lugens*. *Gravenhorst*, i. 215.—*Steph. Nomen*. 2d edit. col. 133.

Black: antennæ porrect, incurved in the female, with about 5 joints towards the middle white, beneath ferruginous; thorax with a streak beneath the wings, and 2 dots on the upper margin of the collar, and in the males a spot before the wings, white; scutellum whitish; abdomen with the 3 basal



segments somewhat opaque, the remainder shining; ovipositor slightly exerted; legs moderate, black, 4 anterior with the tibiæ beneath and tip of the femora rusty-white; rather thickened in the female, with the anterior tibiæ rusty beneath; wings ochreous-hyaline, the apex with a purplish tinge, stigma dull red; costa brown, scales black, with a white dot.

Also rare: found near London, in June.

Sp. 65. *laminatorius*. *Niger, facie, lineâ ante alas, tibiis tarsisque albis.* (Long. corp. 10—12 lin.; Exp. Alar. 15—15½ lin.)

Ic. *laminatorius*. *Fabricius*.—*Steph. Catal.* 348. No. 4413. *Albin. pl. ix. fig. sup. sinist.*

Black: mouth, face, and spot on the cheeks white, the face above with 2 or 3 abbreviated longitudinal black streaks, and the apex of the mandibles also black; antennæ with the basal joint white beneath; thorax with the suture before the wings, a spot below them, and 2 minute ones beneath the scutellum whitish; metathorax slightly pubescent; scutellum white; legs black; 4 anterior coxæ, with a spot, the trochanters, a longitudinal line on the femora, the tibiæ and tarsi, white; the tibiæ with the apex without, and the tips of the joints of the tarsi fuscous or black; posterior trochanters and middle of the femora white, tibiæ and joints of the tarsi white, with the tip black; wings smoky-hyaline, or hyaline; stigma saffron-coloured, or rusty-brown, the costa fuscous, scales black, with a whitish spot; cellule irregularly 3-angular.

The white lines on the thorax are sometimes wanting, and the occipital orbits and a portion of the outer ones are occasionally whitish.

Larva feeds on that of *Dielephila* Elpenor.

Not uncommon, in June, in the marshy places within the metropolitan district, where *Dielephila* Elpenor occurs; also found in Devonshire, &c.

Sp. 66. *Proteus*. *Niger, orbitis oculorum supernis, annuloque antennarum albis.* (Long. corp. 9—13 lin.; Exp. Alar. 15—17 lin.)

Ic. *Proteus*. *Christius*.—*Steph. Catal.* 347. No. 4352.—Ic. *bilineator*. *Donovan, v. xiv. pl. 478?*

Black: frontal and ventral orbits of the eyes more or less distinctly whitish; antennæ above half the length of the body, with the apex curved, with all, or the greater portion from the 6th to 15th joints white above and dusky beneath; metathorax slightly pubescent; scutellum white; abdomen oblong-ovate, as wide as the thorax; legs black, anterior beneath dull white; wings smoky-hyaline, the apex darker, stigma ferruginous; costa and scales black; cellule 5-angular.

Found with the last, of which it is probably the female.

Sp. 67. *deliratorius*. *Niger, tibiurum annulo albo: mas facie et punctis ad*



radicem alarum albis; fœmina antennarum annulo albo. (Long. corp. 7—8 lin.; Exp. Alar. 11—11½ lin.)

Ic. deliratorius. Linné.—*Steph. Catal.* 346. No. 4340.

Black: male with the mouth and face white, outer orbits ferruginous; antennæ with the basal joint white beneath, of the female with the 9th to 18th, more or less, white; thorax with a dot below the wings, another before, and two minute ones beneath the scutellum, white; of the female with an obscure whitish dot below the wings only; metathorax slightly bispinose; scutellum white; sometimes black at the base in the male; abdomen bluish, with the extreme margin of the segments chestnut, the 2nd aciculated at the base; ovipositor faintly exerted; legs black; anterior femora beneath more or less rusty-white, tibiæ white, with the external apex fuscous or black, 4 posterior black, with a broad white ring towards the base; anterior tarsi white, posterior black: the male with the coxæ and trochanters more or less white, the anterior femora beneath straw-colour; wings smoky-hyaline, with the stigma reddish or brown, the costa and scales fuscous, the last sometimes black or rusty, with a white dot in the male; cellule 5-angular.

Not very abundant: found occasionally within the metropolitan district, in June and July, widely diffused; also found in Salop.

Sp. 68. multiannulatus. *Niger, facie, punctis duobus ad radicem alarum annuloque tibiarum et tarsorum albis, abdomine nigro-ceruleo.* (Long. corp. 6½—7¼ lin.; Exp. Alar. 11 lin.)

Ic. multiannulatus. *Gravenhorst*, i. 128.—*Steph. Nomen.* 2d edit. col. 133.

Black: face and mouth white; antennæ with the basal joint white beneath; thorax with a dot or streak before the wings, and another beneath white; scutellum white; abdomen blue-black, opaque, with the apex shining, the extreme edges of the 2nd and 3rd segments sometimes chestnut; legs black, with the anterior femora interiorly pitchy-straw, the middle slightly straw-coloured at the tip; the tibiæ white, 4 anterior towards the apex externally black or fuscous; posterior from the middle to the tip black; 4 anterior tarsi white, with the tips of the joints fuscous; posterior black, with the basal joint half white; wings smoky-hyaline, stigma and costa fuscous or rusty; scales black, with a white dot; cellule 5-angular.

More abundant than the last; found in June within the metropolitan district; also in Salop, Scotland, &c.

Sp. 69. fuscipes. *Niger, orbitis oculorum, punctis duobus ad radicem alarum annuloque tibiarum albis: mas maculis faciei et antennarum articulo 1-mo subtus albis*; fœmina antennarum annulo albo. (Long. corp. 6½—7 lin.; Exp. Alar. 11½ lin.)

Ic. fuscipes. *Gravenhorst*.—*Steph. Nomen.* 2d edit. col. 133.

Black: male with the palpi and spot on the mandibles white; face white, black in the middle, and frequently the outer orbits and a spot on the vertical ones also white; female with the orbits alone more or less white; antennæ



mostly with the 1st joint white beneath; of the female with the 9th to 15th joints white above; thorax with a white dot beneath and another or streak before the wings; scutellum white at the apex, or in some females with only 2 minute white dots; abdomen blue-black, of the female somewhat violaceous; legs black, with the anterior femora more or less ochreous; middle in the males with the tip beneath whitish; anterior tibiæ white, externally black, with a white ring towards the base; middle and posterior black, with a white ring before the base; wings smoky-hyaline, with the stigma, costa, and scales brown or black, the last sometimes with a white dot.

Rare: taken near London and in Salop, in June.

Sp. 70. *perileucus*. *Niger, puncto ad alarum radicem tibiæque annulo albis: mas orbitis internis oculorum albis; fœmina annulo antennarum albo.* (Long. corp. 5—6 lin.; Exp. Alar. $9\frac{1}{2}$ —10 lin.)

Ic. *perileucus*. *Gravenhorst, i. 227.—Steph. Nomen. 2d edit. col. 133.*

Black: male with the inner orbits and frequently 2 dots on the clypeus white; antennæ of the female ferruginous beneath, with the 9th to 14th joints white; thorax with a white dot or streak below the wings in the female, and before them in the male, rarely one below; scutellum white; abdomen slightly glossy, with the 2nd segment of the male sometimes fuscous, of the female with the margin chestnut, apex obtuse; legs black, anterior femora more or less whitish below, middle at the apex alone; anterior tibiæ white, towards the tip in the male the outer side is ferruginous; middle in that sex beneath white, with the apex black; in the female with a broad white half ring towards the base, posterior with a broad ring of the same: tarsi of the female fuscous, of the male with the base of each joint somewhat whitish; wings smoky-hyaline, stigma and costa fuscous, scales black, sometimes with a white dot in the male; cellule 5-angular.

Scarce; found in June near London.

Sp. 71. *edictorius*. *Niger, punctis ad alarum radicem tibiisque albis.* (Long. corp. 6 lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ic. *edictorius*. *Linné.—Steph. Catal. 346. No. 4342.*

Black: antennæ porrect, scarcely half the length of the body; thorax with a spot before the wings, and a streak beneath them, white; scutellum white; abdomen oblong, thickly punctured, the 2nd and 3rd segments opaque, black-brown, with the extreme margin faintly chestnut; legs black, with the anterior femora beneath entirely, and the middle at the apex only whitish; tibiæ white, posterior with the entire apex, and 4 anterior with the outer tip fuscous; anterior tarsi whitish; middle whitish-brown; wings smoky-hyaline, the stigma pitchy, costa fuscous, scales the same, with a white dot.

Very rare: found near London in June.

Sp. 72. *biamulatus*. *Niger, orbitis oculorum internis, punctis ad alarum*



radicem annuloque tibiæ et tarsorum albis. (Long. corp. $5\frac{3}{4}$ lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ic. biannulatus. *Gravenhorst.—Steph. Catal.* 347. No. 4343.

Black: spot on the mandibles, internal orbits, and a spot on the occipital ones, white; thorax with 2 white dots at the base of the wings; scutellum with 2 white dots at the apex; abdomen with the basal segment aciculated, 3 following rather depressed, slightly aciculated, rest shining; legs black; anterior femora straw-coloured within; 4 anterior tibiæ white, black within, and the apex of the middle pair entirely black; posterior black, white towards the base; anterior tarsi ferruginous; 4 posterior brown-black, with the basal joint white; wings smoky-hyaline; stigma, costa, and scales fuscous.

Very rare: found within the metropolitan district, in June.

Sp. 73. *pistorius*. *Niger, annulo antennarum et tibiæ punctisque ad radicem alarum, albis; mas orbitis internis oculorum albis.* (Long. corp. $7\frac{1}{2}$ —8 lin.; Exp. Alar. 12 lin.)

Ic. *pistorius*. *Gravenhorst*, i. 231.—*Steph. Nomen*. 2d edit. col. 133.

Black: inner orbits white in the male; antennæ with about 6 joints towards the middle white; thorax with a streak or dot before the wings, and in the male with frequently a dot beneath them and the upper edge of the collar white; metathorax white; legs black; anterior femora beneath white or ochreous; tibiæ white, with the apex black, anterior and sometimes also the middle entirely white beneath: anterior tarsi of the male generally with the 1st joint white at the base beneath; wings smoky-hyaline in the females, ochreous-hyaline, with a purplish tinge at the tip in the males; stigma rusty or fuscous, costa and scales blackish, with a white dot on the last occasionally.

Also rare: taken at Darenth, in June.

Sp. 74. *pallipes*. *Niger, tibiis albis: mas femoribus albido maculatis; fœmina antennarum annulo et orbitis oculorum frontalibus albis.* (Long. corp. 6—8 lin.; Exp. Alar. 11—13½ lin.)

Ic. *pallipes*. *Gravenhorst.—Steph. Catal.* 347. No. 4350.

Black: mandibles sometimes red in the male, and the inner orbits obscurely pale; female with the tip of the palpi pale, the frontal orbits slightly whitish, the external red; antennæ of the female with 8 or 10 white joints towards the middle, rusty beneath: thorax often with 2 white spots at the base of the wings and 1 beneath; scutellum white; abdomen blue-black, with the extreme edge of the margins somewhat castaneous; legs black, 4 anterior femora ochreous or ferruginous in front, posterior fuscous, with a pale line above and below, or with a whitish spot at the base; tibiæ white or whitish, the apex sometimes dusky or black; posterior with the base and apex black; tarsi whitish or ochreous, posterior pair brownish or black; wings smoky-



hyaline, stigma red, or pitchy ; costa and scales black, or brown, and in the males with a white dot.

Found, but very rarely, near London.

Sp. 75. *vespertinus*. *Niger, tibiæ semiannulo albo*. (Long. corp. 6 lin. ; Exp. Alar. 10 lin.)

Ic. *vespertinus*. *Christius, 342.—Steph. Nomen. 2d edit. col. 133.*

Black, resembling the last : legs with the anterior femora beneath the apex rusty-white, the tibiae beneath white, rusty towards the apex, the 4 hinder tibiae externally white towards the base ; wings hyaline, with the apex slightly smoky ; stigma, costa, and scales black.

Obtained from Donovan's collection : locality unknown.

Sp. 76. *bipunctorius*. *Niger, orbitis oculorum internis et verticalibus latè albis, tibiis posticis versus basin externè ochraceis*. (Long. corp. 7—8 lin. ; Exp. Alar. 12—13 lin.)

Ic. *bipunctorius*. *Steph. Nomen. 2d edit. Appendix.*

Black : palpi white ; inner and vertical orbits broadly white ; thorax with the margins of the collar, a spot at the base, and another below the wings, white ; scutellum white ; abdomen finely punctured throughout, slightly opaque ; the basal segment with 2 whitish dots, or an interrupted white streak, on the extreme margin ; legs black, anterior femora at the apex and their tibiae whitish, the last spotted with fuscous ; middle femora at the extreme tip, and tibiae without also whitish, the last with a brownish ring towards the apex ; posterior tibiae pale towards the base externally ; 4 anterior tarsi pale, with the tips of the joints dusky, posterior fuscous ; wings smoky-hyaline ; costa, stigma, and scales black.

Apparently rare ; * originally obtained (without antennæ) from the Marshamian cabinet, and subsequently from Mr. Shuckard : taken near Darent's wood in June.

§ IV. *Scutellum* more or less pale, *abdomen* black, with the terminal joints white, or dotted with that colour.

Sp. 77. *saturatorius*. *Niger, annulo antennarum albo, femoribus tibiisque rufis, harum posticis apice nigro*. (Long. corp. 4—6½ lin. ; Exp. Alar. 8—11 lin.)

Ic. *saturatorius*. *Linné.—Steph. Catal. 347. No. 4333 —Id. 350. No. 4449.*

Black : frontal orbits sometimes whitish in the female ; antennæ with the 14th to 20th joints generally white, ferruginous beneath ; of the female the 9th to

* From the circumstance of my possessing all the original specimens of this family, out of the collections of Francillon, Marsham, Haworth, Donovan, and others, I am enabled to form some judgment of the relative scarcity of the species of this hitherto-neglected portion of our indigenous insects.



16th are white, dusky beneath, with the apex incurved; scutellum white or yellow; of the male with sometimes only a small spot; abdomen of the male rather narrower than the thorax, with the 7th segment entirely white; of the female as broad as the thorax, with the 2nd and 3rd segments finely punctured, and frequently slightly edged with reddish; the 6th with the margin more or less broadly white, and the 7th with the back entirely of that colour; ovipositor slightly exserted; legs red; coxæ and trochanters black; posterior trochanters often reddish at the tip; tibiæ and tarsi black at the apex, and the tips of the femora sometimes slightly fuscous; wings smoky-hyaline; stigma, costa, and scales black or pitchy, rarely pale; cellule 5-angular.

The femora are sometimes black, and the insect varies extremely:—I suspect that Gravenhorst has united more than 2 species, judging from the great discrepancy observable in the specimens in my collection.

Not common; found in June and July, within the metropolitan district; also in Salop and in Devonshire.

Sp. 78. *submarginatus*. *Niger, segmentis 2-4 rufo marginatis, antennarum annulo albo.* (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Ic. *submarginatus*. *Gravenhorst, i. 244.—Steph. Nomen. 2d edit. col. 133.*

Black: antennæ with the 8th to 14th joints white; scutellum white; abdomen thickly punctured, rather glossy towards the apex, the 2nd to 4th segments edged with red, sometimes rather faintly, the 6th and 7th white on the back; ovipositor slightly exserted; anterior legs with the tarsi, the interior sides of the tibiæ and the apex of the femora ferruginous, middle with the tarsi fuscous, the tibiæ towards the base and the external tip of the femora also ferruginous; posterior tibiæ rusty-brown towards the base; wings somewhat of a smoky-hyaline, with the stigma straw-coloured, costa brownish, scales black; cellule 5-angular.

Not common: taken at Hertford in July.

Sp. 79. *salicatorius*. *Niger, tibiis sordide stramineis, posticis apice nigro, segmento 2-do 3-tioque plerumque castaneo-maculatis: mas facie flavâ; fœmina annulo antennarum albo.* (Long. corp. 5½—6 lin.; Exp. Alar. 11¼ lin.)

Ic. *salicatorius*. *Gravenhorst, i. 245.—Steph. Nomen. 2d edit. col. 133.*

Black: male with the mouth and face whitish, female with the frontal orbits chestnut or yellowish; antennæ porrect, with the basal joint whitish beneath, of the female moniliform, curved, the 9th to 15th joints white; thorax often with a whitish or ochreous line below the wings, and a dot before them; scutellum whitish, yellow in the females; abdomen with the 2nd and 3rd segments somewhat opaque, dull chestnut-black, with some obscure paler spots of a paler hue, on the disc and towards the margin; the 3 terminal segments with a white dorsal spot; ovipositor slightly exserted; legs rather long, black, anterior femora of the male within entirely, and of the female at the apex, of a saffron-yellow; tibiæ yellow, the posterior



black at the tip; tarsi red, posterior of the male black, red at the base, of the female red, with the tips of the joints black; wings yellowish-hyaline, stigma dull-saffron, costa and scales black; cellule 5-angular.

Scarce: found at Coombe wood in June.

Sp. 80. microcerus. *Niger, punctis duobus scutellaribus unoque infra alas, albis, femoribus tibiisque rufis.* (Long. corp. $2\frac{3}{4}$ lin.; Exp. Alar. 5 lin.)

Ic. microcerus. *Gravenhorst*, i. 249.—*Steph. Nomen*. 2d edit. col. 133.

Black: antennæ involuted, fuscous; scutellum with 2 white dots at the apex; abdomen with the extreme margin and base of the 2nd segment dull chestnut, the margin of the 6th white, and the 7th entirely white; ovipositor slightly exserted; legs red, coxæ and trochanters black; posterior with the tip of the tibiæ and tarsi fuscous; wings somewhat smoky-hyaline, with the stigma, costa, and scales fuscous; cellule nearly 5-angular.

Rare: taken near London, and I believe in Wiltshire, in June.

Sp. 81. anator. *Niger, punctis 2-bus scutelli, lineolisque punctisve ad radicem alarum, albis, femoribus tibiisque rufis: mas orbitis oculorum internis albis; fœmina antennarum annulo pallido.* (Long. corp. $3-4\frac{1}{4}$ lin.; Exp. Alar. $5\frac{1}{2}-7$ lin.)

Ic. anator. *Fabricius*.—*Steph. Catal.* 350. No. 4450.

Black: mouth red, palpi paler, apex of the mandibles black; facial orbits and sometimes the frontal ones white or straw-coloured in the male, frontal sometimes faintly whitish in the female; antennæ porrect, black, all but the 2 basal joints frequently rusty beneath, of the female involuted, 2 basal joints black, 3rd to 8th or 9th ferruginous or fuscous, 9th or 10th to 12th dull white above, remainder fuscous; thorax of the male with the upper and often the lateral margins of the collar, a line before the wings, and another beneath, white; of the female with only a dot below and an obscure one before the wings white; scutellum with 2 white spots, sometimes united, at the apex; abdomen silky, with the 2 or 3 basal segments sometimes obscurely margined with chestnut, and the 2 last more or less white above; legs rather short, red, with the coxæ and trochanters and apex of the hinder tibiæ and tarsi, and occasionally that of the femora, black; wings very slightly smoky-hyaline; stigma and costa fuscous or black, scales brown or black, with sometimes a white dot in the male.

Rather uncommon; found in gardens and woods in the vicinity of London: I have taken specimens in the windows at the Hermitage, in July.

Sp. 82. quadrialbatus. *Niger femoribus tibiisque rufis: mas orbitis internis oculorum albis; fœmina antennarum annulo pallido.* (Long. corp. 4—5 lin.; Exp. Alar. 9—10 lin.)

Ic. quadrialbatus. *Gravenhorst*, i. 452.—*Steph. Nomen*. 2d edit. col. 133.

Black: palpi reddish; facial orbits white in the male; antennæ of the female



more or less ferruginous beneath, with the 12th to 15th or 18th joints pale or white above, or ferruginous, with the rest of the antennæ black; thorax of the male frequently with a minute white dot beneath the wings; scutellum for the most part entirely white, but in the female with the tip only; abdomen with the 2nd and 3rd joints finely punctured and somewhat opaque, of the female with the margins sometimes obscurely chestnut, or entirely dull bay; the 6th with a spot, and the 7th above, entirely white; legs red; coxæ and trochanters, and also the apex of the hinder tibiæ and tarsi, black; wings smoky-hyaline, or yellowish, the stigma red or dusky, costa and scales black; cellule somewhat 5-angular.

Not common: found in June near London, and at Darenth.

Sp. 83. *quæstorius*. *Niger, femoribus tibiisque rufis, puncto dorsali 3-um ultimorum segmentorum annuloque antennarum albis.* (Long. corp 5 lin.; Exp. Alar. 8½ lin.)

Ic. *quæstorius*. *Linné.—Steph. Catal. 347. No. 4344.*

Black: antennæ involuted at the apex, with about the 9th to 14th joints more or less white above and on the sides; thorax with a small white dot beneath the wings; metathorax with 2 slightly acute tubercles; scutellum white; abdomen with the 3 terminal segments having a whitish-yellow spot on the back; ovipositor scarcely exerted; legs pale red; coxæ and trochanters, and tips of the hinder tarsi and tibiæ black; wings smoky-hyaline, with the stigma ferruginous, costa and scales black; cellule 5-angular.

Scarce: taken in the north of England.

Sp. 84. *cingulipes*. *Niger, orbitis oculorum verticis annuloque antennarum et tibiæ albis: mas facie albâ maculâ nigrâ.* (Long. corp. 6½ lin.; Exp. Alar. 10 lin.)

Ic. *cingulipes*. *Steph. Nomen. 2d edit. Appendix.*

Black: palpi pale; vertical orbits broadly white, and in the male the face and inner ones, the face having a large black patch; thorax of the males with a white dot before the wings; scutellum white; abdomen rather slender, of a brownish-black, with a bluish tinge, the 2 last segments with a white spot on the back; legs black; 4 anterior femora in the male ochreous-white in front and at the extreme tip; tibiæ also white in front, with a fuscous cloud outside towards the apex; in the female the 4 anterior femora are whitish at the extreme tips, and the 4 tarsi black, with a white ring towards the base, the lower portion of the inner edge also white; posterior legs in both sexes black, with a broad white ring towards the base of the tibiæ; 4 anterior tarsi pale; antennæ long and slender, porrect in the male, with about the 12th to 15th joints white above, and in the female incurved, with from the 7th to 14th joints white above and on the sides; wings somewhat smoky-hyaline, with the stigma ferruginous; costa and scales rusty-brown; cellule 5-angular.

Taken, long since, at Darenth wood in June; apparently very rare.



Sp. 85. leucomelas. *Niger, orbitis oculorum verticis albis: mas orbitis oculorum facialibus, fœmina annulo antennarum, albis.* (Long. corp. 5— $\frac{1}{2}$ lin.; Exp. Alar. 10—11 lin.)

Ic. leucomelas. *Gmelin.—Steph. Nomen. 2d edit. col. 133.*

Black: vertical orbits very broadly white in the female, and the facial ones white in the male; antennæ of this sex with the basal joint white below; female with the 9th to 16th, more or less, white above and on the sides; thorax of the male with a white dot before and another below the wings; scutellum white, of the female sometimes reddish at the base; abdomen finely punctured, of the female with a dorsal white spot on the 6th and 7th segments, of the male with the margin of the 6th and entire back of the 7th white; legs black, anterior femora below entirely and middle ones at the apex, and the 4 anterior tibiæ beneath straw-coloured in the male; anterior tarsi slightly so, and the middle fuscous; of the female the anterior tibiæ are rusty or fuscous within; wings smoky-hyaline; stigma, costa, and scales black; cellule nearly 5-angular.

Not very abundant: taken within the metropolitan district in June, and in Devonshire.

Sp. 86. microcephalus. *Niger, antennarum annulo orbitisque facialibus tenuissimis albis, capite parvo.* (Long. corp. 6—7 lin.; Exp. Alar. 10—12 lin.)

Ic. microcephalus. *Steph. Nomen. 2d edit. Appendix.*

Black: head very small; inner orbits faintly white; antennæ with the 10th to 16th joints, more or less, white; thorax immaculate; scutellum entirely white, or at the tip only in the female; abdomen slender and glossy in the male, wider and somewhat opaque in the female, the 2 last segments with a white dorsal spot; legs black, anterior tibiæ slightly ferruginous in front; wings hyaline, stigma red, costa and scales black; cellule somewhat 3-angular.

Found near London and in Scotland, in June.

Sp. 87. computatorius. *Niger, antennarum annulo albo, tibiis posticis versus basin ferrugineo fuscis.* (Long. corp. 5—6 $\frac{1}{2}$ lin.; Exp. Alar. 12—14 lin.)

Ic. computatorius. *Muller, 1769.—Steph. Nomen. 2d edit. col. 133.*

Black: antennæ brownish beneath, with the 9th to 16th joints, more or less, white; frontal orbits sometimes obscurely reddish; thorax occasionally with a white dot beneath the wings; scutellum white; abdomen with the 2nd and 3rd segments finely punctured and somewhat opaque, sometimes with the extreme margins slightly chestnut, and the 2nd very rarely entirely dull bay black, the 6th and 7th with a white dorsal spot, the 5th occasionally with a minute one; legs dull black, anterior femora ferruginous or ochreous at the tip, the tibiæ beneath the same; middle with the inner edge of the tibiæ, at times the tip of the femora and the tarsi ferruginous; posterior with the tibiæ rusty-brown on the outer edge towards the base; wings smoky-hyaline, stigma red or fuscous, costa the same; scales black; cellule 5-angular.



Not very common: found in June at Birch wood; also in the north of England.

Sp. 88. *molitorius*. *Niger, antennarum et tibiæ annulo albo: mas orbitis oculorum frontibus albis.* (Long. corp. $4\frac{1}{2}$ — $6\frac{1}{2}$ lin.; Exp. Alar. 8— $10\frac{1}{2}$ lin.)

Ic. *molitorius*. *Linné.—Steph. Catal. 346. No. 4341.*

Black: male with the frontal orbits white; antennæ with the 7th to 16th joints, more or less, white, with a brown dot beneath, or in the female dull saffron; thorax of the male occasionally with a white dot beneath the wings; scutellum white; abdomen slightly glossy, with the 2nd and 3rd segments of the female somewhat opaque, the femora sometimes black-bay; the remainder more glossy, purplish, the 6th and 7th with a white dorsal spot; legs with the anterior femora white or rusty at the apex, the tibiæ all white, or ochreous, with the extreme base black, or dusky, and the apex black, anterior sometimes rusty at the apex, and in the male with the inner edge entirely white; tarsi ferruginous, posterior sometimes with the tips of the joints dusky; wings smoky-hyaline, with the stigma red, or fuscous; costa and scales fuscous; cellule 5-angular.

Not very uncommon within the metropolitan district in June; found also in Yorkshire.

§ V. *Scutellum* pale or with pale marks: *abdomen* of 3 colours, usually black, red, and white; or yellow.

Sp. 89. *extensorius*. *Niger, annulo antennarum albo, segmentis 2 et 3 rufis, tibiis rufis, posticis apice nigro: mas femoribus anterioribus rufis.* (Long. corp. 5—6 lin.; Exp. Alar. $7\frac{1}{2}$ — $8\frac{1}{2}$ lin.)

Ic. *extensorius*. *Linné.—Steph. Catal. 349. No. 4434.*

Black: inner orbits of the female more or less distinctly yellowish or reddish; antennæ involuted, with about the 8th to 16th or 17th joints white, beneath red or fuscous, the remainder rusty-brown; thorax with a white dot beneath the wings, and in the female occasionally below them; scutellum yellowish, white in the female; abdomen more slender in the male than in the female, the 2nd and 3rd segments red, the 3rd sometimes with its edge dusky; the 4th to the 7th in the male with a white spot on the back, and occasionally in the female, but in this sex the spot on the 4th and 5th is sometimes wanting; legs red, with the coxæ and trochanters black; in the male the femora and tibiæ are red, the tips of the hinder pair black, with dusky tarsi; in the female the femora are generally black, with the 4 anterior more or less red, the tibiæ red, anterior palest, middle sometimes black at the tip, hinder always with the apex black; occasionally all are yellowish beneath; tarsi red, posterior dusky; wings yellowish-hyaline, stigma fulvous or red, costa and scales fuscous; cellule 5-angular.

Varies considerably: the anterior femora, or all of them, are sometimes entirely rufous, and the abdomen has occasionally a reddish spot on the 1st or 4th segments, and the base of the 3rd is at times black.



Extremely abundant, throughout the metropolitan district, in the spring and summer; occurring in plenty at the roots of trees, during the winter: also found in Shropshire and in Scotland.

Sp. 90. *confusorius*. *Niger, segmentis 2 et 3 rufis, tibiis flavis apice obscuro, antennarum annulo albo.* (Long. corp. 4—7 lin.; Exp. Alar. $7\frac{1}{2}$ —9 lin.)

Ic. *confusorius*. *Gravenhorst.—Steph. Catal. 349. No. 4438.*

Black; palpi and mandibles occasionally red; inner orbits reddish; antennæ involuted, with the 8th to 16th joints more or less white, red or brown beneath; thorax very rarely with a white dot beneath the wings; scutellum white; abdomen ovate, with the 2nd and 3rd segments red or dull saffron, sometimes with the back yellowish; the 5th rarely entirely black, but marked with a white dot or spot, the 6th and 7th always with a white spot; legs with the anterior femora rarely entirely red, with a fuscous spot at the base, generally black, with the tip red, middle the same, posterior black, sometimes red at the base; 4 anterior tibiæ yellow or ochreous, reddish within, the anterior pair with the apex reddish, and the 2nd pair with it brownish; posterior yellow, the extreme base red or fuscous, the apex brown or black, sometimes edged with red; tarsi red, posterior occasionally black at the tip; wings yellowish-hyaline, stigma red or saffron, costa and scales fuscous, the last sometimes red; cellule 5-angular.

The tibiæ are sometimes reddish-yellow, with the apex of the hinder pair black.

Found with the preceding, and nearly as abundant.

Sp. 91. *silaceus*. *Niger, segmentis 2 et 3 silaceis, pedibus rufis, coxis et trochanteribus nec non femoribus posticis nigris, tibiis flavicantibus, antennarum annulo albo.* (Long. corp. 5 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ic. *silaceus*. *Gravenhorst, i. 279.—Steph. Nomen. 2d edit. col. 133.*

Black: antennæ with the 1st to 7th joints dull rusty beneath, the 9th to 14th generally white, red beneath; scutellum white; abdomen with the 2nd and 3rd segments pale red, yellow towards the apex, the 4th with a white dot, the 2 following with a white spot; legs with the coxæ and trochanters black; femora red, posterior from the middle to the apex black; tibiæ yellowish, 4 anterior beneath and at the apex red, posterior black at the tip; tarsi red, posterior fuscous at the apex; wings smoky-hyaline, with the stigma red, costa and scales fuscous.

Found in June, near London: very rare.

Sp. 92. *ammonius*. *Niger, antennis 3-coloribus, segmentis 2 et 3 tibiisque rufis; segmentis 6 et 7 puncto dorsali albo.* (Long. corp. 5 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ic. *ammonius*. *Gravenhorst.—Steph. Catal. 349. No. 4439.*

Black: inner orbits blood-red; antennæ with the 1st to 7th joints of the female rusty-red; of the male with the 1st joint black, the 2nd to 7th rusty or brown, 7th or 8th to 13th white, reddish beneath, remainder fuscous; thorax



of the male occasionally with 2 white dots at the base of the wings, or 1 obscure one beneath; scutellum white; abdomen with the 2nd and 3rd segments red, 6th and 7th with a white dorsal spot; legs black, with the tips of the femora red, posterior entirely black in the male; 4 anterior tibiæ of the female at the apex rusty-red; posterior of the male red, the apex black, sometimes yellowish beneath; of the female red, the middle yellowish, the apex fuscous; tarsi red; wings yellowish-hyaline, stigma and costa red; scales dull straw-colour, or reddish.

Not common: taken occasionally in the vicinity of London, in June.

Sp. 93. stramentarius. *Niger, segmentis 2 et 3 tibiisque flavis, his apice obscuro, annulo antennarum albo.* (Long. corp. 6—7 lin.; Exp. Alar. 12 lin.)

Ic. stramentarius. *Gravenhorst.—Steph. Catal. 349. No. 4440.*

Black: inner orbits yellowish, or reddish; antennæ with the 8th to 16th joints, more or less, white or yellowish, reddish or straw-coloured beneath; thorax occasionally with a streak beneath the scutellum, or 2 dots at the base of the wings, whitish or yellow; scutellum the same; abdomen with the 2nd and 3rd segments yellow, the 5th, 6th, and 7th, with a yellow spot on the back; legs black, with the 4 posterior at the apex ferruginous or dull straw; tibiæ yellow, 4 anterior generally red at the apex; the middle pair sometimes black at the tip; posterior with the apex black, the base sometimes ferruginous; tarsi ferruginous, hinder pair with the tips of the joints sometimes black; wings rather yellowish-hyaline, stigma pale saffron, costa reddish, and scales red or brown.

Rather scarce: found in June and July on flowers, near London, and in the north of England.

Sp. 94. terminatorius. *Niger, segmentis 2 et 3 flavo-stramineis, incisurâ nigra, tibiis flavo stramineis apice obscuro, annulo antennarum albo.* (Long. corp. 6—6½ lin.; Exp. Alar. 11½ lin.)

Ic. terminatorius. *Gravenhorst.—Steph. Catal. 349. No. 4441.*

Black: palpi generally rusty at the apex, and mandibles red; frontal orbits faintly yellowish or ferruginous; antennæ with the 9th to 16th joints, more or less, dull white, rusty beneath; scutellum straw yellow; abdomen with the 2nd and 3rd segments yellow or pale saffron, with the incisure black; 5th, 6th, and 7th with a yellow dorsal spot; legs with the 4 anterior femora more or less red or ferruginous at the apex; tibiæ yellow, sometimes mixed with ferruginous, the 4 anterior with the apex fulvous or rusty, the posterior with the tip black; tarsi reddish or yellowish; wings yellowish-hyaline, the stigma and costa pale saffron, scales red.

Not uncommon within the metropolitan district, towards the end of the summer.

Sp. 95. cerinthius. *Niger, segmentis 2 et 3 flavis, incisurâ nigra, tibiis flavis*

MANDIBULATA, VOL. VII., OCT. 31st, 1835.

1



apice obscuro, annulo antennarum albo. (Long. corp. 5—6 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ic. cerinthius. *Gravenhorst*.—*Steph. Catal.* 349. No. 4442.

Black: frontal orbits very obscurely blood-red; antennæ rather slender, the 11th to 16th joints white, dull saffron beneath; scutellum white; abdomen ovate, the 2nd and 3rd segments yellow, with the incisure fuscous or black, the last 2 with a yellow dorsal spot; legs with the anterior femora at the tip and lower edge, and the middle pair at the apex, red; tibiæ yellow; 4 anterior reddish, and the posterior black, at the tip; tarsi reddish; wings yellowish-hyaline, with the stigma and costa dull red, scales fuscous.

Rare: found near London, in August.

Sp. 96. *fulvoscutellatus*. *Niger, scutello fulvo, segmentis 2 et 3, tarsis anterioribus tibiisque rufis, posticis apice nigro, annulo antennarum rufo-flavescente.* (Long. corp. 6 lin.; Exp. Alar. 10 lin.)

Ic. *fulvoscutellatus*. *Steph. Nomen.* 2d edit. col. 133.

Black: palpi fuscous; antennæ with the 9th to 16th joints reddish-yellow above, red beneath; thorax with a reddish streak beneath the wings; scutellum fulvous; abdomen with the 2nd and 3rd segments tawny-red; the middle of the edge of the 5th, and a spot on the 6th and 7th, white; legs with the anterior femora fulvous, the apex of the middle pair rufous, the 4 anterior tibiæ and tarsi pale red, the hinder pair the same, with the apex black, and their tarsi with the tips of each joint dusky; wings smoky-hyaline, the stigma pale saffron, costa black, scales ferruginous.

Taken at Birch wood in May.

Sp. 97. *cædator*. *Niger, antennis 3-coloribus, macula faciali et orbitis oculorum rubricosis; segmentis 2 et 3 rufis, ultimis albomarginatis, femoribus anterioribus tibiisque rufis.* (Long. corp. 5 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ic. *cædator*. *Gravenhorst*, i. 285.—*Steph. Nomen.* 2d edit. col. 133.

Black: palpi pale red; inner orbits of the face reddish; antennæ with the apex involuted, the 1st to 14th joints red, the 11th to 14th, more or less, yellowish or whitish above, the remainder fuscous, ferruginous beneath, the terminal ones entirely fuscous; thorax with the margin of the collar and a dot beneath the wings whitish; scutellum white; abdomen with the 2nd and 3rd joints red, the 4th whitish on the margin, the 5th with the margin white, and the 6th and 7th entirely of that hue above; legs with the 4 anterior femora entirely, and the extreme base of the posterior, red; tibiæ red, with the tip of the hinder black; tarsi red; wings smoky-hyaline, with the stigma, costa, and scales red.

Apparently very rare: found in July near London, and in Norfolk.

Sp. 98. *raptorius*. *Niger, antennis 3-coloribus, segmentis 2 et 3 rufis, 5-7 maculâ dorsali albâ, tibiis rufis.* (Long. corp. 4—6½ lin.; Exp. Alar. 8—11 lin.)



Ic. raptorius. *Linne.*—*Donovan*, v. ii. pl. xlii. f. 2. (4)?—*Steph. Catal.* 349. No. 4433.

Black: inner orbits occasionally reddish; antennæ with the 2 basal joints black, the 3rd to the 8th or 10th red, or ferruginous, 9th to 15th, more or less, whitish above, yellowish in the males; red or rusty beneath; scutellum white or yellowish; abdomen with the 2nd and 3rd segments red, the 5th to 7th with a white spot or transverse marginal line; legs with the femora of the male black, the 4 anterior red at the tip, of the female black, the 4 anterior at the apex and generally beneath red, posterior at times red at the base; tibiæ red, posterior mostly, and sometimes the middle black or dusky at the apex; tarsi red; posterior in the female occasionally with the tips of the joints dusky; wings yellowish-hyaline, stigma pale red; costa and scales fuscous or reddish.

The male has the abdomen longer and more slender than the female, and has frequently a white dot on its 4th segment.

Abundant within the metropolitan district towards the end of the summer; common also at the roots of trees during the winter.

Sp. 94. gracilicornis. *Niger, antennis 3-coloribus, segmentis 2 et 3 rufis, femoribus tibiisque rufis, posticis apice nigris: mas orbitis oculorum internis albis.* (Long. corp. 5—6 lin.; Exp. Alar. 10—11½ lin.)

Ic. gracilicornis. *Gravenhorst*, i. 290.—*Steph. Nomen.* 2d edit. col. 133.

Black: male with the inner orbits white; antennæ with the basal joint beneath white, the 2nd black, the remainder ferruginous, of the female with the first 2 black, the 7 following red, the 10th to 15th whitish, the following black, the 8th to 10th being sometimes fuscous; scutellum yellow; abdomen with the basal segment sometimes chestnut at the apex, the 2 following red, the 4th generally more or less red on the sides, with a marginal white dot, or reddish edge, the remainder with a white spot; legs red, coxæ and trochanters black; posterior femora with the apex black, and the 4 anterior ones sometimes more or less dusky externally; hinder tibiæ black at the apex; posterior tarsi dusky, with the base occasionally red; wings brownish-hyaline, with the stigma dull saffron, or fuscous, costa and scales brown; cellule 5-angular.

Much less abundant than the foregoing, but still not uncommon within the metropolitan district, towards the end of summer.

Sp. 100. quadrinotatus. *Niger, antennis 3-coloribus, segmentis 2 et 3 croceis, 4-7 macula magna dorsali albâ, pedibus rufis, geniculis et tarsis posticis tibiarumque posticarum apice nigris.* (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Ic. quadrinotatus. *Steph. Nomen.* 2d edit. Appendix.

Black: antennæ with the 2 basal joints totally black, the 8 following red above and below, 9th to 16th white above and reddish below, the remainder blackish, with the terminal ones black; thorax immaculate; scutellum yellow; abdomen with the 2nd and 3rd segments pale saffron, the remainder



each with a large triangular white spot; legs with the 4 anterior femora, tibiæ, and tarsi pale red, the inner-base of the first blackish; the posterior femora red, with the extreme tip black, and the hinder tibiæ also red, with the apex broadly black; hinder tarsi black; wings dusky-yellowish-hyaline, with the stigma and costa reddish-brown, scales black.

From Mr. Haworth's collection.

Sp. 101. pallidicornis. *Niger, segmentis 2 et 3 rufis, 3 nigro maculato, ultimis albomarginatis, pedibus fulvis, coxis nigris, antennis flavis apice fusco.* (Long. corp. 4—5½ lin.; Exp. Alar. 8—9 lin.)

Ic. pallidicornis. *Gravenhorst, i. 294.—Steph. Nomen. 2d edit. col. 133.*

Black: mouth of the female dull red, with the mandibles black at the tip, of the male dull straw; orbits in this sex broadly pale yellow on the face; antennæ with the 2 basal joints red, 9 following pale yellow, beneath dull saffron or rusty, remainder rusty-red, dusky towards the apex, and in the female entirely black; thorax of the male with 2 yellow dots at the base of the wings; scutellum yellow; abdomen with the 2nd segment of the male dull red, with a yellow spot on the sides; of the females red, with the margin, or the base, obscure or black, 3rd of the male red, with a black margin, of the female red or brown, with the base and apex black, or black with a large lateral chestnut-bay blotch, 6th and 7th of the male pale yellow on the back, 5th to 7th of the female with the dorsal edge white; legs with the coxæ and trochanters at the base black; femora dull saffron, posterior rusty at the apex; tibiæ yellowish, posterior rusty towards the apex, and the extreme tip in the male black; tarsi red, claws black; wings yellowish-hyaline, with the stigma red, costa and scales reddish, or brown.

Rare: taken at Coombe wood and at Richmond Park, in June.

Sp. 102. sanguinatorius. *Niger, antennarum annulo et segmentorum ultimorum margine albis, segmentis 2 et 3 tibiis tarsisque rufis.* (Long. corp. 6 lin.; Exp. Alar. 11 lin.)

Ic. sanguinatorius. *Gravenhorst, i. 295.—Steph. Nomen. 2d edit. col. 133.*

Black: palpi dull red; mandibles chestnut; frontal orbits generally chestnut; antennæ with the apex involuted, 2 basal joints black, 3rd to 8th fuscous or rusty, 9th to 14th whitish, yellowish beneath, the following fuscous or black; thorax with a pale yellow line or streak below the wings; scutellum pale yellow; abdomen with the 2nd and 3rd segments red, 4th to 6th with a white or yellow dorsal spot, 7th with a whitish yellow spot; legs with the 4 anterior femora red at the tip; tibiæ red, anterior paler or yellow beneath; tarsi red; wings yellowish-hyaline, with the stigma red, costa and scales brown or saffron.

The white ring of the antennæ is sometimes wanting.

Not uncommon within the metropolitan district in July; found also in Salop.



Sp. 103. *primatorius*. *Niger, annulo antennarum et maculâ coxarum posticarum albis; basi tibiæ flavâ, segmentis 2 et 3 rufis.* (Long. corp. 10—11½ lin.; Exp. Alar. 15—16 lin.)

Ic. *primatorius*. *Forster.—Steph. Catal. 349. No. 4427.*

Black: antennæ with the apex involuted, with the 8th to 10th joints, more or less, yellowish-white; metathorax with 2 very short obtuse spines; scutellum also yellowish-white; abdomen a little wider than the thorax, 2nd and 3rd segments externally red or bay, 4th sometimes reddish at the base, with a marginal white dot, 5th to 7th with a yellowish-white dorsal spot; legs black, with a large white spot on the upper external edge of the hinder coxæ, smaller or minute on the 4 anterior ones; tibiæ yellow, anterior fuscous or rusty at the apex, 4 posterior with the base and apex brown or black; 4 anterior tarsi more or less ferruginous, posterior dusky; wings rusty-brown-hyaline, stigma ferruginous, costa black; scales for the most part entirely white.

Rather common in the spring within the metropolitan district, about Hertford, &c.

Sp. 104. *flavolineatus*. *Niger, facie et lineâ ante alas flavis, segmentis 2-4 pedibusque dilute croceis, trochanteribus nec non femorum posticorum geniculis nigris.* (Long. corp. 10 lin.; Exp. Alar. 17 lin.)

Ic. *flavolineatus*. *Gravenhorst, i. 300.—Steph. Nomen. 2d edit. col. 133.*

Black: mouth and face yellow, or pale saffron, with the tip of the mandibles black; antennæ porrect, with the basal joint yellow beneath, 2nd black, following dull ferruginous, the terminal ones entirely black; thorax with a broad line on each side (the margin of the collar) before the wings, a minute one below, and another beneath the scutellum yellowish; scutellum yellow; abdomen as wide as the thorax, with the extreme edge of the basal segment reddish; 3 following segments entirely yellowish-red, with the incisures reddish, 5th and 6th with a pale yellowish streak, 7th with a longitudinal yellow line; legs yellow, coxæ black, with an ochreous spot; trochanters black, posterior fuscous, with the extreme apex fuscous or black; wings smoky-hyaline, with the stigma rusty or saffron, costa brown, scales white.

I suspect this splendid insect, of which I have only seen my own specimen, to be the male of the foregoing species: it is, however, very dissimilar.

Very rare: taken at the end of May in a garden at Hertford.

Sp. 105. *sarcitorius*. *Niger, annulo antennarum puncto infra alas segmentoque 6-to albis, segmentis 2 et 3 rufis, hoc basi nigro, tibiis femoribusque rufis, posticis apice nigro.* (Long. corp. 4—5½ lin.; Exp. Alar. 7—10 lin.)

Ic. *sarcitorius*. *Linné.—Steph. Catal. 342. No. 4430.*

Black: frontal orbits generally obscurely red; antennæ with the 2 basal joints black, sometimes rusty beneath, 3rd to about the 9th either entirely ferruginous, or fuscous above, sometimes black; 8th to 16th, more or less, yellowish-white, reddish beneath; thorax with a white dot beneath the



wings; scutellum white; abdomen with the 2nd and 3rd segments red, base of the 3rd black, the 6th white above; legs red, coxæ and trochanters black; posterior with the tips of the femora and of the tibiæ black; wings yellowish-hyaline, stigma reddish; costa ferruginous; scales fuscous, occasionally ferruginous.

Abundant in the winter and spring throughout the metropolitan district.

Sp. 106. *vadatorius*. *Niger, segmentis 2 et 3 rufis incisura nigra, 4-7 albo marginatis, femoribus tibiisque rufis; posticorum apice nigro: mas orbitis oculorum internis et antennarum basi flavis: fœmina antennarum annulo albo.* (Long. corp. 5—7 lin.; Exp. Alar. 10 lin.)

Ic. *vadatorius*. *Illiger.—Steph. Catal. 349. No. 4429.*

Black: male with the face white, with a broad black streak, or black, with the inner orbits and a spot on the side of the clypeus white or yellowish; mouth reddish or yellowish; female with the mandibles red in the middle, the inner orbits dull ferruginous; antennæ with the 2 basal joints black, red beneath, or entirely red; the 13 following, or the greater portion, yellowish, remainder fuscous; of the female involuted, with about the 6th to the 12th joints white, rusty beneath; thorax with a streak or dot beneath the wings, and in the male with a line before them ochreous; metathorax with 2 very obtuse spines; scutellum ochreous; abdomen with the 2nd and 3rd segments red, the extreme margin and also the base of the 3rd black, the margins of the others whitish or glaucous, the 6th and 7th sometimes entirely black in the females; legs with the coxæ and trochanters black, the last in the male mostly red at the apex; femora and tibiæ red, posterior black at the tip; tarsi red, posterior more or less dusky; wings yellowish-hyaline, stigma dull saffron, costa rusty, scales the same or whitish.

Scarce: found near London in June.

Sp. 107. *concinctorius*. *Niger, annulo antennarum albo, collaris margine antice tibiisque flavis, his posticis apice nigro, segmentis 2 et 3 rufis, hoc basi nigro, orbitis oculorum verticalibus pallidis.* (Long. corp. 7 lin.; Exp. Alar. 10½ lin.)

Ic. *concinctorius*. *Steph. Nomen. 2d edit. Appendix.*

Black: palpi fulvous; frontal orbits pale yellowish; antennæ with the 8th to 16th joints white above, red beneath; anterior margin of the collar yellow; scutellum white; abdomen with the 2nd and 3rd segments pale red, the base of the 3rd black, the apex of the last 3 with a white spot; legs with the femora black, the anterior pair reddish at the apex; tibiæ pale reddish-yellow, the tip of the hinder pair broadly black; tarsi yellow, the posterior pair with the tips of the joints black; wings yellowish-hyaline, with the costa, stigma, and scales reddish-yellow.

Taken near London, but very rare: a splendid species.

Sp. 108. *Sartorius*. *Niger, antennarum annulo, puncto ad radicem alarum mar-*



ginibusque segmentorum 4-7 albis, segmentis 2 et 3 rufis, summo margine nigris. (Long. corp. $5\frac{1}{4}$ —7 lin.; Exp. Alar. 10—11 lin.)

Ic. Sartorius. *Gravenhorst*, i. 308.—*Steph. Nomen*. 2d edit. col. 134.

Black: antennæ involuted, with the 7th to 15th joints, more or less, dull white above; thorax silky, with 2 whitish dots at the base of the wings, and a minute one before them; scutellum white; abdomen with the 2nd and 3rd segments pale saffron or red, with the extreme margins black, 4th and 5th with the dorsal margin, 6th and 7th with a dorsal spot, white; legs black, the anterior femora sometimes rusty at the apex, tibiæ and tarsi pale or ochreous beneath, posterior tibiæ generally with a pale spot beneath; wings smoky-hyaline; stigma pale saffron, costa and scales black.

Not very uncommon within the metropolitan district in June and July.

Sp. 109. *atripes*. *Niger, antennis subpallide annulatis, puncto infra alas, marginibusque segmentorum 6 et 7 albis; segmentis 2 et 3 rufis.* (Long. corp. 6 lin.; Exp. Alar. 10 lin.)

Ic. *atripes*. *Gravenhorst*.—*Steph. Catal.* 349. No. 4432.

Black: antennæ with the 8th to 14th joints ferruginous beneath; thorax with a white dot below the wings; scutellum white; abdomen with the 2nd and 3rd segments pale red, the extreme margin of the 3rd red, the 6th and 7th with a transverse marginal white line, abbreviated towards the sides; legs with the anterior tibiæ and tarsi red, fuscous above, the middle dull ferruginous, above black; wings smoky-hyaline, with the stigma red, costa and scales brown.

Found, but very rarely, near London.

Sp. 110. *uniguttatus*. *Niger, puncto dorsali segmenti 7-imi albo; mas segmento 2 toto nec non 3 basi rufis: fœmina segmentis 2 et 3 rufis.* (Long. corp. 6 lin.; Exp. Alar. $9\frac{1}{2}$ lin.)

Ic. *uniguttatus*. *Gravenhorst*, i. 310.—*Steph. Nomen*. 2d edit. col. 134.

Black: thorax of the male with a white dot below the wings, and sometimes another before them; scutellum white; abdomen with the 2nd segment red, the 3rd in the male black, with the base and sides red, in the female red, with sometimes the margin black; the 7th with a small dorsal white spot, occasionally nearly obsolete in the male; legs of the female with the anterior femora beneath rusty-red; of the male, the anterior red, with the coxæ and trochanters black, or black, with the tibiæ beneath and tips of the femora yellowish, the middle either black, or with the apex of the femora and outer edge of the tibiæ reddish; wings smoky-hyaline, with the stigma dusky or reddish, costa and scales black; the last in the male with a white dot.

Also rare: I have an example which was taken near London in June.

Sp. 111. *ornatorius*. *Niger, segmentis 2 et 3 rufis, marginibus nigris, ullimis*



albo marginatis, tibiis stramineo-flavis, posticis apice nigro. (Long. corp. $6\frac{1}{2}$ — $7\frac{3}{4}$ lin.; Exp. Alar. 11—12 lin.)

Ic. ornatorius. *Panzer.*—Ic. negatorius. *Steph. Catal.* 348. No. 4409.

Black: inner orbits and mandibles more or less distinctly yellow or ferruginous; thorax with 2 white streaks or dots at the base of the wings; scutellum ochreous-white; abdomen with the 2nd and 3rd segments pale red or saffron, with the edges more or less black, the 2 following with the margins, and the 6th and 7th with a spot, white; legs with the 4 anterior femora ochreous or ferruginous at the tips, the tibiæ and tarsi yellow, the apex of the latter frequently dusky, the hinder pair being nearly black, and the hinder tibiæ having the apex of that colour; wings yellowish-hyaline, with the stigma pale saffron, costa brown, and scales black; cellule 5-angular.

Rare: found occasionally in the spring near Hertford, and in Norfolk; also in Salop.

Sp. 112. *laboratorius.* *Niger, facie thoraceque flavo maculatis, segmentis 2 et 3 croceis, 2-7 margine flavo, femoribus dilute rufis, tibiis flavicantibus posticarum apice nigro.* (Long. corp. 6 lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ic. *laboratorius.* *Panzer.*—*Steph. Nomen.* 2d edit. col. 134.

Black: labrum and palpi dull yellow; face the same, with a black line or spot, or black, with the inner orbits and a dot on the clypeus dull yellow; antennæ beneath with the 2 basal joints yellowish, the remainder generally ferruginous; thorax with a line beneath the scutellum, another before the wings, and at times one beneath and on the upper margin of the collar yellowish-white; scutellum also yellowish-white; abdomen with the 2nd and 3rd segments red, the 3rd to the 7th edged with whitish-yellow; legs with the 4 anterior coxæ generally with a white spot beneath; femora red, 4 anterior yellow at the tip, tibiæ and tarsi yellow or tawny, the posterior dusky at the apex; wings slightly smoky-hyaline; costa and stigma fuscous or black, scales the same, with a white dot; cellule somewhat 5-angular.

Posterior femora and tibiæ sometimes black at the apex.

Also very rare: I have twice taken it at Hertford in April.

Sp. 113. *amatorius.* *PLATE xl. f. 1.—Niger, annulo antennarum, segmento 2-do, tibiis et tarsis, dilute croceis, segmentis 2-7 flavomarginatis.* (Long. corp. 6—7 lin.; Exp. Alar. 11—12 lin.)

Ic. *amatorius.* *Müller.*—Ic. *ambulatorius.* *Steph. Catal.* 348. No. 4410.

Black: inner orbits yellow or whitish; antennæ with the 4th to 7th joints entirely or beneath ferruginous, the 8th to 17th, more or less, pale saffron; thorax with 2 whitish-yellow spots at the base of the wings; scutellum yellowish-white; abdomen with the 2nd segment pale saffron-yellow, the margin pale sulphureous, the following segments black, with the margin pale sulphur; legs with the 4 anterior femora at the apex generally ferru-



ginous, the tibiæ and tarsi all pale saffron; wings yellowish-hyaline, with the stigma and costa pale saffron, the scales yellow.

This beautiful insect appears to be very rare: I remember to have seen but 4 specimens only, 2 in my own collection, and the others in those of Messrs. Davis and Newman; it is found near London, and Fabricius describes it as a British species.

Sp. 114. *septemguttatus*. *Niger, orbitis internis oculorum, punctis ad alarum radicem, maculæque segmentorum 6 et 7 albis, femoribus anterioribus apice rufis, tibiis rufis, posticarum apice nigro.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 9 lin.)

Ic. *septemguttatus*. *Gravenhorst*, i. 320.—*Steph. Nomen*. 2d edit. col. 134.

Black: palpi and middle of the mandibles red; clypeus with a double straw-coloured spot, and inner orbits whitish; basal joint of the antennæ beneath white; thorax with a dot before the wings, a streak below them, and the scutellum white; abdomen with the 2nd and 3rd segments red, the 6th with a dorsal spot, and the 7th entirely white; legs with the 4 anterior femora beneath and at the tip red; tibiæ red, the posterior black at the tip, tarsi red, hinder dusky at the apex; wings smoky-hyaline, stigma pale saffron, costa reddish, scales black.

Found, but very rarely, near London.

Sp. 115. *subcylindricus*. *Niger, abdomine subcylindrico segmentis 2 et 3 rufis, 6 et 7 macula albâ, femoribus anterioribus tibiisque rufis: femina antennarum annulo albo; mas facie flavâ.* (Long. corp. 6 lin.; Exp. Alar. $10\frac{1}{2}$ lin.)

Ic. *subcylindricus*. *Gravenhorst*, i. 321.—*Steph. Nomen*. 2d edit. col. 134.

Black: antennæ with the 11th to 14th joints white above; thorax generally with a minute white dot beneath the wings; scutellum white; abdomen rather narrow, somewhat cylindric, the 2nd to 4th segments of equal width, the 2nd and 3rd red, the 6th and 7th with a white dorsal spot; 4 anterior legs red, with the coxæ and trochanters and base of the middle femora black; posterior black; tibiæ and tarsi red, the apex of the first dusky; wings smoky-hyaline, with the stigma red, costa fuscous, scales rufescent.

Taken near London, very rarely.

Sp. 116. *punctus*. *Niger, orbitis internis oculorum punctis duobus ad radicem alarum, punctoque segmentorum ultimorum, albis, segmentis 2 et 3, nec non lateribus aut basi 4-ti, rufis, tibiis anticis stramineis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 10 lin.)

Ic. *punctus*. *Gravenhorst*, i. 325.—*Steph. Nomen*. 2d edit. col. 134.

Black: palpi reddish; inner orbits white; antennæ with the basal joint whitish beneath; thorax with two indistinct streaks or dots at the base of the wings; scutellum white; abdomen thickly punctured, basal segment with its apex chestnut, 2nd and 3rd dull red, 4th reddish on the sides, 5th entirely black, the following with a white marginal dot, and the 7th entirely



white above ; legs with the 4 anterior tarsi and tibiæ pale straw-colour, the latter a little dusky without towards the tip, the femora black, pale ferruginous within ; posterior femora black, their tibiæ bright ferruginous, dusky towards the tip ; wings slightly smoky-hyaline, stigma, costa, and scales black.

Very rare : I have a specimen that was taken near London.

Sp. 117. *iocerus*. *Niger, facie flavâ, maculâ nigrâ, antennis infra rufis, ano albomaculato, segmentis 2 et 3 tibiisque rufis, harum posticis apice nigro.* (Long. corp. 5—6 lin. ; Exp. Alar. 10—11 lin.)

Ic. *iocerus*. *Gravenhorst*, i. 326.—*Steph. Nomen*. 2d edit. col. 134.

Black : mouth and face yellowish-white, with a large black patch, rarely immaculate, or black, with the orbits above white ; mandibles black at the tip ; palpi reddish ; antennæ porrect, brown-black, with the basal joint beneath yellow, the following pale ferruginous ; thorax occasionally with a yellow dot beneath the wings, and a streak before them ; scutellum yellow ; abdomen with the 2nd and 3rd segments pale red, the following black ; some, or all, of them with a whitish or yellow dark spot ; legs with the 4 anterior femora within and at the apex, the tibiæ and tarsi pale saffron ; posterior femora black, red at the very base ; tibiæ pale saffron, with the apex more or less broadly black ; base of the 1st joint of the tarsi red ; wings smoky-hyaline ; stigma red, costa and scales fuscous, or black.

Not very common : found in June and July near London and in Salop.

Sp. 118. *hilaris*. *Niger, antennarum annulo et segmentorum 6 et 7 margine albis, segmentis 2 et 3 totis, nec non 4 proparte rufis, femoribus anterioribus tibiisque rufis.* (Long. corp. 4—4½ lin. ; Exp. Alar. 8—9 lin.)

Ic. *hilaris*. *Gravenhorst*, i. 328.—*Steph. Nomen*. 2d edit. col. 134.

Black : frontal orbits dull chestnut ; antennæ slender, involuted at the apex, 9th or 10th to 15th joints white ; scutellum white ; abdomen rather slender and acute, the 2nd and 3rd segments red ; 4th red, with the margin black, or black, with a large angular spot on each side, the 6th and 7th with the margins white ; legs red, coxæ and trochanters black ; posterior femora black, their tarsi ferruginous within ; hinder tibiæ at the tip, and their tarsi black ; wings yellowish-hyaline, the stigma pale saffron ; costa and scales generally black, rarely fuscous.

More abundant than the last, but not very common ; taken near London in June.

Sp. 119. *deceptor*. *Niger, segmentis 1-3 tibiisque rufis, harum posticis apice nigro ; fœmina antennarum annulo albo.* (Long. corp. 3—5 lin. ; Exp. Alar. 5—7½ lin.)

Ic. *deceptor*. *Scopoli*, 746.—*Steph. Nomen*. 2d edit. col. 134.

Black : mandibles ferruginous ; occipital orbits, and occasionally the facial



ones, more or less, distinctly white; antennæ generally reddish beneath, with the basal joint entirely black, or with a white dot beneath, of the female dull ferruginous, and the 8th to 15th joints, more or less, white above; thorax for the most part black, occasionally with a white dot beneath the wings in the male; scutellum white; abdomen with the 3 basal joints red, the peduncle generally fuscous or black, the 4th mostly with a red spot on the sides, the rest black, the 5th segment in the female often with a white marginal spot, and the 6th and 7th white on the back; legs with the femora generally black, more or less ferruginous at the tip and on the sides; tibiæ red, 4 anterior ones paler within, and the posterior black at the apex, the middle pair sometimes fuscous at the tip; tarsi red, posterior dusky; wings smoky-hyaline, with the stigma pitchy or fuscous, costa the same, and scales generally black, sometimes with a white dot in the male; cellule somewhat 5-angular.

The femora are sometimes all red, and the base of the scutellum, as well as that of the 1st segment of the abdomen, occasionally black.

Not uncommon in the vicinity of London: found also in other parts of the country, as in Norfolk, Salop, Scotland, &c.

Sp. 120. subalbellus. *Niger, segmentis 1-4 rufis, 6 et 7 albomarginatis, femoribus tibiisque rufis nigro maculatis, antennis albo annulatis.* (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Ic. subalbellus. *Gravenhorst, i. 338.—Steph. Nomen. 2d edit. col. 134.*

Black: antennæ slender, curved at the apex, the 10th to 13th joints white, fuscous beneath; scutellum white; abdomen rather slender, the 2nd to 5th segments nearly of equal width, the 1st red with a black peduncle, the 3 following entirely red, remainder black, with the margin of the 6th and 7th slightly white; ovipositor a little exerted; legs with the coxæ and trochanters black; femora red, 4 anterior with the convex side, and posterior with the apex black; tibiæ red, the posterior black at the tip; anterior tarsi red, posterior dusky; wings somewhat smoky-hyaline, stigma and costa fuscous, scales black; cellule somewhat 3-angular.

Scarce: found in June near London.

Sp. 121. hostilis. *Niger, apice scutelli, marginibusque segmentorum 4-7 albis, segmentis 1-3 femoribus et tibiis anterioribus rufis, annulo antennarum albo.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Ic. hostilis. *Gravenhorst, i. 339.—Steph. Nomen. 2d edit. col. 134.*

Black: mandibles reddish, with the base and apex black; antennæ rather slender, curved at the apex, with the 9th or 10th to 13th joints, above and on the sides, white; thorax with a minute dot before the wings; scutellum with the apex white; abdomen ovate, rather obtuse at the tip, the 1st to 3rd segments red, the peduncle black, the remaining segments black, margined with white, and the sides of the 4th generally reddish; legs red, with the coxæ and trochanters black, the extreme base of the 4 anterior



femora and the convex side sometimes fuscous, tibiæ generally fuscous externally, the hinder tibiæ and tarsi black, the femora chestnut towards the base; wings smoky-hyaline; stigma, costa, and scales brown-black.

Not common: taken near Hornsey in April.

Sp. 122. *militaris*. *Niger, segmentis 2 et 3 rufis; fœmina antennarum annulo albo.* (Long. corp. 4 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Ic. *militaris*. *Gravenhorst, i. 342.—Steph. Nomen. 2d edit. col. 134.*

Black: antennæ, of the female, with the 10th to 14th joints white above and on the sides; scutellum white; abdomen with the 2nd and 3rd segments red, of the male with the margins of the 6th and 7th entirely white, of the female with a white dorsal spot on those segments; legs with the extreme tip of the anterior femora and the inner edge of the tibiæ straw-colour, the middle tibiæ within rusty-brown; wings smoky-hyaline, with the stigma, costa, and scales black or fuscous; cellule 5-angular,

Not very common; found in the spring near London, and in Salop.

Sp. 123. *motatorius*. *Niger, antennarum annulo et dorso segmenti 6-ti albis, segmentis 1-3, femoribus tibiisque rufis.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 8 lin.)

Ic. *motatorius*. *Fabricius.—Steph. Nomen. 2d edit. col. 134.*

Black: mandibles dull ferruginous; antennæ with the apex incurved, the basal joint black, beneath ferruginous, 2nd brown, 3rd to 7th dull saffron or dusky; the 8th to 12th or 13th white, fuscous beneath, the following black; thorax cylindric; scutellum white; abdomen slender, nearly as broad as the thorax, the 1st to 3rd segments red, 4th frequently with the back reddish, 6th generally with the margin whitish, 7th with the back white; ovipositor short, exerted, black; legs black; coxæ and trochanters black, with the apex more or less red, especially of the posterior ones; wings somewhat hyaline, with the stigma dull straw, the costa and scales pitchy; cellule somewhat 5-angular.

Moderately common: taken near London about the end of May and in June.

§ VI. *Scutellum* pale; *abdomen* black, with the apex, and in general the middle also, belted or spotted with yellow, or white.

Sp. 124. *infractorius*. *Niger, segmento 2 basi, 3 basi et margine, sequentibus margine, flavis, tibiis tarsisque fulvis; mas antennis rufis, facie flavâ; fœmina antennæ apice fuscis, orbitis oculorum internis flavis.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. 12 lin.)

Ic. *infractorius*. *Panzer.—Steph. Catal. 348. No. 4404.*

Black: face yellow, with a black spot, or with the inner orbits alone yellow; antennæ porrect, dull reddish, paler beneath, with the 2 basal joints black above and yellow below, or convoluted, pale saffron, with the apex brownish; thorax with a streak before and a dot below the wings, with the scutellum



yellow; metathorax with 2 short spines; abdomen with the base of the 2nd segment, the base and margin of the 3rd, and the margins of the rest yellow; legs pale tawny-yellow, with the coxæ, base of the trochanters and femora in the middle black, the 4 anterior femora in the males entirely rusty-yellow; wings yellowish-hyaline.

Very scarce: taken in June near London.

Sp. 125. *mercatorius*. *Niger, antennis rufis, orbitis internis oculorum, segmentis 2 et 3 basi, sequentibus margine, tibiis, tarsis maculæque coxarum flavis.* (Long. corp. 7 lin.; Exp. Alar. 12 lin.)

Ic. *mercatorius*. *Fabricius.—Steph. Catal. 348. No. 4408.*

Black: inner orbits and a spot on the sides of the clypeus yellow; antennæ red, with the apex brownish, the basal black, yellow beneath; thorax with a yellow dot beneath the wings; scutellum yellow; abdomen with the base of the 2nd and 3rd segments, and the margins of the others yellow; legs with a yellow spot on the coxæ, the tip of the trochanters rusty, 4 anterior femora above and at the apex, and posterior with the knees yellow; tibiæ and tarsi pale yellow; wings yellowish-hyaline.

Also found near London in June, but extremely rare.

Sp. 126. *xanthorius*. *Niger, segmentis omnibus flavomarginatis: mas antennis rufis, facie flava; fœmina antennis tricoloribus, orbitis internis oculorum flavis.* (Long. corp. 5—7 lin.; Exp. Alar. 10—12 lin.)

Ic. *xanthorius*. *Forster.—Steph. Catal. 348. No. 4407.*

Black: face yellow, with a black streak, or the inner orbits only yellow; antennæ porrect, pale red, with the 2 basal joints black, yellow beneath, or involuted, with the 1st joint black, yellow beneath, 6th to 16th fulvous, the basal ones sometimes fuscous, and the apical ones yellowish; thorax with the anterior edge of the collar, a streak before, and dot below, the wings yellow; scutellum the same; abdomen with all the segments broadly edged with light yellow; legs with the coxæ, trochanters, and femora black; tibiæ and the 4 anterior femora at the tip, and the hinder coxæ above with a spot, yellow; the apex of the posterior tibiæ black; tarsi pale orange; wings yellowish-hyaline.

Also rare, especially the male, of which I have only seen my own specimen: found within the metropolitan district, and in other parts of England, near Carlisle and Netley, in Devonshire, &c. about June.

Sp. 127. *dimidiatus*. *PLATE xxxix. fig. inf. dext.—Niger, orbitis oculorum facialibus, antennarum basi pedibusque flavis, femorum et tibiæ posticarum apicibus nigris, segmento 2-do maculis 2-bus flavicantibus.* (Long. corp. 5½ lin.; Exp. Alar. 9½ lin.)

Ic. *dimidiatus*. *Steph. Nomen. 2d edit. Appendix.*

Black: inner orbits broadly yellow; antennæ with the basal half bright



yellow, the first 2 joints black above, reddish beneath; the upper portion deep black; thorax with a streak before, and a dot beneath, the wings and the scutellum yellow; abdomen with 2 dull yellowish spots on the 2nd segment, the 6th and 7th whitish-yellow, or glaucous above; legs bright yellow, with the coxæ, trochanters, and tips of the hinder femora and tibiæ black; the hinder coxæ and trochanters yellowish at the tip above; wings slightly smoky-hyaline, stigma pale saffron.

Apparently very rare; taken in the north of England.

Sp. 128. *vaginatorius*. *Niger, facie flavomaculati, segmentis 2, 3, 6 et 7 toto margine, 4 margine medio interrupto, flavis, femoribus tibiisque dilute croceis, posticis apice nigro.* (Long. corp. 5—6½ lin.; Exp. Alar. 10—11 lin.)

Ic. *vaginatorius*. *Linné.—Steph. Catal. 348. No. 4394.*

Black: face more or less spotted with yellow; palpi pale, with the base dusky; antennæ porrect, basal joint fuscous, remainder generally black above or reddish, and beneath red, with the 1st joint yellow; thorax with a line beneath, and a spot before, the wings, with the upper edge of the collar whitish-yellow; scutellum yellowish; abdomen with 2 or 3 yellow dots on the margin of the 1st segment, the 2 following segments with a marginal fascia, waved towards the middle, the 4th with an interrupted marginal band, the 6th with an entire fascia, and the 7th with an entire, or interrupted one, all yellowish-white; legs pale yellow; tibiæ and tarsi pale, coxæ, trochanters, apex of the hinder femora and tibiæ, and of the joints of the tarsi black; wings yellowish-hyaline.

The segments of the abdomen are less broadly edged with yellow in some examples than others, especially the 4th, in which the border sometimes disappears, and the 5th in rare instances is margined.

I know not the female of this common insect, unless it be the following.*

Abundant in June and July throughout the metropolitan district, frequenting umbelliferous flowers, &c.: common also in other parts, as in Devonshire, South Wales, Norfolk, Scotland, &c.

* Although in p. 122 I stated that, in proceeding with the insects of this family, I should not materially depart from Gravenhorst's arrangement, I must here, however, necessarily do so, since that laborious writer appears, in numerous instances, to have separated the sexes from each other, and especially so in those insects which he has placed in this and the following sections; to which I shall more particularly refer when treating of them. I regret my present inability to investigate this point again practically, but I trust that after the conclusion of these Illustrations, in accordance with the proposed plan, to do so in the interim of preparing the 2 supplementary volumes, that may probably be added a few years hence, in order to correct the unavoidable errors I may have committed in so vast a field, as well as to add such novelties as may have been then discovered.



Sp. 129. *diversorius*. *Niger, metathorace bispino, orbitis oculorum internis, segmentis 2 et 3 basi, sequentibus margine late flavis, pedibus fulvis, coxis et femorum apicibus atris, antennis rufis.* (Long. corp. $5\frac{1}{2}$ lin.; Exp. Alar. 11 lin.)

Ic. *diversorius*. *Marshall MS.—Steph. Catal. 348. No. 4406.*

Black: palpi red; inner orbits broadly yellow; antennæ light red; thorax with a slight spot below the wings, and the scutellum yellow; metathorax with 2 very acute spines; abdomen with the base of the 2nd and 3rd segments bright yellow; the other segments with a broad margin of the same; legs clear tawny-yellow; coxæ and femora towards the tips deep black; tibiæ slightly fuscous towards the apex, and yellowish at the base; tarsi tawny; wings smoky-hyaline, with a fulvous stigma.

Probably the female of Ic. *vaginatorius*.

Found near London in June.

Sp. 130. *monitorius*. *Niger, segmentorum 2 et 3 macula laterali, 4-6 marginibus flavis, tarsi tibiisque stramineo-flavis, tibiis posticis apice nigro: mas facie fere tota flava; femina orbitis oculorum internis flavis.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. $11\frac{1}{2}$ lin.)

Ic. *monitorius*. *Panzer Faun. lxxx. f. 13.—Steph. Nomen. 2d edit. col. 134.*

Black: face yellow, with a black dot, or black, with the inner orbits yellow; antennæ with the 2 basal joints yellow beneath, rarely black, the 3rd to about the 12th dull chestnut beneath; thorax with a short streak before the wings and a dot beneath them yellow; scutellum yellow; abdomen with a broad fascia at the base of the 2nd segment, rarely interrupted in the middle, a large transverse yellow patch on the sides of the 3rd, the remainder with the margins yellow; legs with the tips of the trochanters yellow, the base and apex of the femora, and the 4 anterior beneath yellow; tibiæ and tarsi also yellow, posterior black at the apex; wings yellowish-hyaline.

Very rare: taken near London in June.

Sp. 131. *fasciatorius*. *Niger, metathorace bispino, facie flavâ, segmentis 2 et 3 flavis apice nigris, ano flavo, trochanteribus tarsi tibiisque stramineo flavis, harum posticis apice nigris.* (Long. corp. $6-8\frac{1}{2}$ lin.; Exp. Alar. 11—13 lin.)

Ic. *fasciatorius*. *Fabricius.—Steph. Catal. 347. No. 4390.—Id. No. 4389.*

Black: face yellow; antennæ sometimes fuscous, beneath red, with the basal joint yellow; thorax with a line beneath, a dot before, the wings, the upper edge of the collar and the scutellum yellow; metathorax with 2 acute spines; abdomen with the 2nd segment yellow, the apex broadly black, 3rd also yellow, its hinder margin more or less black, sometimes produced triangularly, rounded, or quadrately in the middle; lateral basal angles of the margin of the 6th and the 7th entirely yellow; legs straw-yellow; coxæ black, anterior sometimes with a yellow dot; 4 anterior femora with a more or less distinct black line in the middle above, posterior black, with the base and occasionally the apex yellow; hinder tibiæ black at the tip.



Female said by Gravenhorst to differ in having the metathorax scarcely armed, the inner orbits, and 4 terminal segments of the abdomen on the margins yellow, and the antennæ annulated with white: I think, however, the following insect to be the true female.

Males extremely abundant on flowers throughout the metropolitan district, especially near Darenth wood, amongst potatoes; also found in various parts of England, towards the end of June.

Sp. 132. *quadrifasciatus*. *Niger*, *metathorace bispino*, *orbitis oculorum internis*, *puncto ad alarum radicem*, *segmentis 2 et 3 basi*, *sequentibus margine flavis*, *pedibus fulvis*, *coxis et femorum apicibus nigris*. (Long. corp. $5\frac{1}{2}$ — $7\frac{1}{4}$ lin.; Exp. Alar. 10— $12\frac{1}{2}$ lin.)

Ic. *quadrifasciatus*. *Schranck*.—*Steph. Catal.* 348. No. 4102.

Black: inner orbits yellow; antennæ slender, involuted at the apex, rusty-red, fuscous towards the tip, the basal joint generally rusty beneath; thorax with the anterior margin of the collar, a dot before, and streaks beneath, the wings yellow; metathorax with 2 sharp spines; scutellum yellow; abdomen with a yellow border on the base of the 2nd and 3rd segments, dilated on the sides, the remainder with the margins yellow, or greenish; legs yellow; coxæ black; 4 anterior femora black in the middle, hinder pair black, with the base yellow; apex of the tibiæ, especially the posterior, and the tarsi tawny-yellow; wings yellowish-hyaline.

Is not this the female of the preceding insect?

Not uncommon within the metropolitan district in June; also taken in Norfolk and Salop.

Sp. 133. *trifasciatus*. *Niger*, *facie et segmentorum 2-4 basi flavis*, *thorace pedibusque flavo maculatis*, *abdominis apice fulvo*: *fœmina? orbitis oculorum internis flavis*, *annulo antennarum albo*. (Long. corp. 7—8 lin.; Exp. Alar. 14—15 lin.)

Ic. *trifasciatus*. *Gravenhorst*, i. 380.—*Steph. Nomen*. 2d edit. col. 134.

Black: face and orbits yellow; antennæ with the basal joint the same beneath; thorax with the margins of the collar, a streak beneath the wings, a spot on the sides of the prothorax, and sometimes one on the disc and another beneath the scutellum, and the latter yellow; scutellum with 2 acute tubercles; abdomen with the base of the 2nd, 3rd, and 4th segments broadly yellow, the margins of the 5th and 6th, and the 7th almost entirely pale fulvous; legs with the coxæ yellow, black at the base, trochanters yellow, posterior black at the base; 4 anterior femora yellow, above black, posterior black, with the base red; tibiæ yellow, posterior black at the apex, tarsi fulvescent; wings yellowish-hyaline.

Female with the inner orbits yellow; the antennæ incurved, with the 10th to 15th joints white above.

Rare: taken at Darenth wood in June.



Sp. 134. *triangulator*. *Niger, thorace pedibusque flavo maculatis, facie abdomineque fascia latâ maculisque 4 triangularibus flavis.* (Long. corp. $7\frac{1}{4}$ lin.; Exp. Alar. 14 lin.)

Ic. *triangulator*. *Steph. Nomen. 2d edit. Appendix.*

Black: face and basal joint of the antennæ yellow; thorax with the margins of the collar, a spot below the wings and the scutellum, with this last yellow; abdomen with a broad yellow fascia at the base of the 2nd segment, indented in the middle, and a large triangular yellow spot on each side of the 2 following segments, the terminal segment pale fulvous; legs yellow, 4 anterior femora with a black spot behind towards the base, hinder pair black, with the base and apex yellow, and hinder tibiæ black at the tip; posterior trochanters black at the base; wings rather smoky-hyaline.

Also rare: found near London at the end of June.

Sp. 135. *erythropygus*. *Niger, lineâ ante alas, facie, segmentisque 2-4 flavis, his margine nigro maculato, segmento 7 rufo marginato, pedibus anterioribus flavis, posticis nigris, tibiis flavis apice nigro: fœmina orbitis internis oculorum flavis, annulo antennarum albo.* (Long. corp. $7-7\frac{1}{2}$ lin.; Exp. Alar. 12—14 lin.)

Ic. *erythropygus*. *Gravenhorst, i. 381.—Steph. Nomen. 2d edit. col. 135.*

Black: clypeus and face yellow, as well as the basal joints of the antennæ beneath; thorax with the margin of the collar, a streak below the wings, and generally a line beneath the scutellum, and this last, yellow; abdomen with the 2nd, 3rd, and 4th segments yellow, with the margins more or less black, especially in the middle, the remainder black, with the terminal one, or the last 3, edged with red; legs yellow; hinder coxæ black, with a whitish dot at the tip, the trochanters, and 4 anterior femora behind, at the base, the posterior pair in the middle, and the extreme tip of the hinder tibiæ black; tarsi fulvescent; wings smoky-hyaline.

Female with the inner orbits yellow and the antennæ involuted, with about the 9th to 14th joints white above.

Common within the metropolitan district in June; found also in Norfolk and near Netley.

Sp. 136. *palliatorius*. *Niger, metathorace subbispino, segmentis 2 et 3 flavis apice aut margine flavis, ano flavo, tarsis tibiisque stramineo-flavis, harum posticis apice nigro; mas facie et trochanteribus flavis: fœmina orbitis oculorum internis flavis, antennis albo annulatis.* (Long. corp. $6\frac{1}{4}$ —8 lin.; Exp. Alar. 11—13 lin.)

Ic. *palliatorius*. *Gravenhorst, i. 385.—Steph. Nomen. 2d edit. col. 134.*

Black: face yellow, or inner orbits only in the female; antennæ reddish beneath, with the basal joint yellow; of the female ferruginous, the 10th to 16th above white, beneath fulvescent; thorax with a streak before the wings, most distinct in the female, a dot beneath and the upper margin of the collar, and the scutellum, yellow; metathorax armed with 2 short spines; abdomen with the 2nd and 3rd segments yellow, the former black at the apex and

bordered broadly with that colour in the female, 3rd nearly all yellow in the male, having only a dot or triangular spot on the margin in that sex, but in the female with a broad band, the 4th has the basal angles, especially in the female, and sometimes the margin, yellow; the 7th is yellow, and the intermediate ones sometimes bordered with that colour, or totally black; legs yellow, coxæ black, anterior with a yellow dot in the male, in which sex the trochanters are also yellow; femora either with a black streak within, or black, with the apex reddish; posterior tibiæ black at the apex; wings yellowish-hyaline.

Not uncommon in the neighbourhood of the metropolis in June and July; also found at Netley, &c.

Sp. 137. *occisorius*. *Niger, facie tibiis tarsisque flavis, segmento 2 flavo maculâ nigrâ, 3 toto flavo, sequentibus margine flavo.* (Long. corp. 5—7 lin.; Exp. Alar. 9—11½ lin.)

Ic. *occisorius*. *Fabricius.—Steph. Catal. 348. No. 4412.*

Black: mouth and face yellow, this last sometimes with a black mark; antennæ with the basal joint beneath, then with a streak below the wings, an obscure dot before them, the upper edge of the collar, and occasionally a streak behind the scutellum and the last, yellow; abdomen with the 2nd segment yellow, with a transverse black fascia or streak towards the hinder margin, sometimes very faint, 3rd entirely yellow, with rarely a faint black line towards the edge, the remainder black, edged with yellow; legs with the coxæ, trochanters, and hinder femora black, 4 anterior femora beneath and at the apex yellow, tibiæ and tarsi yellow, hinder tibiæ black or fuscous at the tip; wings yellowish-hyaline.

Can this be the male of Ic. *sarcitorius*?

Not very abundant: found near London in the spring, at Hertford, &c.

Sp. 138. *xanthius*. *Niger, facie, lineâ ante alas, dorso metathoracis pedibus et abdomine sordide flavis, femoribus posticis et basi segmentorum nigro maculatis.* (Long. corp. 6 lin.; Exp. Alar. 11 lin.)

Ic. *xanthius*. *Gravenhorst, i. 392.—Steph. Nomen. 2d edit. col. 135.*

Black: face and all the orbits yellow; antennæ fuscous, with the 2 basal joints yellow below; thorax with the margins of the collar, a line before the wings, another beneath, and a dot below this, with 2 longitudinal lines on the back, one beneath the scutellum, and the entire declining portion of the metathorax, with the scutellum, yellow; abdomen with the basal segment yellow, peduncle red, black at the base, 2nd to 4th yellow, with the extreme apex black, 5th and 6th black, with the sides and margins yellow, 7th brown, with the sides yellow; legs yellow, coxæ black, with a yellow spot; trochanters black at the base, 4 anterior femora externally fulvous, posterior black externally and internally; wings yellowish-hyaline.

Very rare: taken, I believe, near London.



Sp. 139. oratorius. *Niger, annulo antennarum et tibiæ albis, segmentis 1 et 2 margine, 6 et 7 dorso albis; mas facie et lineolis ad alarum radicem albis.* (Long. corp. 6—7 lin.; Exp. Alar. 10—11 lin.)

Ic. oratorius. *Fabricius.*—*Steph. Catal.* 347. No. 4349.

Black: mouth, face, and frontal orbits white, or the inner orbits only of the female; antennæ porrect, with the 1st joint white beneath, the 10th to 15th, more or less, white above, of the female incurved; thorax of the male with a line before the wings, or beneath them, and the scutellum white; metathorax also white; abdomen of the male narrower than the thorax, of the female oblong-ovate, the 1st segment with the edge or a marginal spot white, 2nd the same, 3rd, of the male, with the margins also white; the 6th and 7th with a white marginal dot or spot; legs black, 4 anterior coxæ and trochanters in the male white; femora beneath and at the tip, tibiæ within and at the base, and the tarsi dull white, the tips of these last fuscous; posterior tibiæ with a broad ring towards the base, and the posterior tarsi blackish; wings smoky-hyaline.

The white markings on the anterior segments of the abdomen vary considerably in different individuals.

Not uncommon in the vicinity of the metropolis towards the end of June; found also at Netley, &c.

Sp. 140. atramentarius. *Niger, facie, annulo tibiæ, punctoque segmentorum 1, 2 et 7 albis.* (Long. corp. $5\frac{3}{4}$ —6 lin.; Exp. Alar. 11 lin.)

Ic. atramentarius. *Gravenhorst*, i. 397.—*Steph. Nomen.* 2d edit. col. 135.

Black: face and clypeus white, the last with a black marginal spot; frontal orbits and scutellum white; abdomen with a small white dot in the middle of the edge of the basal segment, and another on the 2nd, the 7th with a dorsal white spot; legs with the 4 anterior femora having a longitudinal line and the knees white; 4 anterior tibiæ white, with the base and outer apex black, posterior with a broad white ring towards the base; wings slightly smoky-hyaline.

Rather uncommon; found occasionally within the metropolitan district, but more abundantly in Salop, about the end of June.

§ VII. *Scutellum* pale: *abdomen* either with pale marks, or the segments generally yellow, with the last one always black.

Sp. 141. quadrifasciatus. *Niger, facie, maculis duabus metathoracis, segmentorum 1-4 marginibus, flavis, pedibus flavis, nigro maculatis.* (Long. corp. 8 lin.; Exp. Alar. 15 lin.)

Ic. quadrifasciatus. *Gravenhorst*, i. 402.—*Steph. Nomen.* 2d edit. col. 135.

Black: mouth and face yellow; antennæ with the basal joint beneath the same; thorax with a streak before, one beneath, the wings, and 2 on the metathorax, and the scutellum, yellow; abdomen with the basal segment yellow, with a black peduncle, the 2nd yellow, half black at the tip, 3rd yellow, with the base black, 4th the same, or with a black triangular spot

pointing backwards; legs yellow, coxæ and trochanters black, with a yellow spot; 4 anterior femora with a black line, posterior yellow, with the apex black, or black, with the base yellow; posterior tibiæ with the apex black; wings yellowish-hyaline.

Very rare: found near London in June.

Sp. 142. *flavoniger*. *Niger, facie punctis ad alarum radieem, maculis metathoracis, segmentis 1-3 flavis, segmento 4 flavomaculato, pedibus flavis nigromaculatis.* (Long. corp. 7—8 lin.; Exp. Alar. 13—14 lin.)

Ic. *flavoniger*. *Gravenhorst.—Steph. Catal. 347. No. 4387.*

Black: face and mouth yellow; antennæ with the basal joint beneath, thorax with the upper margin of the collar, or neck, a dot before and another below the wings, and at times 1 or 2 on the metathorax, with the scutellum yellow; abdomen with the basal segment yellow, its peduncle black, 2nd and 3rd yellow, sometimes with the extreme edge black, the 4th either with the sides and margins yellow, or yellow, with a basal black spot, or entirely black, with intermediate varieties; legs yellow, coxæ black, with a yellow spot; trochanters black, with the tips yellow; 4 anterior femora towards the outer base, and the posterior at the apex, and hinder tibiæ also at the tip, black; wings yellowish-hyaline; cellule 5-angular.

It appears singular that of this abundant insect males only should be known: can the opposite sex be Ic. *terminatorius*?

Common in some parts of the country, especially near London and in Salop, in the summer.

Sp. 143. *equitatorius*. *Niger, facie, punctisque ad radicem alarum flavis, segmentis 1-4 flavis, basi plerumque nigris, pedibus flavis, coxis et trochanteribus nigris.* (Long. corp. 6—7½ lin.; Exp. Alar. 11—13 lin.)

Ic. *equitatorius*. *Gmelin.—Steph. Catal. 347. No. 4383.*

Black: mouth and face yellow, the latter with sometimes a black dot or patch, or black, with the orbits alone yellow; antennæ dusky, the basal joint yellow or ferruginous beneath; thorax with a dot before, another beneath, and a minute one below the scutellum, as also this last, yellow; abdomen with the 1st segment yellow, its base black, 2nd also yellow, generally reddish or fuscous at the base, 3rd and 4th yellow, with the base fuscous or black, remainder black, the 7th being more or less ferruginous; legs yellow, coxæ and trochanters black, the tip of the last fulvescent; the 4 anterior coxæ frequently with a more or less distinct yellow dot; wings hyaline; cellule somewhat 3-angular.

Larva feeds on that of *Achatia piniperda*.

Rare: taken near Hertford and Ripley in June.

Sp. 144. *luridus*. *Niger, facie, punctis ad alarum radicem, maculisque metathoracis, flavis, abdomine flavo, apice nigro, pedibus anterioribus sordide fulvis, posticis nigris tibiis basi flavo.* (Long. corp. 4—6 lin.; Exp. Alar. 7—10½ lin.)

Ic. *luridus*. *Gravenhorst, i. 406.—Steph. Nomen. 2d edit. col. 135.*



Black: mouth, face, and orbits yellow; antennæ with the 2 basal joints beneath the same; thorax with a dot below the wings, a streak before ascending to the collar, a dot or transverse line beneath the scutellum, margin of the collar, a trilobed spot, or 2 small ones on the metathorax, and the scutellum yellow; abdomen with the basal joints yellow, with a spot near the tip, and the base of the peduncle black, 2nd to 4th tawny-yellow, the edge of the last sometimes black; 4 anterior legs dull yellow, coxæ and trochanters generally black at the base, posterior paler black, with the base of the tibiæ yellow; wings hyaline.

Rather uncommon, at least within the metropolitan district, where it occurs in June.

Sp. 145. *defensorius*. *Niger, facie lineâ ante alas, segmentis 2-4, pedibusque flavis, harum posticis nigro-maculatis.* (Long. corp. 7 lin.; Exp. Alar. 13 lin.)

Ic. *defensorius*. *Gravenhorst, i. 408.—Steph. Nomen. 2d edit. col. 135.*

Black: mouth and face yellow; the basal joint of the antennæ the same beneath; thorax with the upper edge of the neck, a streak before, and a dot beneath, the wings, and one below the scutellum, and the scutellum yellow; metathorax slightly bispinose, with 2 obscure reddish spots; abdomen with the 2nd to 4th segments dull reddish-yellow, with the sides and extreme margins dusky; 4 anterior legs entirely yellow, posterior with the coxæ and trochanters black, yellow at the tip, femora dark yellow, with a dark spot in the middle; tibiæ yellow, black at the tip; tarsi tawny, dusky at the apex; wings yellowish-hyaline.

Not common: found near London in June.

Sp. 146. *conspurcatus*. *Niger, lineâ ante alas, segmentis 2 et 3 totis, 4 margine medio interrupto, tibiis et latere interno femorum flavis, tibiis posticis apice nigro.* (Long. corp. 7 lin.; Exp. Alar. 13 lin.)

Ic. *conspurcatus*. *Gravenhorst, i. 409.—Steph. Nomen. 2d edit. col. 135.*

Black: clypeus with 2 minute yellow dots; thorax with a streak before, and line beneath, the wings and the scutellum yellow; abdomen with the 2nd and 3rd segments also yellow, generally with an irregular fuscous or reddish dorsal spot on the margins, 4th with the margins interrupted with yellow in the middle; legs with the coxæ and trochanters black, the 4 former generally with a minute yellowish dot; femora black, yellowish above; tibiæ dull yellow, posterior black at the tip, and sometimes dusky at the very base; wings somewhat smoky-hyaline.

Also rather scarce: taken in June near London.

Sp. 147. *bisignatus*. *Niger, facie et thorace flavo-maculatis, segmentis 2 et 3-4 flavis, puncto marginali nigro, tibiis flavis, posticis apice nigro, stigmate alarum fusco.* (Long. corp. 8 lin.; Exp. Alar. 14 lin.)

Ic. *bisignatus*. *Gravenhorst, i. 410.—Steph. Nomen. 2d edit. col. 135.*



Black: mouth and face, or inner orbits broadly, yellow; antennæ with the basal joints beneath dull yellow; thorax with a streak before, and sometimes another below the wings, and the scutellum yellow; abdomen with the 2nd and 3rd, and occasionally the 4th segments, reddish-yellow, with a small somewhat triangular black dorsal spot; legs with the tips of the trochanters red, the anterior femora beneath and at the apex, and the middle at the tip alone reddish-yellow; tibiæ yellow, hinder ones black at the apex; wings smoky-hyaline.

Taken near London in June, and also in Salop, but apparently rare.

Sp. 148. *luctatorius*. *Niger, punctis seu lineolis ad radicem alarum, segmentis 2 et 3 tibiisque flavis, harum posticis apice nigro: mas facie flavâ.* (Long. corp. 5—9½ lin.; Exp. Alar. 8—12½ lin.)

Ic. *trilineatus*. *Linné.—Steph. Catal. 347. No. 4385.*

Black: mouth and face yellow, the last sometimes with the middle black, and in the female? with the inner orbits alone and a dot on the sides of the clypeus of that colour; antennæ porrect, the basal joint beneath yellow, and the remainder sometimes red; and of the female? from about the 9th to 14th joints are white above; thorax with the ordinary yellow streaks and dots, or totally black; scutellum yellow, its disc sometimes blackish, or entirely black; abdomen rather narrow, with the 2nd and 3rd segments yellow, the 4th for the most part with a tawny or red patch at the basal angle, and occasionally the extreme edge both of it and of the 5th very narrowly yellowish; the 4th is at times entirely yellow, and the 2 preceding occasionally slightly tawny on the sides; legs yellow, coxæ and trochanters black, occasionally more or less yellow at the apex, or entirely yellow; femora more or less stained with black, especially towards the base, though the anterior pair are sometimes clear yellow; tibiæ yellow, posterior pair black at the tip, or at times immaculate; hinder tarsi with the apex of the joints sometimes blackish; wings ample, slightly stained, hyaline.

Extremely variable in size and in the proportions of yellow on the legs: the female I suspect is not rightly known; the notice of that sex above given being from Gravenhorst, who appears to have seen 3 or 4 only out of multitudes of the other sex.

Parasitic upon *Triphæna Pronuba* and other Noctuidæ.

Very abundant in certain situations within the metropolitan district, especially near Darent wood, in June; common also in other parts of the country.

Sp. 149. *fulvicornis*. *Niger, facie lineolis ad radicem alarum segmentisque 2 et 3 flavis, antennæ basin versus fulvo rufis, pedibus flavis, nigro maculatis.* (Long. corp. 4—5 lin.; Exp. Alar. 7—10 lin.)

Ic. *fulvicornis*. *Gravenhorst, i. 422.—Steph. Nomen. 2d edit. col. 135.*

Black: mouth and face yellow; antennæ with the basal joint black, yellow



beneath, 2nd black, 3rd red, fuscous above, 3 or 4 following entirely red, remainder red, fuscous above; thorax with a streak before, and one below, the wings, and another beneath the scutellum, and the scutellum yellow; abdomen with the 2nd and 3rd segments yellow, somewhat fulvescent towards the base, the 4th sometimes with a yellow lateral spot; legs with the coxæ black, anterior more or less yellow in the middle, trochanters black, 4 anterior yellow at the tip, and the posterior red; femora yellow, anterior fulvous above, middle more or less black in the middle; posterior black, with the extreme tip red; tibiæ yellow, the middle intensely fulvous, and the posterior generally black, at the tip; tarsi yellow, posterior dusky at the apex; wings somewhat smoky-hyaline; cellule nearly 5-angular.

Not common: taken, but very rarely, near London, in July.

Sp. 150. *illuminatorius*. *Niger, facie et segmentis 2 et 3 flavis, 3 basi fusco nigra, antennis subtus rufis, tibiis tarsisque flavis, posticis apice nigro.* (Long. corp. $4\frac{1}{2}$ —6 lin.; Exp. Alar. 11 lin.)

Ic. *illuminatorius*. *Gravenhorst*, i. 423.—*Steph. Nomen*. 2d edit. col. 135.

Black: mouth, face, and frontal orbits yellow; antennæ fuscous, with the 1st joint yellow beneath, the remainder reddish; thorax with a streak beneath the wings, a dot before them, and an obscure one below the scutellum, with this last, yellow; abdomen with the 2nd and 3rd segments yellow, the 3rd with a transverse black or fuscous line at the base; 4 anterior legs yellow, with the base of the coxæ and outer edge of the femora black; posterior black, with the tibiæ yellow, black at the tip; tarsi brown, with the basal joint yellow; wings somewhat smoky-hyaline.

Also found in July near London, and somewhat uncommon.

Sp. 151. *occupator*. *Niger, orbitis oculorum internis segmentisque 2 et 3, flavis, femoribus tibiisque fulvis.* (Long. corp. 5—6 lin.; Exp. Alar. 10—11 lin.)

Ic. *occupator*. *Gravenhorst*, i. 425.—*Steph. Nomen*. 2d edit. col. 135.

Black: inner orbits more or less broadly yellow, and sometimes 2 dots of the same beneath the antennæ, of which the 1st joint below is also yellow, the remainder reddish or fuscous; thorax occasionally with a faint line or streak before the wings, and a minute dot beneath them, and the scutellum yellow; abdomen with the 2nd and 3rd segments yellow, the margin sometimes fulvous, 4th with the base and sometimes a small marginal dorsal spot fulvescent, and rarely the 3 following segments also with a yellow marginal dot; legs with the femora fulvous, the tibiæ also fulvous, palest at the base, especially the posterior, which last are black at the tip; tarsi also fulvous, with the hinder pair rather dusky, except the basal joint, which is reddish; wings smoky-hyaline; cellule somewhat 5-angular.

Rather uncommon: taken near London, and at Netley, in June.

Sp. 152. *bidentorius*. *Niger, punctis duobus ad radicem alarum, basique segmentorum 2 et 3, flavis, pedibus fulvis, coxis et trochanteribus nigris.* (Long. corp. 7 lin.; Exp. Alar. 13 lin.)



Ic. bidentorius. *Fabricius.*—*Steph. Catal.* 348. No. 4392.

Black: mouth, face, and basal joint of the antennæ beneath yellow; thorax with a dot before, and another beneath, the wings also yellow; metathorax with 2 small acuminate tubercles; abdomen with the 2nd and 3rd segments yellow, the former with a broad and the latter with a narrow black margin; legs dull straw-colour, with the tips of the femora and tibiæ fulvous, coxæ black, 4 anterior pale yellow beneath; trochanters also black, 4 anterior pale yellow beneath, posterior fulvous at the apex; wings somewhat smoky-hyaline.

Also rare: found near London about June.

Sp. 153. viridatorius. *Niger, segmento uno pluribusve fuscis glaucâ pictis, pedibus fulvis, coxis et trochanteribus nigris: mas facie flavâ; femina antennis annulatis.* (Long. corp. 6—7 lin.; Exp. Alar. $10\frac{1}{2}$ —12 lin.)

Ic. viridatorius. *Gravenhorst, i. 428.*—*Steph. Nomen. 2d edit. col. 135.*

Black: mouth and face yellow, in the female the inner orbits alone only faintly so; antennæ of the male with the basal joint yellow beneath; of the female with about the 9th to 17th, more or less, whitish, beneath reddish; thorax in the male with a line or dot before the wings, and sometimes a dot below them, and the scutellum yellow; abdomen of the male with the base of the 3rd segment yellowish, sometimes interrupted in the middle; of the female with the base glaucous, and the 4 following with the margins generally of the same hue; legs fulvous, red in the female, coxæ and trochanters black, 4 anterior in the male with a more or less distinct yellow spot, 4 anterior femora sometimes a little blackish without or at the tip, and hinder tibiæ black at the apex; tarsi fuscous; wings smoky-hyaline.

Scarce: taken in the New Forest, and occasionally near London, towards the end of June.

Sp. 154. natatorius. *Niger, annulo antennarum, punctis 2-bus baseos segmentorum 2 et 3, nec non margine summo ultimorum albidis, femoribus tibiisque fulvis, posticis apice nigro.* (Long. corp. 7— $8\frac{1}{2}$ lin.; Exp. Alar. 14—17 lin.)

Ic. natatorius. *Fabricius.*—*Steph. Catal.* 348. No. 4399.

Black: inner orbits white, or reddish; antennæ with about the 11th to 16th joints white above; thorax sometimes with a minute white dot before, and another below, the wings; scutellum white; abdomen with 2 rather obscure lunate yellowish-white dots at the base of the 2nd segment, sometimes united; the 3rd with 2 distinct yellowish-white spots at the base, 1 towards each side; the 4th with the margins whitish in the middle, and the 7th with a white dorsal spot; the intermediate ones sometimes with a faint white margin; legs red, with the coxæ and trochanters black; the posterior tarsi, the apex of the hinder tibiæ, and sometimes of their femora, also black; wings smoky-hyaline, with the stigma red.

Rare: found in the vicinity of London, and in Devonshire, in July.



Sp. 155. *glaucatorius*. *Niger, antennis medio rufts, segmentis ultimis latera versus albomarginatis, femoribus tibiisque fulvis, harum posticis apice nigro.* (Long. corp. 5—7 lin.; Exp. Alar. 9—13 lin.)

Ic. *glaucatorius*. *Fabricius, E. ii. 136.—Steph. Nomen. 2d edit. col. 135.—Ic. basalis. Steph. Nomen. 2d edit. col. 135, var.*

Black: facial orbits and spot on the sides of the clypeus sometimes whitish or reddish; antennæ of the male porrect, 2 basal joints black, following either entirely red, or the 3rd to about the 8th above black, thence to the 14th entirely pale red, rest black; of the female incurved, fuscous, the 2 basal joints beneath ferruginous, the following 11 mostly red; thorax with a line before and beneath the wings, and the scutellum yellowish-white; abdomen with the 3 basal segments opaque, the 3rd with a lateral marginal dot or streak, and the remainder with the margins more or less broadly, and sometimes interrupted in the middle, glaucous-white; legs red, coxæ and trochanters black, the posterior trochanters red at the tip, and that portion of the hinder tibiæ and tarsi black; wings rather smoky-hyaline; cellule 5-angular.

Var.? with the scutellum black, the 2 basal joints of the antennæ black, the 10 following bright fulvous, thorax exteriorly black, abdomen with the 4th to 7th segments very indistinctly margined with glaucous.

Also very rare: it has occurred in June at Darenth wood, and in July in the New Forest.

Sp. 156. *sugillatorius*. *Niger, antennarum annulo, orbitis oculorum internis, punctoque laterali apicali segmentorum albis.* (Long. corp. $5\frac{1}{2}$ — $6\frac{1}{2}$ lin.; Exp. Alar. $9\frac{1}{2}$ —11 lin.)

Ic. *sugillatorius*. *Linne.—Steph. Catal. 348. No. 4400.*

Black: facial orbits of the male broadly, and frontal ones of the female narrowly white; antennæ of the male porrect, with the 12th to 14th joints white above; of the female involuted, a little compressed towards the apex, and with about the 9th to 14th joints white above; thorax with a minute dot or streak before, and another beneath the wings, and the scutellum white; abdomen rich blue-black, with a more or less distinct round white dot on both sides of the margin of each of the 4 basal segments, sometimes wanting on the 1st and 4th; legs black, the anterior tibiæ beneath and tip of the femora dull-whitish, the middle and tarsi fuscous; wings somewhat smoky-hyaline; cellule somewhat 5-angular.

Very rare, at least in the south of England, but I believe more abundant towards the north.

Sp. 157. *flavoguttatus*. *Niger, orbitis oculorum internis, picturis thoracis et pedum, maculæque laterali apicali segmentorum anteriorum flavis: mas antennis subpallide annulatis; fœmina antennarum annulo albo.* (Long. corp. 5— $6\frac{1}{2}$ lin.; Exp. Alar. 12—13 lin.)

Ic. *flavoguttatus*. *Gravenhorst, i. 442.—Steph. Nomen. 2d edit. col. 135.*



Black: greater portion of the head yellow, the male with an irregular patch on the crown, and a spot on the cheek, and the female with a longitudinal patch in front carried on to the occiput black; antennæ with the basal joint yellow beneath, of the male porrect, with the 11th to 19th joints with a yellow dot above; of the female incurved at the tip, with about the 10th to 18th joints yellow above and on the sides; thorax with the anterior edges of the collar, its lateral margin, a dot before, and line beneath the wings, an irregular patch on the pleuræ, 2 dots on the disc, 1 beneath the scutellum, and 2 larger ones on each side of the metathorax and the scutellum tawny-yellow, especially in the female; abdomen of the male with a large yellow patch on the sides of each apical angle of the 3 basal segments, and in the female of the first 2, those on the basal segment, in each sex, sometimes united; legs yellow, middle coxæ black at the base, posterior black, with a large yellow patch, trochanters black, 4 anterior femora more or less black at the base within, posterior pair black, with the apex yellow; 4 anterior tibiæ fuscous, and the posterior pair black, at the base; tarsi with the tips of the joints of the hinder pair blackish in the female.

This, which is perhaps the most beautiful species of the genus, has occurred, but very rarely, in the vicinity of London, in June.

Sp. 158. *designatorius*. *Niger, orbitis oculorum internis, lineis 2-bus ad alarum radicem, punctoque laterali segmentorum anteriorum albis.* (Long. corp. 7—8 lin.; Exp. Alar. 11—13 lin.)

Ic. *designatorius*. *Linne.—Steph. Catal. 348. No. 4397.*

Black: palpi and inner orbits broadly white; antennæ with about the 13th to 17th joints white above; thorax with a distinct line before the wings, a dot below, and sometimes 2 contiguous ones beneath the scutellum, and the latter white; abdomen bluish-black, with a white dot on the margin of each side of the 4 basal segments; legs black, 4 anterior femora at the tip, and their tibiæ and tarsi beneath whitish; wings smoky-hyaline; cellule somewhat 5-angular. Female said to have the frontal orbits slightly whitish, the antennæ curved at the apex, with about the 10th to 15th joints white above, and the legs reddish, where they are whitish in the male.

Of the male with black antennæ, with the basal joint white beneath: I have not seen a British specimen.

Also very rare: it has been taken in the New Forest and in Scotland, in July.

Sp. 159. *eximius*. *Cæruleo-niger, orbitis oculorum frontalibus et externis picturis thoracis lateribusque scutelli flavo-albidis, annulo antennarum albo.* (Long. corp. 5½ lin.; Exp. Alar. 9 lin.)

Ic. *eximius*. *Steph. Nomen. 2d edit. Appendix.*

Blue-black: frontal and exterior orbits yellowish-white; antennæ involuted, with about the 8th to 13th joints white above; thorax with the lateral



margins of the collar, a streak below the wings, two longitudinal abbreviated ones on the disc before the scutellum, and the lateral margins of the last yellowish-white; metathorax glossy blue; abdomen punctured, blue-black, with a minute white dot on each of the apical angles of the 1st segment; legs black, 4 anterior femora at the extreme tip, and the anterior tibiæ in front pale whitish red; wings smoky-hyaline, with a black stigma.

This fine and conspicuous species was found in Yorkshire: I obtained it from Haworth's collection.

†Sp. 160. subguttatus. *Niger, lineâ ante alas, punctis 2-bus segmenti primi, annuloque tibiæ albis: mas facie albâ; femina annulo antennarum et orbitis oculorum internis albis.* (Long. corp. $6\frac{1}{2}$ — $7\frac{1}{4}$ lin.; Exp. Alar. 11—12 lin.?)

Ic. subguttatus. *Gravenhorst, i. 449.—Curtis, Guide, col. 80.—Steph. Nomen. 2d edit. col. 135.*

Black: male with the mouth, face, and orbits white, with a black spot on the face and clypeus: female with the inner orbits and a vestige of the outer ones also white; mandibles with a chestnut spot; antennæ with the basal joint white beneath in the male, and the 9th to 14th of that colour above in the female; thorax with a streak before, and dot beneath the wings, and the scutellum white; abdomen with 2 minute white dots on the basal segment, and occasionally on the second; legs black; hinder tibiæ with a broad white ring towards the base.

I believe this species has been taken in England: it is so doubtfully indicated in Curtis's Guide.

Sp. 161. albolineatus. *Niger, orbitis oculorum internis, lineâ ante alas, margine seu punctis 2-bus segmenti 1-mi, tibiisque internis, albis.* (Long. corp. 6 lin.; Exp. Alar. 11 lin.)

Ic. albolineatus. *Gravenhorst, i. 450.—Curtis, Guide, col. 80.—Steph. Nomen. 2d edit. col. 135.*

Black: palpi pitchy; inner orbits and a lateral spot on the clypeus white; thorax with the upper ridge of the neck, a line before, and dot beneath, with a streak below the scutellum, and the last, white; abdomen blackish, with the margin of the basal segment, or two dots thereon, white; legs black, anterior pale ferruginous beneath, tibiæ white within, posterior fuscous at the apex; wings smoky-hyaline.

I suspect Ic. bipunctorius, described in p. 154, to be a variety of this species.

Found, but not commonly, near London, in June; also in the New Forest.

§ VIII. *Scutellum* pale: *abdomen* either entirely red, or red and black.

Sp. 162. fusorius. *Niger, orbitis oculorum internis, punctoque seu punctis 2-bus ad alarum radicem, albis, tarsis tibiis abdomineque rufis, segmento 1-mo nigro:*



fœmina *antennarum annulo albo*. (Long. corp. 9—12 lin.; Exp. Alar. 14—17 lin.)

Ic. fusorius. *Linne.—Steph. Catal.* 349. No. 4417.

Black: frontal orbits white of the female, internal and greater part, or all, of the outer in the male the same; antennæ of the female with the 4th to 8th joints generally ferruginous beneath, the 7 or 8 following white above, the remainder reddish beneath; thorax with a dot below and another before the wings, and of the female with the upper margin of the neck also, and the scutellum white; abdomen with the basal joint black, its extreme edge in rare instances reddish, the remaining segments tawny or red; legs with the femora black, their extreme apex and the tibiæ red, posterior pair sometimes black at the apex; tarsi red, occasionally with the tips of the joints fuscous or black; wings brownish-hyaline.

Taken, though very rarely, within the metropolitan district, in the autumn.

Sp. 163. *pisorius*. *Niger, lineis ad alarum flavis abdomine dilute rufo, petiolo obscuriore: mas facie flavâ, pedibus flavicantibus nigro maculatis; fœmina orbitis oculorum frontalibus et annulo antennarum albis, pedibus nigris, tibiæ medio flavo*. (Long. corp. 8—11 lin.; Exp. Alar. 12—16 lin.)

Ic. *pisorius*. *Linne.—Steph. Catal.* 349. No. 4418.

Black: face, mouth, and orbits yellow, of the female the last only so above; antennæ of the male with the 2 basal joints beneath yellow, of the female involuted at the apex, with about the 8th to 16th joints white above, fuscous beneath; thorax with the lateral margin of the collar, a dot at the base, and a streak below the wings, and sometimes one beneath the scutellum, and this last, yellow; abdomen pale red, with the peduncle dusky, or blackish; legs with the coxæ and trochanters black, the latter tipped, and the former spotted, with yellow; anterior femora tawny-yellow, with a black streak at the base behind, intermediate yellow, black at the base, posterior black; tibiæ yellow, hinder pair tipped with black; tarsi yellow.

Apparently very rare: found near London.

Sp. 164. *erythrogaster*. *Niger, puncto ad alarum radicem flavo, abdomine dilute rufo, segmento 1-mo pedibusque nigris; fœmina orbitis oculorum internis annuloque antennarum albis*. (Long. corp. 10½ lin.; Exp. Alar. 15½ lin.)

Ic. *erythrogaster*. *Steph. Nomen.* 2d edit. Appendix.

Black: inner orbits of the female narrowly white; antennæ with about the 10th to 15th joints above white; thorax with a yellow streak beneath the wings at the base; scutellum also yellow; abdomen pale red, the basal segment black; legs black, the 4 anterior femora at the extreme tip, and the anterior tibiæ in front reddish, the hinder tibiæ fuscous, with a slightly paler tint towards the base on the outside; wings dusky-hyaline.

This fine and conspicuous insect was found by the late Rev.



J. Burrell in Norfolk, and sent by him to Mr. Haworth, from whose collection I obtained it.

Sp. 165. *repentinus*. *Niger, abdomine rufo, basi nigro, tibiis medio albidis; fœmina antennis albo-annulatis.* (Long. corp. 6—7 lin.; Exp. Alar. 10½ lin.)

Ic. *repentinus*. *Gravenhorst*, i. 467.—*Steph. Nomen*. 2d edit. col. 136.

Black: antennæ of the female with about the 10th to 14th joints white above; thorax with an obscure dot before the wings; scutellum yellow; abdomen red, with the basal segment black; legs with the coxæ, trochanters, and femora black, the extreme apex of the anterior femora reddish; tibiæ whitish at the base, the apex reddish-brown; tarsi reddish-brown.

From Mr. Haworth's collection: taken in Norfolk.

†Sp. 166. *cinctorius*. *Niger, abdominis segmento 3-tio rufo.* (Long. corp. 7 lin.? Exp. Alar. 10 lin.?)

Ic. *cingulatus*. *Steph. Nomen*. 2d edit. col. 136.

Black: abdomen with the 3rd segment red.

Of this very distinct insect I regret having made no other memorandum than the above. I may, however, at some future opportunity, describe it more fully.

The only example I have hitherto seen was taken in Hants, I believe, by the Rev. G. T. Rudd.

Sp. 167. *divisorius*. *Niger, segmentis 2 et 3 rufis: mas tibiis albis apice nigro; fœmina tibiis fere totis nigris, antennis albo annulatis.* (Long. corp. 6—7 lin.; Exp. Alar. 10—11 lin.)

Ic. *divisorius*. *Gravenhorst*, i. 470.—*Steph. Nomen*. 2d edit. col. 136.

Black: facial orbits, of the male, more or less distinctly white, anterior with the basal joint sometimes whitish at the tip; of the female involuted, with about the 10th to 14th joints white above and on the sides; thorax with a streak and 1 or 2 dots at the base of the wings white; scutellum, or its apex only, white; abdomen with the 2nd and 3rd segments tawny-red, the extreme margin sometimes obscure, and the basal angles of the 4th occasionally reddish; legs with the anterior femora almost entirely, and the middle pair at the apex, whitish or ferruginous, hinder pair black; 4 anterior tibiæ white beneath and at the base, posterior pair white, with the extreme base and the apex black, or all brownish, with the middle of the outer edge whitish; tarsi more or less fuscous.

Found, but not commonly, in June near London.

Sp. 168. *Goedarti*. *Niger, segmentis 2 et 3 rufis.* (Long. corp. 5½ lin.; Exp. Alar. 9 lin.)

Ic. *Goedarti*. *Gravenhorst*, i. 474.—*Steph. Nomen*. 2d edit. col. 136.

Black: antennæ involuted, with the 11th to 13th joints brownish beneath; metathorax with 2 slightly acute tubercles; scutellum yellowish; abdomen ovate, with the 2nd and 3rd segments red, the basal one occasionally with



the margins reddish; legs with the anterior tibiæ and tarsi ferruginous beneath; wings smoky-hyaline.

Taken near London and in Norfolk.

Sp. 169. *alticola*. *Niger, segmentis 2-4 rufis, 4-marginè nigro, cellula triangulari, annulo antennarum albo.* (Long. corp. 5—6 lin.; Exp. Alar. 9—10 lin.)

Ic. *alticola*. *Gravenhorst, i. 478.—Steph. Nomen. 2d edit. col. 136.*

Black: antennæ with the 6th to about the 12th or 13th joints white above; metathorax slightly bidentate; scutellum white; abdomen with the 2nd, 3rd, and 4th segments red, the latter with the margin more or less broadly black; legs black, the extreme tips of the anterior femora, and the tibiæ beneath reddish, or ferruginous; wings smoky-hyaline, with the cellule 3-angular.

Found in South Wales in June.

Sp. 170. *serenus*. *Niger, abdomine, pedibusque rufis, basi nigris, punctis 2-bus apicalibus scutelli, 2-bus ante scutellum, uno 2-busve ad alarum radicem, albis; fœmina antennarum annulo albo.* (Long. corp. 7 lin.; Exp. Alar. 10 lin.)

Ic. *serenus*. *Gravenhorst, i. 484.—Steph. Nomen. 2d edit. col. 136.*

Black: facial and part of the outer orbits white, and the frontal ones of the female; antennæ of the female involuted, with about the 10th to 17th joints white above; thorax with a white dot before and beneath the wings, and another before each angle of the scutellum, this last with 2 minute shining white dots at its apex; abdomen finely punctured, light red, with the 1st segment and extreme base of the 2nd black; of the female red, with the tip of the 1st dull ferruginous; legs with the femora red, externally black; posterior entirely red in the female; tibiæ red, of the male dusky without, of the female the anterior are brownish without, the 4 posterior dusky at the tip; tarsi fuscous.

Inhabits the vicinity of London, in June.

Sp. 171. *sexlineatus*. *Niger, abdominis medio castaneo, orbitis ocelorum, lineâ ante alas, lineola infra alas, tibiisque anticis subtus albis.* (Long. corp. 5 lin.; Exp. Alar. 8 lin.)

Ic. *sexlineatus*. *Gravenhorst, i. 487.—Steph. Nomen. 2d edit. col. 136.*

Black, with the lateral margins of the clypeus, and the inner and lower orbits white; antennæ sometimes with the basal joint white in the middle beneath; thorax with a streak before and another below the wings white; scutellum white at the apex; abdomen slender, with the 2nd and 3rd segments chestnut-red, with an obscure dorsal cloud, the 4th the same, with the disc blackish, the 5th with the sides also somewhat castaneous; legs with the anterior femora beneath fulvous, with the apex yellow, tibiæ and tarsi whitish, middle with the extreme apex pale straw-colour, the tibiæ whitish, posterior black.

Found, but not commonly, within the metropolitan district, about July.



Sp. 172. *semirufus*. *Niger, segmentis 1-4 tibiisque anticis rufis: mas orbitis oculorum internis albis; femina antennarum annulo albo.* (Long. corp. 3—4 lin.; Exp. Alar. 5—6 lin.)

Ic. *semirufus*. *Gravenhorst, i. 488.—Steph. Nomen. 2d edit. col. 136.*

Black: inner orbits, of the male, and sometimes a dot on the sides of the clypeus, white; antennæ somewhat rusty beneath, of the female involuted, with about the 10th to 16th joints white above; thorax with a whitish dot beneath and before the wings; scutellum white, or at the apex only in the male, in which sex the abdomen has the basal segment black, with its tip reddish, the 3 following red, the sides of the 5th sometimes reddish at the base; of the female the 4 basal segments are red, with the peduncle black, the 4th dusky on the sides, and the remainder black; legs with the femora black, the anterior beneath, more or less, and the middle at the apex, yellowish or tawny; tibiæ red, the posterior pair black at the tip, the anterior in the male yellowish within; anterior tarsi red, posterior fuscous.

Not very uncommon, near London, in June and July.

Sp. 173. *orbitalis*. *Niger abdomine rufo, apice nigro, tibiis rufis, posticis apice nigro, annulo antennarum et orbitis oculorum internis albis.* (Long. corp. 3—4½ lin.; Exp. Alar. 5—6½ lin.)

Ic. *orbitalis*. *Gravenhorst, i. 490.—Steph. Nomen. 2d edit. col. 136.*

Black: inner orbits, part of the outer, and a spot on the mandibles, yellowish-white; antennæ porrect, with about the 12th to 16th joints white above and on the sides; thorax with a minute whitish dot beneath the wings; scutellum whitish; abdomen with the basal segment chestnut-red, the peduncle black, 3 following chestnut-red, the margins of the 4th occasionally blackish, remainder black, the extreme edges with a palish tint; legs with the 4 anterior femora ferruginous beneath, black above and within; posterior black, with the base red, or red, with the apex black; tibiæ red, 4 anterior more or less fuscous without, and the posterior black at the tip; wings hyaline; cellule somewhat 3-angular.

Apparently rare; found near London in July.

Sp. 174. *persecutor*. *Niger, annulo antennarum orbitisque oculorum internis albis, segmentis 2-4 rufis.* (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Ic. *persecutor*. *Gravenhorst, i. 491.—Steph. Nomen. 2d edit. col. 136.*

Black: facial orbits very delicate and white; antennæ porrect, with the 13th to 16th joints white above; scutellum white; abdomen with the 2nd to 4th segments red, the 7th faintly edged with whitish; legs black, with the anterior femora at the apex and their tibiæ on the lower side tawny-whitish; middle femora at the extreme tip and lower edge of the tibiæ, with the extreme base, fulvescent; wings smoky-hyaline; cellule 5-angular.

Also taken near London in July, but not common.

Sp. 175. *sedulus*. *Niger, abdomine rufo, apice nigro, femoribus rufis nigro maculatis, tibiis rufis posticis apice nigro, orbitis oculorum lineaque ante alas*



albis : mas *antennis subtus rufis* ; fœmina *antennarum annulo albo*. (Long. corp. 3—4½ lin. ; Exp. Alar. 5—7 lin.)

Ic. sedulus. Gravenhorst, i. 492.—Steph. Nomen. 2d edit. col. 136.

Black : dot on the sides of the clypeus, and orbits, except a small space on the occiput, white, in the female the inner ones only ; antennæ with the 3 basal joints entirely black, the rest fulvous beneath ; of the female incurved, with the 8th to 14th joints, in general, whitish-yellow, dusky beneath ; thorax with the upper margin of the neck, a line before and below the wings, and in the female one beneath the scutellum whitish-yellow ; scutellum white, frequently black at the base, and in the female red, with the tip yellowish ; abdomen with the 1st segment slender, red, the peduncle black, or black, with the tip red, the 3 following red, the 5th and 6th black, with the extreme basal angles sometimes red, the 7th totally black ; legs red ; femora more or less varied with black ; tibiæ red, the hinder pair black at the tip ; wings somewhat smoky-hyaline ; cellule somewhat 3-angular.

Scarce : found in June near London.

Sp. 176. *lanius*. *Niger, abdomine rufo, basi nigra, facie et lineâ ante alas albis, pedibus anterioribus fulvis, coxis albis*. (Long. corp. 3—4½ lin. ; Exp. Alar. 5—7 lin.)

Ic. *lanius*. Gravenhorst, i. 499.—Steph. Nomen. 2d edit. col. 136.

Black : face, mouth, cheeks, and generally the frontal orbits slightly, white ; antennæ perfect, with the basal joint white beneath ; thorax with a line before, another below, mostly the lateral margin of the collar, and 2 large spots on the breast, white ; scutellum at the apex, or sometimes only the apical margin white ; abdomen with the 2 basal segments black, the 2nd with the apex generally red, remainder also red, with the base of the 3rd occasionally blackish ; legs with the 4 anterior coxæ and trochanters whitish, the femora, tibiæ, and tarsi red ; posterior black, with the tibiæ more or less red or ferruginous at the base ; wings subhyaline, iridescent.

Common in the vicinity of the metropolis ; found also in Salop, &c.

Sp. 177. *vacillatorius*. *Niger, abdominis medio rufo, femoribus rufis, macula nigra, tibiis rufis, posticis apice nigro, puncto albo infra alas* : mas *macula faciali flavâ, lineâque albâ ante alas* ; fœmina *antennarum annulo albo*. (Long. corp. 2½—3¼ lin. ; Exp. Alar. 4—5½ lin.)

Ic. *vacillatorius*. Gravenhorst, i. 500.—Steph. Nomen. 2d edit. col. 136.

Black : mouth, facial orbits, and a large spot on the face yellow, the female with the inner orbits above slightly whitish ; antennæ of the male beneath fulvous, with the basal joint white, of the female involuted, with about the 10th to 13th joints white above and on the sides ; thorax with a line or dot below the wings, and in the male a streak before them, white ; metathorax, in this sex, often with 2 large yellow spots ; scutellum white at the apex ; abdomen with the basal segment black, its margin sometimes reddish, 3



next red, 5th also red, with the edge, and occasionally the sides, or the disc, black; 6th generally black, with the margins red, 7th black; legs with the coxæ black, anterior sometimes with a yellow spot in the male, trochanters the same; femora red or ferruginous, more or less black towards the base, 4 anterior yellowish beneath in the male; tibiæ red, posterior black at the apex, and sometimes the middle in the females, 4 anterior yellow beneath in the males; tarsi red, posterior black.

Not common: found in June within the metropolitan district.

Sp. 178. *arridens*. *Niger, abdomine rufo, basi nigra, pedibus rufis, coxis anterioribus flavis posticis supra nigris, facie lineaque ante alas flavis.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Ic. *arridens*. *Gravenhorst*, i. 501.—*Steph. Nomen*. 2d edit. col. 136.

Black: face and mouth pale yellow; antennæ with the basal joint yellow beneath, remainder dull ferruginous; thorax with a line before and dot below the wings; metathorax roughish; scutellum yellow; abdomen with the basal segment black, 2nd black, with the margin red, 3rd red, with a dusky spot on the back, remainder red, with the terminal one dusky; legs pale red, 4 anterior with the coxæ and trochanters pale yellow, posterior coxæ black above, tarsi brownish.

Scarce: taken near London in July.

Sp. 179. *tricingulatus*. *Niger, segmentis 1-3 castaneo marginatis, femoribus tibiisque rufis, posticis apice nigris, lineola infra alas facieque albis, hoc puncto centrali nigro.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Ic. *tricingulatus*. *Gravenhorst*, i. 505.—*Steph. Nomen*. 2d edit. col. 136.

Black: mouth, face, and part of the outer orbits pale yellow, the face with a black dot; antennæ porrect, the basal joint pale yellow beneath; thorax with a white line below the wings; scutellum also white; abdomen lanceolate, black, with the margin of the 3 basal segments more or less, and the base of the 2nd, chestnut or reddish; legs red, coxæ and trochanters black, 4 anterior with a white dot beneath; apex of the posterior femora and tibiæ, and the tarsi above dusky or black.

Found near London, in June.

Sp. 180. *albicinctus*. *Niger, abdomine rufo, segmento 1 nigro, femoribus rufis, posticis geniculo nigro, tibiis anterioribus rufis, posticis nigris annulo albo: mas facie lineaque ante alas albis; fœmina annulo antennarum albo.* (Long. corp. $2\frac{1}{2}$ — $3\frac{3}{4}$ lin.; Exp. Alar. 5—6 lin.)

Ic. *albicinctus*. *Gravenhorst*, i. 509.—*Steph. Nomen*. 2d edit. col. 136.

Black: male with the face rather prominent, red, with the mouth, cheeks, inner and upper orbits yellow-white; female with the mouth red, inner or frontal orbits white; antennæ ferruginous beneath, with the basal joint whitish, or, in the female, involuted, with the 1st joint beneath red, the 9th to 13th white; thorax with the upper and lateral margins of the neck, a transverse streak below the scutellum, and generally a dot beneath the wings and 2 minute ones on the metathorax whitish; of the female imma-

MANDIBULATA, VOL. VII., 31st OCT., 1835.

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culate; scutellum white, but at the tip only in the female; abdomen red, basal segment black, its margin red or pale; ovipositor slightly exserted; in the male the 2 or 3 terminal segments are sometimes fuscous; 4 anterior legs red, coxæ and trochanters yellowish, black in the female, femora with a fuscous spot above at the base, middle tibiæ whitish at the base; posterior legs black, the femora more or less red, and the tibiæ white at the base; wings subhyaline; cellule nearly 3-angular.

Rather uncommon; found at Darenth wood in June.

Sp. 181. *culpatorius*. *Niger, segmentis 2 et 3 rufis, tibiis sordide flavis aut rufescentibus, posticis apice nigro: mas facie et punctis ad alarum radicem albis; fœmina antennarum annulo albo.* (Long. corp. $4\frac{1}{2}$ —6 lin.; Exp. Alar. 9—10 lin.)

Ic. *culpatorius*. *Fabricius*.—Ic. *sputator* β ? *Steph. Catal.* 347. No. 4371.

Black: face and orbits white, or in the female the inner orbits and mouth ferruginous; antennæ porrect, fuscous, beneath fulvous, with the basal joint white, or convoluted, with about the first 5 black, 3 following ferruginous, the 7th to 15th yellowish-white, the 1st reddish beneath; thorax with 2 yellowish-white dots at the base of the wings scutellum of that colour, but yellow in the female; abdomen with the 2nd and 3rd segments rusty-red, the basal angles of the 4th occasionally the same, 7th more or less fuscous; legs slender in the male, 4 anterior flavescent, coxæ and trochanters, and sometimes the outer margin of the femora black; posterior black, with the extreme base of the femora fulvous, tibiæ flavescent, with the apex black; female with the anterior femora reddish, more or less black at the base; tibiæ reddish, with the tip ferruginous or black.

Not uncommon; found at Darenth and in other metropolitan woods, about the end of June.

Sp. 182. *amputatorius*. *Niger, segmentis 2 et 3, femoribus tibiisque rufis: mas punctis 2-bus ad radicem alarum; fœmina puncto infra alas et antennarum annulo albis.* (Long. corp. 6— $7\frac{1}{2}$ lin.; Exp. Alar. 11 lin.)

Ic. *amputatorius*. *Gravenhorst*, i. 523.—*Steph. Nomen.* 2d edit. col. 136.

Black: antennæ porrect, slightly incurved at the tip, with the basal joint sometimes rusty beneath, of the female about the 8th to 14th white; thorax with a white line before and another beneath the wings, the latter only present in the female; scutellum white; abdomen oblong ovate, a little compressed at the apex in the female, in which sex the basal segment is occasionally slightly rusty anteriorly, the 2nd and 3rd red, the last, sometimes, in the female with a dusky cloud, 4th, rarely, with the basal angles on the extreme margins reddish; legs fulvous, or red, with the coxæ and trochanters black, the hinder coxæ of the male sometimes with 1 or 2 white dots, and the tibiæ in that sex occasionally pale yellowish, with the tip fulvous; posterior tarsi mostly black.

Scarce: taken in June near London.



§ IX. *Scutellum* black: *abdomen* either entirely red, or red and black.

Sp. 183. *fumigator*. *Niger, segmentis 2 et 3 rufis*. (Long. corp. 6—7½ lin.; Exp. Alar. 10—11½ lin.)

Ic. *fumigator*. *Gravenhorst.—Steph. Catal. 347. No. 4375.*

Black: antennæ porrect, involuted in the female, and with the middle joints beneath sometimes fuscous; thorax with 2 minute spines behind; abdomen ovate in the female, narrower in the male, 1st segment black, with 2 elevated lines, 2nd and 3rd red or fulvous, remainder black; legs black; anterior tibiæ straw-coloured within in the male, 4 posterior black, or fuscous, paler within; of the female the anterior are red within, and the 4 posterior fuscous; wings smoky-hyaline; cellule 5-angular.

Not very common: found near London, at Darenth wood, and in the New Forest.

Sp. 184. *hæmorrhoidalis*. *Niger, abdomine rufo, segmento 1 nec non macula dorsali segmentorum 3-6 nigris*. (Long. corp. 5—7½ lin.; Exp. Alar. 9—11 lin.)

Ic. *hæmorrhoidalis*. *Gravenhorst.—Steph. Catal. 347. No. 4366.*

Black: mouth and face white, the last with a longitudinal black streak, or the inner orbits alone white; antennæ porrect, sometimes fuscous beneath; thorax with a white dot before the wings; scutellum frequently with 2 very minute approximating white dots at the apex; abdomen rather depressed, finely punctured, basal segment black, occasionally with a red dot at the apex, 2nd entirely red, 4 following red, with a quadrate black spot on the disc of each, extending from the base nearly to the extreme margin, 7th entirely red; legs black, anterior femora and tibiæ more or less straw-coloured in front, posterior pair reddish at the base within; wings smoky-hyaline.

The 2nd segment of the abdomen has, rarely however, a black dorsal patch.

More abundant than the foregoing: taken at Darenth wood in June.

Sp. 185. *melanopyrrhus*. *Niger, ore, orbitisque oculorum facialibus albidis, abdominis apice pedibusque rufis*. (Long. corp. 7½ lin.; Exp. Alar. 11½ lin.)

Ic. *melanopyrrhus*. *Steph. Nomen. 2d edit. Appendix.*

Black: mouth and facial orbits whitish; thorax with a white dot at the base of the wings; abdomen rather slender, the 3 basal segments black, the margin of the 3rd red, 4th black at the base, its apex and all the following segments bright rusty-red; legs with all the coxæ and trochanters black; the femora, tibiæ, and tarsi red, the hinder tarsi fuscous above; wings hyaline, with black nervures and stigma; antennæ porrect.

Found in June, near London.

Sp. 186. *sputator*. *Niger, coxis posticis maculis segmentis 2 et 3 tibiisque rufis, antennarum annulo albo*. (Long. corp. 5½—7½ lin.; Exp. Alar. 9—10½ lin.)

Ic. sputator. *Fabricius*.—*Steph. Catal.* 349. No. 4371.

Black: antennæ curved at the tip in the female, with about the 8th to 14th joints white above, and in the male with a white dot on the 11th and 12th; thorax immaculate; abdomen variable, the 2nd and 3rd segments red or chestnut, the base of the former and margin of the latter being sometimes black, or the former is occasionally black, with the margin red, and the 3rd red, with 2 black dorsal spots; legs black, the anterior femora red at the tip, and the 4 anterior tibiæ red, dusky towards the apex; posterior red, with the tip black; hinder coxæ neither armed with tubercle nor spines.

Scarce: found at Darenth wood, in the beginning of June.

Sp. 187. *culpator*. *Niger*, *coxis posticis calcaratis, segmentis 2 et 3 tibiisque castaneis aut rufis, antennarum annulo albo*. (Long. corp. 5—7 lin.; Exp. Alar. 9—10½ lin.)

Ic. *culpator*. *Schranck*.—*Steph. Catal.* 347. No. 4374.

Black: antennæ curved at the tip, with about the 9th to 14th joints white above; abdomen rather obtuse at the apex, the 2nd and 3rd segments chestnut, or dull red; legs black, 4 anterior femora at the tip testaceous or reddish, tibiæ dull red or chestnut, 4 anterior fulvous beneath, posterior sometimes with the tip blackish; posterior coxæ beneath armed with a short robust obtuse tooth; wings smoky-hyaline.

Taken at Coombe and Darenth woods in June.

Sp. 188. *procerus*. *Niger*, *segmentis 2 et 3 nec non lateribus 4-ti rufis*. (Long. corp. 4 lin.; Exp. Alar. 7½ lin.)

Ic. *procerus*. *Gravenhorst*, i. 550.—*Steph. Nomen*. 2d edit. col. 136.

Black: inner orbits faintly whitish; antennæ rather ferruginous towards the apex; abdomen with the 2nd and 3rd segments entirely, and the sides of the 4th, red, the basal segment rather smooth and narrow; legs black; anterior femora rusty beneath, tibiæ entirely ferruginous, or with one side fuscous, the other somewhat testaceous, the extreme tip of the middle femora and the inner edge of their tibiæ ferruginous; cellule irregularly 5-angular.

Found, but very rarely, within the metropolitan district, in June.

Sp. 189. *fugitivus*. *Niger*, *abdomine castaneo basi nigrâ, pedum anteriorum tibiis femoribusque fulvis, his supra nigris, facie flavomaculatâ*. (Long. corp. 5 lin.; Exp. Alar. 9 lin.)

Ic. *fugitivus*. *Gravenhorst*, i. 552.—*Steph. Nomen*. 2d edit. col. 136.

Black: inner and outer orbits, 2 dots below the antennæ, and the mouth yellow; antennæ porrect, with the basal joint beneath sometimes yellow, and the remainder fuscous: thorax immaculate; abdomen with the basal segment black, 2nd black, with the tip chestnut, remainder chestnut, palest towards the apex; legs with stoutish femora, 4 anterior pale red, with the coxæ and trochanters, and more or less of the outer base of the femora, and the tarsi above black, posterior black, rusty towards the base; wings hyaline, a little smoky at the apex.



Rare: found near London, in the middle of June, and in Shropshire.

Sp. 190. *apricus*. *Niger, segmento 2-do nec non angulis baseos 3-tii castaneis, orbitis oculorum internis; punetisque infrà alas albidis.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. 6 lin.)

Ic. *apricus*. *Gravenhorst, i. 553.—Steph. Nomen. 2d edit. col. 136.*

Black: facial orbits, a transverse line on the clypeus, and dot beneath the antennæ white; thorax with a dot below the wings and an obscure one before them white; abdomen with the 2nd segment dull chestnut, and the basal angles of the 3rd the same; legs with the anterior femora on one side entirely, and the middle pair at the apex, whitish, 4 anterior tibiæ whitish beneath, posterior fuscous towards the base; wings smoky-hyaline; cellule somewhat 3-angular.

Not common: found in June at Coombe wood.

Sp. 191. *melanocastanus*. *Niger, abdomine castaneo basi nigra, femoribus anterioribus rufis, maculâ nigra, tibiis anterioribus rufis; fœmina antennarum annulo albo.* (Long. corp. $5-6\frac{1}{2}$ lin.; Exp. Alar. 9—11 lin.)

Ic. *melanocastanus*. *Gravenhorst.—Steph. Catal. 347. No. 4368.*

Black: antennæ porrect, incurved in the female, and with about the 8th to 14th joints white above, rusty beneath; abdomen of the male narrower than the thorax, the margin of the 2nd segment chestnut, the 3rd fuscous, with the apex reddish, or entirely red, 4th to 6th entirely of a chestnut-red, or with 2 fuscous spots on the disc, 7th totally chestnut-red; of the female as wide as the thorax, with the apex obtuse and faintly compressed, dull chestnut, with the 1st segment and base of the 2nd black; legs with the coxæ and trochanters black; 4 anterior femora generally red, with the base more or less black within, hinder pair black, rusty at the base; 3 or 4 anterior tibiæ testaceous-red, with the tip of the middle pair dusky, posterior black, with the base ferruginous.

Sometimes all the femora are rusty-chestnut, with the base black. —

Not uncommon, at Coombe and Darenth wood, in June; found also in other parts of the country, as the New Forest, &c.

Sp. 192. *castanopyga*. *Aterrimus, abdominis apice rufo-castaneo nitido: mas orbitis oculorum internis albis; fœmina annulo antennarum albo.* (Long. corp. $5-6$ lin.; Exp. Alar. 9— $10\frac{1}{2}$ lin.)

Ic. *castanopyga*. *Steph. Nomen. 2d edit. col. 137.*

Deep black: metathorax shagreened; male with the inner orbits white; antennæ porrect; female with the antennæ incurved, and about the 9th to 15th joints white above; thorax of the male with 3 irregular white spots and lines at the base of the wings; abdomen with the 4 basal segments deep obscure black, the 3 apical ones bright glossy chestnut, of the female with the 2 basal segments deep black, the remainder chestnut-red; legs in



both sexes deep black, extreme tips of the 4 anterior femora and inner margin of the tibiæ straw-coloured or tawny.

Very rare: the female I possess I took at Hertford in June; the male I obtained from Scotland.

Sp. 193. *castaniventris*. *Niger*, abdomine rufo, segmento 1-mo nigro, tibiis rufis, posticis apice nigro, antennarum annulo albo: mas? orbitis oculorum albidis. (Long. corp. 5—6½ lin.; Exp. Alar. 9—10 lin.)

Ic. *castaniventris*. *Gravenhorst*, i. 556.—*Steph. Nomen*. 2d edit. col. 137.]

Black: male? with the inner orbits white; antennæ porrect; of the female involuted at the apex, with the 9th to 14th joints white above; thorax immaculate; abdomen red, with the basal segment black, and the apex occasionally more or less chestnut or red, the 2nd finely aciculated; legs moderate, the 4 anterior black, with the apex of the femora and the tibiæ beneath, more or less ferruginous; posterior black, with the tibiæ ferruginous, black at the tip, or red, with the coxæ and trochanters, and the apex of the femora and tibiæ black; wings hyaline or flavescent; cellule 3-angular.

Not very rare: taken at Darenth wood in the middle of June, and also in Devonshire.

Sp. 194. *pyrrhopus*. *Niger*, orbitis oculorum internis albis, femoribus tibiisque rufis, horum posticorum apice nigro, abdomine rufo castaneo basi nigra. (Long. corp. 6 lin.; Exp. Alar. 10—11 lin.)

Ic. *pyrrhopus*. *Steph. Nomen*. 2d edit. col. 137.

Black: antennæ porrect; facial orbits rather broadly white, palpi whitish; thorax with an obscure white dot before the wings; abdomen rather slender, the basal segment black, with its apex more or less reddish, the remaining segments chestnut-red; legs light red, with the coxæ, trochanters, and tips of the hinder pair of tibiæ, and the posterior tarsi black; wings hyaline; cellule 5-angular.

The 2nd and 3rd segments of the abdomen are sometimes slightly blackish on the disc, and the thorax immaculate.

Apparently very rare: taken near London and in Norfolk, in June.

Sp. 195. *albilarvatus*. *Niger*, abdomine rufo basi nigra, tibiis anterioribus rufis, facie et annulo antennarum albis. (Long. corp. 5—6 lin.; Exp. Alar. 9—10½ lin.)

Ic. *albilarvatus*. *Gravenhorst*.—*Steph. Catal*. 347. No. 4347.

Black: face and mouth white; antennæ porrect, long, the basal joint white beneath, the 15th to 20th, or more, entirely white, the remainder generally ferruginous beneath; abdomen narrower than the thorax, the basal segment black, with 2 elevated lines, the 2nd red, with the base black, the 3rd and 4th either entirely red, or with the base dusky, the 2 following fuscous, with the margins red, or red, with the extreme base obscure, the



7th fuscous; legs black; 4 anterior with the tarsi, tibiæ, and femora red, the convex side of the last brownish, or black, with the femora testaceous beneath, the tibiæ and tarsi ferruginous below; wings subhyaline; cellule 5-angular.

Found, in June, at Darenth wood, in Shropshire, and in Scotland, apparently scarce.

Sp. 196. gasterator. *Niger, femorum anteriorum apice et latere interno, tibiisque anterioribus antice rufescentibus, abdomine rufo, annulo antennarum albo.* (Long. corp. 4—5 lin.; Exp. Alar. 7—8 lin.)

Ic. gasterator. *Steph. Nomen. 2d edit. col. 137.*

Black: palpi fuscous; mandibles pitchy; abdomen bright red, the peduncle pitchy towards the base; legs black, the tips of the 4 anterior femora and the anterior side of the 1st pair, and also of the 4 anterior tibiæ reddish; 4 anterior tarsi rufescent; antennæ involuted, with from about the 8th to 14th joints white.

Posterior tibiæ sometimes pitchy at the apex, and reddish at the base.

May not this be the female of the foregoing?

Taken, not uncommonly, near London.

Sp. 197. castaneus. *Niger, abdomine pedibusque rufis, coxis et trochanteribus nigris, antennarum annulo albo, scutello rufescente.* (Long. corp. 5½ lin.; Exp. Alar. 9½ lin.)

Ic. castaneus. *Gravenhorst, i. 558.—Steph. Nomen. 2d edit. col. 137.*

Black: frontal orbits faintly whitish, or testaceous; antennæ incurved at the tip, black, with the 10th to 13th joints white, or with the 2 basal ones black, the 9th to 14th white, the remainder fuscous; thorax with an obsolete spot before and another beneath the wings, with a streak below the scutellum, and the latter reddish, or ferruginous; abdomen red, the 5th segment entirely black, or with its base chestnut, the 6th and 7th black; legs red, with the coxæ and trochanters black, or with the anterior femora testaceous, the middle red, fuscous at the base within, hinder brown-black, with the base red; tibiæ red, posterior brownish towards the apex.

Rare: taken at Darenth in June, and in Wilts?

Sp. 198. semivulpinus. *Niger, coxis posticis calcaratis, segmentis 1-5 pedibusque rufis, coxis et trochanteribus nec non genibus posticis nigris, antennis 3-coloribus.* (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Ic. semivulpinus. *Gravenhorst, i. 565.—Steph. Nomen. 2d edit. col. 137.*

Black: antennæ curved, the 2 basal joints fuscous, 4 following red, 3 next red-brown, 4 or 5 following white, remainder fuscous; abdomen with the 1st to 5th segments fulvous or red, peduncle black; legs red or fulvous, with the coxæ and trochanters black; posterior coxæ armed with a long spur, the tips of their femora and of their tibiæ black or fuscous; wings subhyaline.

Found in June near London, and in Norfolk: not common.



Sp. 199. *celerator*. *Niger, segmentis 1-4 pedibusque rufis, coxis et trochanteribus nec non geniculis posticis nigris, antennis tricoloribus.* (Long. corp. $2\frac{1}{2}$ — $4\frac{1}{2}$ lin.; Exp. Alar. 4—6 lin.)

Ic. *celerator*. *Gravenhorst*, i. 566.—*Steph. Nomen. 2d edit. col. 137.*

Black; antennæ involuted at the tip, basal joint black or rusty, 3 or 4 following red, 4 next black-brown or rusty, 8th to 13th generally whitish above, rusty-brown below, remainder brown-black; sometimes the first 7 or 13 joints are red, the remainder black-brown; abdomen rather obtuse at the apex, basal segment black, with the margin red, 2nd to 4th red, remainder black; legs red, with the coxæ and trochanters, and apex of the hinder femora black, and occasionally the tips of the middle femora are dusky; the extreme tip of the hinder tibiæ and their tarsi are fuscous, the claws are all fuscous: the hinder femora are sometimes entirely red.

Not unfrequent in woods near London in June.

Sp. 200. *bellus*. *Niger, segmentis 2-4 pedibusque rufis, horum posticis geniculo, apice tibiæ, tarsisque nigris.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

Ic. *bellus*. *Gravenhorst*, i. 571.—*Steph. Nomen. 2d edit. col. 137.*

Black: antennæ curved, short, black, with the 6th to 9th joints white above and on the sides; abdomen very glossy, rather depressed and obtrigonal, basal segment black, with 2 longitudinal somewhat impressed lines, 2nd to 4th transverse, red, following black, the 6th and 7th with an obscure whitish patch on the back; legs moderate, the posterior with the apex of the femora and of the tibiæ, and the tarsi black; wings smoky-hyaline.

Scarce: found near London in July.

Sp. 201. *femorator*. *Niger, segmentis 1-4 tibiis femoribusque rufis, his posteriorum apice nigro, antennis 3-coloribus.* (Long. corp. 5 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Ic. *femorator*. *Steph. Nomen. 2d edit. col. 137.*

Black: palpi pale; mandibles pitchy; antennæ incurved, the basal joint black, the 7 following red, 6 next white, the remainder black; abdomen rather slender, the 4 basal segments bright red, the 3 following black, with a reddish tinge on the margin of the 5th; legs bright red, with the coxæ and trochanters black, the hinder femora broadly black towards the apex, and their tibiæ slightly so at the extreme tip, posterior tarsi blackish above; wings yellowish-hyaline.

Taken near London, in June.

Sp. 202. *latrator*. *Niger, segmentis 2-4 rufis, pedibus anterioribus rufis, coxis nigris, posticis nigris tibiis et tarsorum articulis rufis, apice nigro, stigmatibus fulvo: fœmina annulo antennarum albo.* (Long. corp. 3— $5\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Ic. *latrator*. *Gravenhorst*, i. 572.—*Steph. Nomen. 2d edit. col. 137.*

Black: palpi pale; mandibles testaceous, clypeus sometimes with a yellow or



red lateral spot; female with the inner orbits alone slightly yellowish; antennæ of the male porrect, reddish beneath, with the base black; of the female involuted, the basal joint beneath ferruginous, 8th to 13th white on the sides; abdomen of the male narrower than the thorax; of the female as wide as the thorax, basal segment black, the apex sometimes with a reddish margin or spot, 2nd and 4th red, or fulvous, the latter in the female dusky on the margin, the disc as well as the margin sometimes black in the male; legs moderate, 4 anterior red, with the coxæ and trochanters black, the middle trochanters sometimes red, and their femora with a black streak on the inner base; posterior black, coxæ occasionally with the tip obscurely reddish, and the trochanters at times red, the femora of the male red at the base, the tibiæ and the base of the terminal joints red, the tips of the latter black.

The face of the male is sometimes spotted with yellow, and the abdomen has occasionally the 2nd to 5th segments red.

Widely diffused and not uncommon: I have taken it at the beginning of June and in August, at Darenth, Charlton, Hampstead, and Dover.

Sp. 203. *rufator*. *Niger, segmentis 2-5, tibiisque anterioribus rufis, antennis subtus ferrugineis.* (Long. corp. 5 lin.; Exp. Alar. 7½ lin.)

Ic. *rufator*. *Steph. Nomen. 2d edit. col. 137.*

Black: antennæ ferruginous beneath; abdomen rather slender, the 2nd to 5th segments bright red, and the margin of the 6th reddish; anterior legs red, with the coxæ and trochanters black, middle pair, also with the coxæ and trochanters black, femora red, blackish at the base behind, tibiæ red, palest in front, tarsi red; posterior pair with the coxæ and trochanters black, the last red at the tip; femora black, red at the extreme base; tibiæ and tarsi fuscous, the former reddish towards the base exteriorly; wings hyaline.

Taken, but very rarely, in the vicinity of London, in June.

Sp. 204. *confector*. *Niger, segmentis 1-4 pedibusque rufis, antennis 3-coloribus.* (Long. corp. 2¼—3½ lin.; Exp. Alar. 4—5½ lin.)

Ic. *confector*. *Gravenhorst, i. 579.—Steph. Nomen. 2d edit. col. 137.*

Black: antennæ with the 1st to 5th joints red, or rusty-brown, 6th to 9th brown, 10th and 11th dull white, with the sides rusty, beneath brown, remainder also brown; abdomen with the 4 basal segments red, or slightly chestnut; legs red, posterior occasionally with the tips of the femora and of the tibiæ black; wings smoky-hyaline; cellule 5-angular.

Taken in August 1834, in the gardens of the Hermitage.

Sp. 205. *guttulatus*. *Niger, segmentis 1-4 pedibusque rufis, punctis 2-bus ad alarum radicem annuloque antennarum albis.* (Long. corp. 3½ lin.; Exp. Alar. 5½ lin.)

Ic. *guttulatus*. *Gravenhorst, i. 580.—Steph. Nomen. 2d edit. col. 137.*



Black: mandibles and palpi ferruginous; antennæ slender, curved, 8 basal joints black, ferruginous beneath, the 9th to 11th whitish, the remainder rusty-brown; thorax generally with a white dot before and another below the wings; abdomen as wide as the thorax, with the 4 basal segments red, the peduncle and other segments black; legs rather slender, red, the coxæ black at the base, and the hinder tarsi fuscous.

Found at Coombe wood, in June.

Sp. 206. *melanogonus*. *Niger, coxis posticis calcaratis, abdomine rufo, apice nigro, pedibus rufis, posticis geniculis nigris, antennis 3-coloribus*. (Long. corp. 2—3½ lin.; Exp. Alar. 3½—5½ lin.)

Ic. *melanogonus*. *Gravenhorst*, i. 581.—*Steph. Nomen*. 2d edit. col. 137.

Black: palpi pale; mandibles red, black at the tip; antennæ involuted, 6 basal joints rusty-red, the first 2 sometimes fuscous above, 7th to 9th fuscous or rusty, or fuscous above and rusty beneath, 9th sometimes, and 3 or 4 following generally, white, mostly fuscous below, remainder fuscous; abdomen with the basal segment red, peduncle more or less black, 2nd to 4th segments red, the margin of the latter occasionally black; ovipositor slightly exerted; legs red; posterior coxæ armed beneath with a short acute tooth, the tips of their femora and tibiæ black, and the 4 anterior coxæ and trochanters yellowish.

Variable in colour, the antennæ being rather dissimilar in different individuals, and the abdomen having sometimes the basal segment alone, or that and the 2 or 3 apical ones black: the tooth on the posterior coxæ also varies in length.

Taken at Coombe and Darenth wood in June and July.

Sp. 207. *Troglodytes*. *Niger, abdomine rufo basi nigra, pedibus rufis, posticis coxis femoribusque nigris, antennis subalbo annulatis*. (Long. corp. 2—2½ lin.; Exp. Alar. 3—4 lin.)

Ic. *Troglodytes*. *Gravenhorst*, i. 587.—*Steph. Nomen*. 2d edit. col. 137.

Black: antennæ involuted, ferruginous, the 2 basal joints black, 7th to 9th fuscous, 10th and 11th whitish, fuscous beneath, remainder red beneath; abdomen red, with the basal segment very smooth and black; ovipositor very short and exerted, black; legs moderate, 4 anterior red, posterior black, with the tips of the trochanters red, tibiæ testaceous-red, with the apex dusky; wings smoky-hyaline, iridescent.

Found near Hertford, and at Darenth wood, not common.

Sp. 208. *abdominator*. *Niger, antennis, pedibus abdomineque, basi excepto, rufis, coxis posticis basi fusco*. (Long. corp. 4½ lin.; Exp. Alar. 7 lin.)

Ic. *abdominator*. *Steph. Nomen*. 2d edit. col. 137.

Black: palpi pale, mandibles reddish; antennæ curved, rusty-red, with the basal joint dusky above; abdomen bright red, the basal segment black; legs pale red, 4 anterior trochanters yellowish; posterior coxæ fuscous at



the base and at the apex, trochanters clear red, femora dusky red, tibiæ pale red; tarsi brownish above; wings yellowish-hyaline.

Also rare, and found in June, near London.

Sp. 209. parvulus. *Niger, segmentis 2 et 3 femoribus tibiisque rufis.* (Long. corp. 2 lin.; Exp. Alar. 3½ lin.)

Ic. parvulus. *Gravenhorst, i. 591.—Steph. Nomen. 2d edit. col. 137.*

Black: abdomen oblong-ovate, as wide and as long as the head and thorax, the 2nd segment entirely, and the base and sides of the 3rd, red; legs red, with the coxæ and trochanters black; wings narrow, smoky-hyaline; cellule somewhat 5-angular.

Not common; found in June within the metropolitan district.

Sp. 210. opprimator. *Niger, segmentis 2-4 rufis, pedibus rufis, posticis nigro maculatis: mas ore et antennis subtus fulvis; fœmina antennis basin versus rufis.* (Long. corp. 2¼—3 lin.; Exp. Alar. 4—5¼ lin.)

Ic. opprimator. *Gravenhorst, i. 595.—Steph. Nomen. 2d edit. col. 137.*

Black: male with the mouth fulvous, and the antennæ porrect and fuscous, beneath fulvous; of the female with the 2nd to 5th joints red, remainder fuscous; abdomen with the basal segment black, with its tip reddish, 3 following red, the margin of the 3rd often black; legs red, posterior with the coxæ generally black at the base, rarely entirely red, or totally black, femora either red, with the apex black, or black, with the base red; tibiæ black at the tip: all the coxæ, and the middle trochanters and femora, are sometimes black at the base.

Taken, but not commonly, in the vicinity of London, in June.

Sp. 211. ruficoxatus. *Niger, segmentis 1-3 coxisque rufis.* (Long. corp. 2¼—3 lin.; Exp. Alar. 3½—4½ lin.)

Ic. ruficoxatus. *Gravenhorst, i. 597.—Steph. Nomen. 2d edit. col. 137.*

Black: antennæ curved, rusty-brown, with the basal joint black; abdomen with the 3 basal segments red, or chestnut-red, rarely fulvous, or with the base of the 4th segment red; legs with the coxæ chestnut-red, the trochanters either red, or with the base black; 4 anterior femora either red, black at the base above, or black, with the extreme base and apex, and the lower side, red, the middle pair being generally more black; posterior either totally black, or with the extreme base red; 4 anterior tibiæ either entirely red, with the outer side fuscous, or black, with the inner edge fulvous; posterior either red, with the apex black, or black, more or less ferruginous towards the base; tarsi rusty-brown, anterior palest.

Found at Hertford, in June.

Sp. 212. mutabilis. *Niger, segmentis 2-4 rufis, femoribus tibiisque anterioribus nec non tibiæ posticarum medio, rufis, stigmatæ alarum fusco.* (Long. corp. 3—4 lin.; Exp. Alar. 5—6½ lin.)

Ic. mutabilis. *Gravenhorst, i. 599.—Steph. Nomen. 2d edit. col. 137.*



Black: antennæ fulvous beneath, with from 1 to 3 of the basal joints black; abdomen with the 2nd to 4th segments red, the 2nd and 4th sometimes with a blackish spot on the back, 5th generally quite black, or with the extreme margins, or 2 spots at the base reddish, or chestnut; legs moderate, 4 anterior pale red, or fulvous, with the coxæ and trochanters black, these last occasionally fulvous beneath, the middle femora often fuscous without, and their tibiæ at times yellowish beneath; posterior black, with the extreme base of the femora ferruginous, and the tibiæ mostly reddish in the middle: the anterior femora are sometimes black towards the base; wings smoky-hyaline, with the stigma fuscous.

Also found in June near Hertford, and in the vicinity of London.

Sp. 213. *rufilimbatus*. *Niger, segmentis 2—4 rufis, macula dorsali nigra, ore nec non latere infero femorum et tibiæ anticorum flavis.* (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Ic. *rufilimbatus*. *Gravenhorst, i. 603.—Steph. Nomen. 2d edit. col. 137.*

Black: mouth, clypeus, and a dot on the inner orbits yellow; antennæ beneath with the basal joint yellow, the remainder rusty-brown; abdomen with the 2nd and 3rd segments red, with a large dorsal spot, 4th with all the margins, and 5th with the dorsal edge red; legs black, anterior with the tibiæ and tarsi, and the lower edge and tip of the femora testaceous or yellow; middle with the apex of the femora and sides of the tibiæ testaceous, the extreme base of the hinder femora and of their tibiæ reddish; wings somewhat hyaline, iridescent.

Scarce: found near London in June.

Sp. 214. *mitigosus*. *Niger, segmentis 2 et 3 totis, sequentibus margine, rufis, tibiis rufis.* (Long. corp. 2½ lin.; Exp. Alar. 4½ lin.)

Ic. *mitigosus*. *Gravenhorst, i. 604.—Steph. Nomen. 2d edit. col. 137.*

Black: antennæ ferruginous beneath, with the 2 basal joints entirely black; abdomen with the 2nd and 3rd segments red, with the sides and extreme margins of the 4th, and the edges of the following red; the 2nd occasionally with a black transverse fascia; legs with the 4 anterior femora fulvous, with the coxæ, trochanters, and the convex side of the femora at the base black; posterior black, with the extreme base of the femora and the tibiæ red, the latter black at the tip, and at the extreme base.

Taken at Hertford and at Coombe wood, in June.

Sp. 215. *picipes*. *Niger, pedibus abdominisque basi piceo-rufis, hoc apice castaneo-nigro, antennarum annulo albo.* (Long. corp. 2½ lin.; Exp. Alar. 4 lin.)

Ic. *picipes*. *Steph. Nomen. 2d edit. col. 137.*

Black: palpi and mandibles reddish; antennæ pitchy, with about the 10th to 14th joints white; abdomen with the 4 basal segments light pitchy-red, the 3 terminal ones pitchy-black, faintly edged with a lighter tint; anterior legs,



including the coxæ and trochanters, pale pitchy-red, posterior pair dark pitchy, their coxæ faintly spurred; wings hyaline.

Found near London, in June.

§ X. *Scutellum* black; *abdomen* of three colours.

Sp. 216. *tergenus*. *Niger, abdomine rufo, apice nigro, ano albo: fœmina annulo antennarum albo.* (Long. corp. 4—5 lin.; Exp. Alar. 6—8½ lin.)

Ic. *tergenus*. *Gravenhorst*, i. 615.—*Steph. Nomen*. 2d edit. col. 137.

Black: male with the antennæ porrect, female involuted, with about the 9th to 14th joints white; abdomen oblong-ovate, the 3 basal segments red or chestnut, the 4th entirely black, or with the base more or less red, and the margin in the male whitish, and reddish in the female, 5th black, with the margins in the male whitish, 6th and 7th also black, with a white dorsal spot, or a dot only in the female; legs moderate, black, the anterior femora at the extreme tip and the tibiæ within flavescent, the middle tibiæ and tarsi fuscous, the hinder tibiæ in the middle dull ferruginous.

Not common: taken occasionally in July and August within the metropolitan district, and in Salop.

Sp. 217. *incubitor*. *Niger, abdomine rufo, apice nigro, ano albo, femoribus et tibiis rufis, annulo antennarum albo.* (Long. corp. 2½—3½ lin.; Exp. Alar. 4—5½ lin.)

Ic. *incubitor*. *Linne* ?—Cr. *incubitor*. *Steph. Catal.* 345. No. 4111.

Black: palpi fuscous; mandibles rusty; occipital orbits faintly white, or with a white dot; antennæ with the apex curved, the 8th to about the 13th joints white above; abdomen oblong-ovate, the 3 basal segments red or fulvous, 4th either black, or black, with the basal angle red, or entirely red, 6th with a marginal white spot or dot, 7th with the back totally white; legs rather stout, red, coxæ and trochanters black, posterior tibiæ black at the tip, femora occasionally with a fuscous or black cloud towards the inner base.

Scarce: found near London in June.

Sp. 218. *analis*. *Niger, abdomine rufo, apice nigro, ano albo, tibiis femoribusque rufis, horum posticis apice nigro, antennis tricoloribus.* (Long. corp. 3—4 lin.; Exp. Alar. 4½—6 lin.)

Ic. *analis*. *Gravenhorst*, i. 621.—*Steph. Nomen*. 2d edit. col. 137.

Black: antennæ with the 1st to 8th joints red, 9th to 12th whitish, remainder brown; abdomen with the 3 basal segments red, remainder black, the 6th and 7th with the back white; legs red; coxæ black, anterior pair beneath red; trochanters black, red at the tip; posterior femora black, with the base red, or red, with the extreme tip black; wings somewhat smoky-hyaline; cellule 5-angular.

Also scarce, and found within the metropolitan district, in July.



Sp. 219. *crassipes*. *Niger, abdomine rufo, apice nigro, ano albo, pedibus rufis, posticorum femoribus apice nigris, antennis 3-coloribus.* (Long. corp. $2\frac{1}{4}$ — $3\frac{1}{2}$ lin.; Exp. Alar. 4 — $5\frac{1}{4}$ lin.)

Ic. *crassipes*. *Gmelin.*—*Steph. Nomen. 2d edit. col. 137.*

Black: palpi and mandibles fuscous or reddish; labrum, a spot on the face and inner orbits sometimes reddish; abdomen with the 3 basal segments red, the 4th either entirely, or the base and sides, red, the 6th black, mostly white on the back, the 7th above white; legs rather short, red, with the tips of the hinder femora and tibiæ black.

Obtained from Mr. Haworth's cabinet: taken, however, in June, near London.

§ XI. *Thorax and scutellum varied with red and white; abdomen of 2 or 3 colours, apex generally white.*

Sp. 220. *erythræus*. *Rufus, abdominis apice nigro, ano albo, femoribus nigris, scutelli apice et antennarum annulo albis.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7 lin.)

Ic. *erythræus*. *Gravenhorst, i. 632.*—*Steph. Nomen. 2d edit. col. 137.*

Red: head black, crown reddish; face more or less rufescent, edged with black; orbits whitish or testaceous; palpi pale, mandibles red; antennæ rather slender, incurved, fuscous, the 10th to 14th joints, or less, white above, with a fuscous dot, the remainder red beneath; thorax with the breast, the margin of the scutellum, and an obscure dorsal line on the disc black, a transverse streak below the scutellum, and 2 obscure dots at the base of the wings white; scutellum white at the tip; abdomen with the apex of the 4th segment, the 5th and 6th, except sometimes a white marginal dot, black, 7th white above; legs with the coxæ either entirely red, or more or less varied with black and white; trochanters black, tipped with white; femora black, 4 anterior more or less rusty in front; tibiæ fuscous, streaked in front, and the posterior chestnut towards the apex; tarsi fuscous; wings subhyaline; cellule somewhat 3-angular.

Very scarce: taken in June, near London.

Sp. 221. *ruficeps*. *Rufus, thorace nigro, dorso et scutello rufis, ano et antennarum annulo albis.* (Long. corp. 4 lin.; Exp. Alar. 6 lin.)

Ic. *ruficeps*. *Gravenhorst, i. 633.*—*Steph. Nomen. 2d edit. col. 137.*

Red: mouth straw-colour; thorax black, with its disc and part of the meta-thorax chestnut-red, the margins of the collar and streak beneath the scutellum red; scutellum itself red; abdomen with the 4th to 6th segments fuscous, somewhat chestnut on the back, 7th fuscous, with the back white; ovipositor slightly exserted; legs red, posterior coxæ black, with a red dot; wings somewhat hyaline; cellule rather 3-angular.

Very rare: found near London, in July.

Sp. 222. *ruficollis*. *Rufus, capite postice, metathorace supra, pectore, femoribus,*



tibiis posticis abdominisque apice nigris, annulo antennarum anoque albis.
(Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Ic. ruficollis. Steph. Nomen. 2d edit. col. 137. |

Red: head black behind; palpi reddish; antennæ incurved, black, with about the 10th to 13th joints white; thorax bright red, with a black spot on each side below the wings; metathorax above, or region of the scutellum black, the declining portion red; scutellum and a line below also red; abdomen with the 3 basal segments and the anterior angles of the 4th, the 5th totally black, 6th and 7th black, with a large white dorsal spot; ovipositor slightly exserted, black; legs with the coxæ, trochanters, and femora black, the 2 anterior pair of the latter at the apex, the 2 anterior tibiæ in front, and the 2 middle ones towards the base reddish: the extreme base of the hinder femora and the 4 anterior tarsi also red; wings smoky-hyaline.

Rare: taken in June at Hertford.

Sp. 223. rufescens. *Pallide rufus, orbitis oculorum lineâ ante alas et puncto ad alarum radicem albis, metathorace et capite postice nigris, antennarum annulo albo.* (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Ic. rufescens. Steph. Nomen. 2d edit. col. 137.

Pale red: head black behind; orbits white, slightly interrupted externally; antennæ black, with about the 10th to 16th joints white; thorax with a white streak, extending from the wings to the anterior edge of the collar, and a spot beneath the wings of the same; metathorax black, with 2 red spots; scutellum red; abdomen the same, fuscous towards the apex; ovipositor exserted, fuscous; legs, including the coxæ and trochanters, pale red, the tips of the hinder tibiæ and of their tarsi fuscous.

Found in June, near London.

GENUS XL.—ISCHNUS, Gravenhorst.

Antennæ generally slender, porrect, but rarely curved in the males, usually so in the females, and shorter than in the males, and a little thickened occasionally; *head* transverse, narrowed behind; *thorax* slightly gibbous; *scutellum* slightly convex; *abdomen* very slender and somewhat cylindric, its basal segment rather convex anteriorly and smooth, the peduncle linear, not much narrower than the anterior portion of the segment, and about as long; *ovipositor* a little exserted; *wings* moderate; *cellule* somewhat triangularly-pentangular: *legs* slender and considerably elongated.

The genus *Ischnus*, or at least British species thereof, may be known by their great resemblance to those of the preceding genus, combined with the length and slenderness of the antennæ and legs, and also of the abdomen, this last being in general ornamented with divers coloured rings, and its basal segment being smooth, instead of rugged, as in *Ichneumon*.



Sp. 1. porrectorius. *Niger, segmentis intermediis rufis, basi nigra, margine albido, pedibus rufis, coxis albo nigroque maculatis, tibiis posticis apice nigro, scutello antennarum annulo, maculisque thoracis et capitis albis.* (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Ic. porrectorius. *Fabricius*.—*Isch. porrectorius. Steph. Nomen. 2d edit. col. 137.*

Black: palpi long, pale straw-colour; clypeus, orbits, genæ, and the face more or less whitish-yellow; antennæ with the 2 basal joints fulvous beneath, about the 15th to 18th white; thorax with the margins of the neck, the lateral edges of the collar, 2 dots or longitudinal lines on its base, a dot beneath the wings, 2 behind, 2 others between the anterior and middle coxæ, a streak behind the scutellum, and a spot on the metathorax, and the scutellum yellow-white; abdomen with the basal segment black, white at the tip, the 4 next red, with their margins white, and their base frequently black, the remainder black, with the margins faintly palish; legs slender, long, 4 anterior pair testaceous, the coxæ and trochanters white, the former below and with a spot exteriorly and on the trochanters black; posterior testaceous, with the coxæ and trochanters black, and sometimes with a white apical dot; tarsi fuscous, with the 2-4 joints white.

The white ring on the antennæ is sometimes wanting.

Not very common: taken at Darenth wood, near Hertford, and in Norfolk, in June and July.

Sp. 2. sannio. *Niger, segmentis anterioribus testaceo-marginatis, tibiis femoribusque rufis, posticis apice nigricante, scutello, maculis capitis thoracisque annulo antennarum et tarsorum posticorum albis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 6 lin.)

Isc. sannio. *Gravenhorst, i. 646.—Steph. Nomen. 2d edit. col. 137.*

Black: mouth, orbits, and facial spots whitish-yellow; mandibles black at the tip; antennæ with the basal joint ferruginous beneath, the 15th to 17th white; thorax with the margin of the neck, a line before the wings, one beneath the anterior pair, and another below the posterior, a transverse line under the scutellum, and a large transverse trilobed spot at the base of the petiole, and the scutellum, white; abdomen with the margins of the 3 basal segments reddish-white, the 4th and 5th with their edge obscurely reddish; legs fulvous, with the 4 anterior coxæ black, and their trochanters yellow, with the base fuscous; posterior coxæ black, their trochanters black, with the tip ferruginous; posterior femora fuscous, with the base ferruginous; tibia black at the tip, tarsi whitish, with the 1st and 5th joints fuscous.

Taken with the preceding, of which it may prove a variety.

GENUS XLI.—STILPNUS, *Gravenhorst.*

Antennæ moderate, or short, porrect, sometimes curved at the tip, rather stout, composed of 16 to 20 joints; *head* short, transverse; *eyes* oval, prominent;



thorax rather gibbous: *scutellum* convex: *abdomen* depressed, very smooth, and glossy, somewhat orbiculate in the females, and as wide as the thorax; the basal segment linear, narrower than the remainder, its anterior portion rather broader than the peduncle, which has 2 lateral tubercles placed before the middle: *ovipositor* scarcely exerted: *wings* ample; *cellule* 5-angular, the outer nervure wanting, and thus rendering the cellule open, and from its hinder angle arises the mere rudiment of the lower nervure: *legs* slender, short.

This genus, which appears to be closely allied to *Hemiteles*, may be instantly recognized from the other genera of this family by having a 5-angled cellule, the outer nervure of which is wanting, so as to render the cellule open; the nervure of the inferior angle is also wanting, so that the hinder portion of the hinder wing is nerveless.

Sp. 1. *deplanatus*. *Niger, femoribus tibiisque rufis*. (Long. corp. $1\frac{1}{2}$ —2 lin.; Exp. Alar. 3—4 lin.)

St. *deplanatus*. *Gravenhorst*, i. 667.—*Steph. Nomen*. 2d edit. col. 137.

Black: abdomen orbiculate-ovate, with the basal segment a little dilated towards the apex; legs red, with the coxæ and trochanters black; wings hyaline, iridescent.

Rare: taken near London, in June.

Sp. 2. *gagates*. *Niger, pedibus fulvis, coxis nigris, antennis basin versus rufis*. (Long. corp. 1½—2 lin.; Exp. Alar. 3—4 lin.)

St. *gagates*. *Gravenhorst*, i. 667.—*Steph. Nomen*. 2d edit. col. 137.

Black: palpi pale; antennæ reddish at the base, with the basal joint generally black above, reddish beneath; thorax with 2 acute tubercles on the meta-thorax; abdomen lanceolate in the male, depressed and orbiculate-ovate in the female, with the ovipositor slightly exerted; legs most slender in the male, fulvous, 4 anterior coxæ sometimes entirely red, or red, with the base black, or black, red beneath, rarely nearly quite black, posterior for the most part black, red at the tip beneath, rarely black, or red, with the extreme base black; wings hyaline.

Also found in June near London, not uncommon.

Sp. 3. *Pavoniæ*. *Niger, pedibus et antennarum basi luteis*. (Long. corp. $1\frac{1}{2}$ lin.; Exp. Alar. 3 lin.)

Ich. *Pavoniæ*. *Scopoli*, No. 762.—St. *Pavoniæ*. *Steph. Nomen*. 2d edit. col. 137.

Black: antennæ with the basal joint red, the following black in the male, testaceous in the female, and gradually becoming darker towards the apex, which is black; abdomen oblong-lanceolate in the male, nearly orbiculate in the female; ovipositor concealed; legs slender, stoutest in the female, reddish straw-colour; the posterior in the male with the tarsi and apex of

MANDIBULATA, VOL. VII., OCT. 31ST, 1835.

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the tibiæ somewhat brownish ; wings iridescent, of the male hyaline, of the female rather smoky.

Less abundant than the last ; found at Darenth wood in June and July.

Sp. 4. *blandus*. *Niger, segmentis 2 et 3 pedibusque rufis, coxis posticis basi nigris*. (Long. corp. $1\frac{1}{2}$ —2 lin. ; Exp. Alar. 3 — $3\frac{1}{2}$ lin.)

St. *blandus*. *Gravenhorst, i. 672.—Steph. Nomen. 2d edit. col. 137.*

Black : palpi and middle of the mandibles red ; antennæ fuscous, with the basal joint red or testaceous beneath ; abdomen with the 2nd and 3rd segments red, the apex of the 3rd black ; ovipositor exerted, very short ; legs red, posterior with the coxæ externally black towards the base ; tarsi fuscous ; wings hyaline.

Found at Hertford in June ; not common.

Sp. 5. *dryadum*. *Niger, antennarum basi pedibus maculæque dorsali abdominis ochreo-stramineis*. (Long. corp. $2\frac{1}{2}$ lin. ; Exp. Alar. 4—5 lin.)

St. *dryadum*. *Curtis, v. ix. pl. 388.—Steph. Nomen. 2d edit. col. 137.*

Black : antennæ straw-coloured at the base, dusky at the apex, and the basal joint with occasionally a black dot above ; abdomen of the male with a pale ochreous band at the anterior margin of the 2nd and 3rd segments, of the female with a broad ochreous stripe down the back of the 2nd, 3rd, and 4th segments, a spot at the tip of the peduncle, and the edge of the 2nd segment pale ochreous ; legs the same, with the tips of the tarsi blackish.

Mr. Curtis, from whose description the above is abridged, says the abdomen of the female is sometimes entirely black, and the antennæ have only 14 joints.

“Taken on oak-trees in Galway, Ireland, by Mr. Haliday.”—*Curtis, l. c.*

GENUS XLII.—BRACHYPTERUS, *Gravenhorst*.

Antennæ filiform, curved, short, rather stout, about half the length of the body : *head* shortish, a little narrowed towards the neck, the face somewhat protuberant : *eyes* ovate : *thorax* cylindric-gibbous : *scutellum* slightly convex, and somewhat triangular, with the apex obtuse : *abdomen* oblong-ovate, rather broader than the thorax, the basal segment thrice as wide as the peduncle ; ovipositor scarcely exerted : *wings* narrow, rather longer than the thorax ; *cellule* wanting : *legs* moderate, femora slightly thickened.

This singular genus may be instantly recognized by the brevity of its wings, combined with the form of its abdomen, and the shortness and stoutness of its legs.

Sp. 1. *means*. PLATE XL. f. 2.—*Niger, segmentis 1-4 pedibusque-rufis, horum*



posticis apice femorum tibiærumque nigro. (Long. corp. 3 lin.; Exp. Alar. $2\frac{1}{2}$ lin.)

Bra. means. *Gravenhorst*, i. 675.—*Steph. Nomen. 2d edit. col. 137.*

Black: antennæ with the 1st to 11th joints red, the 9th to 11th whitish above, remainder fuscous; metathorax slightly crenulated; abdomen with the 1st segment red, 2nd subquadrate, also red, 3rd and 4th transverse, twice as broad as long, also red, with the margins of the 4th black; remainder black, with a whitish spot on the 6th and 7th; legs red; apex of the femora and tibiæ black.

Rare: I have taken it at Coombe wood in June, and I believe it occurs also in Salop.

GENUS XLIII.—MICROLEPTES, *Gravenhorst.*

Antennæ stoutish, porrect, and curved at the apex in the males, curved and thickened in the females, composed of about 22 joints, the basal one robust, 2nd minute, 2 or 3 following in the males subclavate, apical one elongate: *head* subglobose: *face* slightly protuberant: *eyes* oval: *thorax* cylindric-gibbulous: *wings* ample; *cellule* wanting; *scutellum* slightly convex: *abdomen* oblong-ovate, somewhat clavate in the males, supported by a stoutish peduncle, gradually increasing in width to its union with the basal segment; with a tubercle in the middle on each side: *ovipositor* concealed: *legs* rather short and stoutish.

This genus may be known from the foregoing by wanting the cellule on the anterior wings, which are long and ample; the abdomen arises from a slender peduncle, and is somewhat clavate, the antennæ long and slender, &c.

Sp. 1. splendidulus. PLATE XL. f. 3.—*Niger, pedibus rufis.* (Long. corp. 2 lin.; Exp. Alar. 4 lin.)

Mic. splendidulus. *Gravenhorst*, i. 679.—*Steph. Nomen. 2d edit. col. 137.*

Black, shining: palpi whitish; antennæ with the 2 basal joints more or less reddish, the remainder fuscous; abdomen very glossy, its basal segment a little dilated towards the apex, the 2nd as wide as long, a little narrowed towards the base, the remainder transverse, becoming slightly shorter and narrower towards the apex; legs red, with the hinder coxæ fuscous towards the base.

Found at Charlton in August.

GENUS XLIV.—MESOLEPTUS, *Gravenhorst.*

Antennæ very slender, for the most part long, with the apex more or less curved, occasionally porrect and a little stouter: *head* short, rather narrower than the thorax: *eyes* oval, slightly prominent: *thorax* somewhat gibbous: *wings* moderate, rarely ample; cellule either entirely wanting, or small 3-angular,



frequently irregular and petiolated, rarely suborbicular: *abdomen* oblong or subovate, with the basal segment somewhat convex and smooth anteriorly, the peduncle very slender: *legs* slender, long, sometimes a little abbreviated, and with the femora, especially the hinder one, thickened.

Known from Typhon by having the abdomen oblong or somewhat ovate, with the basal segment smooth and rather convex anteriorly, and supported by a very slender peduncle; the legs and antennæ more or less elongate and slender: some of the species are very closely allied to those of the following genus, and are to be discriminated with great difficulty: there is, nevertheless, a certain degree of diversity in habit between them, by which a practised eye can readily distinguish them.

§ I. *Scutellum* and *abdomen* black, the extreme margins of the segments of the latter sometimes pale.

Sp. 1. *narrator*. *Niger, tibiis anterioribus nigris*. (Long. corp. 5 lin.; Exp. Alar. 8½ lin.)

Me. *narrator*. *Gravenhorst*, ii. 11.—*Steph. Nomen*. 2d edit. *Gen*. 714. 1.

Slender, black: palpi and mandibles fuscous, the tips of the latter black; antennæ incurved at the tip; abdomen narrower than the thorax, and somewhat cylindric towards the apex, the basal segment with 2 raised lines, peduncle slender, 2nd to 5th of equal breadth; legs moderate; anterior femora testaceous, fuscous towards the base, middle fuscous with the tip testaceous, the 4 anterior tibiæ and tarsi testaceous, the posterior brown-black; wings smoky-hyaline; cellule wanting.

Scarce: taken in June in the vicinity of London.

Sp. 2. *quadriannulatus*. *Niger, femoribus tibiisque rufis, annulo antennarum et tarsorum posticorum albo*. (Long. corp. 4—5 lin.; Exp. Alar. 9—10 lin.)

Me. *quadriannulatus*. *Gravenhorst*, ii. 13.—*Steph. Nomen*. 2d edit. *Gen*. 714. 2.

Black: palpi testaceous; frontal orbits faintly white; antennæ slender, curved at the tip, the 11th to 14th joints white; thorax with a dot before and another beneath, and a very minute dot at the tip of the scutellum also white; abdomen lanceolate, narrower than the thorax, the anterior portion of the basal segment quadrate, twice as short and broader than the peduncle, with the lateral tubercles a little prominent; legs slender, coxæ and trochanters black; femora red, the posterior black at the extreme tip; tibiæ testaceous, the hinder pair fuscous at the apex; tarsi fuscous, 4 anterior with the basal joint red, posterior with the 3rd and 4th joints and tip of the 2nd white; wings somewhat smoky-hyaline; cellule 3-angular.

Also rare: found in June and July, near London.

Sp. 3. *sericeus*. *Niger, sericeus, pedibus, ore, et antennarum basi testaceis, coxis posterioribus fuscis*. (Long. corp. 3½ lin.; Exp. Alar. 5½ lin.)



Me. sericeus. *Gravenhorst*, ii. 11.—*Steph. Nomen*. 2d edit. Gen. 714. 3.

Black, clothed with a delicate griseous pubescence; mouth testaceous; antennæ porrect, fuscous, ferruginous beneath and testaceous at the base; abdomen narrower than the thorax, somewhat clavate, the basal segment long and very smooth, and all with the extreme edge somewhat testaceous; legs slender, testaceous, with the upper side of the hinder coxæ and of the posterior femora brown-black; wings iridescent; cellule irregularly 3-angular, subpetiolated.

Taken, but very rarely, near London, in June.

Sp. 4. limitaris. *Niger, pedibus rufis, ore rufo aut flavicante, antennis subtestaceis, segmentis ultimis albido marginatis*. (Long. corp. $2\frac{1}{2}$ —4 lin.; Exp. Alar. $4\frac{1}{2}$ — $6\frac{1}{2}$ lin.)

Me. limitaris. *Gravenhorst*, ii. 14.—*Steph. Nomen*. 2d edit. Gen. 714. 4.

Black: mouth yellowish, or red, mandibles fuscous at the tip; antennæ porrect, the apex recurved, fuscous, reddish beneath, the basal joint sometimes yellow below; thorax occasionally, with a dot before the wings, and a spot on the breast, chestnut; scutellum sometimes reddish; abdomen fusiform, the 4th to 7th segments on the lateral edge and on the extreme margins whitish; legs red, with the 2 or 4 anterior coxæ and trochanters yellowish, tibiæ yellowish, posterior sometimes fuscous at the tip; hinder tarsi fuscous; wings ample, hyaline; cellule 5-angular.

Not very uncommon: found in July near London.

Sp. 5. infernalis. *Niger, tibiis anticis et femorum anticorum apice rufis*. (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 4 lin.)

Me. infernalis. *Gravenhorst*, ii. 16.—*Steph. Nomen*. 2d edit. Gen. 714. 5.

Black: antennæ rather above half the length of the body; abdomen scarcely narrower than the thorax, oblong-ovate, clavate, the basal segment a little dilated towards the apex, the remainder with the margins somewhat glaucous; legs moderate, anterior with the femora red, black at the base, tibiæ red, posterior obsoletely testaceous within; wings hyaline, iridescent; cellule 3-angular, petiolated.

Found near London in June, not common.

Sp. 6. Evanialis. *Niger, abdomine subcompresso, pedibus rufis, coxis nigris, tarsis posticis nec non tibiæ posticarum apice fuscis*. (Long. corp. 2 lin.; Exp. Alar. $3\frac{3}{4}$ lin.)

Me. Evanialis. *Gravenhorst*, ii. 16.—*Steph. Nomen*. 2d edit. Gen. 714. 6.

Black: antennæ rather shorter than the body; abdomen lanceolate, slightly compressed, narrower than the thorax, the 1st segment a little narrowed towards the base, longer than wide, 2nd and 3rd with the extreme base slightly chestnut; legs moderate, red, coxæ black, reddish beneath, posterior trochanters black at the base, hinder tibiæ at the apex, and their tarsi fuscous; wings smoky-hyaline; cellule small, somewhat orbicular and petiolated.

Found, but very rarely, at Darent wood, in June.



Sp. 7. *leucostomus*. *Niger, ore albido, pedibus flavo-pictis, antennis apicem versus rufo-ferrugineis*. (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Me. *leucostomus*. *Gravenhorst*, ii. 17.—*Steph. Nomen*. 2d edit. Gen. 714. 7.

Black: mouth and clypeus whitish-yellow, mandibles black at the tip; antennæ with the 3 basal joints brown-black, the following beneath ferruginous, and the terminal ones entirely of that colour; abdomen rather narrower than the thorax, the basal segment a little dilated at the apex, the 2nd to 4th of equal width, the remainder with the extreme edge whitish; 4 anterior legs yellow, with the coxæ, trochanters, claws, and base of the femora black, posterior black, their tibiæ yellow, with the tip black; wings hyaline, iridescent; cellule irregularly 3-angular, petiolated.

Also rare: taken in June, near London.

Sp. 8. *submarginatus*. *Niger, facie flavâ, nigro maculatâ, pedibus anterioribus rufis, segmentis ultimis albido marginatis, cellulâ nullâ*. (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 6 lin.)

Me. *submarginatus*. *Steph. Nomen*. 2d edit. Gen. 714. 8.

Black: mouth and face yellow, the latter with an irregular black patch in front; antennæ long and slender, fuscous, beneath testaceous, with the basal joint yellow; abdomen long and slender, the 3rd segment obscurely edged with chestnut, and the 4 following with whitish; legs pale red, trochanters yellowish, hinder pair with a small black spot above; the tip of the hinder femora black, their tibiæ and tarsi fuscous, the base of the femora reddish without; wings hyaline, cellule wanting.

Found in July last at Hertford.

§ II. *Scutellum* pale, or with pale marks: *abdominal segments* generally with pale edges.

Sp. 9. *pectoralis*. *Niger, pedibus rufis, posticorum tarsis et tibiæ apice fuscis, thorace flavomaculato, antennis subtus ferrugineis articulis 1-3 albidis: mas facie pectore et coxis anterioribus flavis; fœmina facie flavomaculatâ*. (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5 lin.)

Me. *pectoralis*. *Gravenhorst*, ii. 21.—*Steph. Nomen*. 2d edit. Gen. 714. 9.

Black: male with the face, cheeks, and mouth yellow; mandibles rusty at the tip; female with the inner orbits, 2 dots beneath the antennæ, a spot on the cheeks, margin of the clypeus, and the mouth yellowish; tip of the mandibles fuscous; antennæ incurved at the tip, fuscous, rusty beneath, with the 2 or 3 basal joints whitish; thorax of the male with the breast, neck, a broad line before the wings, a dot before them, and the lateral sutures of the metathorax yellow; of the female with the upper margin of the neck, a line before, and a dot beneath the wings, yellowish-white; scutellum of the male with 2 yellow dots, of the female with red confluent ones; abdomen silky, with the extreme margin of the 6 terminal segments obscurely chestnut; legs moderate, red, 4 anterior with the coxæ and trochanters pale yellow, posterior with the trochanters pale yellow, with the



base black, the femora with a black dot at the tip, and the tarsi and the apex of the tibiæ fuscous; in the female all the legs are red, with the hinder tarsi and tip of their tibiæ black; wings hyaline, with a very indistinct vestige of a triangular cellule.

Found at Dover, in August, 1818.

Sp. 10. *cingulatus*. *Niger, pedibus fulvis, coxis pallidioribus, tarsis posticis nec non tibiæ apice fuscis, pectore et facie flavis, segmentis albo-marginatis*. (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5—6 lin.)

Me. *cingulatus*. *Gravenhorst*, ii. 22.—*Steph. Nomen*. 2d edit. *Gen*. 714. 10.

Black: face, cheeks, and mouth yellow, or reddish; antennæ incurved at the tip, fuscous, with the basal joint yellow beneath; thorax yellow on the sides and below, with a black dot beneath the wings, above black, with a dot beneath the scutellum, and sometimes 2 longitudinal ones, and the scutellum, yellow; abdomen with the margins of all the segments dull whitish, the colour vanishing towards the sides of the terminal ones; legs fulvous, 4 anterior coxæ and trochanters, and 2 posterior beneath, paler, their tarsi and the tip of the tibiæ fuscous, the base of the last palish; wings somewhat smoky-hyaline; cellule wanting.

Not common: found at Darent and Coombe woods in June.

Sp. 11. *exornatus*. *Nigro flavoque varius, pedibus pallide fulvis, posticorum tarsis et tibiis fusciscentibus, segmentis flavomarginatis*. (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Me. *exornatus*. *Gravenhorst*, ii. 23.—*Steph. Nomen*. 2d edit. *Gen*. 714. 11.

Head subglobose, yellow, mandibles ferruginous at the tip; eyes small, ocelli and region of the eyes black; antennæ porrect, with the basal joint yellowish below, of the female reddish at the tip; thorax yellow, with a black or rusty spot on the front, 3 broad longitudinal black lines on the back, reddish or rusty-black in the female, and often interrupted in the middle, the margin of the scutellum and a transverse dot before the peduncle black; a streak below the scutellum and the latter yellow; abdomen black, with the margin of the segments yellow, or reddish in the female; legs slender, fulvo-testaceous, coxæ and trochanters yellow, posterior with a black dot above, the hinder femora sometimes black at the base, their tibiæ brownish, with the base occasionally dull tawny-brown; wings hyaline; cellule 3-angular, somewhat petiolated.

Apparently scarce: taken in June near London.

Sp. 12. *albolineatus*. *Niger, capite thorace scutelloque albolineatis, femoribus tibiisque rufis, antennis albo annulatis*. (Long. corp. 5 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Me. *albolineatus*. *Gravenhorst*, i. 681.—*Steph. Nomen* 2d edit. *Gen*. 714. 12.

Black: palpi, base of the mandibles, and inner and outer orbits white; antennæ curved at the tip, the 12th to 14th joints white above; thorax with a line on the suture before the wings, a streak beneath, and 2 dots below the



scutellum, white; scutellum with a large marginal white spot on each side; abdomen black; legs with the coxæ and trochanters black; femora red, posterior with the extreme tip black; tibiæ red, hinder pair black towards the tip; 4 anterior tarsi red-brown, posterior black-brown, with the 4th joint a little paler; wings smoky-hyaline; cellule 3-angular, sessile.

Not common: found near London and at Netley, in June.

§ III. *Scutellum* pale or red; *abdomen* either anteriorly red (or pale), or red and black.

Sp. 13. *melanocephalus*. *Rufus, capite nigro, facie et ore flavis*. (Long. corp. $4\frac{1}{2}$ — $5\frac{1}{4}$ lin.; Exp. Alar. 7—8 lin.)

Me. *melanocephalus*. *Gravenhorst*, ii. 28.—*Steph. Nomen*. 2d edit. Gen. 714. 13.

Red: head and mandibles at the tip black, face and mouth yellow; antennæ with the basal joint generally yellow below; thorax sometimes with a streak before, or a dot beneath, the wings, and the suture between the prothorax and metathorax yellow; legs with the 2 or 4 anterior coxæ and trochanters pale straw-colour; wings hyaline; cellule irregular, with a short peduncle.

Taken at Darenth and Coombe woods, and near Hertford, in June.

Sp. 14. *testaceus*. *Testaceo-rufus, oculis et ocellis nigris*. (Long. corp. $3\frac{1}{2}$ —6 lin.; Exp. Alar. 7— $8\frac{1}{4}$ lin.)

Ich. *testaceus*. *Fabr. Ent. S. Sup.* 228.—Me. *testaceus*. *Steph. Nomen*. 2d edit. Gen. 714. 14.

Mouth and face testaceous-red, mandibles fuscous at the tip; antennæ porrect, curved at the tip, tawny-red or dusky, with the basal joint always red, paler beneath; thorax tawny-straw, or reddish, with occasionally a line before the wings, and the lateral sutures yellowish; scutellum palish, or yellow; abdomen rusty, or tawny-yellowish, somewhat linear, slightly compressed towards the apex, most in the female; legs slender, tawny-straw, with the hinder tarsi sometimes paler; wings hyaline, cellule irregularly 3-angular, slightly petiolated.

Found at Darenth and Birch woods, and near Dover, at the beginning of June.

Sp. 15. *pallidus*. *Pallide stramineus, oculis ocellisque nigris*. (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Me. *pallidus*. *Gravenhorst*, ii. 30.—*Steph. Nomen*. 2d edit. Gen. 714. 15.

Pale straw-colour: antennæ testaceous-brown, with the basal joint pale straw-colour; eyes and ocelli black; legs very pale straw-colour; wings hyaline, iridescent; cellule somewhat 3-angular, petiolated.

Not very common: taken at Darenth wood in June.

Sp. 16. *sticticus*. *Fulvus, scutello flavo, oculis ocellis pectore et petioli basi*



nigris: mas *thoracis lateribus et regione circa scutellum nigris*. (Long. corp. 3—4½ lin.; Exp. Alar. 5—7½ lin.)

1c. sticticus. *Fabr. Ent. S. Sup. 229.*—*Me. sticticus. Steph. Nomen. 2d edit. Gen. 714. 16.*

Fulvous: face and mouth yellowish; tip of the mandibles, eyes, ocelli, and a quadrate spot on the forehead black, the last occasionally ferruginous in the female; antennæ porrect and black, with the 2 basal joints beneath fulvous, and the 6 or 8 following fulvescent; of the female incurved at the tip, ferruginous, but above, especially towards the base, dusky; thorax with a dot before the collar and on the breast black, and of the male with the margin of the scutellum more or less black, the metathorax black, red above, the scutellum and a transverse line beneath yellow; abdomen oblong, faintly compressed at the tip; peduncle black at the base in the female, entirely black in the male, and sometimes the 1st segment, except the margins, the same; ovipositor black; legs fulvous, anterior coxæ paler, the hinder tarsi and tip of the tibiæ, and sometimes a line on the coxæ, blackish; wings hyaline; cellule 3-angular, subpetiolated.

Not common: taken at Hertford in July.

Sp. 17. trimaculatus. *Fulvus, oculis ocellis pectore maculisque 3-bus thoracis dorso nigris*. (Long. corp. 3 lin.; Exp. Alar. 6 lin.)

Me. trimaculatus. Steph. Nomen. 2d edit. Gen. 714. 17.

Fulvous: mouth and face paler; eyes and ocelli black; thorax with a spot on the breast and 3 large ones on the back also black; scutellum fulvous; abdomen elongate, slightly compressed at the apex; legs pale tawny, coxæ and trochanters paler; wings hyaline; cellule 3-angular, scarcely petiolated. Found in June near London; scarce.

Sp. 18. luteolator. *Testaceus; oculis, ocellis, nec non thoracis et segmentorum plurimorum dorso nigris*. (Long. corp. 2¾ lin.; Exp. Alar. 5 lin.)

Me. luteolator. Gravenhorst, ii. 42.—*Steph. Nomen. 2d edit. Gen. 714. 18.*

Testaceous: head subglobose; eyes and ocelli black; antennæ porrect, fuscous, testaceous at the base beneath; thorax black on the back, with 2 longitudinal red streaks; scutellum red; abdomen lanceolate, the basal segment entirely black, 3rd entirely fulvous, 2nd, and the 4th to 7th fulvous, with the back black; legs rather slender, pale testaceous, the hinder tarsi and tip of their tibiæ fuscous; wings hyaline, iridescent; cellule 3-angular, somewhat petiolated.

Also rather scarce: taken in June in the vicinity of London.

Sp. 19. flavopictus. *Niger, facie scutello et lineâ ante alas flavis, abdominis medio pedibusque rufis*. (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Me. flavopictus. Gravenhorst, ii. 33.—*Steph. Nomen. 2d edit. Gen. 714. 19.*

Black: face and mouth yellow; mandibles black at the tip; antennæ slender, curved at the tip, the basal joint yellow beneath; thorax with a line before the wings, hooked in front, a transverse streak beneath the wings, and 1



below the scutellum, and the scutellum itself, yellow; abdomen oblong-ovate, basal segment black, with the tip fulvous, 2nd red, with a black spot on the back, 2 following red, 5th black, with its sides chestnut, 6th and 7th black; legs slender, tawny, coxæ and trochanters paler beneath, posterior tibiæ black at the apex and the tarsi dusky; wings yellowish-hyaline; cellule irregularly 3-angular, petiolated, the outer nervure rather obscure.

Found at Darenth wood in June; not uncommon.

Sp. 20. *cinctulus*. *Niger, facie et scutelli apice flavis, segmento 1 nigro, sequentibus margine et lateribus rufis, ultimis totis testaceis: pedibus anterioribus testaceis, posticis nigro fuscis, coxis et trochanteribus subtilis stramineis, femoribus medio rufis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

Me. *cinctulus*. *Gravenhorst*, ii. 37.—*Steph. Nomen*. 2d edit. Gen. 714. 20.

Black: face and mouth yellow, apex of the mandibles black; antennæ porrect, fulvous beneath, the 2 or 3 basal joints entirely black; scutellum a little elevated, its apex yellow; abdomen clavate, basal segment long and black, 2nd black, with the margin broadly rufous, 3rd to 5th reddish-yellow, with the base black, and the extreme margin glaucous-yellow, the remainder tawny-yellow; legs slender, 4 anterior testaceous, with the coxæ and trochanters paler; posterior brown-black, with the coxæ and trochanters straw-coloured beneath, femora dull red in the middle, and the tibiæ the same towards the base, both black at the base and apex; wings subhyaline; cellule 3-angular, petiolated.

This, and the following beautiful species, depart considerably in habit from the rest of the genus, and will probably be some day removed.

Also rare: taken at the end of June, at Darenth wood.

Sp. 21. *sponsorius*. *Niger, facie scutello et colli parte infera flavis, abdomine rufo basi nigra, apice flavo, pedibus rufis, posticis nigro-maculatis.* (Long. corp. 3— $3\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ —6 lin.)

Ic. *sponsorius*. *Fabr. Piez.* 64.—Me. *sponsorius*. *Steph. Nomen*. 2d edit. Gen. 714. 21.

Black: face and mouth yellow; mandibles black at the tip; antennæ porrect, slightly curved at the apex, above fuscous, but reddish towards the tip, beneath fulvous, with the 3 basal joints black; thorax with part of the neck below, and also a dot beneath the scutellum, and the scutellum, yellow; abdomen somewhat clavate, the basal segment black, with the tip red or fulvous, 2nd red or pale tawny, 3rd either fulvous, or red, with the extreme margin yellow, and sometimes with a black streak within the edge, 4th yellow, tawny-red at the base, the extreme base and a streak towards the margin black, remainder yellow, with a black spot at the base of the 5th; legs moderate, fulvous, 4 anterior with the coxæ and trochanters pale yellow, coxæ above black or red, posterior coxæ and trochanters yellow, above black or red, femora with the base and apex black, tibiæ at the apex and towards the base (the base itself being reddish) black; tarsi



fuscous; wings somewhat hyaline; cellule 3-angular and somewhat petiolated.

Rare: taken at Darenth wood and in the New Forest, in June.

Sp. 22. *ruficornis*. *Niger, scutelli apice et abdominis medio rufis, pedibus anterioribus testaceis, posticis nigris, trochanteribus stramineis, tarsi tibiisque rufis, his apice nigris, facie flavâ.* (Long. corp. 4—5 lin.; Exp. Alar. 7—8 lin.)

Me. *ruficornis*. *Gravenhorst*, ii. 43.—*Steph. Nomen. 2d edit. Gen.* 714. 22.

Black: face and mouth testaceous, mandibles black at the tip; antennæ curved at the apex, rusty-brown, reddish beneath, the basal joint yellowish, or red; thorax frequently with a reddish spot beneath the scutellum and a yellow dot below the wings; scutellum at the tip fulvous or testaceous; abdomen with the basal segment black, 2nd sometimes black on the back, 3rd and 4th red, with the edge of the latter and all the remaining segments black, and in the female slightly compressed; legs rather elongate, 4 anterior fulvescent, with the coxæ and trochanters straw-colour; posterior with the coxæ black, trochanters straw-colour, black at the base, femora black, tibiæ red or testaceous, with the apex black; tarsi reddish; wings smoky-hyaline; cellule somewhat petiolated, irregularly 3-angular.

Taken near London in June; not common.

§ IV. *Scutellum* black: *abdomen* red, or red and black.

Sp. 23. *spheginus*. *Niger, areola 5-angulari incompletâ, capite thoraceque griseo-villosis, tibiis testaceis, abdomine medio rufo, petiolo longissimo tenui.* (Long. corp. 2½—3 lin.; Exp. Alar. 4—5 lin.)

Me. *spheginus*. *Gravenhorst*, ii. 49.—*Steph. Nomen. 2d edit. Gen.* 714. 23.

Black: head and thorax clothed with a griseous pubescence; palpi pale; antennæ brown-black, reddish beneath, with the basal joint entirely black; abdomen rather slender, oblong, basal segment black, pubescent, supported by a long slender linear peduncle, which is a little dilated towards the apex, and furnished with acute lateral tubercles; 2nd a little dilated towards the apex, longer than broad, 3rd subquadrate, remainder transverse, 2nd to 4th red, rest black; legs moderate, 4 anterior with the coxæ and trochanters black, the femora pale red, more or less black at the base; tibiæ and tarsi testaceous; posterior wings somewhat smoky-hyaline; cellule 5-angular, open, the outer nervure being deficient.

Of this very distinct insect I took a pair at Hertford in July last.

Sp. 24. *lætus*. *Niger, abdomine rufo, basi nigra, tibiis femoribusque anterioribus testaceis, his basi nigris.* (Long. corp. 2½—4 lin.; Exp. Alar. 5 lin.)

Me. *lætus*. *Gravenhorst*, ii. 50.—*Steph. Nomen. 2d edit. Gen.* 714. 24.

Black: mouth pale ferruginous; mandibles black at the tip; inner orbits occasionally yellow; antennæ fuscous, reddish beneath, with the basal joint totally black; abdomen slightly petiolated, narrower than the thorax,



oblong, the basal joint black and channelled, 2nd nearly wholly black, the apex being in general more or less red, the following red or testaceous, the remainder mostly yellowish; legs moderate, 4 anterior testaceous-red, with the coxæ, trochanters, and base of the femora black; posterior black, with the middle of the femora frequently chestnut, tibiæ generally testaceous beneath; wings for the most part hyaline; cellule somewhat irregularly 3-angular, and sessile.

Taken at Coombe wood, in July.

Sp. 25. *bipunctatus*. *Niger, abdominis medio rufo nigro punctato, femoribus tibiisque rufis, posticis apice nigris, trochanteribus ore et orbitis oculorum internis flavis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Me. *bipunctatus*. *Gravenhorst*, ii. 54.—*Steph. Nomen. 2d edit. Gen.* 714. 25.

Black: mouth, margin of the clypeus and inner orbits yellow; mandibles rusty-brown at the tip; antennæ porrect, curved at the apex, reddish beneath, with the 2 basal joints yellow; thorax with a dot beneath the wings, and frequently with a spot before them, yellow; abdomen clavate, 2 basal segments black, 3rd red, with 2 black dots, 4th like the 3rd, or black, red in the middle, remainder black, with the edge of the 5th red; legs moderate, 4 anterior tawny-red, coxæ either entirely yellow, or black, with a yellow tip, trochanters yellow, with the base black, tarsi and tips of the tibiæ and femora blackish; wings hyaline; cellule somewhat orbiculate, petiolate.

Found, but rarely, near London, in June.

Sp. 26. *xanthostigma*. *Niger, abdominis medio rufo, nigro maculato, femoribus tibiisque rufis, posticis apice nigro, coxis anterioribus, trochanteribus, maculis thoracis, facie et antennarum articulis 1 et 2 subtus flavis.* (Long. corp. $4\frac{1}{2}$ —5 lin.; Exp. Alar. 5— $7\frac{1}{2}$ lin.)

Me. *xanthostigma*. *Gravenhorst*, ii. 55.—*Steph. Nomen. 2d edit. Gen.* 714. 26.

Black: face, mouth, and cheeks yellow, with the tips of the mandibles and an impressed dot on the sides of the clypeus black; antennæ with the tip recurved, fuscous, rusty beneath, the 2 basal joints yellow; thorax with a dot below the wings, another and a sutural line before them, and a double spot on the breast, yellow; abdomen slightly silky, the 2 basal segments black; 3rd chestnut, with a lateral dot, and the extreme edge black; 4th black, with the tip chestnut, remainder black; legs moderate, 4 anterior red, with the coxæ and trochanters pale yellow; posterior red, coxæ black, trochanters pale yellow, the tips of the femora and of the tibiæ black, tarsi fuscous, with the base of the joints reddish; wings hyaline; cellule 3-angular, petiolated.

Also found near London in June, but not common.

Sp. 27. *fugax*. *Niger, abdominis medio rufo nigro maculato, femoribus fulvis, tibiis testaceis, picturis faciei et articulis 1 et 2 antennarum subtus flavis.* (Long. corp. 4— $5\frac{1}{2}$ lin.; Exp. Alar. 7—8 lin.)



Me. fugax. *Gravenhorst*, ii. 56.—*Steph. Nomen. 2d edit. Gen.* 714. 27.

Black: face yellow, black in the middle, clypeus and frequently a lateral dot yellow; palpi and mandibles yellow, the tip of the last fuscous; antennæ porrect, black, 2 basal joints yellow beneath, following sometimes rusty; abdomen variable, the 4 basal segments being more or less black at the base, and reddish or chestnut at the apex, the basal one sometimes totally black, and the last 3 always so; legs with the coxæ black, trochanters yellow, with the base generally black; femora testaceous-red, the posterior pair sometimes fuscous; tibiæ yellow or testaceous, with the tip of the hinder ones fuscous; tarsi testaceous, with the claws fuscous, the posterior pair fuscous, with the base paler; wings hyaline; cellule small, triangular, petiolated.

Taken in Norfolk.

Sp. 28. arridens. *Niger, lineis thoracis faeieque flavis, antennis tibiis tarsis et abdominis medio rufis.* (Long. corp. 4 lin.; Exp. Alar. $6\frac{1}{2}$ —7 lin.)

Me. arridens. *Gravenhorst*, i. 683.—*Steph. Nomen. 2d edit. Gen.* 714. 28.

Black: mouth and face yellow, the last with a short black line between the antennæ; these are involuted at the apex, fuscous, with the basal joint black, beneath yellow, and the sides reddish; thorax with a streak before the wings, another shorter perpendicular one on each side of the breast, yellow; abdomen oblong, basal joint black, with the peduncle linear, 2nd black, subquadrate, a little narrowed towards the base, 3rd and 4th chestnut-red, remainder black; legs slender, coxæ black, the anterior yellow beneath, trochanters black, anterior femora red, black at the base, middle black, with the tip red, posterior entirely black; tibiæ and tarsi red, anterior palest; wings somewhat smoky-hyaline; cellule minute, 3-angular, or wanting.

Found near London in June, and in Salop.

Sp. 29. Typhæ. *Niger, abdominis medio antennis pedibusque rufis, coxis anterioribus flavomaculatis, posticis nigris, facie flavâ.* (Long. corp. 3—6 lin.; Exp. Alar. 5—9 lin.)

Ich. Typhæ. *Fourcroy*, ii. 413.—Me. Typhæ. *Steph. Nomen. 2d edit. Gen.* 714. 29.

Black: mouth and face testaceous or yellow, the last sometimes black in the middle; mandibles black at the apex; antennæ with 1 or 2 basal joints black, yellow or reddish beneath, the rest either wholly red, or fuscous above; abdomen silky, slender, oblong-fusiform, slightly compressed at the apex, especially in the females; basal segment long, sublinear, black, the tip more or less red; 2nd, 3rd, and 4th red, or with the sides of each black, and the 6th with 2 obsolete black dots; 5th with the base red, the back sometimes chestnut; remainder black, with the extreme edges occasionally reddish; legs elongate, coxæ black; 4 anterior in the males yellow beneath, and partially so in the females; posterior occasionally chestnut above in the male, trochanters yellow or testaceous, hinder ones sometimes



fuscous or reddish above; femora and tibiae red, posterior at times with the tip dusky, the base of the hinder tibiae pale; tarsi tawny, hinder ones dusky; wings hyaline; cellule 3-angular, petiolated.

Not uncommon in the vicinity of London in June; taken also in Devonshire and Salop.

Sp. 30. *indefessus*. *Niger, abdominis medio antennis femoribus anterioribus tibiisque rufis, coxis omnibus femoribusque posticis nigris, facie flav.* (Long. corp. 6 lin.; Exp. Alar. 7—9 lin.)

Ic. *indefessus*. *Gravenhorst, Ped.* 111.—*Me. indefessus. Steph. Nomen.* 2d edit. Gen. 714. 30.

Black: face yellow; antennae red, the basal joint black, yellow beneath; abdomen with the 2nd to 4th segments chestnut-red; legs slender, 4 anterior fulvous, with the coxae black, and the trochanters sometimes yellow; posterior coxae and femora black, trochanters yellow, tibiae testaceous, fuscous at the tip; tarsi fuscous; wings somewhat hyaline; cellule irregularly 3-angular, petiolated.

Probably an odd variety of the foregoing species?

Taken near London in June and July.

Sp. 31. *memoralis*. *Niger, abdominis medio, femoribus anterioribus tibiisque rufis, harum posticis apice nigro, tarsis posticis medio albis: mas facie et coxis anterioribus flavis; foemina annulo antennarum albo.* (Long. corp. 4—4½ lin.; Exp. Alar. 7—8½ lin.)

Ic. *memoralis*. *Fourcroy*, ii. 416.—*Me. memoralis. Steph. Nomen.* 2d edit. Gen. 714. 31.

Black: male with the mouth and face yellow; antennae porrect, fuscous, with the basal joint pale yellow beneath, and the following pale red, the terminal ones entirely brown; female with the antennae incurved at the apex, fuscous, with about the first 12 joints red beneath, the 7 or 8 following entirely white, the remainder generally rusty beneath; abdomen ovate fusiform, or subclavate, basal segment black, with its apex red, or red, with the peduncle black, 2nd to 5th either totally red, or with a fuscous cloud on the back, or the 4th and 5th sometimes with the edge black, or the last totally black; remainder all black; legs slightly elongate, red, 4 anterior coxae of the male yellow, and posterior black, sometimes with a yellow spot; of the female all black, as well as the trochanters, which are yellow in the male, and the 4 anterior ones are sometimes slightly so beneath in the female; posterior femora, in both sexes, whitish-red, black from the middle to the apex; tarsi fuscous, with the 2nd or 3rd to 4th joints white; wings somewhat hyaline; cellule irregularly 3-angular, petiolated.

Not uncommon in the vicinity of London, in June, and in Salop.

Sp. 32. *suborbitalis*. *Niger, abdominis medio femoribusque anterioribus apice tibiisque rufis, harum posticis apice nigro, tarsis posticis medio orbitisque internis*



albis ; fœmina *annulo antennarum albo*. (Long. corp. 5—6 lin. ; Exp. Alar. 8—9 lin.)

Me. suborbitalis. *Steph. Nomen. 2d edit. Gen. 714. 32.*

Black : inner orbits partly white ; antennæ long, basal joint black, next 5 or 6 reddish-brown, 5 following white, remainder fuscous above, reddish below ; abdomen somewhat clavate, the basal segment black, with its margin red, the 2nd to 4th red, remainder black ; legs slender, coxæ and trochanters black, 4 anterior femora black at the base, fulvous at the apex ; posterior black ; tibiæ bright fulvous or red, the hinder pair black at the apex ; 4 anterior tarsi reddish, posterior pair fuscous, with the 2nd, 3rd, and 4th joints white ; wings smoky-hyaline ; cellule minute, 3-angular, petiolated.

Found near London, and in the New Forest, in June.

Sp. 33. *annulator. Niger, abdominis medio, femoribus anterioribus tibiisque rufis, annulo tarsorum posticorum antennarumque albo*. (Long. corp. 4 lin. ; Exp. Alar. 7 lin.)

Me. *annulator. Steph. Nomen. 2d edit. Gen. 714. 33.*

Black : antennæ with the basal joint black, the 10 following dusky above, next 3 white, remainder fuscous, all but the 1st red below ; abdomen with the peduncle black, its apex and the 1st to 4th segments red ; legs with the coxæ and trochanters black ; the 4 anterior femora red, with the base more or less black, tibiæ and tarsi pale fulvous ; posterior femora black, tibiæ red, with the apex black ; tarsi fuscous, with the 3rd and 4th joints white ; wings hyaline ; cellule 3-angular, petiolated.

Also found in the vicinity of London, in June.

Sp. 34. *mirabilis. Niger, abdominis medio, femoribus tibiisque anterioribus rufis, tarsi postici annulo albo, areola cubitali interni nervura fere subdividente*. (Long. corp. 4 lin. ; Exp. Alar. 9 lin.)

Me. *mirabilis. Steph. Nomen. 2d edit. Gen. 714. 34.*

Black : mandibles pitchy ; antennæ involuted at the tip, dusky-black, the 12th and 13th joints above white, the 3rd to about the 10th reddish beneath ; thorax with a yellow dot before the wings ; abdomen with the basal segment black, its extreme margin and the 3 following segments red, the remainder black ; legs with all the coxæ and trochanters black ; 4 anterior femora, tibiæ, and tarsi light red, the extreme base of the former black ; posterior legs black, with the extreme tip of the femora and an indistinct ring towards the base of the tibiæ reddish ; tarsi with the 3rd and 4th joints white ; wings hyaline, with the external cubital areolet nearly divided by a nervure, placed differently in the 2 opposite wings ; cellule minute, 3-angular, petiolated.

This extraordinary insect is singularly intermediate between the Ichneumonidæ and Braconidæ.

Found at Coombe wood in June.

Sp. 35. *regenerator. Niger, abdominis medio rufo, femoribus tibiisque rufis,*



posticis apice nigro, annulo antennarum et tarsorum posticorum albo; cellula minutâ petiolatâ. (Long. corp. 4—5 lin.; Exp. Alar. 7—8½ lin.)

Ic. regenerator. *Fabricius, Piez.* 83.—*Me. regenerator. Steph. Nomen. 2d edit. Gen.* 714. 35.

Black: palpi dull white; antennæ with the 3rd to 8th joints ferruginous beneath, 12 to 18th entirely white; abdomen with the basal segment black, with the extreme margin chestnut; 2nd to 4th red, the 4th clouded with black, 3 terminal ones black; legs red, coxæ, trochanters, and claws black; the tips of the hinder femora and of the tibiæ black; middle tarsi with the 3rd and 4th joints white, posterior pair black, with the tip of the 2nd joint, and the whole of the 3rd and 4th white; wings smoky-hyaline; cellule minute, triangular, with a long petiole.

Taken at Darenth wood in June.

Sp. 36. defectivus. *Niger, abdominis medio rufo, femoribus tibiisque anterioribus totis, posticis basi rufis, antennarum annulo albo, cellula nulla.* (Long. corp. 4½ lin.; Exp. Alar. 7 lin.)

Me. defectivus. Gravenhorst, ii. 77.—*Steph. Nomen. 2d edit. Gen.* 714. 36.

Black: antennæ shortish, curved at the tip, 13th to 15th joints white; abdomen slightly petiolated, the basal segment smooth, black, 2nd to 4th chestnut-red, the edge of the 4th dusky, the remainder black; ovipositor not exerted; legs red, 4 anterior with the coxæ and trochanters black, posterior black, with the base of the femora and of the tibiæ red; wings hyaline; cellule wanting.

Also found in June at Darenth wood.

Sp. 37. mundus. *Niger, abdominis medio rufo, pedibus nigris, femoribus anterioribus pro parte rufis, tibiis rufis; mas tibiis posticis apice nigris, antennis subtus rufis; femina antennis rufis, articulo 1-mo rufo.* (Long. corp. 3½—5 lin.; Exp. Alar. 6—9 lin.)

Me. mundus. Gravenhorst, ii. 78.—*Steph. Nomen. 2d edit. Gen.* 714. 37.

Black: palpi pale; mandibles red in the middle; antennæ of the male fuscous, beneath red, the basal joint frequently black; of the female fulvous, the basal joint black, the remainder more or less fuscous above; abdomen with the basal segment black, red at the tip in the female, 2nd to 4th red, remainder all black; legs moderate, 6 anterior fulvous or yellow, coxæ and trochanters black, and their femora more or less black at the base; posterior black, the extreme tip of the femora in the males chestnut, tibiæ red, their apex blackish in the male, and their tarsi fuscous; wings somewhat hyaline; cellule irregularly 3-angular, petiolated.

Taken in June near London, and in Devonshire and Salop.

Sp. 38. rufoniger. *Niger, abdominis medio pedibusque rufis, femoribus posticis, coxis et trochanteribus nigris.* (Long. corp. 3½—4½ lin.; Exp. Alar. 6½—8½ lin.)

Me. rufoniger. Gravenhorst, ii. 80.—*Steph. Nomen. 2d edit. Gen.* 714. 38.



Black: antennæ slender, ferruginous, sometimes a little dusky at the tip above; abdomen somewhat lanceolate, basal segment black, with the margin red, 2nd to 4th red or chestnut, 5th red or black, 6th and 7th black, with the edge sometimes whitish; legs rather slender, 4 anterior testaceous-red, coxæ and trochanters for the most part black; posterior black, with the tip of the trochanters red, tibiæ red, with their apex dusky or blackish, tarsi rusty-brown; wings hyaline, iridescent; cellule irregular, somewhat petiolated.

Found near London and in the New Forest, in June.

Sp. 39. *sulphuratus*. *Niger, abdominis medio testaceo, tibiis flavis, posticis apice nigro; mas facie flavâ, femoribus anterioribus fulvis; fœmina facie nigrâ, femoribus anterioribus nigris apice rufo.* (Long. corp. $6\frac{1}{2}$ lin.; Exp. Alar. $11\frac{1}{2}$ lin.)

Me. *sulphuratus*. *Gravenhorst*, ii. 81.—*Steph. Nomen*. 2d edit. Gen. 714. 39.

Black: male with the mouth and face yellow, the tip of the mandibles brown; female, with the palpi and a spot on the mandibles red; antennæ of the male brown, beneath ferruginous, with a yellow spot on the basal joint; of the female red, with the basal joint black; abdomen elongate-fusiform, or clavate, compressed, basal segment smooth, black, reddish at the tip, 3 following testaceous-red, the edge of the 4th sometimes black, 5th to 7th black; legs, of the male, with the 4 anterior coxæ entirely black, or with the tip yellow; trochanters yellow, red, or black; femora tawny, tibiæ and tarsi yellow; posterior with the coxæ and femora black, trochanters yellow, with 2 fuscous dots, or black, with the tip fulvous; tibiæ yellow, black from the middle to the apex; tarsi rusty; of the female black, 4 anterior femora red at the tip, tibiæ yellow, the middle pair towards the apex and the hinder ones at the apex black; tarsi red, posterior black; wings yellowish-hyaline; cellule somewhat 3-angular or orbicular, petiolated.

Rare: taken near London and in Salop, in June.

Sp. 40. *delusor*. *Niger, segmentis 2-5 rufis, femoribus tibiisque rufis, posticis apice nigricantibus.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Ic. *delusor*. *Linné*.—*Ophion delusor*. *Steph. Catal*. 351. No. 4638.

Black: antennæ porrect, rather short; abdomen oblong-ovate, basal segment black, with its extreme margin chestnut; the lateral tubercles prominent; 2nd to 5th red, 6th and 7th fuscous; legs moderate, red, with the coxæ and trochanters black, the posterior also with the knees black, the tarsi and tips of the tibiæ blackish; wings rather smoky-hyaline; cellule none.

Rare: found in June near London.

Sp. 41. *fortipes*. *Niger, femoribus posticis subclavatis, rufis, basi nigrâ, segmentis 2-6 et antennarum apice rufis; mas facie flavâ, pedibus anterioribus flavis, femorum basi nigrâ; fœmina facie nigrâ, pedibus anterioribus nigris apice femorum tibiisque rufis.* (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. 5—9 lin.)

Me. *fortipes*. *Gravenhorst*, ii. 85.—*Steph. Nomen*. 2d edit. Gen. 714. 41.

Black: male with the face and mouth yellow, sometimes with a black dot on

MANDIBULATA, VOL. VII., NOV. 30TH, 1835.

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the clypeus, female with the palpi straw-coloured; antennæ above fuscous, beneath testaceous or fulvous, the 2 basal joints black, yellow beneath in the male, the terminal ones entirely red; abdomen silky, oblong in the male, ovate-pear-shaped and a little depressed in the female, basal segment black, tip sometimes red, 2nd to 6th red, base of the 2nd occasionally blackish in the male, and the 7th blackish in both sexes; legs moderate, the posterior femora considerably incrassated, 4 anterior yellow; of the male, the former more or less black at the base, black in the female, with the extreme tip of the femora and the tibiæ red; in both sexes the hinder femora are red, black at the base, the tibiæ black, more or less red at the base; wings smoky-hyaline; cellule wanting.

Not very uncommon in several parts of the country in June and July: taken at Coombe and Darenth woods, in the New Forest, at Netley, &c.

Sp. 42. fuscicornis. *Niger, segmentis 1-3, antennis femoribus tibiisque anterioribus, nec non basi tibiæ posticarum, rufis.* (Long. corp. 4—5½ lin.; Exp. Alar. 7—9 lin.)

Ich. fuscicornis. *Gmelin.*—*Me. fuscicornis. Steph. Nomen. 2d edit. Gen. 714. 42.*

Black: palpi and mandibles, and occasionally a dot on the clypeus rusty or straw-colour, with the base and apex of the mandibles black; antennæ with the basal joint black, slightly rusty beneath at times, the remainder fulvous, sometimes fuscous above; abdomen pear-shaped, red or chestnut, the 5th segment occasionally with the margin or a dorsal spot black, the 6th and 7th black; ovipositor short, a little bent; legs elongate; 4 anterior red, with the coxæ and trochanters black, and the base of the middle femora sometimes blackish; posterior black, tibiæ either red, with a black tip, or blackish, with the base reddish; tarsi dusky, the intermediate joints rusty- or dull whitish: wings somewhat smoky-hyaline; cellule irregularly 3-angular, petiolated, sometimes minute.

Not uncommon in the vicinity of the metropolis in June; also found at Dover and in Devonshire.

Sp. 43. seminiger. *Niger, segmentis 2-7, pedibus, antennis facieque fulvis.* (Long. corp. 3½—4½ lin.; Exp. Alar. 5—7½ lin.)

Me. seminiger. Gravenhorst, ii. 93.—Steph. Nomen. 2d edit. Gen. 714. 43.

Black: face, cheeks, and mouth fulvous; tips of the mandibles black; antennæ thin, long, rusty or red, sometimes a little dusky above; abdomen tawny-red or testaceous, the apex truncate and somewhat compressed, the basal segment dusky or black, with its tip fulvous; legs dull pale red; wings rather narrow, hyaline; cellule somewhat 3-angular, or orbicular, slightly petiolated.

Taken at Coombe and Darenth woods in June; also in Salop.



Sp. 44. *spilonotus*. *Rufus, oculis, vertice, ocellis, thorace (lateribus colli excepto) abdominis segmento 1-mo maculâque 2-di dorso nigris.* (Long. corp. 4—4½ lin.; Exp. Alar. 7—8 lin.)

Mes. *spilonotus*. *Steph. Nomen. 2d edit. Gen. 714. 44.*

Head pale red; tips of the mandibles pitchy; eyes and ocelli, and a square patch in which the latter are placed black; thorax black, with a pale red triangular patch on the sides of the collar; abdomen with its basal segment black, the remainder pale red, with a round black dot in the middle of the back of the 2nd; legs pale red, hinder coxæ blackish at the base; wings hyaline; stigma fulvous; cellule suborbicular, petiolated.

Apparently very rare; I have taken specimens at Coombe and Darenth woods in June.

Sp. 45. *filicornis*. *Niger, abdominis medio, ore, pedibusque testaceis, femoribus posticis nigricantibus.* (Long. corp. 3—4¾ lin.; Exp. Alar. 5—8 lin.)

Me. *filicornis*. *Gravenhorst, ii. 94.—Steph. Nomen. 2d edit. Gen. 714. 45.*

Black: mouth and clypeus pale red or straw-colour, and sometimes in the male a faint chestnut spot on the face; antennæ slender, porrect, incurved at the tip, red in the female, ferruginous at the base and fuscous at the tip in the male; abdomen slightly silky, a little compressed at the apex in the females, basal segment black, with the margin sometimes reddish; 2nd to 4th red, or chestnut, the base of the 2nd and margin of the 3rd sometimes dusky; 5th to 7th black, the former sometimes chestnut at the base or before the margin; legs slender, red or testaceous, with the hinder femora entirely, or in the middle alone, dusky or black; wings hyaline; cellule somewhat orbicular, and slightly petiolated.

Found in June near London, and at Netley.

Sp. 46. *variator*. *Niger, abdominis medio, pedibusque rufis, facie flavâ.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7½ lin.)

Ic. *variator*. *Gravenhorst, Ped. 118.—Me. variator. Steph. Nomen. 2d edit. Gen. 714. 46.*

Black: face and mouth yellow, with the tip of the mandibles fuscous; antennæ fuscous, with the 1st to about the 5th joints rusty; abdomen with the basal segment black, with its margin reddish, 2nd to 4th red, remainder black, with the base and a lateral spot on the sides of the 5th chestnut; legs pale red; posterior femora fuscous towards the apex; wings hyaline; cellule somewhat 3-angular, petiolated.

Taken within the metropolitan district in June.

Sp. 47. *sternoleucus*. *Niger, abdominis medio pedibusque fulvis, tibiis posticis apice nigro, coxis pectore et facie albis.* (Long. corp. 4—4½ lin.; Exp. Alar. 6—8 lin.)

Me. *sternoleucus*. *Gravenhorst, ii. 99.—Steph. Nomen. 2d edit. Gen. 714. 47.*

Black: mouth, face, and cheeks white; antennæ fuscous, with the 2 basal joints

below white, and the remainder testaceous; thorax with the neck, breast, and the lateral sutures before the wings white; abdomen with the basal segment black, the 2nd to 4th testaceous-red, the 4th often with a black lateral spot, remainder black, with the anal membrane whitish; 4 anterior legs testaceous, with the coxæ and trochanters whitish-straw, as are also the posterior ones, their femora are tawny, the tibiæ pale testaceous, with the tip black and the tarsi black; wings somewhat hyaline; cellule very minute, or totally wanting.

Found near London and in the New Forest, about June.

Sp. 48. *luridator*. *Niger*, segmentis 2-4, pedibusque rufis aut testaceis. (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Mes. *luridator*. *Gravenhorst*, ii. 100.—*Steph. Nomen*. 2d edit. *Gen*. 715. 48.

Black: mouth red, clypeus straw-coloured; antennæ ferruginous in the male, red in the female, with the basal joint fuscous; thorax of the male with 2 small acute tubercles on the metathorax; abdomen slender, fusiform in the male, broader and somewhat pear-shaped in the female; the basal joint black, reddish on the margin in the male, 2nd to 4th red, remainder black, with the edges paler; legs moderate, rather slender, and with the coxæ fuscous in the male; of the female the 4 anterior are tawny-testaceous, with the coxæ paler, posterior fulvous, with the coxæ and trochanters paler, the extreme base of the former, with the tip of the tibiæ and the tarsi entirely blackish; wings ample, yellowish-hyaline; cellule indistinctly 3-angular, petiolated.

Found, but rarely, near Coombe wood, in June.

Sp. 49. *gracilis*. *Niger*, abdomine, antennis, pedibusque posticis rufis, facie pedibusque anterioribus flavis. (Long. corp. 3½ lin.; Exp. Alar. 5½ lin.)

Me. *gracilis*. *Steph. Nomen*. 2d edit. *Gen*. 714. 49.

Black: mouth and face yellow; antennæ slender, incurved at the tip, pale red, with the basal joint yellow beneath; thorax with a yellow dot at the base of the wings; abdomen slender, silky, pale red, the peduncle black; legs moderate, 4 anterior pale yellowish-red, coxæ and trochanters yellow; posterior red, the femora rather short and thick, trochanters yellow; wings ample, hyaline; cellule 3-angular, petiolated.

Taken at Hertford in June.

Sp. 50. *subcompressus*. *Niger*, abdomine subcompresso, segmentis 2-5, antennis pedibusque fulvis, trochanteribus, coxis anterioribus, ore facieque flavis. (Long. corp. 4 lin.; Exp. Alar. 7½ lin.)

Me. *subcompressus*. *Steph. Nomen*. 2d edit. *Gen*. 714. 50.

Black, slender; mouth and face yellow; tips of the mandibles black; antennæ red, the 2 basal joints yellow beneath; abdomen very slender, subcompressed, the peduncles and basal segment black, 2nd to 5th pale red, 6th and 7th black; legs moderate, 4 anterior pale red, coxæ and trochanters



yellow; tarsi a little dusky towards the apex; wings ample, smoky-hyaline; cellule 3-angular, slightly petiolated.

Taken in June at Darenth wood: rare.

Sp. 51. *geniculosus*. *Niger, abdominis medio, antennæ pedibusque rufis, femoribus tibiisque posticis apice nigris, ore flavo.* (Long. corp. $3\frac{1}{2}$ — $4\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ —8 lin.)

Me. *geniculosus*. *Gravenhorst*, ii. 102.—*Steph. Nomen. 2d edit. Gen. 714. 51.* Black: mouth yellow; mandibles black at the tip and base; antennæ incurved at the tip, rusty-red, obscure above, the basal joint blackish, reddish or yellow beneath; abdomen oblong, basal segment black, its apex red, 2nd to 4th red, remainder black, the 5th, though rarely, with its base red; legs moderate; 4 anterior either entirely yellow, or fulvous, with the coxæ and trochanters yellow, posterior red, trochanters yellow, the tips of the femora and of the tibiæ black, the tibiæ sometimes yellowish towards the base; tarsi red; wings stained hyaline; cellule minute, 3-angular, petiolated.

Also taken near London, in June and July.

Sp. 52. *Antilope*. *Niger, abdomine rufo, segmentis 5-7 dorso nigricante, pedibus rufis, thorace ferrugineo maculato, antennæ 3-coloribus.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. $5\frac{1}{2}$ —8 lin.)

Me. *Antilope*. *Gravenhorst*, ii. 104.—*Steph. Nomen. 2d edit. Gen. 714. 52.*

Black: palpi straw-colour; head sometimes with 2 reddish-brown spots below, and 2 above, the antennæ, the latter porrect, the 4 basal joints rusty, the 1st dusky above, 5 next black, 10th to 15th white, the remainder black; thorax with a line or dot before the wings, another below, and sometimes a spot on the sides of the metathorax ferruginous; abdomen ovate pear-shaped, red, with the 3 terminal segments dusky above; ovipositor very short, a little exserted and curved upwards; legs moderate, red, the base of the trochanters sometimes black, the posterior with the tips of the femora and of the tibiæ sometimes obscurely dusky; wings somewhat hyaline, with a minute 3-angular cellule, or none.

Found near London, in June and July.

Sp. 53. *rufocinctus*. *Niger, segmenti 3-tii dorso rufo, tibiis anterioribus femoribusque rufis, tibiis posticis albidis apice nigro.* (Long. corp. 3 lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Me. *rufocinctus*. *Gravenhorst*, i. 686.—*Steph. Nomen. 2d edit. Gen. 714. 53.*

Black: palpi whitish; antennæ curved, rusty towards the apex; abdomen oblong-ovate, the 1st segment black, 2nd subquadrate, also black, 3rd transverse, chestnut-red, towards the margin and on the sides black, the remainder black; legs moderate, 4 anterior pale red, with the trochanters yellowish and coxæ black; posterior with the coxæ and trochanters black, the latter yellowish at the tip; femora red, with the base and extreme apex black; tibiæ whitish, with the tip black; tarsi fuscous; wings somewhat hyaline, iridescent; cellule 3-angular-transverse, petiolated.



Found within the metropolitan district; also in the New Forest and in Norfolk, in June.

Sp. 54. *lævigatus*. *Niger, segmentis 2 et 3, femoribus tibiisque anterioribus totis, posticis pro parte, rufis.* (Long. corp. $2\frac{1}{2}$ —5 lin.; Exp. Alar. 4—7 lin.)

Me. *lævigatus*. *Gravenhorst*, ii. 111.—*Steph. Nomen. 2a edit. Gen.* 714. 54.

Black: palpi ferruginous or fuscous; mandibles sometimes rusty; antennæ black, the 3rd to 5th joints sometimes ferruginous beneath, the remainder obscure fuscous, in the female generally of that colour below; abdomen very smooth and glossy, broad, oblong-ovate, rather acute in the female; basal segment long, slender, with 2 elevated lines, black, 2nd and 3rd red, 4th to 7th black, and silky in the male; legs moderate, or slenderish; 4 anterior red, with the coxæ and trochanters black, posterior black, tibiæ reddish, with the base and apex, or the apex alone black, femora sometimes reddish at the base, or with the convex side chestnut, rarely red, with the base alone black; wings somewhat hyaline; cellule obscurely 5-angular, the outer nervure being obsolete.

Not uncommon at Darenth wood, and in other places within the metropolitan district, about June.

Sp. 55.**decipiens*. *Niger, segmento 2do et petioli basi castaneis, pedibus fuscis, femorum basi et apice testaceis, tibiis posticis ferrugineis apice nigro.* (Long. corp. 2 lin.; Exp. Alar. $3\frac{1}{2}$ lin.)

Me. *decipiens*. *Gravenhorst*, ii. 116.—*Steph. Nomen. 2d edit. Gen.* 714. 55.

Black: antennæ rather short, rusty-brown, with the basal joint black; abdomen lanceolate, or oblong-ovate, with the 1st segment black, its peduncle chestnut-red towards the base, the 2nd chestnut, with the margin paler, the remainder black, or the 3 first segments black, with the margins fulvous; legs moderate, brown, with the base and apex of the femora pitchy-testaceous, posterior tibiæ red, with the tip dusky; wings smoky-hyaline; cellule somewhat 5-angular, incomplete.

Found not very commonly in the vicinity of London; taken also in Norfolk in July.

* I am fully aware of the existence of other species of this genus; but, unfortunately, circumstances oblige me to remain silent respecting them:—having recently selected nearly all the unascertained and nondescript species thereof from my cabinets, and placed them on a setting-board in a closet for examination and description, the greater portion of them were so sadly mutilated by *Blattæ* during the only night they were so exposed, as to render their investigation unsatisfactory: I hope, however, to be enabled to ascertain some of them in time for the Appendix, to which I must beg the reader to refer.

I may here take the opportunity of remarking, that although in very numerous instances Gravenhorst has drawn up his descriptions from single specimens



GENUS XLV.—TRYPHON, *Fallen.*

Antennæ slender or moderate, either as long as, or shorter than, the body, with the apex more or less curved, in rare instances a little thickened in the middle: *head* generally the width of the thorax, or rather narrower, rarely broader, in 2 instances with a frontal horn: *eyes* ovate, or a little orbiculate, more or less prominent: *thorax* gibbous, or somewhat globose: *scutellum* convex, 3-angular, with the apex obtuse: *wings* moderate; cellule 3-angular, or suborbiculate, sometimes minute, and occasionally wanting; rarely 5-angular; the inner nervure of the exterior cubital areolet sometimes producing the rudiment of the divisional nervure, which forms so prominent a character in the *Ichneumon*es adsciti: *abdomen* subsessile or slightly petiolated, rarely sessile, oblong, or a trifle lanceolated, or subclavate; the basal segment channelled, the lateral tubercles generally placed beyond the middle; in the females the apex of the abdomen is slightly thickened, and at times a little compressed: *ovipositor* very short, and slightly exserted; *legs* mostly short or moderate; in a few instances rather elongate and slender; in others short, and with the femora thickened.

Of all the genera of Ichneumonidæ, none, perhaps, is composed of more dissimilar subjects, so that it becomes extremely difficult to draw the line of demarcation between many of them and those of allied genera: one set of species is closely allied to the genus *Bassus*, others to *Mesoleptus*, some again to *Phygadeuon*, and others to *Stilbonota*; in fact, the genus is, apparently, a magazine for placing all strange species that will not readily assimilate elsewhere: from amongst these discordant insects we are informed, by Mr. Curtis, that the genus *Cteniscus* has been formed by Mr. Haliday, to embrace *Tr. 6-litatus* and its congeners: another genus might be, with equal propriety, formed of *Tr. elegantulus*, a third from *Tr. insolens*, &c., and will doubtless be eventually formed.

§ I. *Scutellum* and *abdomen* black, with the extreme edges of the segments frequently pale.

Sp. 1. *niger*. *Niger, facie et tibiæ posticarum medio albo-testaceis, pedibus anterioribus rufis, trochanteribus stramineis, coxis nigris.* (Long. corp. $\frac{4}{5}$ —5 lin.; Exp. Alar. $7\frac{1}{2}$ —8 lin.)

only, I have been enabled to verify his species, in many cases, as such, from having been nearly as great a length of time (above 25 years) in accumulating indigenous species, as the learned Professor was in collecting European ones; but the subject is of so great an extent, that although I may give a tolerable epitome of the numbers found in this country, much remains to be performed.



Tr. niger. *Gravenhorst*, ii. 126.—*Steph. Nomen. 2d edit. Gen.* 715. 1.

Black: mouth and face straw-colour; mandibles black at the tip; antennæ straw-colour, above ferruginous, red towards the apex; thorax with a whitish dot at the base of the wings; ovipositor extremely short, slightly exerted; legs rather slender, 4 anterior pale red, coxæ black, with a straw-coloured dot at the apex, trochanters straw-colour; posterior legs black, with the tip of the trochanters pale straw, tibiæ straw colour, with the extreme base and the apex black; tarsi testaceous-brown; wings slightly smoky-hyaline; cellule irregularly 3-angular, somewhat sessile.

Rare: found in the beginning of June at Darenth wood.

Sp. 2. *prærogator. Niger, ore pedibusque fulvis, coxis posticis antennisque maris fuscis; fœminæ fulvis.* (Long. corp. 3—5½ lin.; Exp. Alar. 4—8½ lin.)

Ich. *prærogator. Linné.*—Try. *prærogator. Steph. Catal.* 351. No. 4472.

Black: palpi and mandibles fulvous, the apex of the last black, labrum and margin of the clypeus fulvous; antennæ a little curved at the apex; of the male entirely black-brown, of the female rusty-fulvous, more or less fuscous towards the base; abdomen of the male narrow and somewhat linear; of the female as wide as the thorax and oblong, thickened at the apex, 2nd and 3rd segments with their edges sometimes a little fuscous; legs moderate, fulvous, the hinder pair with the extreme tips of the femora and of the tibiæ, and also the basal joint of the tarsi dusky; the posterior coxæ, and rarely also the middle pair of the male black; wings somewhat hyaline, of a glaucous hue; cellule large, transverse, regularly 3-angular, more or less petiolated.

The posterior femora are sometimes dusky.

Extremely abundant in some parts of the country in June and July: common at Darenth and Coombe woods, near Hertford, &c.

Sp. 3. *flavilabris. Sericans, niger, pedibus fulvis, ore labroque flavo.* (Long. corp. 4—5¼ lin.; Exp. Alar. 7—9 lin.)

Tr. *flavilabris. Steph. Nomen. 2d edit. Gen.* 715. 3.

Black, silky and very glossy: palpi pale; mouth and labrum yellow, tip of the mandibles black; antennæ black, a little fuscous at the apex in both sexes, and incurved; abdomen elongate, subclavate, and somewhat sessile; legs in both sexes entirely pale fulvous; wings glossy, hyaline; cellule 3-angular, sessile and regular.

Apparently not uncommon, at least within the metropolitan district, and in Salop, at the end of summer.

Sp. 4. *compunctor. Niger, sericeus, pedibus rufis, coxis et tibiæ posticarum apice nigris, ore et antennis ferrugineis.* (Long. corp. 3—5 lin.; Exp. Alar. 5—7½ lin.)

Ich. *compunctor. Linné.*—*Steph. Catal.* 345. No. 4315.

Black: mouth ferruginous, the base and apex of the mandibles black;



antennæ either red, paler beneath, or rusty, with the tip fuscous, the basal joint always black; abdomen silky, of the male linear, of the female a little thickened at the apex, and in general with the 2nd and 3rd segments with the extreme margin somewhat testaceous, and those of the 6th and 7th a little whitish; legs red or tawny; coxæ black, the tip of the hinder tibiæ black, their tarsi generally dusky, with the base of the 1st joint pale; wings hyaline; cellule irregularly 3-angular, and slightly petiolated.

Taken, but very rarely, near London, in June.

Sp. 5. clypeator. *Niger, clypeo pedibusque rufis, coxis et trochanteribus nigris, abdomine incisuris 1-4 rufescentibus.* (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Me. clypeator. *Gravenhorst*, ii. 131.—*Steph. Nomen. 2d edit. Gen.* 715. 5.

Black: clypeus and mandibles red, face slightly silky; abdomen somewhat linear, with the 1st to 5th segments a little broadest, the 1st to 4th incisures reddish; legs red, the coxæ and trochanters black; wings rather smoky-hyaline; cellule somewhat irregularly 3-angular, petiolated.

Also found, in June, near London, but very scarce.

Sp. 6. alacer. *Niger, ore pedibusque rufis, horum posticis apice tibiæ tarsisque nigris.* (Long. corp. 4½ lin.; Exp. Alar. 7½ lin.)

Me. alacer. *Gravenhorst*, ii. 132.—*Steph. Nomen. 2d edit. Gen.* 715. 6.

Black: mouth dull red, with the tips of the mandibles black; antennæ rather longer than the body, with the apex a little curved; abdomen silky, with the extreme margins of the segments somewhat chestnut; legs rather slender, red, with the hinder tibiæ and tarsi black, the former reddish towards the base; wings hyaline; cellule irregular, obliquely petiolated.

Taken in June in the vicinity of the metropolis.

Sp. 7. caligatus. *Niger, ore, puncto scutellari pedibusque rufis, tarsis et tibiis posticis nigris, his ante basin rufo-albidis; mas facie flavâ.* (Long. corp. 4—5½ lin.; Exp. Alar. 7¼—9 lin.)

Tr. caligatus. *Gravenhorst*, ii. 170.—*Steph. Nomen. 2d edit. Gen.* 715. 7.

Black: male with the face and mouth yellow, female with the mouth red; antennæ ferruginous, sometimes fuscous above, the 1st to 3rd joints black beneath; thorax with a whitish or reddish spot before the wings, another beneath, and sometimes a 3rd beneath the scutellum, and a minute dot of the same at the tip of the scutellum; abdomen rather slender, very glossy; legs red, posterior pair with the tibiæ and tarsi black, the former palish or reddish towards the base; wings somewhat hyaline; cellule wanting, or minute, 3-angular, and petiolated.

Taken near London, at the end of June.

Sp. 8. nitidus. *Niger, pedibus rufis, trochanteribus posticis coxisque nigris.* (Long. corp. 5 lin.; Exp. Alar. 8½ lin.)

Tr. nitidus. *Gravenhorst*, ii. 134.—*Steph. Nomen. 2d edit. Gen.* 715. 8.

Black: palpi and labrum rusty-red; antennæ slender, shorter than the body,



the tip curved; abdomen smooth, shining, narrower than the head and thorax, the basal segment distinctly widened towards its apex, the 2nd to 6th of equal width; legs slender, tawny-red, the coxæ black, with the extreme tip red, the hinder trochanters black above, and the posterior tarsi fuscous; wings hyaline, iridescent; cellule irregularly 3-angular, petiolated.

Found, in July, at Darenth wood.

Sp. 9. maculicollis. *Niger, pedibus rufis, coxis et trochanteribus anterioribus pallidioribus, tarsis posticis et tibiæ posticarum apice nigris, ore et macula ante alas flavis, cellula nullâ.* (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Tr. maculicollis. *Steph. Nomen. 2d edit. Gen. 715. 9.*

Black, shining; mouth bright yellow, with the tips of the mandibles black; thorax with a light yellow dot before the wings, at the base; abdomen glossy, smooth, with the extreme edge of the 4 last segments whitish; legs tawny-red, with the 4 anterior coxæ and trochanters paler, or yellowish; hinder tarsi and their tibiæ at the apex black; wings hyaline; cellule wanting.

Found in July near London.

Sp. 10. integrator. *Niger, pedibus rufis, posticorum tarsis et tibiæ apice nigris, ore flavo; mas facie flavâ.* (Long. corp. $2\frac{1}{2}$ —4 lin.; Exp. Alar. 4—7 lin.)

Ich. integrator. *Muller Prod. No. 1824.—Tr. integrator. Steph. Nomen. 2d edit. Gen. 715. 10.*

Black; mouth yellow; male with the face yellow, sometimes with a short longitudinal black line; antennæ slender, the 3 basal joints black (the 1st rarely yellow beneath), the remainder generally reddish, or rarely red; abdomen of a silky hue, with a bluish tint; legs red, the apex of the hinder tibiæ and their tarsi entirely black; wings slightly smoky-hyaline; cellule irregularly 3-angular, petiolated.

Taken, but rarely, near London, and in the New Forest, in June.

Sp. 11. subnitidus. *Niger, segmentorum marginibus flavicantibus, femoribus tibiisque anterioribus subtus stramineis, ore et antennis subtus flavis.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. subnitidus. *Gravenhorst, ii. 144.—Steph. Nomen. 2d edit. Gen. 715. 11.*

Black; mouth yellow, with the base and apex of the mandibles black; antennæ short, and in general dull reddish or yellowish beneath, with the 3 basal joints black; abdomen with the basal segment channelled and entirely black, the remainder with the extreme margins pale whitish yellow, with a reddish tint on the sides of the 4th to 6th; legs moderate; 4 anterior with the coxæ and trochanters black, their femora black, pitchy straw-colour beneath, tibiæ and tarsi obscure red-brown, beneath straw-colour; posterior black, with the tarsi fuscous; wings somewhat hyaline; cellule irregularly 3-angular, petiolated.

The femora are sometimes entirely red above.



Found at the Hermitage in August, and in other places within the metropolitan district; apparently not common.

Sp. 12. *scalaris*. *Niger, marginibus dorsalibus segmentorum facie et lineâ ante alas, albidis, pedibus fulvis, coxis posticis nigris, antennis subtus ferrugineis, articulis 1 et 2 albidis.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7 lin.)

Tr. *scalaris*. *Gravenhorst*, ii. 149.—*Steph. Nomen. 2d edit. Gen.* 715. 12.

Black: face, mouth, and cheeks whitish-yellow; base of the mandibles, and sometimes 3 dots beneath the antennæ, black; antennæ fuscous above, rusty beneath, with the 1 or 2 basal joints whitish; thorax with an irregular streak on the margin of the collar, and a dot below the wings yellowish-white; abdomen oblong, somewhat sessile, basal segment with 2 slightly elevated lines, and frequently with a white dot on its dorsal edge, the remaining ones with a marginal dorsal line or dot, of similar hue; legs red; 4 anterior coxæ and trochanters pale yellow; posterior coxæ black, with the tip and their trochanters pale yellow beneath, the latter above black, with the apex tawny, the apex of the tibiæ and the tarsi fuscous; wings hyaline; cellule irregularly 3-angular, petiolated.

Found at Coombe wood in June: rare.

Sp. 13. *calcator*. *Niger, pedibus fulvis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 4— $5\frac{1}{2}$ lin.)

Tr. *calcator*. *Gravenhorst*, ii. 138.—*Steph. Nomen. 2d edit. Gen.* 715. 13.

Black: labrum and mandibles ferruginous; antennæ rather above half the length of the body, slightly curved at the tip, blackish, a little rusty towards the apex; scutellum elevated; abdomen subsessile, as broad as the thorax, ovate, and a little depressed, the 4 basal segments with a more or less distinct channel, the basal one nearly as broad as long, slightly narrowed towards the peduncle; the margins of the 2 next narrowly edged with chestnut; legs short, entirely tawny-red; wings moderate, hyaline; cellule wanting.

Scarce: taken in July, near London.

Sp. 14. *pinguis*. *Niger, marginibus segmentorum rufescentibus, pedibus flavis posticorum coxis et femoribus, nec non tibiæ et articularum tarsi apicibus nigris: fœmina antennis subtus ferrugineis.* (Long. corp. 3—4 lin.; Exp. Alar. 5— $7\frac{1}{2}$ lin.)

Tr. *pinguis*. *Gravenhorst*, ii. 150.—*Steph. Nomen. 2d edit. Gen.* 715. 14.

Black and silky: male with the palpi and labrum red, mandibles yellow; female with the mouth yellowish, the tips of the mandibles black; antennæ shorter than the body, of the male rusty-brown beneath, with the basal joint yellow; of the female with the 2 basal joints yellow, 3rd black, the remainder generally ferruginous; abdomen rather broad, especially in the female, oblong or ovate, somewhat sessile; the extreme margins of the segments red or chestnut; legs more slender in the male than in the female, 4 anterior yellow, the coxæ black, yellow beneath; femora tawny without,



black towards the base, posterior coxæ black, trochanters yellow; femora black, with the extreme tip yellow, tibiæ whitish or yellow, with the apex black; hinder tarsi of the male black, with the base of the first 3 joints white, of the female fulvous, with the tips of all the joints black.

The females of this, as also of *Tr. varitarsus*, and other species, are remarkable for bearing a mass of vesicular appendages beneath the abdomen.

Not common: taken at Darenth wood in May, and in other places within the metropolitan district.

Sp. 15. *nævius*. *Niger, marginibus segmentorum summis albidis, pedibus rufis, posticorum tarsis et tibiæ apice fuscis, facie et thoracis picturis flavis.* (Long. corp. $2\frac{1}{2}$ —4 lin.; Exp. Alar. 4—7 lin.)

Ich. *nævius*. *Gmelin Lin.* 2699.—*Tr. nævius*. *Steph. Nomen. 2d edit. Gen.* 715. 15.

Black: mouth, face, and a dot on the cheeks yellow, mandibles black or rusty at the tip; antennæ nearly as long as the body, curved at the apex, fuscous or rusty, with the basal joint beneath yellow in the male, rusty in the female, in which sex the thorax has a yellow dot before the wings, the male a line before them, a streak beneath the lower part of the collar, and a broad streak or 2 narrow ones on each side of the breast, yellow; abdomen with the margin of the 2nd segment generally reddish, and of the 4th to 7th whitish; legs of the male slender, 4 anterior tawny-red, with the coxæ and trochanters yellow; posterior the same, with the trochanters yellowish beneath, the tarsi and apex of the tibiæ, and sometimes of the coxæ, black; of the female the legs are red, with the 4 anterior coxæ testaceous, the hinder tarsi brown and the tibiæ testaceous, with the tips fuscous; wings hyaline; cellule somewhat regular and petiolated, 3-angular.

Rare: found near London in July.

Sp. 16. *fasciatus*. *Niger, tarsis tibiisque anterioribus femoribusque rufis, segmentis 2 et 3 fasciâ castaneâ.* (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Tr. fasciatus. *Gravenhorst, ii.* 139.—*Steph. Nomen. 2d edit. Gen.* 715. 16.

Black: palpi pitchy straw-colour; antennæ slightly curved at the tip; abdomen narrow, oblong, somewhat sessile; the basal segment with an obsolete channel, the 2nd and 3rd with an obscure chestnut fascia towards the margin, the last sometimes interrupted; legs moderate, tawny-red, with the coxæ and trochanters black; posterior pair with the tips of the femora, the tarsi and tibiæ blackish, the latter reddish towards the base; wings hyaline; cellule small, irregular, somewhat petiolated.

Scarce; found in June near London.

Sp. 17. *nanus*. *Niger, basi antennarum flavâ, pedibus fulvis, coxis anterioribus albis, posticis nigris, cellula 5-angulari.* (Long. corp. $1\frac{3}{4}$ lin.; Exp. Alar. 3 lin.)

Tr. nanus. *Gravenhorst, ii.* 155.—*Steph. Nomen. 2d edit. Gen.* 715. 17.

Black: palpi white; mandibles yellow; face with a griseous pile; antennæ



with the basal joint yellow, having a black dot above, the remainder black, the 2nd to 5th testaceous beneath; abdomen somewhat sessile, oblong-ovate, as broad as the thorax, the basal segment narrowed towards the base, and nearly 3-angular; legs moderate, tawny straw-colour, 4 anterior coxæ and trochanters whitish, posterior coxæ black, with the tips and the trochanters whitish; tarsi with the apex and extreme base of the tibiæ blackish; wings hyaline, iridescent; cellule 5-angular.

Taken, in July last, at Hertford.

§ II. *Scutellum* with pale marks; *abdomen* either totally black, or with the edges of the segments pale.

Sp. 18. *nigritarsus*. *Niger, pedibus fulvis, posticorum tarsis tibiisque nigris, his medio albis, mandibulis flavis.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{4}$ lin.)

Tr. *nigritarsus*. *Gravenhorst*, ii. 158.—*Steph. Nomen. 2d edit. Gen.* 715. 18.

Black: palpi rusty-pitchy; mandibles yellow, black at the tip; labrum ferruginous; antennæ involuted at the apex, fuscous, or red, above fuscous with 1 or 2 basal joints black; scutellum with its apex, or the sides only, whitish; abdomen nearly sessile, oblong, the basal segment slightly channelled and dilated towards the apex; legs moderate, fulvous; posterior with the tarsi black, tibiæ white, with the base and apex black; wings hyaline; cellule small, irregular, petiolated.

Found at Darenth wood in July.

Sp. 19. *sexlitturatus*. *Niger, marginibus segmentorum, facie, pectore, lineâ ante alas, albidis; antennis subtus pedibusque fulvis, tarsis posticis fuscis.* (Long. corp. $2\frac{1}{2}$ —4 lin.; Exp. Alar. $4\frac{1}{4}$ — $6\frac{1}{2}$ lin.)

Tr. *sexlitturatus*. *Gravenhorst*, ii. 159.—*Steph. Nomen. 2d edit. Gen.* 715. 19.

Black: head subglobose; mouth, face, cheeks, and the frontal orbits generally whitish-yellow; antennæ shorter than the body, rusty-tawny beneath, with the 2 basal joints yellow, the base above more or less fuscous; thorax with a line before the wings, and streak beneath and below the scutellum, with the breast and collar beneath pale yellow; scutellum with the apex whitish-yellow; abdomen oblong, somewhat sessile, the basal segment finely aciculated, with 2 elevated longitudinal lines, a white marginal dorsal spot, remainder smooth and shining, each with the sides and a transverse marginal spot white, and ochreous beneath; ovipositor slightly exerted, whitish; legs rather slender, tawny, or pale red, 4 anterior coxæ and trochanters whitish-yellow, posterior with the tarsi and also in general the apex of the tibiæ more or less blackish; wings hyaline, iridescent; cellule 3-angular, irregular, petiolated.

Not common; taken occasionally in July within the metropolitan district, and in Salop.

Sp. 20. *impressus*. *Niger, segmentis 1-3 lineâ transversali impressâ margine testaceo, thorace et scutello albido notatis, pedibus fulvis, tibiis posticis nigris medio albo.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 6 lin.)



Tr. impressus. *Gravenhorst*, ii. 161.—*Steph. Nomen*. 2d edit. *Gen.* 715. 20.

Black: mouth reddish; antennæ porrect, the basal joint black, remainder fuscous, rusty beneath; thorax with a line before the wings, a dot below them, and a transverse streak beneath the scutellum yellow-white; meta-thorax rough; scutellum with the apex and sides whitish; abdomen thickly punctured, towards the apex of the segments smooth, the basal segment with 2 elevated longitudinal lines, and a transverse groove, the margins whitish, 2nd and 3rd each with an obscure transverse channel, their margins testaceous-white; ovipositor a little exserted, fuscous; legs fulvous; posterior with the tibiæ white, the base and apex black-brown; tarsi black; wings hyaline, iridescent; cellule minute, 3-angular, somewhat petiolated.

Rare: found near London in June.

Sp. 21. *lucidulus*. *Niger, segmentorum marginibus albitibus, pedibus fulvis, tarsis posticis fuscis, facie genisque flavis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 4— $5\frac{1}{2}$ lin.)

Tr. *lucidulus*. *Gravenhorst*, ii. 162.—*Steph. Nomen*. 2d edit. *Gen.* 715. 21.

Black: head somewhat glabrous, swollen, with the face, cheeks, and mouth yellow, the former occasionally with a short black streak; antennæ half the length of the body, black, somewhat ferruginous beneath towards the tip; thorax with the lower part of the collar, and sometimes the lateral edge and a streak beneath the scutellum, and also the apex of the latter, yellow; abdomen oblong, the 1st segment a little dilated towards the tip, and channelled, entirely black, the remainder with the lateral margins and the extreme edge whitish, the 2nd and 3rd sometimes a little chestnut before the margin, beneath ochreous; ovipositor concealed; legs slender, fulvous, coxæ and 2 or 4 anterior trochanters more or less pale yellow, posterior tarsi and apex of the tibiæ brownish; wings hyaline; cellule irregular, more or less petiolated.

Found in August near London; I took several specimens at the Hermitage last year at that period.

Sp. 22. *sexcinctus*. *Niger, segmentorum marginibus albidis, maculis 2-bus faciei flavis, pedibus rufis, posticorum tibiis tarsisque fuscis.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. *sexcinctus*. *Gravenhorst*, ii. 164.—*Steph. Nomen*. 2d edit. *Gen.* 715. 22.

Black: head subglobose; mouth, clypeus, and 2 dots on the face yellow; mandibles with the tip black, the apex of the clypeus sometimes rusty; antennæ shorter than the body, fuscous, occasionally rusty beneath, the basal joint black; thorax with a streak below the scutellum, and the latter more or less yellow; abdomen shining, silky, rather narrower than the thorax, linear-oblong, the basal segment more or less deeply channelled, entirely black, the remainder with the lateral and apical margins whitish, the 7th sometimes with a tawny edge, beneath yellow; legs slender, red or



tawny; posterior tarsi and tibiæ fuscous, and generally the upper portion of the coxæ and the base of the trochanters blackish and silky: wings hyaline; cellule irregular, petiolated.

Rare: taken within the metropolitan district in July.

Sp. 23. quinecinctus. *Niger, segmentorum marginibus albis, pedibus fulvis, posticorum tarsis tibiisque nigris, facie albo-flavâ, antennis subtus fulvis, articulo 1-mo albo.* (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Tr. quinecinctus. *Gravenhorst*, ii. 165.—*Steph. Nomen. 2d edit. Gen. 715. 23.*

Black: head subglobose, broader than the thorax; face and mouth yellowish-white; antennæ shorter than the body, porrect, fuscous, tawny beneath, with the basal joint whitish; thorax with a transverse line below the scutellum, and sometimes the lower part of the collar and a spot on the sides of the metathorax yellow-white; scutellum white at the tip; abdomen somewhat sessile, a little narrower than the thorax, the basal segment with 2 elevated lines, the 2nd with a marginal white dorsal streak, the remainder more glossy, with the lateral and apical margins broadly white; legs rather slender, tawny, 4 anterior paler beneath; posterior with the tibiæ and tarsi black and silky; wings hyaline; cellule irregular, petiolated.

Also rare, and found within the metropolitan district, in July.

Sp. 24. elegans. *Niger, segmentorum marginibus albidis, pedibus rufis, posticorum tarsis nigris, tibiis fulvescentibus apice nigro, ore trochanteribusque anterioribus flavis, scutello rufo.* (Long. corp. 4 lin.; Exp. Alar. 8 lin.)

Tr. elegans. *Steph. Nomen. 2d edit. Gen. 715. 24.*

Black, shining: mouth yellow; palpi straw-coloured; antennæ black, beneath, except the basal joint, tawny-red; thorax with a yellow dot before and at the base of the wings; abdomen very smooth, rather broad, the 1st and 2nd segments edged with tawny-white, the remaining ones rather broadly edged with brightish white; legs bright red, the 4 anterior trochanters, and their tibiæ in front, yellow; posterior tibiæ pale fulvous, with their apex black; hinder tarsi black; wings ample, hyaline; cellule 3-angular, petiolated.

Rare: taken in June at Darenth wood.

Sp. 25. aulicus. *Niger, pedibus fulvis aut rufis, posticorum tarsis et tibiis nigris, his medio albis; mas facie flavâ; antennis subtus testaceis; fœmina ore testaceo.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7 lin.)

Tr. aulicus. *Gravenhorst*, ii. 173.—*Steph. Nomen. 2d edit. Gen. 715. 25.*

Black: male with the mouth and face pale yellow, the tip of the mandibles black; former with the mouth testaceous and the clypeus sometimes ferruginous; mandibles with the apex black; antennæ fuscous, testaceous beneath, with the 1st and 2nd joints pale yellow; of the females as long as the body, with the tip recurved, black, mostly fuscous beneath; thorax with a more or less distinct yellow dot before and beneath the wings, and in the female with 2 minute dorsal ones before the collar and on the upper margin



of the male; beneath the scutellum in the male is a red dot, and in the female, generally, a yellow one; in the former sex the scutellum is red, and in the latter entirely, or at the apex only, white; abdomen of the male with the basal segment channelled, the 3rd dull chestnut on the back; of the female fusiform, the basal segment slightly channelled, the remainder more or less distinctly margined with whitish; legs moderate, fulvous, red in the female, 4 anterior in the male pale or yellowish; posterior with the tarsi black, tibiæ white, with the extreme base and the apex black, spurs white; the tip of the femora sometimes black in the female; wings hyaline; cellule wanting, or with a mere vestige of the outer nervure.

Found in July near London.

Sp. 26. *opticus*. *Niger, segmentorum nonnullorum marginibus, lineâ ante alas, oreque albidis, pedibus rufis, posticorum tarsis nigris, tibiis albis apice nigro; thoracis picturis albidis aut rufis; mas facie flavâ.* (Long. corp. 3—3½ lin.; Exp. Alar. 5—6½ lin.)

Tr. *opticus*. *Gravenhorst*, ii. 176.—*Steph. Nomen. 2d edit. Gen.* 715. 26.

Black: face and mouth yellow in the male, the latter and clypeus white in the female; mandibles black at the tip; eyes prominent; antennæ of the male fuscous, beneath rusty, with the 2 basal joints yellow; thorax with a line before the wings, another beneath them, a dot under the scutellum, a linear spot on the breast, the lower part of the collar, and the suture between the pro- and metathorax, and the scutellum yellow; of the female with the line before the wings and dot beneath the scutellum and the tip of the last white; the breast, lateral spot on the metathorax, and base of the scutellum red; abdomen beneath and with the margins of the 2nd to 4th, or to the 7th in the female, white; legs fulvous, and in the females red; 4 anterior in the male with the coxæ and trochanters reddish-white, tibiæ paler, posterior tibiæ white, with the tip black, in the male, and black, with a white ring, in the female; wings hyaline; cellule irregular, petiolated.

Taken in the vicinity of London in June, at Darenth wood.

Sp. 27. *hæmatodes*. *Niger, segmentorum marginibus summis albidis, scutello pedibusque rufis, tarsis posticis et tibiæ posticarum apice nigris, ore et lineâ ante alas flavis.* (Long. corp. 3 lin.; Exp. Alar. 5¼ lin.)

Tr. *hæmatodes*. *Gravenhorst*, ii. 177.—*Steph. Nomen. 2d edit. Gen.* 715. 27.

Black: mouth yellow; antennæ rusty-brown, with the 2 basal joints black; thorax with a dot below the wings and a line before them, hooked at the tip, yellow, the scutellum and a dot beneath dull red; abdomen beneath yellow, above with the margins of the basal segments distinctly whitish, and of the 3 terminal ones faintly so; legs tawny-red, 4 anterior with the coxæ and trochanters beneath yellow, posterior with the tarsi and the tips of the tibiæ black; wings hyaline, iridescent.

Also found in June near London.

Sp. 28. *sternoxanthus*. *Niger, segmentorum marginibus obsoletissime albidis,*



facie pectore et lineâ ante alas flavis, pedibus fulvis, coxis anterioribus flavis, tarsis posticis et tibiârum posticarum apice fuscis. (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. sternoxanthus. *Gravenhorst*, ii. 178.—*Steph. Nomen*. 2d edit. *Gen.* 715. 28.

Black: mouth and face yellow, the latter with a short longitudinal black line; antennæ porrect, longer than the body; thorax with a line before the wings, hooked at the tip, a streak beneath them, and the breast, yellow; scutellum yellow, dull red in the middle; abdomen with the margins of the segments obsoletely white; legs tawny-red, 4 anterior with the coxæ and trochanters yellow; posterior with the tarsi and tip of the tibiæ black, the base of the latter dull luteous; wings somewhat hyaline, iridescent; cellule none, or irregular, sessile.

Found at Darenth wood in June and July, but rare.

Sp. 29. armillatorius. *Niger, segmentis pallide marginatis, mediis dorso testaceis, pedibus rufis anterioribus coxis et trochanteribus flavis, posticis tarsis et tibiârum apice nigris, pectore facie et thoracis picturis albidis.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7 lin.)

Tr. armillatorius. *Gravenhorst*, ii. 182.—*Steph. Nomen*. 2d edit. *Gen.* 715. 29.

Black: face and mouth yellow, whitish, or rosy; tip of the mandibles brown; antennæ more or less curved at the apex, with the 2 basal joints whitish or yellow beneath, the remainder rusty or fulvous; thorax with the margin of the collar, the breast, a broad sutural line or spot before the wings, a dot beneath them, and frequently a streak below the scutellum, and the lateral suture between the pro- and metathorax, and the scutellum, yellow; abdomen rather depressed, the margins of the 2nd to 7th segments, and rarely that of the 1st, whitish, the intermediate ones somewhat testaceous, the colour sometimes extending on the back so as to form an irregular confluent spot on the 3rd and 4th segments; legs rather slender, red; 4 anterior with the coxæ and trochanters, and sometimes the base of the femora pale yellow; posterior with the tarsi blackish, the tibiæ testaceous or whitish, with the apex black or fuscous, and sometimes that of the femora the same, with their coxæ and trochanters more or less yellow beneath; wings hyaline, iridescent; cellule wanting, or obscurely and irregularly 3-angular.

Scarce: taken near London in June and July.

Sp. 30. thoracicus. *Niger, prothorace pectore scutello pedibusque rufis, horum posticis apice nigro, segmentorum marginibus albidis: mas facie flavâ, lineâ longitudinali nigrâ.* (Long. corp. 4 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. thoracicus. *Steph. Nomen*. 2d edit. *Gen.* 715. 30.

Black: face in the male yellow, with a longitudinal black streak; tips of the mandibles black; antennæ fuscous, reddish beneath and towards the tip, which is curved; thorax pitchy, its disc or prothorax bright red; collar, a streak before the wings, and one beneath them entirely pale yellow; the pleuræ, breast, and scutellum red; a spot below the scutellum and 2 obscure

MANDIBULATA, VOL. VII., NOV. 30TH, 1835.

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ones on the metathorax dull pitchy-red ; abdomen slender, elongate-clavate, the edges of the segments more or less broadly whitish ; legs pale red, posterior darkest, and with the tips of their tibiæ and their tarsi black ; wings hyaline ; cellule wanting.

Rare : taken in June at Darenth wood.

Sp. 31. formosus. *Niger, prothoracis dorso rufo, ore, picturis thoracis et marginibus segmentorum albidis, pedibus fulvis, posticis tarsis et tibiæ apice nigris* : mas facie albidâ, pedibus anterioribus stramineis ; fœmina punctis 2-bus faciei albidis. (Long. corp. $3\frac{1}{2}$ —4 lin. ; Exp. Alar. $5\frac{1}{2}$ —7 lin.)

Tr. formosus. *Gravenhorst*, ii. 185.—*Steph. Nomen*. 2d edit. Gen. 715. 31.

Black : mouth and clypeus whitish ; face of the male entirely whitish, of the female black, with a small white dot on the inner orbits ; antennæ of the male fuscous, beneath rusty, with the 2 basal joints whitish ; of the female ferruginous, with the first 2 joints black ; thorax of the male black, prothorax red on the back, with the breast, margins of the collar, a hooked streak before the wings, a dot beneath them and below the scutellum whitish ; of the female with the anterior prothorax red, the collar black, with yellow lines and dots in the same places as the whitish ones of the male ; metathorax whitish ; abdomen with the margins of the segments greenish-white, the base of the 3rd fulvescent, all whitish beneath ; legs fulvous, the posterior tarsi and apex of the tibiæ black ; 4 anterior coxæ and trochanters in the male flavescent ; wings hyaline ; cellule wanting.

Found, but rarely, near London in June.

Sp. 32. sanguinicolis. *Niger, prothorace, scutello et pedibus rufis, horum posticis apice nigro, segmentorum marginibus summis albis* : mas facie, coxis et trochanteribus anterioribus, picturisque thoracis flavis. (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin. ; Exp. Alar. $5\frac{1}{2}$ —6 lin.)

Tr. sanguinicolis. *Gravenhorst*, ii. 187.—*Steph. Nomen*. 2d edit. Gen. 715. 32.

Black : face and mouth whitish-yellow, the mouth only in the female ; antennæ red, the 2 basal joints black, yellow beneath in the male ; thorax red, with the neck, metathorax and a broad longitudinal dorsal line on the prothorax black, a hooked line before the wings, a streak beneath, and sometimes 1 on the breast yellow, and a red dot below the scutellum ; female with the colours usually reddish ; scutellum red, of the female occasionally edged with yellow ; abdomen smooth, with the 2nd to 7th segments faintly edged with whitish, beneath ochreous ; ovipositor black ; legs moderate, red ; 4 anterior in the male with the coxæ and trochanters yellow ; posterior tarsi black, their tibiæ rusty or whitish towards the base, black at the apex ; wings hyaline ; cellule wanting.

Scarce : found in June at Darenth wood.

†Sp. 33. marginatorius. *Niger, marginibus segmentorum 1 et 2 fascia latâ flavâ, segmentis reliquis subflavomarginatis ; facie maculis thoracis tibiisque flavis*. (Long. corp. $3\frac{1}{2}$ —4 $\frac{1}{4}$ lin. ; Exp. Alar. $5\frac{1}{2}$ —7 lin.)



Ich. marginatorius. Fabricius, Syst. Ent. 145.—Ich. amictorius. Steph. Catal. 351. No. 4473.

Black: mouth and face more or less yellow, the latter with a longitudinal black streak; antennæ shortish, fuscous, fulvous beneath, with the 2 basal joints yellow; thorax with the edge of the collar, and 2 dorsal spots, a streak below the wings, and the scutellum, and a lateral dot on the prothorax, as also the scutellum, yellow; abdomen sessile, rough, the 2 basal segments with a broad yellow margin, the 2 or 3 following slightly edged with pale yellowish or glaucous; legs rather moderate and slender; 4 anterior black beneath, and with the tibiæ and tarsi yellow, coxæ more or less black and yellow; posterior coxæ and femora black, trochanters yellow, black above, occasionally wholly of one or other of those colours; tibiæ yellow, with the apex black; tarsi more or less yellow, with the tips of the joints blackish; wings hyaline, cellule irregular, petiolated.

Larva feeds on that of *Lophyrus Pini* and *Lo. rufus*.

Very rare: taken near London and in the north of England.

Sp. 34. anceps. Capite crassiusculo, niger, segmentorum marginibus albidis, ore pedibusque rufis, tibiis tarsisque posticis fuscis. (Long. corp. 3 lin.; Exp. Alar. 5½ lin.)

Tr. anceps. Steph. Nomen. 2d edit. Gen. 715. 34.

Black: head rather large and wide; palpi and mouth yellowish-red, tips of the mandibles black; labrum with 2 fulvous spots; antennæ rather short, thick, curved at the tip, and deep black; thorax with a faint streak below the scutellum, and the scutellum pale yellow; abdomen elongate, clavate, shining, silky, the margins of all but the 1st segment yellowish-white, the posterior angles of the 1st segment each with a whitish dot; legs pale red, coxæ and trochanters the same; hinder tibiæ pale fuscous, reddish towards the base, their tarsi fuscous; wings ample, hyaline; cellule irregular, petiolated.

Taken near Hertford, in July.

Sp. 35. apiarius. Niger, marginibus segmentorum, maculis capitis, pedibus anterioribus subtus, tibiis posticis proparte, flavis. (Long. corp. 4 lin.; Exp. Alar. 6½ lin.)

Tr. apiarius. Gravenhorst, ii. 196.—Steph. Nomen. 2d edit. Gen. 715. 35.

Black, punctured: mouth, cheeks, face, and inner orbits yellow; antennæ rather stout, brown-black, reddish beneath, with the 4 basal joints black; thorax with a streak beneath the scutellum, the neck below, and a perpendicular line on the sides of the prothorax, and also the tip of the scutellum, yellow; abdomen rough, with a minute yellow dot in the centre of the margin of the basal segment, the remaining ones very broadly edged with tawny-yellow; legs moderate, pitchy; 4 anterior yellow beneath; trochanters fuscous, tibiæ fuscous outwardly, especially towards the apex; posterior tibiæ yellowish towards the base; wings ample, smoky-hyaline, the costal edge broadly fuscous; cellule 3-angular, somewhat sessile.



Of this rare and beautiful insect I once took a fine specimen in Darenth wood in June.

§ III. *Scutellum* pale; *abdomen* either entirely red, or red and black.

Sp. 36. *rufulus*. PLATE XXXVI. f. 3.—*Rufus*, *scutello flavo*, *capite thoraceque nigris*, *flavo rufoque maculatis*, *pedibus posticis nigro maculatis*, *abdominis basi apiceque nigris*. (Long. corp. 7—8 lin.; Exp. Alar. 12—14 lin.)

Tr. *rufulus*. Steph. *Nomen*. 2d edit. Gen. 715. 36.—Tr. *rufus*? Gravenhorst, ii. 200.

Head red or black: mouth, face, and orbits yellow or red; antennæ as long as the body, curved at the tip, red, with 1 or 2 of the basal joints black; thorax black, with an irregular cloud or streak before the wings, a streak beneath them, and below the scutellum, and the upper margin of the collar red, metathorax with 2 more or less extensive tawny or red spots above; scutellum convex, yellow; abdomen elongate-fusiform, a little thickened and compressed at the tip; the basal segment black or red, or spotted with black, the margin always tawny or yellow, 2nd to 4th red, the former occasionally black at the base, the 5th to 7th black, sometimes reddish on the sides; legs rather long, red, coxæ yellowish, posterior pair black at the base, and with a dot of that colour near the tip above, their femora more or less black towards the base, and tibiæ black at the apex; wings yellowish-hyaline; cellule minute, petiolated.

Extremely variable: in some examples the thorax is very slightly varied with tawny or yellow, and in others the apex of the abdomen is more or less red.

Very rare: taken in June in the New Forest, and at Sheffield; also near Kimpton by the Rev. G. T. Rudd, to whom I am indebted for one sex.

Sp. 37. *conspicuus*. *Niger*, *ore facie pedibusque anterioribus stramineo-fulvis*, *orbitis oculorum externis*, *antennis subtus abdominisque medio rufis*, *scutello flavo*, *pedibus posticis fulvis*, *femoribus apiceque tibiæ nigris*. (Long. corp. 7½ lin.; Exp. Alar. 13 lin.)

Tr. *conspicuus*. Steph. *Nomen*. 2d edit. Gen. 715. 37.

Black: mouth and face pale yellow, the latter with a short vertical or black streak; antennæ black, red beneath; thorax with an irregular yellowish patch before the wings, and a streak of the same behind the scutellum, which is bright yellow; abdomen rather slender, the basal segment black, with its apex broadly tawny-red, the 2nd to 4th of this last colour, the 4th segment having a transverse blackish streak; remainder black; legs slender; 4 anterior pale straw-yellow, the middle coxæ, trochanters, and femora, black at the base; posterior coxæ, trochanters, and femora black, with the extreme tips of each tawny; tibiæ tawny-red, with the apex broadly black; tarsi fulvous; wings hyaline, with the rudiment of the divisional nervure on the disc considerably elongated; cellule small, 3-angular, petiolated.

Found near London.



Sp. 38. mesoleptoides. *Niger, ore facieque flavis, hoc maculâ nigrâ, scutello flavo, segmentis 2 et 3, antennis pedibusque rufis.* (Long. corp. 5 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Tr. mesoleptoides. *Steph. Nomen. 2d edit. Gen. 715. 38.*

Black: mouth and face yellow, the latter with a triangular black spot, branching towards the angles of the mouth, and the 3rd angle extending towards the antennæ, which are red, with the 2 or 3 basal joints black above; thorax with a minute yellow dot below the scutellum, which is also yellow; abdomen with the basal segment black, its peduncle rather slender, and the hinder angles red; the 2 following red, 4th chestnut, remainder pitchy, the last 4 having each a faint palish margin; legs moderate, 4 anterior pale red, coxæ and trochanters dusky at the base, posterior coxæ and trochanters black, reddish at the tip; femora, tibiæ, and tarsi red, the extreme base of the former a little spotted with black; wings dusky-hyaline, with a conspicuous black stigma; cellule 3-angular, petiolated.

Found at Hertford, in June.

†Sp. 39. pachysoma. *Niger, ore, genis, maculis 2-bus faciei, picturis thoracis scutelloque flavis, abdominis medio pedibusque anterioribus rufis, ano albo.* (Long. corp. 5 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Tr. pachysoma. *Steph. Nomen. 2d edit. Gen. 715. 39.*

Black, shining: head rather large; mouth, cheeks, and 2 large confluent spots on the face bright yellow; antennæ shorter than the body, dusky-black, reddish beneath at the apex; thorax robust, with the collar in front, a streak before the wings, and a dot at their base and below the scutellum, and the latter yellow; abdomen sessile, broad, the basal segment black, 3 following and base of 5th bright red, tip of the last and the 6th and 7th black, their margins broadly white; legs rather slender, 4 anterior pale red; coxæ and trochanters yellowish, 2nd pair blackish at the base; hinder legs black, the extreme tips of the trochanters and femora reddish; wings hyaline, stigma dark fuscous; cellule 3-angular, petiolated.

In Mr. Shuckard's collection; locality not known.

Sp. 40. albocinctus. *Niger, scutelli apice rufo, abdomine rufo, basi nigrâ, marginibus segmentorum albidis, pedibus anterioribus flavis, coxis et latere supero femorum nigris.* (Long. corp. 4— $4\frac{1}{2}$ lin.; Exp. Alar. 5—6 lin.)

Tr. albocinctus. *Gravenhorst, ii. 204.—Steph. Nomen. 2d edit. Gen. 715. 40.*

Black: mouth straw-colour, mandibles black at the tip and base; antennæ fuscous, tawny beneath, with the 4 basal joints totally black; scutellum with its apex red; abdomen with the 2 basal segments black, the margin of the 2nd red, the 3rd red or chestnut, with the edge whitish, the basal angles, or the entire base, black, 4th similar, occasionally with a black fascia before the margin, remainder red or chestnut, with the edges whitish, occasionally black at the base, the sides yellow on the margins; legs moderate, 4 anterior yellow, with the coxæ and upper edge of the femora, and sometimes the trochanters above, black; posterior black, tibiæ whitish in the middle, with



the apex reddish beneath, and the tip of the femora sometimes yellowish ; wings hyaline ; cellule somewhat irregular and petiolated.

Rare : taken at Darenth wood in July.

Sp. 41. tricolor. *Niger, abdomine rufo, marginibus segmentorum flavis, segmento 1-mo toto nigro, pedibus facie et pectore flavis.* (Long. corp. 4 lin. ; Exp. Alar. 7 lin.)

Tr. tricolor. *Gravenhorst*, ii. 207.—*Steph. Nomen. 2d edit. Gen. 715. 41.*

Black : head testaceous-yellow, with the forehead and crown black ; antennæ with the basal joint black, yellow beneath, the 3 following black, remainder reddish-yellow, somewhat of a rusty-brown above ; thorax with the neck, breast, a spot beneath the wings, one below the scutellum, and the scutellum, yellow ; abdomen with the basal joints black, remainder tawny-red, with the margins yellowish ; legs moderate, 4 anterior yellow, with the femora tawny-red above ; posterior with the coxæ yellow, black above, trochanters yellow, femora testaceous-red, with the extreme base black ; tibiæ dull testaceous, with the base black ; tarsi fuscous ; wings somewhat hyaline ; cellule 3-angular, irregular and petiolated.

Rare : taken at Darenth wood and in the New Forest, in June.

Sp. 42. segmentarius. *Niger, abdominis medio rufo, pedibus anterioribus rufis, coxis et trochanteribus nigro flavoque maculatis, tibiis posticis basi ochreo albidis, facie et antennarum basi subtus flavis.* (Long. corp. 4 lin. ; Exp. Alar. 7 lin.)

Ich. segmentarius. *Fabricius, Mant. 262.*—*Steph. Nomen. 2d edit. Gen. 715. 42.*

Black : mouth and face yellow, the latter in the female with a short vertical black streak ; mandibles black at the tip ; antennæ red, dusky above, 2 basal joints yellow beneath ; scutellum at the tip, or in the female entirely yellow ; abdomen with the basal segment black, red at the apex in the female, 2nd to 4th red, remainder black, but in the female the 5th is sometimes totally red, or red with a black basal patch, and the 6th is occasionally red, with the disc dusky ; legs moderate, 4 anterior in the male tawny, with the coxæ and trochanters yellow, the former with a lateral black dot ; of the female red, the coxæ black, with the tip yellow ; the trochanters yellow, with usually a black dot above, posterior black, trochanters yellow or rusty at the apex, the tibiæ more or less whitish towards the base ; wings stained hyaline ; cellule irregular, the outer nervure sometimes nearly obliterated.

Taken, but rarely, near London, in June.

Sp. '43. luteifrons. *Niger, abdominis medio rufo, pedibus fulvis, tibiis pallidioribus, posticis apice nigro, facie testacea.* (Long. corp. 3 lin. ; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. luteifrons. *Gravenhorst*, ii. 215.—*Steph. Nomen. 2d edit. Gen. 715. 43.*

Black : face and mouth rusty-yellow, tips of the mandibles black ; antennæ shortish, the apex curved, fuscous, rusty beneath, the basal joint dull whitish ; scutellum whitish ; abdomen as broad as the thorax, ovate, some-



what pedunculated, basal segment black, 2nd black, with the tip red, 3rd red, 4th black, with an obscure reddish fascia, remainder black, with the extreme margins palish; ovipositor black; legs tawny-red, trochanters straw-coloured; hinder tarsi black, their tibiæ whitish, with the apex black; wings hyaline; cellule wanting.

Not uncommon: taken at Darenth wood in June.

§ IV. *Scutellum* black; *abdomen* either totally red, or red and black, or yellow and black.

Sp. 44. *varitarsus*. *Niger, abdominis medio pedibusque anterioribus rufis, coxis et trochanteribus nigris, pedibus posticis nigris, femoribus rufis, tibiæ medio albo.* (Long. corp. $2\frac{3}{4}$ —4 lin.; Exp. Alar. 4— $6\frac{1}{2}$ lin.)

Tr. *varitarsus*. *Gravenhorst*, ii. 222.—*Curtis*, v. ix. pl. 399.—*Steph. Nomen. 2d edit. Gen.* 715. 44.

Black: palpi and mandibles pale or yellowish, the tips of the last black, and the labrum generally ferruginous; antennæ shorter than the body, curved at the tip, sometimes rusty beneath from the 4th joint; abdomen with the basal segment black, the extreme tip sometimes chestnut, 2nd and 3rd red or chestnut, 4th either red with the apex black, or totally red or black, remainder generally black; legs moderate, 4 anterior with the coxæ, and the trochanters generally black, the latter rarely yellow, or reddish beneath; femora tawny; tibiæ yellow, with the apex fulvous, tarsi yellow, with the tips of the joints tawny; posterior legs black, with the tip of the trochanters red, femora also red or chestnut, with the knees and sometimes the base black; tibiæ with a ring towards the base, and the apical spines, and also the extreme base of the joints of the tarsi whitish, or ochreous; wings hyaline; cellule triangular, somewhat petiolated, the internal cubital areolet mostly with the commencement of the divisional nervure.

Not very uncommon: found near London in June and July, and in the New Forest and Salop.

Sp. 45. *albovinctus*. *Niger, abdominis medio pedibusque rufis, tibiis posticis nigris annulo albo.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Tr. *albovinctus*. *Gravenhorst*, ii. 224.—*Steph. Nomen. 2d edit. Gen.* 715. 45.

Black: palpi and mandibles dull white, the tips of the latter black, clypeus chestnut; antennæ nearly as long as the body, the tip a little curved; abdomen rather petiolated, shining, oblong-ovate, the basal segment channelled, black, 2nd and 3rd red, the tip of the latter and the remaining segments black; legs moderate, red; trochanters pale; posterior tarsi, the tips of the femora, and the tibiæ black, the latter with a white ring towards the base, and the coxæ blackish above and at the base; wings hyaline, cellule 3-angular, petiolated.

Found, but rarely, near London, in June.

Sp. 46. *erythrocerus*. *Niger, abdominis medio rufo, pedibus anterioribus rufis,*



coxis et femorum basi nigris, tibiis posticis rufis apice nigro, antennis subtilis rufis. (Long. corp. 3—4½ lin.; Exp. Alar. 5—7 lin.)

Tr. erythrocerus. Gravenhorst, ii. 230.—Steph. Nomen. 2d edit. Gen. 715. 46.

Black: mouth and face yellow, this last generally with a black dot or longitudinal black streak; antennæ nearly as long as the body, curved at the tip, 4 basal joints black, the 1st sometimes with a yellow dot below, the following beneath red, and the terminal ones totally red; abdomen somewhat sessile, the basal segment black, with the edge red in the female, the lateral tubercles placed beyond the middle, the 2nd to the 4th red, the latter sometimes fuscous, with the base reddish, the remainder black; legs slender, 4 anterior of the male tawny-red, coxæ black, sometimes with a yellow dot beneath, trochanters yellow, or black, the base of the femora black; of the female the coxæ and trochanters are black, the anterior femora red, with the base black, the middle pair black, with the tip red, tibiæ and tarsi red; posterior legs black in both sexes, with the base of the tibiæ red; wings nearly hyaline; cellule minute, or wanting.

Antennæ sometimes totally black.

Taken near London and in Salop, in June.

Sp. 47. mesoxanthus. *Niger, segmento 1-mo tumido, abdominis medio, facie, tibiisque flavis, harum posticis apice nigro.* (Long. corp. 6—6½ lin.; Exp. Alar. 10—12 lin.)

Tr. mesoxanthus. Gravenhorst, ii. 233.—Steph. Nomen. 2d edit. Gen. 715. 47.

Black: palpi pale straw-colour: mandibles in the middle and face orange; antennæ porrect, as long as the body, the 1st 20 joints yellow beneath, the colour gradually fading towards the apex; thorax with a slight griseous pile; metathorax with 2 acute tubercles; abdomen petiolated, the 3 basal segments of equal width, the remainder gradually narrower, the 1st black, thickly punctured with 2 elevated longitudinal lines, the anterior portion convex and rather swollen, 2nd and 3rd yellow or reddish, remainder black, the 4th with a tawny and semicircular spot at the base; legs slender, 4 anterior with the coxæ and trochanters black, the last yellow beneath, femora black, with the apex and entire inner side of the anterior pair yellow, tibiæ and tarsi also yellow, the middle pair of the latter fuscous above; posterior legs black, the tibiæ yellow at the base, and the tarsi yellowish beneath; wings smoky-hyaline; cellule 3-angular, irregular, and somewhat sessile.

Rare: taken in the New Forest, about the end of June.

Sp. 48. nigricollis. *Niger, segmentis 1-4 pedibusque flavis, horum posticis coxis femoribus et tibiæ apice nigris, ore, macula faciali, et antennarum articulis 1 et 2 flavis.* (Long. corp. 4½—5 lin.; Exp. Alar. 7—9 lin.)

Tr. nigricollis. Gravenhorst, ii. 234.—Steph. Nomen. 2d edit. Gen. 715. 48.

Black: face ashy; mouth, clypeus, and an adjoining facial spot yellow; tip of the mandibles brown; antennæ slender, porrect, the 2 basal joints black,



yellow beneath, 3rd entirely black, remainder fuscous, beneath pale rusty ; abdomen rather narrow, yellow, the basal segment slightly grooved, 5th to 7th black, the base of the former chestnut ; legs rather slender, yellow, 4 anterior with a black spot on the coxæ without, posterior coxæ, femora, and tibiæ at the apex, black ; wings a little stained ; cellule wanting.

Scarce : found in the north of England and in Scotland, in July.

Sp. 49. *elegantulus*. *Niger, femoribus crassis, fronte muticâ, abdominis medio tibiis nec non femorum anticorum latere interno, flavis.* (Long. corp. 5—6½ lin. ; Exp. Alar. 9—11 lin.)

Ich. *elegantulus*. *Schrank F. Aust. p. 361.*—Tr. *elegantulus*. *Steph. Nomen. 2d edit. Gen. 715. 49.*

Black : forehead unarmed ; antennæ short, porrect, reddish, or red, beneath ; basal joint black, yellow below ; thorax sometimes with 2 minute yellow dots below the scutellum, and the extreme apex of the latter occasionally the same ; body subpetiolated and clavate, the basal joint black, with its tip yellow, 2 following yellow, the 2nd sometimes with a round black spot in the middle of the base, the 4th either totally black, or with a yellow border at the base, or the 2 basal angles of that colour, the remainder black ; legs short and stout, especially the femora, coxæ and trochanters black, sometimes yellow beneath ; femora black, 4 anterior more or less yellow at the tip, tibiæ yellow, posterior with the extreme apex black ; 4 anterior tarsi yellow, posterior fuscous ; wings smoky-hyaline ; cellule wanting.

Apparently very rare, and variable ; found in June near London.

Sp. 50. *elongator*. *Fronte cornutâ, abdominis medio flavo, aut rubo, tibiis nec non latere interno femorum anticorum flavis, tibiis posticis apice nigro, antennis subtus fulvis.* (Long. corp. 2¼—5¼ lin. ; Exp. Alar. 4—9¼ lin.)

Tr. *elongator*. *Fabricius.—Steph. Catal. 351. No. 4468.*

Black : mouth generally yellowish or reddish, furnished with a short, erect, rather acute or obtuse horn ; antennæ shorter than the body, basal joint black, rarely rusty beneath, the remainder tawny or rusty, sometimes fuscous above ; abdomen somewhat pedunculated, subclavate or fusiform, basal segment black, its margin more or less broadly red or tawny, 2nd to 4th, sometimes the base of the 5th, but rarely the whole thereof, yellow or tawny ; remainder black ; legs moderate, a little thickened, coxæ and trochanters black, anterior femora sometimes entirely yellow or testaceous, but generally black externally towards the base, 2nd pair black, with the apex as in the anterior ; posterior entirely black ; tibiæ yellow, or testaceous, the apex and extreme base of the hinder ones black ; tarsi reddish ; claws brown ; wings hyaline, sometimes yellowish ; cellule irregular, or somewhat 3-angular, slightly petiolated.

Extremely abundant throughout the metropolitan district in June and July : also found in Devonshire, the New Forest, Salop, Scotland, &c.



Sp. 51. *flavipes*. *Niger, fronte muticâ, abdominis medio femoribusque anterioribus fulvis, tibiis flavis, posticis apice nigro.* (Long. corp. $5\frac{1}{4}$ lin.; Exp. Alar. 9 lin.)

Tr. *flavipes*. *Gravenhorst*, ii. 241.—*Steph. Nomen. 2d edit. Gen. 715. 51.*

Black: forehead unarmed; clypeus and a spot on the mandibles ferruginous; abdomen with the 2nd and 3rd segments, and the basal angles of the 4th, tawny-red, or yellow; legs moderate, 4 anterior pale red, tibiæ and tarsi yellow, coxæ and trochanters black, posterior black, tibiæ yellowish, black at the tip; wings smoky-hyaline; cellule irregular, somewhat petiolated.

Not common: I have taken it in the neighbourhood of the metropolis.

Sp. 52. *brachyacanthus*. *Niger, fronte cornutâ, abdomine pedibusque fulvis.* (Long. corp. $2\frac{3}{4}$ lin.; Exp. Alar. 4 lin.)

Ich. *brachyacanthus*. *Gmelin, p. 2705.*—Tr. *brachyacanthus*. *Steph. Nomen. 2d edit. Gen. 715. 52.*

Black: palpi and mandibles reddish, the tip of the latter black; labrum rusty-brown; forehead with a short obtuse porrect tubercle; antennæ rusty, or brownish beneath, the basal joint totally black; abdomen oblong-linear, or somewhat ovate, fulvous, the basal segment sometimes with the base or a dorsal spot black, or black with the tip fulvous; legs moderate, fulvous, with the apex of the hinder femora sometimes fuscous; wings rather smoky; cellule irregular, somewhat sessile.

Not common: taken in June at Darenth wood.

Sp. 53. *scotopterus*. *Fronte muticâ, niger, alis fusco hyalinis, abdomine pedibusque fulvis basi nigrâ.* (Long. corp. 3 lin.; Exp. Alar. 5 lin.)

Tr. *scotopterus*. *Gravenhorst*, ii. 244.—*Steph. Nomen. 2d edit. Gen. 715. 53.*

Black and silky: forehead unarmed; mouth straw-coloured: mandibles black at the tip; antennæ rusty beneath, fuscous or black above; abdomen fulvous, with the basal segment black, or fuscous, a little dilated towards the apex, which is sometimes tawny; legs fulvous, with the coxæ black, and the hinder tarsi dusky; wings brownish- or dusky-hyaline; cellule irregular, somewhat sessile.

Rare: obtained from Mr. Haworth's collection.

Sp. 54. *cephalotes*. *Niger, capite crassiusculo, abdomine rufo basi nigrâ, pedibus rufis, coxis et trochanteribus anterioribus flavis, posticis nigris, facie et genis flavis.* (Long. corp. $3-3\frac{1}{2}$ lin.; Exp. Alar. $5-6$ lin.)

Tr. *cephalotes*. *Gravenhorst*, ii. 246.—*Steph. Nomen. 2d edit. Gen. 715. 54.*

Black: head rather thick and globose, crown rectangular; mouth, face, and cheeks yellow, tip of the mandibles black; antennæ porrect, fuscous, rusty beneath; abdomen glossy, more or less ovate, basal segment black, sometimes with a red marginal dot or band, remainder red, the 2nd occasionally with 2 somewhat confluent fuscous spots at the base, the 3 terminal ones, at times, with a yellow edge, and the sides of the 6th and 7th sometimes



black ; legs moderate, red, 4 posterior coxæ yellow, posterior black ; trochanters yellow, posterior sometimes black above ; hinder femora occasionally with the base and apex black ; wings hyaline ; cellule irregular, 3-angular, somewhat petiolated.

Not uncommon : taken in June, in the vicinity of London.

Sp. 55. subfasciatus. *Niger, abdomine rufo basi et fasciâ abbreviatâ segmenti 2-di nigris, pedibus rufis coxis anterioribus trochanteribus, ore, facieque flavis, tibiis posticis apice fusco.* (Long. corp. $2\frac{1}{2}$ lin. ; Exp. Alar. $4\frac{1}{2}$ lin.)

Tr. subfasciatus. *Steph. Nomen. 2d edit. Gen. 715. 55.*

Black : mouth and face yellow, the latter with 2 impressed black dots ; antennæ porrect, about the length of the body ; abdomen somewhat ovate, red, the basal segment black, with the margins red, 2nd with the base black in the middle, and the 5th and 6th somewhat dusky on the back ; legs rather short ; 4 anterior red, with the coxæ and trochanters yellow ; posterior coxæ black, trochanters yellow, femora and base of the tibiæ red, apex of the latter black, tarsi dusky ; wings hyaline ; cellule irregular, somewhat sessile.

Apparently rare : I have 2 specimens found in June, near London.

Sp. 56. sphærocephalus. *Niger, segmentis 1-4 pedibusque fulvis, coxis anterioribus et trochanteribus flavis, geniculis posticis nigris, facie flavâ, antennis subtus fulvis.* (Long. corp. $3\frac{1}{2}$ lin. ; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. sphærocephalus. *Gravenhorst, ii. 247.—Steph. Nomen. 2d edit. Gen. 715. 56.*

Black : head subglobose ; face, mouth, and cheeks yellow ; antennæ porrect, fuscous, tawny beneath, 2 basal joints black, yellow below ; abdomen somewhat sessile, oblong-ovate, fulvous, the 3 terminal segments black, the extreme margin of the 7th yellow ; legs moderate, stoutish, fulvous, 4 anterior coxæ and trochanters yellow, posterior trochanters also yellow, and the tip of the femora black ; wings hyaline ; cellule irregular, 3-angular, somewhat petiolated.

Scarce : found near London in June, at Darenth wood.

Sp. 57. pastoralis. [*Niger, abdominis medio rufo, pedibus rufis, posticorum tarsis et apice femorum tibiærumque nigris, ore flavo.* (Long. corp. $2\frac{1}{2}$ —3 lin. ; Exp. Alar. 4— $5\frac{1}{2}$ lin.)

Tr. pastoralis. *Gravenhorst, ii. 248.—Steph. Nomen. 2d edit. Gen. 715. 57.*

Black : mouth yellow ; clypeus occasionally straw-colour ; antennæ rusty beneath, and sometimes a little so above towards the tip ; abdomen somewhat sessile, basal segment smooth, black, 2nd to 4th red, the 2nd with a transverse impressed line, remainder black, with the extreme margins whitish ; legs red, the apex of the hinder femora and of their tibiæ with the coxæ and tarsi sometimes black ; wings hyaline ; cellule irregular, somewhat petiolated.

Not common : taken in June near London, and in Shropshire.



Sp. 58. quadrisculptus. *Niger, segmentis 1-4 lineâ transversali impressis, rufopictis, pedibus rufis, posticorum coxis tarsis et tibiârum apice fuscis.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. $4\frac{1}{2}$ —5 lin.)

Tr. quadrisculptus. *Gravenhorst*, ii. 250.—*Steph. Nomen. 2d edit. Gen. 715. 58.* Black: head small; antennæ rarely more than half the length of the body; thorax with an obscure testaceous streak below the wings; abdomen as wide as the thorax, oblong, sessile, basal segment with a longitudinal groove, and a transverse impressed line, black, the margin red, 2nd to 4th each with a transverse impressed line, red, the 2nd at the base and margin, the 3rd and 4th on the margin, dusky-black, remainder totally black; legs rather slender, testaceous-red, the middle coxæ fuscous beneath, hinder coxæ and tarsi fuscous; tibiæ reddish-white, with the apex, and a dot at the base fuscous; wings smoky-hyaline; cellule wanting.

Found, not uncommonly, in the vicinity of London in June.

Sp. 59. biscalptus. *Niger, segmentis 2 et 3 lineâ transversali impressis, rufis, punctis duobus nigris, pedibus rufis, geniculis posticis coxisque nigris, trochanteribus flavis, ore et maculis faciei flavis.* (Long. corp. $3\frac{1}{4}$ — $3\frac{3}{4}$ lin.; Exp. Alar. 5—6 lin.)

Tr. biscalptus. *Gravenhorst*, ii. 151.—*Steph. Nomen. 2d edit. Gen. 715. 59.* Black, with a griseous pile: head somewhat globose; mouth and 2 dentate spots on the face yellow; antennæ porrect, shorter than the body, red, dull above, the 2 basal joints black, yellow beneath; abdomen sessile, as broad as the thorax, fusiform-cylindric, basal segment black, with 2 elevated lines, 2nd and 3rd red, each with a transverse impressed line, and 2 black dorsal spots, remainder black, the 4th with the basal angles red; legs moderate, red, coxæ black, trochanters yellow, the hinder with the knees black, the tarsi fuscous, red at the base; wings smoky-hyaline; cellule small, irregular, petiolated.

Also taken near London, and not very uncommonly, in June.

Sp. 60. triscalptus. *Niger, segmentis 1-3 lineâ transversali impressis, 2-4 et apice 1-mi rufis, pedibus anterioribus tibiisque posticis rufo-fulvis, coxis anterioribus et trochanteribus, ore maculisque faciei flavis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. 5—6 lin.)

Tr. triscalptus. *Steph. Nomen. 2d edit. Gen. 715. 60.*

Black: mouth and 2 irregularly-triangular spots on the face yellow; tips of the mandibles black; antennæ porrect, shorter than the body, fuscous, the 2 basal joints black, rusty beneath, the remainder red; thorax with a yellow dot at the base of the wings; abdomen sessile, as wide as the thorax, the 3 basal segments each with an interrupted transverse impressed line, the basal one rough, and with 2 impressed lines, black, with the apex broadly red, 2nd and 3rd entirely red, 4th red with the edge black, remainder black; legs moderate, 4 anterior tawny-red, with the coxæ and trochanters yellow; posterior with the coxæ black, trochanters yellow, femora black, tibiæ red, a



little dusky at the extreme tip ; tarsi reddish ; wings smoky-hyaline ; cellule small, 3-angular, petiolated.

Taken near London, not common, in June.

Sp. 61. obscurus. *Niger, abdominis medio castaneo-rufo, pedibus anterioribus stramineis femoribus basi nigra, trochanterum apice et tibiae basi rufo-flavis, ore flavo-maculato.* (Long. corp. 3 lin. ; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. obscurus. *Steph. Nomen. 2d edit. Gen. 715. 61.*

Black : mouth and middle of the mandibles yellow ; antennæ short, porrect, blackish above, beneath entirely reddish-yellow ; abdomen silky, broader than the thorax, sessile, basal segment black, 2nd and 3rd each with a faintly impressed line, red, the base of the former with a large black patch, 4th and 5th red, the last pitchy towards the apex, the remainder pitchy-black ; legs short, 4 anterior pale yellow straw-colour, with the coxæ and base of the femora black ; trochanters all pale yellow at the tip, posterior coxæ and femora black ; tibiæ reddish, with the apex black ; tarsi fuscous ; wings smoky-hyaline ; cellule 3-angular, petiolated.

Also found in June near London : rare.

Sp. 62. bidentatus. *Niger, segmentis 2 et 3 rufis, pedibus anterioribus tibiae-rumque posticarum basi pallide rufo-fulvis, ore ferrugineo.* (Long. corp. $3\frac{1}{4}$ lin. ; Exp. Alar. $5\frac{1}{4}$ lin.)

Tr. bidentatus. *Steph. Nomen. 2d edit. Gen. 715. 62.*

Black : mouth rusty ; antennæ scarcely so long as the body, a little rusty towards the base ; abdomen as wide as the thorax, somewhat oblong-ovate, and sessile, the basal segment black, channelled, quadrate, with the lateral tubercles very prominent, and placed beyond the middle, the extreme margin red, 2nd and 3rd entirely red, 4th with the basal angles and extreme edge red, the back and the remaining segments black ; legs moderate, 4 anterior pale tawny-red, with the coxæ and trochanters black, posterior black, with the base of the tibiæ red ; wings smoky-hyaline ; cellule 3-angular, subsessile.

Scarce : found in July near London.

Sp. 63. flavomaculatus. *Niger, segmentis 3 (et 4) rufis, pedibus fulvis, coxis anterioribus trochanteribusque flavis, coxis posticis nigris, ore et maculis faciei flavis.* (Long. corp. 3 lin. ; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. flavomaculatus. *Gravenhorst, ii. 252.—Steph. Nomen. 2d edit. Gen. 715. 63.*

Black : mouth yellow, mandibles black at the tip ; face yellow in the female, with a short longitudinal black line ; male with 2 yellow dots ; antennæ black, beneath ferruginous, the basal joints either black, or spotted with yellow ; in the female red, paler beneath, the basal joints black ; abdomen somewhat sessile, basal segment black, 2nd black with the margin red, 3rd red, 4th red with the apex black, or totally black, remainder black, in the female the terminal one testaceous ; legs tawny in the male, red in the female, 4 anterior coxæ and trochanters pale yellow, posterior coxæ black, the



tip occasionally red, and sometimes yellow beneath in the male, trochanters in this sex pale yellow, at times with a tawny spot; wings somewhat hyaline; cellule irregular, slightly petiolated.

Found at Darenth wood in July.

Sp. 64. *xanthostomus*. *Niger, abdominis medio rufo, pedibus rufis, coxis nigris, trochanteribus flavis basi nigrâ, ore et puncto faciali flavis*. (Long. corp. 3—3½ lin.; Exp. Alar. 5—6 lin.)

Tr. *xanthostomus*. *Gravenhorst*, ii. 257.—*Steph. Nomen*. 2d edit. Gen. 715. 64.

Black: mouth and a bifid spot on the face, the points directed towards the mouth, yellow; antennæ about the length of the body, curved, the 4 basal joints black, the remainder rusty beneath, and the apical ones totally red; abdomen slightly pedunculated, oblong, a little thickened at the apex, the basal segment channelled and black, 2nd to 4th or 5th red, the former with a fuscous cloud, remainder black, yellowish beneath; legs moderate, slender, red, tibiæ yellowish below, coxæ black; trochanters yellow, with the base black, hinder tarsi fuscous; wings somewhat hyaline; cellule irregular, petiolated.

Not common: found near London, in June.

Sp. 65. *mitigosus*. *Niger, segmentis 2-4-6 pedibusque rufis, coxis posticis basi nigris, facie flavâ*. (Long. corp. 2—3½ lin.; Exp. Alar. 4—6 lin.)

Tr. *mitigosus*. *Gravenhorst*, ii. 258.—*Steph. Nomen*. 2d edit. Gen. 715. 65.

Black: mouth and face yellow, the latter with a dot or streak, and the tips of the mandibles black; antennæ shorter than the body, slightly curved at the apex, rusty-brown, paler beneath, 2 basal joints black, rusty or yellow below; abdomen somewhat sessile, as broad as the thorax, the basal segment deeply grooved, entirely black, or with the tip red, 2nd to 4th nearly equal, red, 5th and 6th red, with the margin yellowish or red; legs dull red, trochanters and coxæ paler, or dull yellow, the hinder coxæ more or less black at the base and above; wings smoky-hyaline; cellule irregularly 3-angular, somewhat petiolated.

Not very uncommon: found in June near London, and in Salop.

Sp. 66. *notatus*. *Niger, segmentis 2-3 rufis, nigro-notatis, pedibus rufis, coxis et trochanteribus nigris, ore flavo aut ferrugineo*. (Long. corp. 2¼—3 lin.; Exp. Alar. 4—5½ lin.)

Tr. *notatus*. *Gravenhorst*, ii. 261.—*Steph. Nomen*. 2d edit. Gen. 715. 66.

Black: mouth and clypeus on the margin, or entirely, yellow or reddish, the base and apex of the mandibles black; antennæ a little shorter than the body, recurved, 2 basal joints black, sometimes rusty beneath, remainder black or fuscous, more or less rusty beneath, especially towards the apex; abdomen somewhat petiolated, oblong-ovate, basal segment black, the margin generally red, 2nd and 3rd red, with 2 black dots, sometimes united into a fascia, or obscure, or totally wanting, and the margins and sides of the 3rd frequently black; 4th occasionally red, rarely black, generally with



the back red or chestnut, the margins always pale or yellowish, 5th to 7th black, with the extreme edge pale; legs moderate, red; coxæ and trochanters black, 4 anterior sometimes fulvous, and generally rusty beneath, the tip of the posterior tibiæ and the hinder tarsi sometimes dusky; wings hyaline; cellule indistinct, or with a mere rudiment of the outer nervure.

Also found in the vicinity of London in July, not uncommonly.

Sp. 67. *lateralis*. *Niger, segmentis 2-5 rufis, lateribus nigris, facie flava, pedibus rufis, coxis anterioribus trochanteribusque flavis, coxis posticis nigris.* (Long. corp. 3—3½ lin.; Exp. Alar. 5—6½ lin.)

Tr. *lateralis*. *Gravenhorst*, i. 690.—*Steph. Nomen*. 2d edit. *Gen.* 715. 67.

Black: mouth and face yellow; antennæ as long as the body, porrect, incurved at the tip; abdomen ovate-fusiform, as wide as the thorax, shining, basal segment thickly punctured, opaque, black, with 2 elevated longitudinal lines, the margin red; 2nd and 3rd quadrate, red, with a black spot on each side, 4th and 5th transverse, red, the sides entirely black, 6th black, with an obscure reddish spot on the back, 7th totally black; legs moderate, tawny-red, 4 anterior with the trochanters and coxæ light yellow, posterior coxæ black, their trochanters yellow; wings slightly hyaline, iridescent; cellule wanting; the outer nervure of the internal cubital areolet angulated. Taken in the neighbourhood of London, and in Salop, in June.

Sp. 68. *lineola*. *Niger, segmentis 2, et 3 rufis, lateribus nigris, 4-ti dorso rufo ore facie genisque flavis, pedibus rufis, coxis et trochanteribus flavis.* (Long. corp. 3½ lin.; Exp. Alar. 4½ lin.)

Tr. *lineola*. *Steph. Nomen*. 2d edit. *Gen.* 715. 68.

Black: mouth, face, and cheeks yellow, tips of the mandibles black; antennæ as long as the body, black, rusty beneath, with the 2 basal joints yellow; thorax with a yellow line before the wings; abdomen narrow, elongate, subclavate, basal segment black, 2nd and 3rd red, with a black spot on the sides of each, 4th black, with the back red at the base, remainder black; legs slender, pale red, all the coxæ and trochanters yellow, the base of the hinder coxæ a little blackish; wings hyaline; cellule 3-angular, petiolated.

Not very common in the vicinity of London: found in June and July.

Sp. 69. *basalis*. *Niger, abdomine rufo, basi apiceque nigris, pedibus anterioribus rufis, coxis et trochanteribus flavis, posticis nigris, basi tibiæ rufo, trochanteribus oreque flavis.* (Long. corp. 2½ lin.; Exp. Alar. 4 lin.)

Tr. *basalis*. *Steph. Nomen*. 2d edit. *Gen.* 715. 69.

Black: mouth and labrum yellow, tips of the mandibles black; antennæ slender, a little curved at the tip, rusty towards the apex beneath; abdomen short, ovate, the basal segment and the basal half of the 2nd black, the apex of the last and the 3 following segments entirely bright shining red, the 6th and 7th black; legs slender, 4 anterior pale red, with the coxæ and trochanters yellow; posterior coxæ black, trochanters yellow, femora slender



and black, tibiæ reddish, with the apex blackish; tarsi also blackish; wings somewhat hyaline; cellule 3-angular, slightly petiolated.

Also found near London in June.

Sp. 70. *axillaris*. *Niger*, segmento 3 et 4 dorso badis, pedibus rufis, facie flavâ lineâ abbreviatâ nigrâ, coxis et trochanteribus flavis, posticis nigro punctatis, thorace flavo maculato. (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. *axillaris*. *Steph. Nomen*. 2d edit. Gen. 715. 70.

Black: palpi, mouth, and face yellow, the last with a short black streak between the antennæ, which are rather longer than the body, a little bent towards the tip, slender, rusty beneath, with the 2 basal joints yellow; thorax with a yellow dot at the base of the wings, a line beneath and an elongate one hooked anteriorly on the sides of the collar, and the anterior margin of the latter occasionally the same; abdomen with the basal segment rugose, black, its apical angles dull chestnut, 2nd black, with the edge chestnut, 3rd chestnut-red, with a black patch on each side, 4th black, with a chestnut-red spot in the middle, remainder black, with the extreme edges whitish; legs pale tawny-red, 4 anterior coxæ and trochanters yellow; hinder coxæ black at the base and yellow at the apex, their trochanters yellow, with a black dot above; wings hyaline; cellule wanting.

Taken in June near London.

Sp. 71. *nasutus*. *Niger*, segmentis 2-5 pedibusque rufis, coxis nigris, tarsis posticis et apice tibiæ posticarum nigris; facie ore et trochanteribus maris flavis, fœminæ nigris. (Long. corp. $3-3\frac{1}{2}$ lin.; Exp. Alar. 5-6 lin.)

Tr. *nasutus*. *Gravenhorst*, ii. 264.—*Steph. Nomen*. 2d edit. Gen. 715. 71.

Black: male with the mouth and face yellow, the latter with a short black streak, and the tip of the mandibles also black; antennæ nearly as long as the body, a little curved at the apex, black, or fuscous, with the basal joint black; abdomen with the basal segment channelled; somewhat sessile, black, 2nd to 5th of equal width, red or chestnut, 5th rarely fuscous, 6th and 7th black; legs rather slender, 4 anterior red or tawny, the trochanters of the male yellow, coxæ black, with the tip yellow; female with the coxæ and trochanters totally black, posterior black, femora red, tibiæ at the base reddish-brown, or red, with the tip black; wings rather stained; cellule wanting.

Found, but very rarely, near London, in July.

Sp. 72. *melanocerus*. *Niger*, segmentis 2-4 et pedibus rufis, coxis nigris, cellula parvâ petiolatâ. (Long. corp. $3-3\frac{1}{2}$ lin.; Exp. Alar. $5-5\frac{1}{2}$ lin.)

Tr. *melanocerus*. *Gravenhorst*, ii. 265.—*Steph. Nomen*. 2d edit. Gen. 715. 72.

Black: palpi and mandibles red, apex and base of the last black; labrum sometimes red; antennæ slender, nearly as long as the body; abdomen oblong-ovate, slightly pedunculated, basal segment black, 2nd to 4th red, the edges of the latter occasionally black, the 5th to 7th black; legs



moderate, red, coxæ and sometimes the base of the trochanters black; wings hyaline; cellule minute, irregular, petiolated.

Not common: found in June near London, and in Salop.

Sp. 73. procurator. *Niger, segmentis 2 et 3 pedibusque rufis; fœmina antennis crassioribus.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. $4\frac{1}{2}$ — $5\frac{1}{4}$ lin.)

Tr. procurator. *Gravenhorst*, ii. 266.—*Steph. Nomen. 2d edit. Gen. 715. 73.*

Black: palpi and mandibles ferruginous, the apex of the latter black; antennæ shorter than the body, the tip curved; in the female a little thickened in the middle; abdomen somewhat sessile, oblong-ovate, the basal segment slightly channelled and roughish, rather opaque, black, with the extreme margin red, 2nd red, with a black spot on the back, 3rd red, 4th black, with the extreme base red, remainder black; legs moderate, red, coxæ and sometimes the trochanters black, posterior tarsi dusky; the tips of the femora and of the tibiæ sometimes blackish in the male; wings rather smoky-hyaline; cellule irregular, somewhat petiolated.

Scarce: found in June near London.

Sp. 74. brunnicans. *Niger, abdomine rufo, basi nigra, pedibus rufis, coxis et trochanteribus nigris.* (Long. corp. $2\frac{1}{3}$ —3 lin.; Exp. Alar. 4—5 lin.)

Tr. brunnicans. *Gravenhorst*, ii. 270.—*Steph. Nomen. 2d edit. Gen. 715. 74.*

Black: labrum and sometimes the middle of the mandibles slightly ferruginous; antennæ half the length of the body, the apex occasionally a little curved and rusty; abdomen somewhat sessile, narrower than the thorax, oblong, or broader and rather thickened at the apex in the females; basal segment black, with its margin chestnut, 2nd to 7th red or chestnut, or a little tawny; ovipositor black; legs rather short, red, coxæ and trochanters black, tibiæ sometimes with a narrow yellowish ring at the base; wings hyaline; cellule 3-angular, transverse, petiolated, very rarely wanting.

Not common: found near London in June.

Sp. 75. scapularis. *Niger, abdomine rufo, basi nigra, coxis et trochanteribus anterioribus, picturis thoracis et ore flavis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. 5 lin.)

Tr. scapularis. *Steph. Nomen. 2d edit. Gen. 715. 75.*

Black: palpi and mouth yellow; antennæ slender, curved at the tip beneath, with the apical joints rusty; thorax with a broad irregular line on each side before the wings, a dot at their base, and a short streak below them yellow; abdomen short, ovate, basal segment deeply channelled at its origin, black, its margin dull red, the remaining segments entirely dull red; legs moderate, 4 anterior pale tawny-red, with their coxæ and trochanters bright yellow, posterior coxæ black, trochanters black, yellow at the apex, femora and tibiæ red, the apex of the latter and the tarsi fuscous; wings hyaline; cellule wanting.

Found near London, but rarely, in June.

MANDIBULATA, VOL. VII., 30TH NOV., 1835.

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Sp. 76. semicaligatus. *Niger, abdominis medio rufo, pedibus anterioribus rufis, femoribus fulvis, posticis nigris, femorum et tibiærum basi rufis, facie nec non articulo 1-mo antennarum flavis.* (Long. corp. $3\frac{1}{4}$ —5 lin.; Exp. Alar. 6— $7\frac{1}{2}$ lin.)

Tr. semicaligatus. *Gravenhorst*, ii. 271.—*Steph. Nomen. 2d edit. Gen. 715. 76.* Black: face and mouth yellow; tips of the mandibles black; antennæ as long as the body, black, or rusty-brown, the basal joint yellow beneath; thorax sometimes with a yellow dot below the wings; abdomen rather narrower than the thorax, somewhat sessile, the basal segment black, 2nd to 5th of nearly equal width, being very gradually broader, 3rd red, with its edge at times blackish, 4th red or chestnut, with the tip dusky, or totally black, of which colour are the remaining segments; legs rather long, 4 anterior yellow or pale tawny, with the femora and sometimes the tibiæ of a brighter hue, coxæ with a black dot, or black with the tip yellow, the middle pair sometimes totally black; posterior red, the tarsi, apex of the tibiæ, coxæ and trochanters, or their base, black, the tibiæ yellowish towards the base; wings hyaline; cellule 3-angular, somewhat petiolated.

Not very common: found in the neighbourhood of London in June.

Sp. 77. insolens. *Niger, segmento 3 pedibusque rufis, coxis et trochanteribus, nec non tibiærum posticarum apice nigris; mas palpis albis.* (Long. corp. 4—5 lin.; Exp. Alar. 7—9 lin.)

Tr. insolens. *Gravenhorst*, ii. 274.—*Steph. Nomen. 2d edit. Gen. 715. 77.*

Black: palpi of the male white; antennæ about as long as the body, involuted at the tip; abdomen rather narrow, of the male a little dilated at the apex, of the female ovate-fusiform, the basal segment with a fovea at the base, sometimes produced into a narrow groove, extending beyond the middle, the 2nd of the female sometimes with an obscure chestnut lateral spot, 3rd red, with the margins occasionally black in the female, remainder black and silky; legs slender, red, coxæ and trochanters black, tarsi black, the 4 anterior reddish at the base; hinder tibiæ black at the tip; wings rather smoky-hyaline; cellule irregular and slightly petiolated.

Not very common: taken in June in the vicinity of London, and in Salop.

Sp. 78. zonatus. *Niger, abdominis medio rufo, pedibus anterioribus tibiærumque posticarum apice fulvis, coxis et trochanteribus nigris, ore, facie et maculis 2-bus thoracis flavis.* (Long. corp. 5 lin.; Exp. Alar. $8\frac{1}{2}$ lin.)

Tr. zonatus. *Steph. Nomen. 2d edit. Gen. 715. 78.*

Black: mouth and face yellow, tips of the mandibles black; antennæ as long as the body, rather slender, dusky-black, beneath with the 3 basal joints black, the remainder red; thorax with a large irregular yellow patch on each side before the wings; abdomen elongate, clavate, slightly petiolated, acute at the apex, the basal segment black, 2nd and 3rd, or the basal half of



the 4th, bright red, remainder black and silky; legs moderate, 4 anterior pale tawny-red, with the base of the femora slightly blackish, coxæ and trochanters all black; posterior femora black, their tibiæ red at the base and black at the apex; tarsi fuscous; wings hyaline; cellule wanting.

Rare: found near London in July.

Sp. 79. petulans. *Niger, segmentis 2 et 3 pedibusque rufis, coxis et trochanteribus nigris, antennis subtus fulvis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5—6 lin.)

Tr. petulans. *Gravenhorst*, ii. 275.—*Steph. Nomen. 2d edit. Gen.* 715. 79.

Black: palpi and middle of the mandibles rusty; antennæ fulvous beneath, with the basal joint entirely black; abdomen with the 2nd and 3rd segments red; legs red; wings smoky-hyaline; cellule irregular, somewhat petiolated.

Found in the vicinity of the metropolis in June, and in Salop.

Sp. 80. evolans. *Niger, segmentis 2 et 3 castaneis illo basi hoc apice nigris, pedibus rufis, coxis et trochanteribus nigris.* (Long. corp. $3\frac{1}{2}$ — $4\frac{1}{4}$ lin.; Exp. Alar. 5—7 lin.)

Tr. evolans. *Gravenhorst*, ii. 277.—*Steph. Nomen. 2d edit. Gen.* 715. 80.

Black: antennæ shorter than the body, the apex recurved; abdomen petiolated, narrower than the thorax, fusiform, basal segment smooth, black, 2nd chestnut, with the base dusky, 3rd chestnut, with the margin sometimes black, remainder black; legs rather slender, red, coxæ and trochanters black; hinder tarsi fuscous; wings somewhat hyaline; cellule minute, petiolated.

Taken in June near London, and in Salop.

Sp. 81. erythrophalpus. *Niger, abdominis medio rufo, pedibus anterioribus rufis, coxis et trochanteribus nigris, posticis nigris basi tibiæ rufæ, ore, lineis duabus fuciei, antennarumque articulo 1-mo subtus, flavis.* (Long. corp. 4—5 lin.; Exp. Alar. $6\frac{1}{2}$ — $7\frac{1}{2}$ lin.)

Ich. erythrophalpus. *Gmelin*, 2702.—Tr. erythrophalpus.—*Steph. Nomen. 2d edit. Gen.* 715. 81.

Black: mouth and clypeus yellowish, the tip of the mandibles black; a whitish-yellow line from the insertion of the antennæ extending obliquely to the lower orbits; antennæ scarcely so long as the body, the apex curved, fuscous or rusty beneath, with the 2 basal joints ochreous: abdomen somewhat sessile and linear, or oblong-ovate, the basal segment a little aciculated and slightly channelled, black, with the margin reddish; 2nd to 4th dull red, the edge of the 4th black, remainder black; legs moderate, 4 anterior tawny-red, with the coxæ and base of the trochanters black; posterior black, with the tip of the trochanters and base of the tibiæ red; wings hyaline; cellule 3-angular, minute, with a long petiole.

Found near London: taken at Hertford in July last.



Sp. 82. *fulvilabris*. *Niger, abdominis medio pedibusque anterioribus rufis, pedibus posticis nigris, tarsis et tibiis rufis, his apice nigro, ore testaceo.* (Long. corp. $4\frac{1}{2}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Tr. *fulvilabris*. *Gravenhorst, ii. 292.—Steph. Nomen. 2d edit. Gen. 715. 82.*

Black: clypeus and labrum tawny straw-colour; palpi and mandibles dull straw, the latter black at the tip; antennæ porrect, shorter than the body, the tip incurved, rusty beneath; abdomen silky, narrower than the thorax, somewhat linear, and slightly petiolated; basal segment black, 2nd to 4th tawny-red, the extreme margin of the latter dusky; legs rather slender; 4 anterior tawny-red, coxæ black at the base; posterior coxæ black, trochanters black, red at the tip, femora black, the upper margin chestnut, tibiæ red, with the apex black, tarsi reddish; wings hyaline; cellule irregular, petiolated.

Found in June in the neighbourhood of the metropolis, and in Salop.

Sp. 83. *parvulus*. *Niger, abdominis medio fulvo, pedibus anterioribus fulvis, coxis basi nigra, posticis nigris, tibiis testaceis apice nigricante, antennis subtus stramineis, cellula nullâ.* (Long. corp. $2\frac{1}{4}$ lin.; Exp. Alar. 4 lin.)

Tr. *parvulus*. *Gravenhorst, ii. 294.—Steph. Nomen. 2d edit. Gen. 715. 83.*

Black: antennæ straw-coloured beneath, with the basal joint totally black; abdomen somewhat cylindric and sessile, with the 2nd to 4th segments tawny, the back of the 5th red; legs moderate, 4 anterior tawny, coxæ either entirely or at the base alone black, posterior black, with the tips of the coxæ and trochanters straw-coloured; tibiæ testaceous, with the apex dusky; tarsi red-brown; wings smoky-hyaline; cellule none.

Taken in June near Hertford.

Sp. 84. *vernalis*. *Niger, abdominis medio, femoribus anterioribus tibiisque rufis.* (Long. corp. 3—4 lin.; Exp. Alar. 5— $6\frac{1}{2}$ lin.)

Tr. *vernalis*. *Gravenhorst, ii. 294.—Steph. Nomen. 2d edit. Gen. 715. 84.*

Black: antennæ slender, about as long as the body, the tip incurved, generally reddish beneath; with the basal joint black; abdomen somewhat silky, petiolated, narrower than the thorax, fusiform, the basal segment black, smooth, narrow, rather dilated towards the apex, which is red, the lateral tubercles placed in the middle, 2nd red, with a black cloud in the middle of the base, 3rd and 4th red, the edge of the latter black, remainder black; legs rather slender, 4 anterior rusty-red, trochanters and coxæ black, the former sometimes red, entirely or at the apex; posterior legs black, tibiæ and tarsi reddish-brown, sometimes paler at the base; wings nearly hyaline; cellule irregular, somewhat petiolated.

Found, but not commonly, in May, near London.

Sp. 85. *pratensis*. *Niger, abdomine rufo, segmento 1-nigro, tibiis tarsisque rufis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 4— $5\frac{1}{2}$ lin.)



Tr. pratensis. *Gravenhorst*, ii. 299.—*Steph. Nomen. 2d edit. Gen.* 715. 85.

Black: labrum dull rusty; antennæ rather more than half the length of the body, the 3 or 4 basal joints beneath black, the remainder red; abdomen sessile, narrower than the thorax, oblong, red, the basal joint black and channelled, the remainder a little broader; legs moderate, red, coxæ and trochanters black, the tips of the latter red, the middle femora blackish towards the base without, the posterior rather thickened, black, with the extreme base and apex reddish, tibiæ and tarsi red; wings smoky-hyaline, with an irregular somewhat sessile cellule.

Taken in the beginning of June, near London.

Sp. 86. *propinquus.* *Niger, abdomine rufo, segmento 1-mo nigro, pedibus anterioribus et tibiarum posticarum basi rufis, antennis subtus stramineis, ore ferrugineo.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. propinquus. *Gravenhorst*, ii. 300.—*Steph. Nomen. 2d edit. Gen.* 715. 86.

Black: mouth ferruginous; tips of the mandibles black; antennæ nearly as long as the body, with the 2 basal joints beneath testaceous, remainder gradually obscure; abdomen red, with the basal segment black; legs moderate, 4 anterior red, with all the coxæ and trochanters entirely black, or the middle pair of coxæ only black at the base; hinder coxæ black, red beneath at the apex, their trochanters red with a black dot above, femora black, tibiæ red, with the tip black; tarsi fuscous; wings hyaline; cellule irregular, petiolated.

Found in June within the metropolitan district.

Sp. 87. *signator.* *Niger, segmentis 2-5, femoribus anterioribus, tibiisque rufis, harum posticis apice nigro, arcu fuciali flavo, antennis subtus testaceis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5—7 lin.)

Tr. signator. *Gravenhorst*, ii. 301.—*Steph. Nomen. 2d edit. Gen.* 715. 87.

Black: palpi and mandibles rusty in the middle, the face with a semicircular yellow spot, the convex part looking towards the mouth; antennæ, except from 1 to 3 basal joints, tawny beneath; abdomen silky, the basal segment black, 2nd to 5th red, the 2nd of the male with a black or fuscous spot, the 6th and 7th black or dusky, with the margins chestnut; legs moderate, 4 anterior red, coxæ and trochanters black at the base, posterior black, the apex of the trochanters rusty, tibiæ the same, with the tip black, the base of the 1st joint of the tarsi rusty; wings hyaline, or a little smoky; cellule irregular, petiolated.

Taken in the vicinity of London in June and July.

Sp. 88. *rutilator.* *Niger, abdomine rufo, basi nigrâ, pedibus anterioribus fulvis, basi nigrâ, tibiis posticis basi rufis, punctis 2-bus fuciei flavis, antennis subtus rufis aut flavis.* (Long. corp. 3— $4\frac{1}{2}$ lin.; Exp. Alar. 6—8 lin.)

Ich. rutilator. *Linné.*—*Steph. Catal.* 351. No. 4469.

Black: palpi and mouth, and, in the males, a more or less extensive sub-bifid spot on the face, which is distinctly divided in the female, yellow;



antennæ about half the length of the body, curved at the tip, fuscous, rusty or yellow beneath; abdomen silky, somewhat sessile, narrow and sublinear, or a little clavate in the male, broader, clavate-fuciform in the female, red, with the basal segment, and sometimes 2, more or less united, dots on the 2nd, black; the female with the basal portion of the 1st segment only black; legs shortish, 4 anterior fulvous, with the base of the femora occasionally more or less black, the coxæ and trochanters yellow beneath; posterior black, with the base of the tibiæ reddish; tips of the trochanters yellowish; wings rather smoky-hyaline; cellule irregular 3-angular, petiolated.

A variable species: the terminal segment of the abdomen is occasionally black.

Not uncommon in the vicinity of London, frequenting woody places, umbelliferous flowers, &c. in June and July: found also at Netley, in the New Forest, &c.

Sp. 89. *quadratus*. *Niger, abdomine rufo, basi nigra, pedibus anterioribus stramineo-fulvis, tibiis posticis basi pallida, antennis subtus, ore maculæque quadrata faciei flavis.* (Long. corp. $3\frac{1}{2}$ —5 lin.; Exp. Alar. $5\frac{1}{2}$ —8 lin.)

Tr. *quadratus*. *Steph. Nomen. 2d edit. Gen. 715. 89.*

Black: palpi and mouth yellow, face with a large quadrate yellow spot, separated from the mouth by a transverse black streak; antennæ about half the length of the body, stoutish, black, yellow or red beneath; abdomen red, linear or somewhat clavate in the male, with the basal segment, and occasionally a double spot, or abbreviated transverse fascia on the 2nd black; of the female broad and clavate, and with the basal half of the 1st segment black; legs moderate, 4 anterior yellowish-red, with the coxæ and trochanters beneath paler, the outer upper edge of the femora very rarely black towards the base; posterior black, trochanters at the apex yellowish, tibiæ pale towards the base; wings rather smoky-hyaline; cellule small, 3-angular, petiolated.

Also subject to considerable variety.

More abundant than the last, at least within the metropolitan district, occurring on umbelliferous flowers in June, &c.

Sp. 90. *atriceps*. *Niger, abdomine rufo, basi nigra, pedibus anterioribus tibiisque posticis rufis, ore fulvo, coxis et trochanteribus atris.* (Long. corp. 4—5 lin.; Exp. Alar. 7—8 lin.)

Tr. *atriceps*. *Steph. Nomen. 2d edit. Gen. 715. 90.*

Black: mouth tawny; abdomen silky, red, its basal segment black, with the extreme margin red; legs moderate, 4 anterior with the femora, tibiæ, and tarsi red, all the coxæ and trochanters deep black, posterior with the femora black, their extreme apex and the tibiæ red, tarsi fuscous; wings somewhat hyaline; cellule moderate, 3-angular, petiolated.

Found, but somewhat rarely, near London in June.



Sp. 91. *facialis*. *Niger, abdominis medio rufo, pedibus anterioribus fulvis, basi plerumque nigra, tibiis posticis basi rufis, antennis subtus ore maculæque faciei flavis.* (Long. corp. 3—5 lin.; Exp. Alar. $5\frac{1}{2}$ —9 lin.)

Tr. *facialis*. *Steph. Nomen. 2d edit. Gen. 715. 91.*

Black: mouth, and a more or less extensive, mostly semicircular, yellow spot on the face; antennæ about half the length of the body, pale red or yellow beneath; abdomen silky, linear or somewhat clavate in the male, the basal segment black, its edge and the 3 following segments red, the 2nd frequently with 2 confluent spots or a transverse fascia, and the 3rd also occasionally with a cloud at the base black, 5th and following glossy black; legs moderate, 4 anterior fulvous, with the base of the femora occasionally black, trochanters yellow, tibiæ reddish at the base; wings rather hyaline; cellule smooth, irregular, petiolated.

Not uncommon within the metropolitan district in June and July, frequenting umbelliferous flowers, &c.

Sp. 92. *quadrilineatus*. *Niger, abdominis medio, tibiis anterioribus, femoribusque rufis, orbitis oculorum internis, lineis 2-bus faciei, lineæque ante alas, flavis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5—7 lin.)

Tr. *quadrilineatus*. *Gravenhorst, ii. 320.—Steph. Nomen. 2d edit. Gen. 715. 92.*

Black: palpi, spot on the mandibles, a streak on the clypeus, inner orbits, and 2 longitudinal lines on the face, united below to the pale orbits, and extending towards the base of the antennæ upwards, and a minute dot on the cheeks, yellow; antennæ slender, the 2 basal joints yellow beneath, and the thorax with a streak before the wings and a dot below them also yellow; abdomen with the basal segment black, the tip chestnut, 2nd chestnut, with a black lateral spot, 3rd chestnut, 4th also chestnut, with a black fascia before the margin, remainder black; legs red, coxæ and trochanters black, chestnut beneath, the extreme base of the hinder femora blackish; hinder tibiæ and tarsi fuscous, the former with a chestnut tinge towards the base; wings slightly hyaline; cellule somewhat 5-angular.

Apparently rare: taken at Hertford in June.

Sp. 93. *hamulus*. *Niger, abdomine rufo, basi nigra, tibiis anterioribus femoribusque rufis, ore et lineâ hamatâ ante alas albido-flavis.* (Long. corp. $3\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Tr. *hamulus*. *Gravenhorst, ii. 322.—Steph. Nomen. 2d edit. Gen. 715. 93.*

Black: mouth and clypeus dull whitish straw-colour, the base and apex of the mandibles black; antennæ slender, porrect, the tip a little recurved; thorax with a dot, and a line before the wings, the latter hooked towards the front, whitish-yellow; abdomen oblong, somewhat sessile, the basal segment black, the 2nd black with the apex chestnut, the remainder entirely chestnut; ovipositor black; legs rather slender, 4 anterior red, coxæ and trochanters black, posterior black, with the femora chestnut, the base and apex blackish, the base of the tibiæ dull chestnut; wings hyaline; cellule none.

Also rare: taken in June, at Darent wood.



Sp. 94. bicolor. *Niger*, segmentis 1-4, femoribus, tibiisque rufis, harum posticis apice nigro. (Long. corp. 5 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Tr. bicolor. *Gravenhorst*, ii. 326.—*Steph. Nomen*. 2d edit. Gen. 715. 94.

Black: antennæ slender, rather shorter than the body, rusty beneath towards the apex; abdomen with the basal segment slightly channelled, red, 3 following also red, remainder black; legs moderate, 4 anterior red, with the coxæ and trochanters black; posterior black, tibiæ red, the tip black; wings somewhat hyaline; cellule wanting.

Found, but rarely, near London, in June and July.

GENUS XLVI.—EXOCHUS, *Gravenhorst*.

Antennæ short, straight, somewhat filiform, composed of about 27 articulations; *head* rather short, transverse, face more or less protuberant below the antennæ; *eyes* ovate, or somewhat orbicular: *thorax* cylindric, or slightly gibbous: *scutellum* flattish, triangular: *wings* moderate, or smallish; cellule none, or small, 3-angular, and petiolated: *abdomen* somewhat sessile, convex, oblong-cylindric, sometimes a little thickened, shining, smooth, the basal segment slightly channelled, its lateral tubercles placed beyond the middle: *ovipositor* generally concealed: *legs* short, robust, *femora* and *tibiæ* a little compressed.

This genus, as indicated by *Gravenhorst*, differs chiefly from the preceding by having the legs short and thick, the face protuberant—whence its name—and the abdomen somewhat sessile, oblong-cylindric; to which may be added the comparative brevity of the wings and the smallness of stature: the insects are generally found amongst grass, or on umbelliferous plants, during the summer and commencement of autumn.

§ I. *Anterior wings* with a small cellule.

Sp. 1. frænator. *Niger sericeus*, femoribus tibiisque rufis. (Long. corp. 2—3 $\frac{1}{2}$ lin.; Exp. Alar. $3\frac{1}{2}$ —5 lin.)

Ex. frænator. *Gravenhorst*, ii. 332.—*Steph. Nomen*. 2d edit. Gen. 716. 1.

Black and silky: mouth reddish, with the tips of the mandibles black; antennæ about half the length of the body, the tip rather curved, beneath more or less rusty-red; abdomen a little narrower than the thorax, somewhat oblong or cylindric, the 2nd to 6th segments of equal width, the apex a little thickened in the females, basal segment with 2 elevated lines, remainder generally with the extreme edges reddish; legs shortish and rather stout, red, with the coxæ black; trochanters either black with the tip red, or entirely red; tibiæ with the base in general either palish or yellowish; wings hyaline; cellule small, irregular, obliquely transverse, petiolated.

Not very abundant: taken at Darenth wood in June, and other places within the metropolitan district.



Sp. 2. *curvator*. *Niger, pedibus rufis, cellula longepetiolata*. (Long. corp. 2½ lin.; Exp. Alar. 4 lin.)

Ich. *curvator*. *Fabricius, Ent. 177*.—Ex. *curvator*. *Steph. Nomen. 2d edit. Gen. 716. 2*.

Black: palpi straw-coloured; antennæ rather above half the length of the body, the tip curved; thorax somewhat cylindric; abdomen as long and as broad as the thorax, slightly sessile, oblong, shining, a little thickened at the apex, the basal segment with 2 obsolete elevated lines; legs short, red; wings ample, hyaline; cellule irregular, obliquely-transverse, with a long peduncle.

Not common: taken in June near London.

Sp. 3. *podagricus*. *Niger, pedibus rufis, plerumque maculâ coxarum femorumque nigra, cellulâ subpetiolatâ*. (Long. corp. 2½ lin.; Exp. Alar. 4 lin.)

Ex. *podagricus*. *Gravenhorst, ii. 336*.—*Steph. Nomen. 2d edit. Gen. 716. 3*.

Black: palpi dusky straw-colour; antennæ curved, rusty beneath, a little obscure towards the apex; abdomen rather thickened at the tip; legs dull red, coxæ black with the apex reddish, 4 anterior femora for the most part with a small black spot exteriorly, and the hinder pair with a larger fuscous one; wings hyaline; cellule obliquely-transverse, and somewhat sessile, or slightly petiolated.

Not uncommon in the vicinity of London, and in Salop, in June.

Sp. 4. *Æthiops*. *Niger, solis tibiis rufis*. (Long. corp. 2½ lin.; Exp. Alar. 4½ lin.)

Ex. *Æthiops*. *Gravenhorst, i. 693*.—*Steph. Nomen. 2d edit. Gen. 716. 4*.

Black: mouth rusty; antennæ a little curved, rather longer than half the body, red beneath towards the base; thorax cylindric; abdomen smooth, shining, the basal segment rather dilated towards the apex, 2nd to 5th of equal width, 2nd quadrate, remainder somewhat shorter; legs with the anterior tibiæ red, the middle rusty-red, posterior fuscous, rusty-red without; tarsi red, posterior rusty; wings somewhat smoky-hyaline; cellule rather large, 3-angular, nearly sessile.

Found in the vicinity of London in June, and in Salop.

§ II. *Anterior wings without a cellule.*

Sp. 5. *mansuetor*. *Niger, pedibus antennarum basi, et macula faciei, rufis*. (Long. corp. 1½—2¼ lin.; Exp. Alar. 2½—4 lin.)

Ex. *mansuetor*. *Gravenhorst, ii. 339*.—*Steph. Nomen. 2d edit. Gen. 716. 5*.

Black: palpi straw-colour; face very protuberant, with a red spot of variable size; antennæ shorter than half the body, curved at the tip, fuscous, beneath red or ferruginous, dusky towards the apex; thorax rather cylindric; abdomen somewhat silky, oblong-ovate, a little thickened at the apex, and the basal segment a little dilated towards the tip, 2nd to 4th somewhat equal in width, the margins of the segments sometimes chestnut; legs thick and



red; coxæ generally black at the base, the hinder pair occasionally entirely black; wings hyaline.

Abundant in the neighbourhood of the metropolis in the summer, at Hertford, Darenth, &c.; also in the New Forest, Norfolk, Salop, and other parts.

Sp. 6. *coronatus*. *Niger, pedibus rufis, tibiis posticis basi pallida, scutelli apice, punctoque ad radicem alarum, albidis, fascia faciei straminea.* (Long. corp. 2—3 lin.; Exp. Alar. $3\frac{1}{2}$ —5 lin.)

Ex. *coronatus*. *Gravenhorst*, ii. 342.—*Steph. Nomen. 2d edit. Gen.* 716. 6.

Black: palpi and a transverse curved line beneath the antennæ straw-colour; thorax with a streak or dot before the wings reddish, and sometimes a faint whitish line below the scutellum, the apex of which is more or less whitish; abdomen of the male somewhat cylindric, and narrower than the thorax; of the female as broad as the thorax, somewhat fusiform, the margins of the segments at times obscurely chestnut; legs rather slender, tawny-red, the hinder tibiæ sometimes pale at the base, and the base of the posterior coxæ occasionally black; wings somewhat hyaline.

Not very common: taken at Coombe wood, and in the New Forest and Salop, in June.

Sp. 7. *lentipes*. *Niger, pedibus fulvis, tibiis albis, posticis apice fusco, scutello apice rufo, facie et thorace flavomaculatis.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 4—5 lin.)

Ex. *lentipes*. *Gravenhorst*, ii. 344.—*Steph. Nomen. 2d edit. Gen.* 716. 7.

Black: face yellow, with a black dot, or with a yellow band, notched below, in the middle; antennæ fuscous-red, straw-coloured beneath, with the basal joint totally black; thorax with a line before and below the wings, a spot before the neck, and sometimes a streak beneath the scutellum whitish, tip of the latter the same or reddish; abdomen somewhat silky, the extreme margin of the intermediate segments reddish; legs tawny-red; tibiæ white, or yellowish, 4 anterior tawny at the tip, the extreme base and apex of the hinder fuscous; wings somewhat smoky-hyaline.

Scarce: taken in June near London.

Sp. 8. *femoralis*. *Niger, pedibus crassissimis rufis, antennis subtus ferrugineis.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{4}$ — $5\frac{1}{2}$ lin.)

Ich. *femoralis*. *Fourcroy, Ent. Par.* 396.—Ex. *femoralis*. *Steph. Nomen. 2d edit. Gen.* 716. 8.

Black: palpi straw-coloured or brown; face reddish, or bay, beneath the antennæ; the latter half the length of the body, curved at the tip, rusty or brownish beneath; abdomen as wide as the thorax, oblong, the basal segment a little narrowed towards its origin, and channelled; legs very much thickened, red, the anterior pair of coxæ sometimes black, and the hinder



chestnut, with the base brown, the trochanters also black at the base; wings somewhat smoky-hyaline.

Also rather scarce: taken in the neighbourhood of London, in June.

Sp. 9. *prosopius*. *Niger, facie pedibusque flavis, femoribus fulvis, coxis posticis supra nigris, scutelli summo apice pallido.* (Long. corp. 3—4 lin.; Exp. Alar. 5—6 lin.)

Ex. *prosopius*. *Gravenhorst*, ii. 342.—*Steph. Nomen. 2d edit. Gen.* 716. 9.

Black: palpi, a spot on the mandibles, and the face yellow, the last with a short black streak; antennæ with the basal joint sometimes yellow beneath, and the sides of the prothorax occasionally with a yellow dot; the apex of the scutellum mostly with 1 or 2 minute yellow or reddish dots; abdomen as wide as the thorax, somewhat cylindric; legs pale yellow, 4 anterior with the femora externally more or less tawny; posterior coxæ black above, femora tawny, tibiæ fulvous towards the apex, the apex itself blackish; claws all fuscous; wings smoky-hyaline.

Found, but not commonly, near London, in June.

Sp. 10. *gravipes*. *Niger, pedibus rufis, coxis nigris.* (Long. corp. 3½—4 lin.; Exp. Alar. 5—6½ lin.)

Ex. *gravipes*. *Gravenhorst*, ii. 351.—*Steph. Nomen. 2d edit. Gen.* 716. 10.

Black: antennæ about half the length of the body, or rather longer, curved at the tip, porrect in the male; abdomen somewhat silky, rather narrower than the thorax, a little thickened towards the apex in the females, the basal segment with 2 short elevated lines, 2nd to 5th of nearly equal width; legs short, tawny-red, with the coxæ and trochanters black, the apex of the latter sometimes red, and the extreme base of the hinder tibiæ occasionally pale; wings somewhat smoky-hyaline.

Also taken, in June and July, near London.

Sp. 11. *asper*. *Niger, abdominis basi scabriculâ, pedibus rufis.* (Long. corp. 2 lin.; Exp. Alar. 3½ lin.)

Ex. *asper*. *Gravenhorst*, ii. 694.—*Steph. Nomen. 2d edit. Gen.* 716. 11.

Black: mouth ferruginous; antennæ rather longer than half the body, reddish beneath at the base; abdomen as wide as the thorax, the basal segments roughish, with 2 elevated longitudinal lines, and a little narrowed towards the base, 2nd quadrate and also roughish, remainder shorter and smoother; legs pale red, hinder coxæ above black at the base; wings hyaline.

Found near London, and in Salop, in June.

Sp. 12. *cristator*. *Niger, abdominis basi scabriculâ, pedibus rufis, posticorum coxis nigris, tibiis basi summâ albidâ, facie flavâ: mas antennis subtus fulvis.* (Long. corp. 3½ lin.; Exp. Alar. 5½ lin.)

Ex. *cristator*. *Gravenhorst*, ii. 352.—*Steph. Nomen. 2d edit. Gen.* 716. 12.



Black : mouth and face yellow ; antennæ of the male slender, rather shorter than the body, tawny-red beneath, with the basal joint yellow ; of the female half the length of the body, stoutish and black ; thorax silky ; abdomen narrower than the thorax in the male, of the female as wide, a little thickened towards the apex, the basal segment somewhat quadrate and roughish, with 2 elevated lines, 2nd and 3rd also roughish, with punctures, and slightly opaque, with a faintly elevated longitudinal line ; remainder rather shining, the intermediate segments occasionally edged with chestnut ; legs red, 4 anterior of the male with the coxæ and trochanters yellow beneath ; posterior coxæ black, their tibiæ pale at the extreme base ; wings somewhat hyaline.

Taken in June, near London, and in Salop.

Sp. 13. *funebri*. *Niger, abdominis basi scabriculâ, pedibus anterioribus rufis, posticis nigris basi tibiæ alba.* (Long. corp. $2\frac{3}{4}$ lin. ; Exp. Alar. $4\frac{1}{2}$ lin.)

Ex. *funebri*. *Gravenhorst*, i. 695.—*Steph. Nomen*. 2d edit. Gen. 716. 13.

Black : mouth ferruginous ; abdomen as in the foregoing species, roughish at the base ; legs moderate, 4 anterior red, coxæ and trochanters black, middle with the femora beneath towards the base black, tibiæ without and tarsi fuscous, posterior black, with the base of the tibiæ white ; wings smoky-hyaline.

Found in June in the vicinity of the metropolis, and in Salop.

GENUS XLVII.—SCOLOBATES, *Gravenhorst*.

Antennæ porrect, slender and curved at the apex : *head* transverse, a little swollen in front, and deeply excavated behind : *eyes* ovate : *thorax* gibbous : *scutellum* 3-angular, somewhat gibbous : *wings* moderate, cellule wanting : *abdomen* somewhat sessile, oblong-ovate, the apex slightly compressed, the 1st segment sensibly narrowed towards the base, the lateral tubercles placed before the middle ; *ovipositor* scarcely exerted ; *legs* various, 4 anterior moderate, posterior pair elongate, *tarsi* either simple or thickened, as in the *Anomala*.

These insects principally differ from the preceding by having the hinder pair of legs elongated, and their tarsi thickened, as in the genus *Anomalon* ; the wings moderate, destitute of a cellule, the abdomen somewhat sessile, the 1st segment narrowed towards the base, and its lateral tubercles placed before the middle :—there are probably more indigenous species of this genus than I have indicated, as Mr. Shuckard informs me has seen 3 or 4, unnamed, placed in some cabinets.



Sp. 1. *crassitarsus*. *Niger, abdominis medio, tibiis anterioribus, femoribus, capitisque picturis rufis.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7 lin.)

Sc. *crassitarsus*. *Gravenhorst*, ii. 360.—*Steph. Nomen*. 2d edit. *Gen.* 717. 1.

Black: head tawny-rusty, with the crown, occiput, sometimes a dot beneath the antennæ, and 2 lines on the face black; antennæ rusty, dusky towards the base, the 1st joint black above, yellowish beneath; abdomen a little depressed, slightly channelled, black, the apex red, 2nd and 3rd red, remainder black, with the base of the 4th slightly reddish; anterior legs testaceous-red, coxæ, trochanters, and extreme base of the middle femora black, posterior with the femora red, the tibiæ reddish at the base, the apex blackish; tarsi rather thick and black; wings rather smoky-hyaline.

Taken very rarely, in July and August, within the metropolitan district.

GENUS XLVIII.—TROGUS, *Panzer*.

Antennæ moderate, about half the length of the body, setaceous, porrect, or curved at the apex, sometimes faintly serrated within: *head* short, transverse, a little narrowed towards the collar: *eyes* oval: *thorax* gibbous: *scutellum* somewhat quadrate, more or less gibbous: *wings* rather ample, in the British species transparent; cellule 3-angular or 5-angular, sessile, or somewhat petiolated: *abdomen* petiolated, convex, oblong, or oblong-ovate, the anterior portion of the 1st segment somewhat gibbous, generally with 2 elevated lines, peduncle slender, linear and channelled: *ovipositor* concealed: *legs* moderate, femora and tibiæ rather stoutish.

The splendid insects, contained in this fine genus, may be distinguished not only by their great bulk, but chiefly by having the scutellum very convex, the abdomen distinctly pedunculated and convex, and the head transverse; their larvæ usually prey upon those of the Sphingidæ, or of the larger Bombycidæ and Noctuidæ: from the splendid series I possess of these insects, and from their habit, &c. I am induced to consider that Gravenhorst has confused at least 3 distinct species together, as I have attempted to indicate.

Sp. 1. *alboguttatus*. *Niger, abdomine cærulescente, segmenti 1-mi margine et segmenti 7-mi linea longitudinali albis, scutello albo: mas facie albomaculata; fœmina annulo antennarum albo.* (Long. corp. 6½—9 lin.; Exp. Alar. 10½—15¼ lin.)

Tr. *alboguttatus*. *Gravenhorst*, ii. 374.—*Steph. Nomen*. 2d edit. *Gen.* 718. 1.

Black: palpi of the male, 2 spots on the clypeus, a dot on the mandibles and cheeks, and the inner orbits ochreous-white, or with the entire clypeus white, and the face white, with a black spot; antennæ of the same sex porrect, a little serrated within; of the female red at the tip, with the 11th



to 14th joints whitish, fuscous beneath; thorax with a white dot before and beneath the wings, or a streak in front, one or other at times deficient; scutellum whitish; abdomen blackish, the basal segment in the male mostly with an interrupted white edge, and in the female with 2 white dots on the angles, the edge of the 3rd occasionally reddish and of the 5th and 6th whitish, the 7th, in both sexes, either with a longitudinal or oval white patch; legs slenderish, black, 4 anterior of the male ochreous-white beneath, the hinder trochanters and tibiæ the same, the tip of the latter more or less black; of the female the tibiæ and tarsi are fuscous, with the base of the femora sometimes reddish; wings smoky-hyaline; cellule 3-angular, faintly petiolated.

Not very abundant: found occasionally in June at Darenth, and other places within the metropolitan district; also in Devonshire, the New Forest, Salop, Norfolk, &c.

Sp. 2. *lutorius*. *Testaceus, capite thoraceque nigro rufoque pictis, scutello et lineâ ante alas flavis, abdomine pedibusque testaceo-fulvis, coxis posticis plerumque basi nigris, antennis nigris, basin versus rufis.* (Long. corp. ♂ 10—12 lin.; ♀ 7½—10 lin.; Exp. Alar. 15—18 lin.)

Ic. *lutorius*. *Fabricius*.—*Steph. Catal.* 349. No. 4423.

Testaceous: head black, with the mouth and face yellow, the outer and vertical orbits red, or red with the crown and eyes black; antennæ of the male porrect, the basal joint rusty, fuscous above, 4 or 5 of the following totally red, or fuscous above and red beneath, the remainder always fuscous or black above; of the female curved, with about the 20 basal joints red or tawny, the remainder black; thorax black, with 2 longitudinal reddish lines, or red, with 3 black longitudinal lines, the central one mostly short, the upper part of the neck, a line before and a streak beneath, and another below the scutellum testaceous; scutellum yellow; abdomen testaceous, sometimes with a dusky or blackish spot at the base of the 5th and 6th segments; legs generally testaceous, anterior coxæ pale, posterior black, with the tip testaceous; hinder femora sometimes with a fuscous or blackish dot towards the apex; wings pale tawny-hyaline; cellule 3-angular.

An extremely variable species: in some examples the thorax is nearly black, with some faint reddish markings; in others it is red, with a few remote black streaks; the abdomen is occasionally wholly testaceous, and at times has 1 or more of the terminal segments black at the base: the legs also vary; in some examples all the coxæ are pale, in others 1, or more, pair is spotted with black; the hinder femora are sometimes immaculate, at others spotted, &c.

Not very common: taken occasionally in the vicinity of London, in gardens, woods, &c. towards the end of June and beginning of July.



Sp. 3. atrocaudatus. *Testaceus, capite rufo picto, thorace nigro, lineâ ante alas scutelloque flavis, abdominis segmentis 1-4 rufis, 5-7 nigris, pedibus testaceis, femoribus posticis maculâ nigra; antennis nigris, basin versus rufis.* (Long. corp. 8—10 lin.; Exp. Alar. 15—20 lin.)

Ich. nigricaudatus. *Marsham MS.—Steph. Catal. 349. No. 4421.*

Testaceous: head with the inner and vertical orbits red, face yellow; antennæ of the male porrect, rusty beneath, the 2 basal joints blackish, the 5 or 6 following rusty, and the remainder black above; of the female curved, the first 20 joints above and beneath tawny-red, the remainder black above, rusty beneath; thorax black, with a broad line before the wings and a short one beneath yellow; scutellum also yellow; abdomen with the 4 basal segments red, the 4th sometimes with a large black patch, rounded anteriorly on the middle of the hinder margin, having the angles above red, 5th to 7th black; legs pale testaceous, coxæ paler, or slightly spotted with black beneath; wings somewhat tawny-hyaline; cellule 3-angular.

Like the foregoing this species is variable.

Larva inhabits that of *Sphinx Ligustri*.

Less abundant than the last: it frequents gardens, woods, &c. in June and July.

Sp. 4. Atropos. *Capite, thoraceque nigro rufoque pictis, scutello et lineâ ante alas flavis, abdominis segmentis 1-3 rufo testaceis, 4-7 atris, pedibus testaceis, femoribus posticis apice maculâ nigra, antennis versus basin rufis.* (Long. corp. 12—15 lin.; Exp. Alar. 18—22 lin.)

Ich. Atropos. *Curtis, v. v. pl. 234 —Steph. Catal. 349. No. 4442.*

Head red; eyes, ocelli and occiput, black; face and mouth yellow; antennæ of the male nearly as long as the body, porrect; of the female shorter and curved; in both sexes pale ochreous-red at the base, the apex black, rusty beneath; thorax black, sometimes with a reddish central patch or 2 longitudinal reddish lines, and always with a line before and a short one beneath the wings yellow; scutellum yellow, generally with a reddish line beneath; metathorax generally with 2 large tawny spots; abdomen tawny-red, with the 3 basal segments tawny-red, the remainder deep shining black, the basal angles of the 4th at times reddish; legs pale testaceous, coxæ and trochanters paler, the anterior ones sometimes with a black spot beneath, and the hinder femora with a black spot at the apex; wings bright testaceous-yellow-hyaline, the tip fuscous; cellule 3-angular.

Also, like its congeners, variable.

Larva subsists on that of *Acheroutia Atropos* and *Sphinx Ligustri*.

Also found in June and July, in woods, &c. within the metropolitan district; not very uncommon.

Sp. 5. flavatorius. *Testaceus, abdominis apice, geniculis posticis maculisque dorsalibus thoracis nigris; fœmina antennarum annulo pallido.* (Long. corp. 7—10 lin.; Exp. Alar. 11—18 lin.)



Ich. flavatorius. Panzer.—*Steph. Catal.* 349. No. 4419.

Testaceous: eyes and ocelli black; male with the antennæ black, the basal joint beneath yellow, of the female a little curved at the tip, the 2 basal joints rusty, sometimes fuscous above, 4 or 5 following rusty or brown, 10 next ochreous, remainder black, rusty beneath; thorax tawny, or rusty-yellow above, the prothorax with 2 longitudinal black streaks, or a fuscous spot on each side of the metathorax, sometimes black, with the breast, a line before the wings, and another beneath yellow, the metathorax with obscure reddish spots; scutellum dull yellow; abdomen generally with the terminal segment mostly black, and occasionally also the peduncle, and the 6th and 7th segments, and part of the 5th black, especially in the females; legs moderate, rusty-yellow, the hinder femora generally with the apex black or fuscous; wings testaceous-hyaline, rather obscure at the tip; cellule nearly triangular.

Larva feeds upon that of *Smerinthus Tiliæ*, *Hypogymna dispar*, &c.

Taken near London and at Whittlesea Mere in June and July: rare.

Sp. 6. *luteiventris.* *Niger, facie et lineâ ante alas flavis, abdomine pedibusque testaceis, petiolo et coxis posticis nigris.* (Long. corp. 6—9½ lin.; Exp. Alar. 12—17 lin.)

Tr. *luteiventris.* *Gravenhorst*, ii. 386.—*Steph. Nomen.* 2d edit. Gen. 718. 6.

Black: face, mouth, and orbits rusty-yellow, tips of the mandibles black; antennæ about as long as the body, porrect, tawny beneath, fuscous above, and slightly tawny towards the base, the first 2 joints always black above and yellow below; thorax black, with the upper and lateral margins of the collar, a line before, and a streak beneath the wings, and also below the scutellum, yellow, and 2 rather obscure spots on the metathorax red; scutellum reddish-yellow; abdomen testaceous, the peduncle and base of the 1st and 2nd segments black; legs pale tawny-red, 4 anterior coxæ and trochanters yellow, black above, posterior coxæ pale straw, above black; femora fulvous, with the extreme tip blackish, or black, with the base and apex tawny; wings rather smoky-hyaline; cellule 5-angular.

Also found, but very rarely, in the neighbourhood of London, and in Norfolk, in June and July.

Sp. 7. *dissimulator.* *Niger, segmentis 2 et 3 ore, facie, lineâ ante alas, scutello tibiisque flavis, his apice nigrâ.* (Long. corp. 9—10 lin.; Exp. Alar. 14—16 lin.)

Tr. *dissimulator.* *Steph. Nomen.* 2d edit. Gen. 718. 7.

Black: mouth, face, and vertical orbits yellow; antennæ porrect, black, with the basal joint yellow beneath; thorax with a line before the wings, a streak beneath and a dot at the base, and the scutellum yellow; occasionally a streak beneath the latter and the anterior edge of the collar also yellow; abdomen with the basal segment black, occasionally with the apical angles yellow, the 2 following segments yellow, the edge of the 2nd occasionally



dusky, remainder black; legs with the anterior coxæ and trochanters and femora black, more or less yellow at the apex, the posterior coxæ wholly black, trochanters black, with the tip yellow; femora black, tarsi and tibiæ all yellow, the hinder pair of the latter black at the apex; wings smoky-hyaline; cellule 5-angular.

The basal angles of the 4th segment are occasionally yellow, and the 2nd and 3rd have at times a black triangular spot on the middle of the margins.

This and the preceding species closely resemble true Ichneumons, and were it not for their comparatively gigantic bulk, much elevated scutellum, &c. I should have placed them in that genus; they exceed by 2 lines the largest species of Ichneumon described by Gravenhorst, excepting *Ic. laminatorius*, which belongs to a section with black abdomen.

I possess one example from Francillon's collection, a 2nd from Marsham's, and a 3rd from Haworth's; and Mr. Newman has 1 taken by himself at Birch wood.

GENUS XLIX.—ALOMYA, *Panzer*.

Antennæ of the male setaceous, porrect; of the female short, stout, filiform, convoluted, with about 32 joints; *head* small, somewhat globose, seen from above rather quadrate, the face with a slightly elevated tubercle: *eyes* oval: *thorax* somewhat cylindric-globose: *scutellum* 3-angular, flattish: *wings* moderate; *cellule* 5-angular: *abdomen* petiolated, convex, elongate, a little dilated at the apex in the male, more so in the female: *ovipositor* concealed: *legs* moderate, short, and rather thickened in the female: *sexes* dissimilarly coloured.

The chief characteristics of *Alomya* consist in the abdomen being convex and petiolated, the head small and globose, and the cellule large and 5-angular, not 3-angular, as stated in p. 126, from Gravenhorst: the sexes are very dissimilar, and in the female the wings are considerably abbreviated: the species are extremely prone to vary, and I am of opinion that all the supposed indigenous ones may be referrible to one species, notwithstanding their great dissimilarity.

Sp. 1. ovator. Nigra, abdominis medio tibiisque rufo testaceis: fœmina antennis testaceo annulatis. (Long. corp. $5\frac{1}{2}$ —8 lin.; Exp. Alar. ♂ 7—10 lin.; ♀ 5—8 lin.)

Ich. ovator. Fabricius.—*Al. debellator. Steph. Catal. 350. No. 4455.*—*Al. stercorator. Id. 4456, var.*—*Al. Victor. Curtis, v. iii. pl. 120, var.*—*Steph. Catal. No. 4460, var.*

Black: antennæ of the male black, of the female with about the 3rd to 14th or 16th joints rusty or testaceous; abdomen of the male with the basal segment generally black, its apex sometimes testaceous-red or tawny, 3 following all

MANDIBULATA, VOL. VII., DEC. 31ST, 1835. s



tawny, remainder black, the base and apex of the 3rd and 4th occasionally black, and sometimes a rounded spot of that colour on the back of all, combined with black edges to the 3rd and 4th; of the female broader, the basal segment black, with its apex always, and sometimes the base, red, 2nd to 4th generally dull red, the last sometimes with an obscure dorsal spot, 5th red with the margin black, or black with the base and sides red, but rarely wholly red; 6th rarely with the sides red; legs tawny, with the coxæ and trochanters black, 4 anterior femora tawny, with the base more or less black, rarely entirely black or tawny; posterior femora black, with the tibiæ yellow or testaceous, the apex at times fuscous: in the female the legs are rather of a darker hue, but in both sexes they vary in colour; wings somewhat hyaline.

Not uncommon, in June and July, in various parts of the country; it occurs within the metropolitan district, also in the New Forest, in Devonshire, Norfolk, Salop, near Dover, &c.

Sp. 2. *semiflava*. *Nigra, segmentis 2-4 tibiisque flavis*. (Long. corp. 7—8½ lin.; Exp. Alar. ♂ 8—11 lin.)

Al. *semiflava*. *Steph. Nomen. 2d edit. Gen. 719. 2.*

Black: thorax with a faint yellowish dot at the base of the wings; abdomen with the 1st segment black at the base, yellow at the apex, 2nd to 4th bright clear yellow, remainder black; legs moderate, coxæ and trochanters black, 4 anterior fuscous; tibiæ and tarsi yellow, the base of the former more or less black, especially of the 2nd pair; hinder femora black; tibiæ light yellow; tarsi fuscous; wings hyaline; cellule 5-angular.

The basal angles of the 5th segment are sometimes yellow.

Found in the vicinity of London in June: also near Bristol.

Sp. 3. *nigra*. *Nigra, sericea, femoribus anticis tibiisque fulvis*. (Long. corp. 6—8 lin.; Exp. Alar. ♂ 11—14 lin.)

Al. *nigra*. *Gravenhorst, ii. 405.—Steph. Nomen. 2d edit. Gen. 719. 3.*

Black, silky: legs with the coxæ and trochanters black, anterior femora tawny, sometimes black at the base, middle entirely tawny or totally black, or tawny with the base black, posterior black; 4 anterior tibiæ tawny, middle occasionally a little dusky at the apex, posterior red or testaceous, with the base and apex blackish or fuscous, with the opposite side rusty before the tip; tarsi tawny, anterior sometimes red, middle occasionally fuscous, and posterior at times fuscous; wings smoky-hyaline, stigma tawny; cellule 5-angular. Female unknown.

Of this conspicuous insect the female appears to be unknown, notwithstanding the species occurs throughout the country, and not uncommonly: it is found in various places throughout the metropolitan district; also in the New Forest, in Devonshire, Salop, the vicinity of Edinburgh, &c. in June and July.



GENUS L.—HOPLISMENUS, *Gravenhorst*.

Antennæ rather slender, of the male porrect, of the female curved, a little compressed and dilated towards the apex, and consisting of about 40 joints: *head* short, rather narrower than the thorax, and straightened towards the neck: *eyes* oval: *thorax* gibbous, generally armed with an acute spine on each side of the metathorax: *scutellum* 4-angular, or somewhat 3-angular: *abdomen* petiolated, convex, oblong, the apex acute, the basal segment with 2 elevated longitudinal lines, continued on the peduncle, which is linear and rather long: *ovipositor* a little exserted, short: *legs* rather slender.

Hoplismenus, as the name implies, embraces several species which have the metathorax armed with 2 rather elongate acute spines, or tubercles; the abdomen is also oblong, the basal segment has 2 elevated lines, the ovipositor is exserted, but short; the cellule is 5-angular; the legs and antennæ rather slender, the latter, in the females, somewhat compressed and dilated towards the apex: the species appear to be rare in Britain.

Sp. 1. *perniciosus*. *Metathorace bispino, niger, scutello albo, abdomine femoribus tibiisque rufis, tibiis posticis proparte nigris*: mas *tarsis posticis, fœmina antennis, annulo albo*. (Long. corp. $3\frac{1}{4}$ — $5\frac{1}{2}$ lin.; Exp. Alar. 5—8 lin.)

Ho. *perniciosus*. *Gravenhorst*, ii. 413.—*Steph. Nomen*. 2d edit. Gen. 720. 1.

Black: inner orbits whitish or yellowish; antennæ of the male somewhat rusty beneath, of the female slender, with about the 9th to 14th joints white, the remainder black, with 1 or 2 of the basal joints rusty or red beneath; thorax with a dot beneath the wings, sometimes the upper edge of the neck, and a dot before the wings white; metathorax armed with 2 acute spines or tubercles; scutellum white; abdomen of the male of a dark chestnut, of the female pale chestnut or red, sometimes tawny, and the basal portion of the 1st segment occasionally black; ovipositor black; legs red, coxæ black, of the female at times red beneath, and the anterior pair in the male with a white dot; trochanters black, 4 anterior sometimes red beneath in the female; posterior femora occasionally with the apex black, their tibiæ black, with a reddish base, or red with a black tip; middle tarsi fuscous, with the 3 intermediate joints pale or whitish, posterior black, with the 2nd to 4th joints white, rarely ferruginous; wings somewhat hyaline; cellule 5-angular.

Taken in June at Darenth wood; and I believe my friend the Rev. G. T. Rudd has taken it near Kimpton.

Sp. 2. *albifrons*. *Metathorace bispino, niger, facie scutello et tarsorum posticorum annulo albis, abdomine nec non femoribus tibiisque anterioribus rufis*. (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5— $7\frac{1}{2}$ lin.)



Ho. albifrons. *Gravenhorst*, ii. 417.—*Steph. Nomen*. 2d edit. Gen. 720. 2.

Black : face, mouth, frontal orbits, and sometimes part of the external ones, whitish or ochreous ; mandibles black at the base ; antennæ beneath with the basal joint pale yellow, the 4 following dusky or tawny, the following rusty-tawny, the terminal ones fuscous ; thorax with the upper edge of the neck, a dot beneath, and frequently another before the wings, and the scutellum, whitish ; abdomen chestnut-red, the peduncle and occasionally the basal segment black ; legs with the 4 anterior femora and tibiæ red, the former sometimes dusky towards the base, and the tibiæ whitish within ; coxæ and trochanters black, the first sometimes with a whitish spot beneath ; posterior legs black, the femora occasionally chestnut at the base ; tarsi fuscous, the 2 hinder pair darker, with the intermediate joints pale or whitish ; wings smoky-hyaline ; cellule 5-angular, with the vestige of a divisional nervure.

Scarce : taken in the vicinity of London in June.

GENUS LI.—CRYPTUS, *Fabricius*.

Antennæ in general long, slender, porrect in the males, more or less curved in the females, sometimes a little thickened and short ; *head* short, transverse, rather narrower than the thorax, and narrowed towards the neck : *eyes* ovate, more or less prominent : *thorax* somewhat gibbous, rarely cylindric : *scutellum* more or less convex, 3-angular, with the apex obtuse, or 4-angular : *wings* moderate ; cellule 5- or 4-angular : *abdomen* petiolated, of the male slender and narrow, of the female ovate or oblong, the basal segment smooth and bent, and the apex at times faintly compressed : *ovipositor* exserted, straight, sometimes as long as the body, for the most part about half the length : *legs* rather slender and long, especially the posterior pair.

This rather extensive genus may be distinguished by having the abdomen of the male narrow and elongate, of the female ovate or oblong, the ovipositor considerably exserted, and in some species as long as the abdomen ; the basal segment is smooth and arched, the peduncle rather long, the cellule 5- or somewhat 4-angular, and the legs and antennæ slender and long : the sexes are somewhat dissimilar, and, as usual in this difficult family, many of the species are known of one sex only ; in some cases only males, in others only females, and occasionally one or other of them in plenty, so that it is not improbable that in some instances the sexes are more dissimilar than suspected.

§ I. *Scutellum* and *abdomen* black.

Sp. 1. *cyanator*. *Niger*, *abdomine nigro-subcæruleo*, *femoribus tibiisque rufis*, *harum posticis apicem versus nigris*. (Long. corp. 5—8 lin. ; Exp. Alar. 7½—9½ lin. ; Long. ovip. 2 lin.)



Cry. cyanator. *Gravenhorst*, ii. 442.—*Steph. Nomen.* 2d edit. *Gen.* 721. 1.

Black: head pubescent; antennæ of the male about half the length of the body, thicker than the female, in which sex they are nearly as long as the body, slender and curved at the tip; thorax pubescent, of the female frequently with a red dot beneath the wings; abdomen blue-black, of the male slender, 2nd to 6th segments of equal width, the 1st with a groove and pubescent; of the female as wide as the thorax, ovate, the basal segment pubescent; ovipositor shorter than the abdomen, black; legs rather elongate, red, coxæ pubescent, red, with the trochanters black, posterior tibiæ with the apex dusky or blackish; tarsi fuscous; wings smoky-hyaline; cellule 5-angular.

Larva feeds upon that of *Phragmatobia fuliginosa*, *Clisiocampa Neustria*, &c.

Not uncommon: found in the vicinity of London, at Ripley, Hertford, &c.

Sp. 2. tarsoleucus. *Niger, femoribus tibiisque rufis, tarsis posticis pallidioribus, facie pallide-maculatâ.* (Long. corp. $4\frac{1}{2}$ — $7\frac{1}{2}$ lin.; Long. ovip. 3 lin.; Exp. Alar. 7—9 lin.)

Ich. tarsoleucus. *Schrank, Anst.* 725.—*Cry. tarsoleucus.* *Steph. Nomen.* 2d edit. *Gen.* 721. 2.

Black: male with the palpi rusty or fuscous, inner orbits and middle of the mandibles, and rarely the vertical ones and 2 facial dots ochreous, female with the inner orbits obsoletely whitish; thorax of the male at times with a yellow line before the wings; abdomen (of the male) sometimes bluish-black, with the extreme edge chestnut; ovipositor shorter than the abdomen; legs red, coxæ and trochanters black, the 3 or 4 anterior sometimes with a white dash beneath, and the apex of the hinder tibiæ occasionally blackish; posterior tarsi of the male with the basal joint rusty, paler or yellowish at the apex, the 2nd to 4th whitish, of the female the 2nd to 4th pale fulvous; wings rather hyaline, more obscure in the female; cellule 5- or 4-angular.

Larva subsists on that of *Achatia piniperda* and other cognate Noctuidæ.

Considerably more abundant than the foregoing in the vicinity of London, especially at Birch wood, Ripley, &c. in June.

Sp. 3. moschator. *Niger, tibiis anterioribus et femoribus fulvis; mas tarsorum posticorum articulis 2-4 albis.* (Long. corp. 3—5 lin.; Exp. Alar. 5—8 lin.)

Ich. moschator. *Fabricius, Mant. p.* 266.—*Steph. Nomen.* 2d edit. *Gen.* 721. 3.

Black: palpi fuscous, inner orbits mostly whitish; antennæ of the male shorter than the body, of the female very slender, considerably more so than in the male, curved; thorax with 2 more or less acute tubercles on the metathorax; abdomen of the male half the width of the thorax, linear-fusiform, the basal segment somewhat linear, of the female about as wide as the thorax, oblong-ovate, the basal segment a little dilated towards the apex; ovipositor about as long, or but little shorter than the abdomen, dull



chestnut; legs slender, elongate, 4 anterior red, coxæ and trochanters black; posterior black, femora red, tibiæ of the female either black with the base red, or red with the tip black; tarsi of the male with the 2nd to 4th joints white; wings rather smoky-hyaline; cellule 5- or somewhat 3-angular.

Found in the neighbourhood of the metropolis in June, and in Salop.

Sp. 4. *spiralis*. *Niger, femoribus tibiisque rufis, harum posticis apice nigro, areolâ interiore vestigio nervi dividensis; fœmina antennarum annulo albo.* (Long. corp. $3\frac{1}{2}$ — $5\frac{1}{2}$ lin.; Long. ovip. $2\frac{1}{2}$ lin.; Exp. Alar. 5—8 lin.)

Ich. *spiralis*. *Fourcroy, Ent. Par.* 407.—Cr. *spiralis*. *Steph. Nomen. 2d edit. Gen.* 721. 4.

Black: mouth of the male occasionally pale; female with the inner, and sometimes the outer, orbits faintly whitish; antennæ shorter than the body, of the female more slender than in the male, curved, with the 7th to 11th joints, or most of them, white above; thorax with 2 acute tubercles on the metathorax, most prominent in the female, in which sex there is occasionally a yellow dot beneath the wings; abdomen of the male narrower than the thorax, somewhat fusiform, petiolated and linear, the extreme edge of the 2nd and 3rd segments sometimes chestnut; of the female a little narrower than the thorax, oblong-ovate; ovipositor nearly as long as the abdomen; legs slender, red, coxæ and trochanters red, middle tarsi at times fuscous; posterior tarsi and apex of their tibiæ dusky or fuscous; wings smoky-hyaline; cellule 5-angular or somewhat 3-angular; internal cubital areolet with a rudiment of the divisional nervure.

Taken near London, towards the end of June, but rarely.

Sp. 5. *brachycentrus*. *Niger, pedibus rufis, cellulâ minutâ: mas facie, coxis trochanteribusque anterioribus, albis, coxis posticis nigris; fœmina annulo antennarum albo.* (Long. corp. 3—4 lin.; Long. ovip. $1\frac{1}{2}$ lin.; Exp. Alar. 5—7 lin.)

Cry. *brachycentrus*. *Gravenhorst, ii.* 457.—*Steph. Nomen. 2d edit. Gen.* 721. 5.

Black: male with the mouth, face, and cheeks white, the tip of the mandibles fuscous; female with the palpi fuscous, labrum straw-coloured; antennæ of the male half the length of the body, the basal joint white beneath; of the female very slender, shorter than the body, curved at the tip, the 8th and 9th joints white above; abdomen slightly pedunculated, of the male sub-linear, the 2 basal segments a little dilated at the apex, 3rd to 7th of equal width, the last with an exserted conic appendage, of the female as broad as the thorax, ovate-fusiform, flattish on the back towards the apex, basal segment dilated towards the tip, 2nd to 7th transverse, faintly edged with whitish; ovipositor one-third the length of the abdomen; legs slender, elongate, testaceous in the male, 4 anterior coxæ and trochanters white, hinder ones black, the tip of the trochanters red, tarsi and tibiæ fuscous, the latter somewhat testaceous beneath; of the female the legs are red,



coxæ and trochanters fuscous, hinder tibiæ and tarsi above fuscous ; wings hyaline, iridescent ; cellule somewhat 5- or 4-angular, the outer nervure occasionally rather obliterated in the female.

Found, but rarely, in the vicinity of London, in June.

Sp. 6. *parvulus*. *Cellulâ quadrata, niger, pedibus rufis: mas femoribus tibiisque posticis apice nigris, tarsis posticis fuscis pallide annulatis; fœminæ antennarum annulo albo*. (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Long. ovip. 2 lin.; Exp. Alar. 4— $6\frac{1}{2}$ lin.)

Cry. *parvulus*. *Gravenhorst*, ii. 459.—*Steph. Nomen. 2d edit. Gen. 721. 6.*

Black: female with the inner and frontal orbits white; antennæ shorter than the body, of the female curved at the tip, 7 basal joints fuscous or black, generally rusty beneath, 8th to 11th white, remainder dusky, or black; abdomen of the male occasionally narrower than the thorax, a little depressed, basal segment sublinear, 2nd and sometimes the 3rd with the margin reddish, 7th whitish above; of the female as broad as the thorax, oblong-ovate, slightly petiolated, the basal segment considerably dilated towards the apex, which is reddish, the 2nd with its extreme margins chestnut, the 7th generally whitish on the back; ovipositor about as long as the abdomen; legs red, anterior coxæ in the female sometimes fuscous; posterior legs in the male with the tips of the femora and tibiæ black; tarsi black, with the 2nd and 5th white at the base; wings somewhat hyaline; cellule 4-angular.

Found in June near London.

Sp. 7. *anatorius*. *Niger, pedibus rufis, coxis anticis nigris, annulo antennarum albo, cellulâ 5-angulari*. (Long. corp. 3— $4\frac{1}{4}$ lin.; Long. ovip. $3\frac{1}{2}$ lin.; Exp. Alar. 5— $7\frac{1}{4}$ lin.)

Cry. *anatorius*. *Gravenhorst*, ii. 460.—*Steph. Nomen. 2d edit. Gen. 721. 7.*

Black: antennæ about half the length of the body, involuted at the tip, about the 8th to 12th joints snowy-white, remainder generally rusty beneath; abdomen as broad as the thorax, oblong-ovate, a little compressed and petiolated, the basal segment slightly channelled, the anterior portion quadrate, the apex dilated, 7th with a pale spot; ovipositor as long as the abdomen, chestnut, its valves black; legs moderate, red, anterior with the coxæ and trochanters black, sometimes red beneath, middle coxæ either red or black, chestnut beneath, posterior generally with the tarsi and tip of the tibiæ dusky, the apex of the femora fuscous, and the trochanters occasionally black; wings rather smoky-hyaline; cellule more or less 5-angular.

Not common: taken in June near London, and in Salop.

Sp. 8. *furcator*. *Niger, pedibus rufis, posticorum tarsis tibiisque fuscis, antennis albo annulatis; cellulâ 4-angulari*. (Long. corp. 4—5 lin.; Long. ovip. 2 lin.; Exp. Alar. 6— $8\frac{1}{2}$ lin.)

Cry. *furcator*. *Gravenhorst*, ii. 462.—*Steph. Nomen. 2d edit. Gen. 721. 8.*

Black: antennæ with the 9th to 12th joints white; abdomen as wide as the



thorax, the basal segment deeply channelled and slightly petiolated, the peduncle a little dilated towards its apex; ovipositor as long as the abdomen; legs red, hinder tarsi and tibiæ fuscous, the latter internally rusty or red; wings smoky-hyaline; cellule 4-angular.

Taken in the vicinity of London, in June.

Sp. 9. subpetiolatus. *Niger, pedibus rufis, antennis albo annulatis; cellula 4-angulari.* (Long. corp. 4—5 lin.; Long. ovip. $2\frac{1}{2}$ lin.; Exp. Alar. 6—7 lin.)

Cry. subpetiolatus. *Gravenhorst*, i. 699.—*Steph. Nomen. 2d edit. Gen.* 721. 9.

Black: palpi pale fulvous; antennæ slender, half as long as the body, curved at the tip, dusky-black, the 10th and 11th joints white above; abdomen as wide as the thorax, opaque, the basal segment with a short broad flattish and channelled peduncle, the 2nd longer than broad, 2 following somewhat quadrate, remainder transverse, rather narrower and obtuse; ovipositor longer than the body, red, smooth, pilose; legs slender, red, hinder tarsi and outer edge of the tibiæ fuscous; wings rather smoky-hyaline; cellule 4-angular.

Found, but rarely, in June, near London; also in Salop.

Sp. 10. grisescens. *Niger, griseo-sericeus, femoribus tibiisque rufis, tarsis posticis fuscis, articulis 3 et 4 subalbis, annulo antennarum albo.* (Long. corp. 4—5 lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Cry. grisescens. *Gravenhorst*, ii. 464.—*Steph. Nomen. 2d edit. Gen.* 721. 10.

Black: antennæ scarcely so long as the body, porrect, the apex a little curved, about the 14th to 17th joints white above; abdomen rather narrow, the basal segment more or less distinctly channelled, somewhat linear, 2nd to 5th rather broader, the extreme margins of the 2nd and 3rd occasionally chestnut, and the sides of the latter reddish; legs slender, red, coxæ and trochanters, and sometimes also the posterior knees black, the hinder tarsi and apex of the tibiæ dusky, with the 3rd and 4th joints of the femora white; wings hyaline; cellule somewhat 4-angular or 5-angular.

Found near London, but rarely, in June.

§ II. Scutellum pale; abdomen black.

Sp. 11. viduatorius. *Niger, femoribus tibiisque rufis; harum posticis apice nigro: mas fucie et coxis anterioribus albomaculatis; fœmina annulo albo antennarum.* (Long. corp. 3—5 lin.; Exp. Alar. 5— $7\frac{1}{2}$ lin.; Long. ovip. $1\frac{3}{4}$ lin.)

Cry. viduatorius. *Fabricius.*—*Steph. Nomen. 2d edit. Gen.* 721. 11.

Black: male with the inner orbits, a spot on the face and another on the clypeus, the palpi and the mandibles yellow, the last black at the tips; female with the inner and at times the outer orbits faintly yellowish, labrum reddish, palpi fuscous; antennæ of the male rather shorter than the body, the basal joint whitish beneath; of the female half the length of the body, very slender, incurved at the tip, the 6th to about the 10th joints white,



fuscous beneath; metathorax with 2 rather acute spines; scutellum with a whitish-yellow spot; abdomen sometimes with the extreme edge of the 2nd segment chestnut; ovipositor rather shorter than the abdomen, chestnut; legs slender, stoutest in the female, red; coxæ and trochanters black, the 4 anterior of the male with a white spot beneath; hinder tarsi red, the apex of their tibiæ blackish, the femora with 3 or 4 of the joints rusty or reddish; wings more or less hyaline; cellule 3- or somewhat 3-angular.

Taken, but not very commonly, in the vicinity of London, in June; found also in Salop.

Sp. 12. *cinctorius*. *Niger, ano albo, pedibus rufis, metathorace bispino, antennis subclavatis*. (Long. corp. 3—4 lin.; Long. ovip. 1½ lin.; Exp. Alar. 5—6 lin.)

Cry. *cinctorius*. *Fabricius*.—Ich. ? *cinctorius*. *Steph. Catal.* 350. No. 4453.

Black, slightly sericeous; palpi red; antennæ rather above half the length of the abdomen, a little thickened towards the apex, the 3rd to 10th joints rusty beneath, the remainder black; metathorax with 2 spines; abdomen oblong-ovate, the 2nd segment sometimes with the edge chestnut, the 7th white above; ovipositor about half the length of the abdomen, red; legs slender, red, the hinder tarsi fuscous; wings slightly hyaline; cellule rather large, 4-rate.

Fabricius described this species as a British insect in his *Systema Entomologia*, published in 1793.

Found, but rather uncommon, near London: taken also in Devonshire, the New Forest, &c. in June.

§ III. *Scutellum* with pale marks; *abdomen* red, or red and black.

Sp. 13. *arrogans*. *Niger, abdominis medio, nec non femoribus tibiisque anterioribus et posticarum basi, rufis, orbitis oculorum internis, articulisque 3 et 4 tarsorum posticorum, albis*. (Long. corp. 4½—5½ lin.; Exp. Alar. 6—7½ lin.)

Cry. *arrogans*. *Gravenhorst*, ii. 494.—*Steph. Nomen*. 2d edit. *Gen.* 721. 13.

Black: palpi fuscous; mandibles and labrum whitish, facial and part of the external orbits white; antennæ porrect, as long as the body, the basal joint white beneath: the extreme tip of the scutellum white; abdomen with the basal segment black, the apex generally red, 2nd to 4th red, the margin of the latter sometimes black; remainder black, the 5th sometimes fuscous, with the sides red; legs elongate, slender, 4 anterior red, coxæ and trochanters black, the middle femora sometimes black towards the base, their tarsi fuscous; posterior legs black, the extreme base and apex of the femora red, tibiæ either black with the base red, or red with the apex alone black, their tarsi with the 3rd and 4th joints entirely red, the apex of the 2nd white; wings smoky-hyaline; cellule 3-angular, or somewhat 5-angular.

Not very common: taken near London in June.

Sp. 14. *assertorius*. *Niger, abdomine, femoribus, tibiis tarsisque rufis, horum*



posticis annulo albo, orbitis oculorum internis, annulo antennarum, punctisque ad alarum radicem, albis. (Long. corp. 3—4 lin.; Long. ovip. 1 lin.; Exp. Alar. 5—6½ lin.)

Ich. assertorius. *Fabricius, Ent. S. ii. 140.*—Cr. assertorius. *Steph. Nomen. 2d edit. Gen. 721. 14.*

Black: inner orbits, and spot on the labrum, and sometimes on the clypeus, whitish-yellow; antennæ slender, scarcely so long as the body, incurved at the tip, about the 9 basal joints black, rusty beneath, the 3 or 4 following white; thorax with an ashy pile, the upper edge of the male, and often the lateral one, a spot before, and another beneath, the wings, yellow; scutellum and a line below white; abdomen ovate, red, the 7th segment sometimes black; ovipositor about half the length of the abdomen; legs slender, red, coxæ and trochanters black, the hinder femora and the tips of the tibiæ blackish, the 2nd and 3rd joints, or the 2nd only, or merely its base, whitish; claws all black; wings somewhat hyaline; cellule 5-angular. Taken, in June, near Hertford.

Sp. 15. *sedulus.* *Niger, abdomine, femoribus anterioribus tibiisque rufis, harum posticis apice nigro, annulo antennarum et orbitis internis oculorum albis.* (Long. corp. 3½—4 lin.; Long. ovip. 1 lin.; Exp. Alar. 5—7 lin.)

Cry. *sedulus.* *Gravenhorst, i. 701.*—*Steph. Nomen. 2d edit. Gen. 721. 15.*

Black: palpi whitish; inner and upper orbits faintly whitish; antennæ slender, curved, the 8th to 11th joints white, rusty-brown beneath; thorax with a streak before the wings, most distinct towards the neck, a line below the scutellum, and the scutellum, white; abdomen entirely red; ovipositor half the length of the abdomen, red, with the sheaths black; legs slender, 4 anterior red, coxæ and base of the trochanters black, posterior black, the extreme base of the femora red, tarsi and tibiæ red, the latter black at the tip; wings smoky-hyaline; cellule 5-angular.

Found at Darenth wood in June: taken also in Salop.

Sp. 16. *rufiventris.* *Niger, abdomine pedibusque rufis, coxis fuscis, picturis capitis et thoracis, nec non annulo antennarum, albis.* (Long. corp. 3 lin.; Long. ovip. 1 lin.; Exp. Alar. 5½ lin.)

Cry. *rufiventris.* *Gravenhorst, ii. 497.*—*Steph. Nomen. 2d edit. Gen. 721. 16.*

Black: labrum straw-coloured; clypeus short, orbits all white; face with a whitish tubercle; antennæ with from about the 8th to 11th joints white; thorax with the upper and lateral margins of the collar, a line before, and a streak beneath, and also below the scutellum, and frequently 2 minute dots under the latter, and also a dot on the sides of the metathorax, and the scutellum white; abdomen oblong-ovate, chestnut-red, petiole generally fuscous; ovipositor nearly as long as the abdomen, chestnut; legs chestnut-red, anterior coxæ black, 4 posterior fuscous or brown; wings smoky-hyaline; cellule 5-angular.

Found, in June, in the vicinity of London.



Sp. 17. apparitorius. *Niger, abdomine femoribus et tibiis rufis, harum posticis apicem versus nigris, annulo antennarum albo.* (Long. corp. 4—4½ lin. ; Long. ovip. 1 lin. ; Exp. Alar. 6—7½ lin.)

Ich. apparitorius. *Villers, Ent. iii. 143.—Steph. Nomen. 2d edit. Gen. 721. 17.*

Black : inner orbits very faintly, and outer ones, with sometimes a dot on the clypeus, whitish ; antennæ half as long as the body, the tip curved, the 8th to 11th joints white ; scutellum white ; abdomen ovate, chestnut, or red, petiole black, or fuscous ; ovipositor rusty, as long as the abdomen ; legs red, coxæ and trochanters black, posterior tarsi and tibiæ fuscous, the latter reddish at the base, and sometimes entirely red, their tarsi with the 3rd and 4th joints palish ; wings rather smoky-hyaline ; cellule 5-angular.

Taken at Coombe wood, in June ; also in other places within the metropolitan district.

Sp. 18. tuberculatus. *Metathorace subbispingo, niger, abdomine femoribus et tibiis rufis, antennarum annulo albo.* (Long. corp. 4 lin. ; Long. ovip. 1½ lin. ; Exp. Alar. 6½ lin.)

Cry. tuberculatus. *Gravenhorst, ii. 501.—Steph. Nomen. 2d edit. Gen. 721. 18.*

Black : inner and external orbits narrowly white ; antennæ with the 7th to 10th or 11th joints white above ; metathorax with 2 acute tubercles ; scutellum white at the apex ; abdomen red, the basal segment with 2 somewhat elevated lines, the sides of the petiole blackish ; ovipositor about one-third the length of the abdomen, chestnut ; legs red, coxæ and trochanters black, hinder tarsi fuscous ; wings smoky-hyaline ; cellule 5-angular.

Found, in June, in the neighbourhood of London.

Sp. 19. perspicillator. *Niger, facie albomaculatâ, segmentis 2-7, femoribus tibiisque anterioribus rufis, femoribus mediis basi nigrâ, tarsorum posticorum annulo albo.* (Long. corp. 5—6 lin. ; Exp. Alar. 4½—7½ lin.)

Cry. perspicillator. *Gravenhorst, ii. 503.—Steph. Nomen. 2d edit. Gen. 721. 19.*

Black : mouth, clypeus, cheeks, inner orbits, and frequently a spot on the face, resembling the letter V, sometimes united to the orbits, and occasionally broken, whitish-yellow ; antennæ rarely as long as the body, porrect, the basal segment whitish beneath ; thorax with a dot below the wings and a streak under the scutellum yellowish ; scutellum white at the tip ; abdomen oblong, narrow, the basal segment smooth, black, somewhat linear, the tip usually chestnut, the remainder red, the base of the 2nd often black ; legs elongate, 4 anterior tawny-red, coxæ and trochanters black, more or less spotted beneath with white or reddish, or with the tips red ; middle femora black at the base ; hinder legs black, the extreme base and apex of the femora often red, and also the base of the tibiæ ; tarsi with the 2nd to 4th joints entirely, and the base of the 5th, whitish ; wings hyaline ; cellule 5-angular, somewhat pyramidal.

Taken near London in June ; also in Salop.

Sp. 20. brevicornis. *Niger, segmentis 1-3 rufis, 6 et 7 albomarginatis, femo-*



ribus tibiisque rufis, posticis apice nigris, tarsis posterioribus annulo albo. (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5—7 lin.)

Cry. brevicornis. Gravenhorst, ii. 521.—Steph. Nomen. 2d edit. Gen. 721. 20.

Black: antennæ stoutish, about half the length of the body; thorax with a white streak beneath the scutellum, and the scutellum itself white; abdomen with the basal segment red, its petiole black, 2nd and 3rd red, following black, with the edges of the 6th and 7th white on the back; legs red, coxæ and trochanters black; middle tarsi fuscous, with the 2nd and 3rd joints white; posterior femora and tibiæ at the apex, and the latter at the base also black; tarsi black, with the 3rd and 4th and tip of the 2nd joints white; wings somewhat hyaline, iridescent; cellule 5-angular.

Found in July last at Hertford; taken also, but rarely, in other places within the metropolitan district.

Sp. 21. *fugitivus.* Niger, abdomine rufo, apice nigro, ano albo: mas pedibus anterioribus rufis, coxis et trochanteribus albidomaculatis, tarsorum posticorum annulo albo; fœmina femoribus rufis, anticis basin versus nigris, tibiis anterioribus rufis. (Long. corp. 3—4 lin.; Long. ovip. $1\frac{1}{2}$ lin.; Exp. Alar. 5— $6\frac{1}{2}$ lin.)

Cry. fugitivus. Gravenhorst, ii. 515.—Steph. Nomen. 2d edit. Gen. 721. 21.

Black: palpi, inner orbits, and clypeus of the male white; antennæ slender, nearly as long as the body; of the male porrect, of the female curved at the tip, and with about the 8th to 11th joints white; thorax with a dot below the wings, and frequently a streak or 2 minute dots beneath the scutellum white; scutellum more or less white, generally so at the tip only in the female; abdomen of the male sublinear, a little dilated at the tip, of the female oblong-ovate; the basal segment black, with the tip red, 2nd to 4th red, the last more or less black in the female, the remainder black, with a white dot on the back of the 7th; ovipositor about half the length of the body, red; legs slender, elongate, red; coxæ and trochanters black, 4 anterior of the male white beneath, and the 4 anterior of the female more or less black at the base; hinder tibiæ black, red towards the base in the female; tarsi fuscous, hinder ones black, and of the male with the 2nd to 4th joints white; wings smoky-hyaline; cellule quadrate, or nearly so.

Common within the metropolitan district, in June and July; taken also in Salop.

Sp. 22. *confector.* Niger, segmentis 1-3 tibiis anterioribus femoribusque rufis, puncto scutellari, ano annuloque tarsorum posticorum et antennarum, albis. (Long. corp. 4 lin.; Long. ovip. $2\frac{1}{4}$ lin.; Exp. Alar. $7\frac{1}{4}$ lin.)

Cry. confector. Gravenhorst, ii. 518.—Steph. Nomen. 2d edit. Gen. 721. 22.

Black: antennæ slender, rather shorter than the body, curved at the tip, the 8th to 11th joints white above; scutellum with a dot at the apex; abdomen rather narrower than the thorax, ovate-fusiform, the basal segment red, petiole black, 2nd and 3rd red, remainder black, with a white dot on the



back of the 7th; ovipositor as long as the abdomen, pale red; legs slender, long, coxæ and trochanters black, femora red, 4 anterior tibiæ also red, posterior dusky-black, internally brown, with the base red, tarsi fuscous, posterior brown-black, with the 3rd and 4th joints white; wings smoky-hyaline; cellule quadrate.

Taken, in June, near London.

Sp. 23. *leucotarsus*. *Niger, abdomine rufo, pedum anteriorum tibiis femoribus rufis, his externe obscuris, tarsis posticis annulo albo.* (Long. corp. 3—4½ lin.; Exp. Alar. 5—7 lin.)

Cry. *leucotarsus*. *Gravenhorst*, ii. 524.—*Steph. Nomen*, 2d edit. *Gen.* 721. 23.

Black: palpi and mandibles testaceous, the inner orbits generally faintly whitish; antennæ porrect, shorter than the body, and generally rusty beneath; thorax with a line below the scutellum, and frequently a dot beneath the wings, and also the tip of the scutellum white; abdomen rather narrower than the thorax, the basal segment black and smooth, petiole linear, its apex red, remainder chestnut-red, the 6th and 7th being slightly fuscous; legs moderately elongate, 4 anterior tawny-red, with the tibiæ paler, coxæ and trochanters black, whitish beneath, middle femora generally blackish without, their coxæ frequently of a dull chestnut, posterior black and silky, with the 2nd to 4th joints of the tarsi white; wings smoky-hyaline; cellule 5-angular.

Also found in June, near London.

Sp. 24. *quadrilineatus*. *Niger, abdomine rufo, femoribus tibiisque rufis, harum posticis apice nigris, picturis capitis et thoracis, annuloque tarsorum posticorum, albis.* (Long. corp. 4—6½ lin.; Exp. Alar. 5—8 lin.)

Cry. *quadrilineatus*. *Gravenhorst*, ii. 535.—*Steph. Nomen*, 2d edit. *Gen.* 721. 24.

Black: inner orbits, part of the outer and a dot on the face, with the middle of the mandibles, whitish; thorax with the upper edge of the neck, a dorsal spot, line beneath the wings, and dot before them, a dot below the scutellum, and 2 or 3 on the metathorax, whitish; scutellum white at the tip; abdomen red or chestnut, the petiole of the basal segment black, the 3rd to 7th segments at times blackish-chestnut; legs with the coxæ either brown with a black spot, or the 4 anterior black, the hinder pair black, with a chestnut spot; trochanters black; femora red; 4 anterior tibiæ red, yellowish within; posterior black, chestnut towards the base; tarsi fuscous, posterior black, the 2nd to 4th joints white, the base of the femora occasionally black; wings hyaline; cellule either 5-angular, or subquadrate.

Not common: found near London in June.

Sp. 25. *albatorius*. *Niger, segmentis 2-7 rufis, tibiis anterioribus femoribusque rufis, horum posticis basi nigris, facie, tarsis posticis, thoracis et coarum anteriorum picturis, albis.* (Long. corp. 5—7 lin.; Exp. Alar. 7—9 lin.)

Ich. *albatorius*. *Villers, Ent.* iii. 156.—*Steph. Nomen*, 2d edit. *Gen.* 721. 25.

Black: face, outer and frontal orbits and mandibles ochreous, the tip of the



latter fuscous; palpi dull rusty or ochreous, sometimes an oblique black line on each side of the face; antennæ porrect, nearly as long as the body, the basal joint whitish beneath; thorax, with the upper and lateral margins of the neck, a line before and another beneath the wings, and sometimes one beneath the posterior wings ochreous; scutellum entirely or at the tip alone ochreous; abdomen a little cylindric, rather compressed towards the apex, red, the basal segment black, somewhat linear, the tip red, the back of the 3 terminal segments sometimes fuscous; legs elongate, 4 anterior red, coxæ and trochanters black, whitish or spotted with white beneath; posterior with the coxæ and trochanters black, the femora red at the base, and more or less black at the tip; tibiæ blackish; tarsi dull white, with the 5th joint and base of the 1st blackish; wings smoky-hyaline; cellule 5-angular; interior cubital areolet with a rudimentary divisional nervure.

Found near London and in Salop, in June.

Sp. 26. *leucostictus*. *Niger, segmentis 2-7 rufis, femoribus rufis, posticis basi nigrâ, tibiis rufis, posticis apice nigro, puncto infra alas, annulo tarsorum posticorum, picturis facie et coxarum anticarum albis.* (Long. corp. $3\frac{1}{2}$ —4 lin.; Exp. Alar. 5—7 lin.)

Cry. *leucostictus*. *Gravenhorst*, ii. 538.—*Steph. Nomen. 2d edit. Gen. 721. 26.*

Black: palpi pitchy; inner and part of the external orbits, a dot on the face, the clypeus, and the mandibles white, the base and apex of the last black; antennæ with the basal joint beneath white; thorax with the upper margins of the neck and a spot beneath the wings white; apex of the scutellum also white; abdomen red, the basal segment black, the tip more or less distinctly red; legs red, coxæ and trochanters black, anterior pair white beneath; posterior femora, and sometimes also the 4 anterior, black at the base; hinder tibiæ black, rusty towards the base, 4 anterior tarsi testaceous, posterior black, 2nd to 4th joints white, base of the former sometimes black; wings smoky-hyaline; cellule 3-angular, inner cubital areolet with the rudiment of the divisional nervure.

Taken at Coombe wood in June, and in other places near London.

Sp. 27. *pygoleucus*. *Niger, abdominis medio, tibiis anterioribus, femoribusque rufis, horum posticis apice nigro, maculâ anali, nec non tibiurum posticorum basi, albis.* (Long. corp. 3 lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Cry. *pygoleucus*. *Gravenhorst*, ii. 540.—*Steph. Nomen. 2d edit. Gen. 721. 27.*

Black: antennæ scarcely shorter than the body; thorax with a streak beneath the scutellum, and frequently another below the wings white; scutellum white at the tip; abdomen slender, the basal segment black, whitish at the tip, 2nd black, red at the tip, 3rd and 4th red, frequently black at the base, remainder black, the 7th with a white or testaceous spot on the back; legs moderate, 4 anterior tawny, coxæ and trochanters black, the apex of the last whitish, posterior black, femora red towards the base, tibiæ white at the base; wings smoky-hyaline; cellule somewhat 4-angular.

Found near London and in Salop, in June.



Sp. 28. subcinctus. *Niger, segmento 3-tio rufo, fascia nigrâ, 7-timo maculâ albâ, tibiis femoribusque rufis, posticis apice nigro.* (Long. corp. 4 lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Cry. subcinctus. *Gravenhorst, i. 703.—Steph. Nomen. 2d edit. Gen. 721. 28.*

Black: antennæ porrect, a little shorter than the body; scutellum with a white dot at the tip; abdomen as narrow again as the thorax; basal segment black, flattish, sublinear, 2nd black, 3rd red with a central black fascia, 4th and 5th quadrate, black, 6th and 7th shorter and narrower, also black, the 7th having a white dorsal spot; legs slender, red; coxæ, trochanters, and tips of the hinder femora and tibiæ black, hinder tarsi fuscous; wings smoky-hyaline; cellule somewhat 4-angular.

Also taken near London, and in other places within the metropolitan district.

§ IV. *Scutellum* black; *abdomen* red, or red and black.

Sp. 29. Dianæ. *Niger, abdominis medio rufo, femoribus tibiisque rufis, posticis apice nigro: mas picturis capitis et annulo tarsorum posticorum albis; fœmina annulo antennarum albo.* (Long. corp. 4—5 lin.; Long. ovip. $1\frac{1}{2}$ lin.; Exp. Alar. 7—8 lin.)

Cry. Dianæ. *Gravenhorst, ii. 545.—Steph. Nomen. 2d edit. Gen. 721. 29.*

Black: male with the inner orbits, a spot on the face, and another on the clypeus, the labrum, clypeus, and base of the mandibles white; female sometimes with the inner and vertical orbits very narrowly white; antennæ of the male with a white dot beneath the basal joint, of the female with about the 6th to 9th joints white above; thorax occasionally with a minute dot before the wings, another below, and a 3rd on the lateral edge of the collar white; metathorax with 2 moderately acute tubercles; abdomen with the basal joint red, black at its apex, 2nd and 3rd red, remainder black, the 3rd with the edge sometimes fuscous in the female, and the 4th often red in that sex; ovipositor shorter than the abdomen; legs red, coxæ and trochanters black, the anterior ones, and at times the middle trochanters beneath white in the male; the hinder femora occasionally tipped with black, and their tibiæ always fuscous or black at the apex, their tarsi fuscous, and in the male white, with the basal and apical joints black; wings smoky-hyaline; cellule 5-angular, or somewhat 3-angular.

Not uncommon, in the vicinity of the metropolis, in June and July.

Sp. 30. obscurus. *Niger, abdomine rufo basi nigrâ, tibiis anterioribus femoribusque rufis: mas tarsis posticis annulo albo.* (Long. corp. 4—8 lin.; Long. ovip. 2—3 lin.; Exp. Alar. 7— $9\frac{1}{2}$ lin.)

Ich. obscurus. *Gmelin, p. 2704.—Steph. Nomen. 2d edit. Gen. 721. 30.*

Black: palpi of the male fuscous or whitish, mandibles mostly with a whitish dot, labrum testaceous, sometimes an obsolete palish spot on the face, and another on the clypeus, the orbits white, interrupted on the occipite the



latter sometimes faintly whitish in the female, and the palpi rusty-brown; antennæ porrect, nearly as long as the body, the basal joint white beneath; of the female much more slender, shorter than the body, curved at the tip; thorax with a faint ochreous dot beneath the wings; metathorax with 2 rather acute tubercles: abdomen chestnut-red, of the male narrow, elongate-fusiform, of the female oblong-ovate, basal segment black, the apex more or less chestnut; ovipositor nearly as long as the abdomen, red, with black sheaths; legs long, slender, red, or tawny; coxæ and trochanters black, anterior of the female at times brown, and the anterior trochanters of the male occasionally with a whitish streak beneath, and the hinder femora of the same sex occasionally black at the base; hinder tibiæ fuscous, rusty at the base; their tarsi fuscous, 2nd to 4th joints of the female rusty, of the male white; wings more or less smoky-hyaline; cellule 5- or somewhat 3-angular.

Extremely abundant in the vicinity of London; found also in Devonshire, Salop, in Scotland, &c. in June and July.

Sp. 31. sponsor. *Niger, pedibus abdominisque rufis, petiolo, maculâ coxarum, tarsis posticis, apice tibiæ, nigris, antennarum annulo albo.* (Long. corp. 4—6½ lin.; Long. ovip. 2 lin.; Exp. Alar. 7—8½ lin.)

Ich. sponsor. *Fabricius*.—Cry. sponsor. *Steph. Catal.* 345. No. 4117.

Black: inner orbits obsoletely palish; antennæ half the length of the body, curved at the tip, the 8th to 11th joints, or some of them, white above; metathorax with 2 slight spines; abdomen ovate, chestnut-red, or brown-chestnut, the petiole, and occasionally the greater portion of the 1st segment, black; ovipositor about the length of the abdomen, legs rather slender, long, dull red, trochanters and coxæ black, the latter sometimes with a chestnut spot, or red with a black spot; hinder tibiæ tawny or chestnut, with the tip blackish; their tarsi generally rusty, with the basal joint fuscous; wings smoky-hyaline; cellule 5- or somewhat 4-rate.

Rare: taken near London and in Salop, in June.

Sp. 32. minator. *Niger, abdominis medio, tibiis anterioribus femoribusque rufis, orbitis oculorum internis albis: mas annulo tarsorum posticorum et picturis faciei albis; fœmina annulo antennarum albo.* (Long. corp. 2½—3¼ lin.; Long. ovip. 2 lin.; Exp. Alar. 4—6 lin.)

Cry. minator. *Gravenhorst*, ii. 556.—*Steph. Nomen.* 2d edit. Gen. 721. 32.

Black: inner orbits of the female slightly palish, of the male white, with a spot on the face and on the clypeus, the labrum, palpi, and base of the mandibles the same; antennæ about the length of the abdomen, of the male porrect, with the 1st joint white beneath, of the female with about the 7th to 9th joints white; metathorax of that sex with 2 rather acute tubercles; abdomen of the male gradually incrassated to the 5th segment, of the female broader: basal segment black or dull chestnut, 2nd to 4th or 5th dull red, remainder fuscous; ovipositor about the length of the abdomen; legs red,



coxæ and trochanters black, anterior of the male with a white dot beneath, hinder tibiæ and tarsi fuscous, the last of the male with the 3rd and 4th joints whitish, and the femora above, in that sex, blackish; wings smoky-hyaline; cellule 5- or rarely 3-angular.

Not very common: taken, towards the end of June, in the neighbourhood of London, and in Salop.

Sp. 33. analis. *Niger, segmentis 2-4 rufis, tibiis anticis, seu anterioribus, rufis: fœmina annulo albo antennarum.* (Long. corp. $2\frac{1}{2}$ —5 lin.; Long. ovip. 1 lin.; Exp. Alar. 4— $6\frac{1}{2}$ lin.)

Cry. analis. *Gravenhorst*, ii. 560.—*Steph. Nomen*. 2d edit. *Gen.* 721. 33.

Black: antennæ about half the length of the body, a little longer of the female, with about the 7th to 12th joints, or the most part of them, white; abdomen of the male elongate, of the female ovate, the basal segment black, its apex, especially in the female, red, 2nd to 4th red or chestnut, remainder black, the base of the 5th occasionally red; ovipositor about a sixth of the abdomen in length; legs moderate, a little elongated, most slender in the male, black, 4 or 2 anterior tibiæ red, and the 4 anterior femora more or less reddish at the tip, rarely wholly red; the hinder pair red at the base, and at times red beneath, and their tibiæ sometimes rusty towards the base, the 4 anterior tarsi red or fuscous, the middle ones occasionally with the 3rd and 4th joints whitish in the male, and the hinder pair usually with the 3rd and 4th joints, and occasionally the apex of the 2nd, whitish; wings somewhat hyaline; cellule 4-rate, or rather 5-angular.

Found at Coombe and Darenth woods in June; also in Salop.

Sp. 34. titillator. *Niger, segmentis 2 et 3, nec non apice 1-mi, rufis, tibiis anticis rufis: mas tarsis posticis annulo albo; fœmina antennæ alboannulatis.* (Long. corp. $2\frac{1}{2}$ —5 lin.; Long. ovip. 1 lin.; Exp. Alar. 4— $5\frac{1}{2}$ lin.)

Ich. titillator. *Linné*.—Cry.? titillator. *Steph. Catal.* 345. No. 4313.

Black: antennæ slender, of the female with about the 9th to 12th joints whitish; abdomen of the male fusiform, of the female ovate; the basal segment generally red, with the petiole black, or rarely wholly black, 2nd and 3rd red, the latter sometimes black on the back at the tip, remainder black; ovipositor occasionally a 3rd part of the abdomen in length; legs black; 4 anterior femora beneath and more or less at the apex red, the anterior pair sometimes entirely red, posterior at the extreme base and apex rusty; anterior tibiæ rusty or red, middle pair black, sometimes entirely red, or red with the upper side and tip blackish, anterior tarsi fuscous or rusty at the base, middle pair fuscous, with the 2nd to 4th joints of the male generally white, posterior black, with the intermediate joints white, and occasionally so of the female; wings somewhat hyaline; cellule 4-rate, rather longer.

Found, not very rarely, in the vicinity of London, in June, and in Salop.

MANDIBULATA, Vol. VII., MARCH 31st, 1836.

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Sp. 35. obfuscator. *Niger, segmentis 2 et 3, nec non apice 1-mi, dilute rufis.*
(Long. corp. 5 lin.; Long. ovip. 1 lin.; Exp. Alar. $7\frac{1}{2}$ lin.)

Cry. obfuscator. *Gravenhorst, ii. 569.—Steph. Nomen. 2d edit. Gen. 721. 35.*
Black: metathorax with 2 rather acute tubercles; abdomen with the apex of the basal segment red, the 2nd and 3rd testaceous-red, remainder black; legs moderate, the anterior tibiæ rusty-brown beneath; wings smoky-hyaline; cellule 4-rate.

Rare: taken in June near London.

Sp. 36. brachyurus. *Niger, segmentis 1-4 rufis, tibiis femoribusque rufis, posticis apice nigris, antennarum annulo et orbitis oculorum superioribus albis.*
(Long. corp. $2\frac{1}{2}$ —3 lin.; Long. ovip. $\frac{3}{4}$ —1 lin.; Exp. Alar. 4—5 lin.)

Cry. brachyurus. *Gravenhorst, ii. 572.—Steph. Nomen. 2d edit. Gen. 721. 36.*
Black: palpi pitchy; frontal and sometimes also the facial orbits ochreous; antennæ slender, curved at the tip, half the length of the body, about the 8th to 12th joints white, fuscous beneath, the 2nd to 5th sometimes rusty; thorax occasionally with 2 spots on the back, and a minute one beneath the wings, yellow; abdomen ovate, red, the 5th to 7th segments black, the basal one smooth; ovipositor about one third shorter than the body, chestnut; legs slender, red, coxæ and trochanters black, tips of the hinder femora, and sometimes of the tarsal joints black, or blackish; wings rather smoky-hyaline; cellule 5-angular.

Taken at Darenth wood, in June.

Sp. 37. bitinctus. *Niger, antennarum basi, segmentis 2-7, pedibusque rufis, coxis posticis nigris.* (Long. corp. 2— $2\frac{1}{2}$ lin.; Long. ovip. $\frac{3}{4}$ lin.; Exp. Alar. $3\frac{1}{2}$ —5 lin.)

Ich. bitinctus. *Gmelin, p. 2719.—Steph. Nomen. 2d edit. Gen. 721. 37.*

Black: palpi and sometimes the mandibles rusty; antennæ half the length of the body, curved, fuscous, with the base paler or rusty, and red beneath, the basal joint tawny; metathorax with 2 rather acute tubercles; abdomen oblong-ovate, dull red, the basal segment black, and the edges of the 6th and 7th sometimes obscurely yellowish; ovipositor above half the length of, or nearly as long as, the abdomen; legs moderate, red, posterior coxæ black or fuscous, rarely red, generally reddish at the tip, and the hinder tarsi mostly brownish; wings hyaline; cellule 5-angular, with the outer nervure occasionally faint.

Scarce: taken in June near London.

†Sp. 38. æreus. *Niger, basi antennarum, dorso segmentorum intermediarum, pedibusque rufo testaceis.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Cry. æreus. *Gravenhorst, ii. 578.—Steph. Nomen. 2d edit. Gen. 721. 38.*

Black: palpi straw colour, mandibles rusty, female with the face clothed with a silvery pile; antennæ slender, porrect, of the male as long as the body, of the female shorter, rusty towards the base, especially on the lower side, with the basal joint palest; abdomen oblong-ovate, broadest and longest in



the female, basal segment black, of the female with a testaceous dot at the tip, the following segment testaceous straw-colour on the back, and appearing transparent; the 5th and following sometimes totally black, with the extreme margins obsoletely testaceous; ovipositor one-third the length of the abdomen; legs slender, straw-colour, or reddish; posterior pair sometimes with the knees, and the tarsi and tibiæ, or the apex of the latter fuscous, or blackish; wings hyaline, iridescent; cellule 5-angular.

Rare: taken near Andover by the Rev. G. T. Rudd.

Sp. 39. pellucidator. *Niger, pedibus anterioribus, nec non segmentorum intermediorum dorso, testaceo-stramineis, segmento 1-mo lineari.* (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. 4— $5\frac{1}{2}$ lin.)

Cry. pellucidator. *Gravenhorst, ii. 581.—Steph. Nomen. 2d edit. Gen. 721. 39.* Black: palpi white; antennæ slender, porrect, nearly as long as the body, totally black; abdomen elongate-clavate, rather depressed, the basal segment slender, linear, black, the lateral tubercles prominent; 2nd with a spot at the apex or margin, 3rd with the back entirely or in the middle, and occasionally the 4th also, pellucid-testaceous, reddish, or rusty; legs slender, 4 anterior straw-colour, posterior fuscous or black, rarely with the greater portion pale, the tip of the coxæ, the trochanters, and base of the femora straw-colour; the femora occasionally nearly all testaceous, and fuscous towards the apex; wings hyaline, iridescent; cellule 5-angular.

Taken in June within the metropolitan district.

Sp. 40. incubitor. *Niger, abdomine rufo, apice nigro, ano albo, pedibus rufis, posticis femorum apice tibiisque nigris, his basi albis, antennis 3-coloribus.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Long. ovip. $1\frac{1}{2}$ lin.; Exp. Alar. 4— $5\frac{1}{2}$ lin.)

Ich. incubitor. *Stroem. teste Gravenhorst, ii. 591.—Steph. Nomen. 2d edit. Gen. 721. 40.*

Black: antennæ rather slender, curved at the tip, half the length of the body, basal joint sometimes tawny, 2nd to 4th fulvous, occasionally pitchy beneath, 7th to 10th white, fuscous below, remainder also fuscous beneath; abdomen ovate, 1st segment red, petiole more or less black, 2nd and 3rd red, remainder black, the base or sides of the 6th reddish, the 6th and 7th more or less white at the tip; ovipositor scarcely half the length of the abdomen, red, with black sheaths; legs slender, red, 4 anterior sometimes with the trochanters fuscous, the apex of the hinder femora and the tibiæ black, the base of the last white; tarsi reddish or fuscous; wings hyaline; cellule subquadrate.

Scarce: found near London in June.

Sp. 41. migrator. *Niger, abdomine rufo, apice nigro, ano albo, apice femorum anticorum et lutere altero tibiarum anteriorum rufis, tibiis posticis basi albis; fœmina antennarum annulo albo, femoribus posticis rufis apice nigro.* (Long. corp. 3— $4\frac{1}{2}$ lin.; Long. ovip. $1\frac{1}{2}$ lin.; Exp. Alar. 5— $7\frac{1}{2}$ lin.)



Ich. migrator. *Fabricius, Syst. Ent.* 334.—*Cry. migrator.* *Steph. Nomen. 2d edit. Gen.* 721. 41.

Black: inner orbits generally slightly whitish, but very obsoletely so in the female; antennæ rather above half the length of the body, curved at the tip, of the female, and with about the 7th to 11th joints white, the 2nd to 4th occasionally rusty beneath; metathorax thickly and coarsely punctured; abdomen, of the male, somewhat linear, of the female ovate, red, the petiole dusky or black, the apex of the 4th segment and the remaining segments black, the 5th sometimes chestnut on the edge, and the 6th and 7th with a white dorsal spot; ovipositor about half the length of the abdomen; legs rather slender, 4 anterior with the coxæ and trochanters black, femora rusty, more or less black at the base, tibiæ red, fuscous without, and whitish at the base, tarsi reddish; posterior black, the coxæ of the female red, with a black spot, the femora red, with the tip more or less black, tibiæ black, with a white basal ring, tarsi fuscous, and sometimes with a whitish ring; wings hyaline, of the female sometimes with an obscure cloud on the disc; cellule 4-rate.

The legs vary somewhat in the colour of the respective parts, the red or the black more or less predominating, and occasionally the scutellum bears 1 or 2 minute whitish dots.

Larva feeds on that of *Spilosoma Erminea*, &c.

Abundant within the metropolitan district in June and July; also found in Salop, &c.

Sp. 42. *subguttatus.* *Niger, segmentis 1-4 rufis, tibiis femoribusque rufis, posticis apice nigris, orbitis internis oculorum, antennarum articulo 1-mo subtus, puncto infra alas, annuloque tarsorum albis.* (Long. corp. 4 lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Cry. subguttatus. *Gravenhorst, ii.* 610.—*Steph. Nomen. 2d edit. Gen.* 721. 42.

Black: palpi, a spot on the mandibles, and the inner orbits white; antennæ porrect, shorter than the body, with the basal joint white beneath; abdomen somewhat fusiform, red, the basal segment deeply channelled, and the 5th to 7th black; legs rather slender, red, coxæ and trochanters black, 4 anterior with the 3rd and 4th joints of the tarsi white, posterior with the tip of the femora and of the tibiæ black; tarsi white, the 1st and 5th joints black; wings smoky-hyaline; cellule 5-angular, pyramidal.

Found near London in June, but very rarely.

Sp. 43. *peregrinator.* *Niger, abdomine rufo, ano albo, tibiis et femoribus rufis, posticis apice nigris, antennarum annulo albo.* (Long. corp. 2— $4\frac{1}{2}$ lin.; Long. ovip. $2\frac{1}{2}$ lin.; Exp. Alar. $3\frac{1}{2}$ —6 lin.)

Ich. peregrinator. *Linne.*—*Cry. peregrinator.* *Steph. Catal.* 345. No. 4316.

Black: antennæ slenderish, about half the length of the body, involuted at the apex, the 7th to 11th joints, or most of them, white; abdomen fusiform, or ovate-fusiform, the basal segment very smooth, red, with the petiole



dusky, 2nd and 3rd tawny-red, 4th mostly black, with the base and sides red or tawny, rarely wholly black or red, remainder black, the sides of the 5th occasionally red, and the 6th and 7th with the extreme edge whitish; legs moderate, red, coxæ and trochanters black, posterior with the tips of the femora and of the tibiæ black, tarsi dusky or blackish, the extreme base of the middle femora sometimes black, and the hinder femora occasionally entirely black; wings moderate, smoky-hyaline; cellule 5-angular, or 4-rate.

Common about London, on umbelliferous plants, in May and June; also taken in the New Forest, Salop, &c.

Sp. 44. *nubeculatus*. *Niger, abdomine rufo, apice nigro, ano albo, femoribus et tibiis anticis subtestaceis, fœmina antennarum annulo albo.* (Long. corp. 4—5 lin.; Long. ovip. 1½ lin.; Exp. Alar. 6—7½ lin.)

Cry. *nubeculatus*. *Gravenhorst*, ii. 611.—*Steph. Nomen*. 2d edit. *Gen.* 721. 44. Black: inner orbits faintly pale; antennæ rather above half the length of the body, of the male porrect and a little thickened, of the female slender, curved, the 8th to 10th joints white, the basal one rusty beneath; metathorax deeply punctured, with 2 rather acute tubercles; abdomen of the male ovate-fusiform, basal segment red, with the petiole black; of the female ovate, thickened towards the apex; the basal segment smooth, red, 2 following chestnut, red in the male, 4th black, its base and limb red, or wholly so in the males, remainder black, the terminal ones more or less bordered with white, obscure in the females; ovipositor about half the length of the body; legs moderate, slightly elongated, black, anterior femora more or less testaceous beneath, posterior of the female dull chestnut interiorly; anterior tibiæ testaceous, dusky without, middle black, reddish within in the females, posterior in this sex rusty within towards the base: wings smoky-hyaline, of the female with an obscure cloud beneath the stigma; cellule 4-rate.

Taken in June within the metropolitan district: rare.

Sp. 45. *ornatus*. *Niger, segmentis 1-3 rufis, 7 dorso albo, pedibus rufis, posticis femorum et tiliarum apice nigris, antennis 3-coloribus.* (Long. corp. 3—4 lin.; Long. ovip. 1½ lin.; Exp. Alar. 5—6½ lin.)

Cry. *ornatus*. *Gravenhorst*, ii. 620.—*Steph. Nomen*. 2d edit. *Gen.* 721. 45.

Black: antennæ with the 3rd and 4th or 5th joints red, sometimes fuscous beneath, the 8—10 white above; abdomen with the 3 basal segments red or tawny, the petiole frequently black or fuscous at the base, the remainder black, with the back of the 7th white; ovipositor about half the length of the abdomen; legs red, posterior with the tip of the femora and of the tibiæ black, the extreme base of the latter fuscous, and sometimes the tibiæ are fuscous without, with a reddish ring towards the base; wings smoky-hyaline; cellule 4-rate, or somewhat 5-angular.

Not common: taken near London in June and July.



Sp. 46. erythrinus. *Niger, abdomine rufo, apice nigro, ano albo, pedibus rufis, antennis 3-coloribus.* (Long. corp. 3 lin.; Long. ovip. $1\frac{1}{2}$ lin.; Exp. Alar. $5\frac{1}{2}$ lin.)

Cry. erythrinus. *Gravenhorst*, ii. 621.—*Steph. Nomen. 2d edit. Gen.* 721. 46.

Black: antennæ curved, half the length of the body, thickish, the 5 basal joints red, the 4th and 5th above, and the 3 following fuscous, 4 or 5 next white, remainder fuscous; abdomen ovate-fusiform, red, the 5th to 7th segments black, the last 2 whitish on the margins; ovipositor as long as the abdomen; legs red, the extreme apex of the hinder tibiæ sometimes dusky; wings narrowish, smoky-hyaline; cellule 5-angular, somewhat pyramideate.

Taken, but not commonly, within the metropolitan district, in June.

V. *Scutellum* and part of the *thorax* red; *abdomen* red and black.

Sp. 47. minutorius. *Rufo-sanguineus, capite, coxis, trochanteribus et abdominis apice nigris, thorace femoribusque nigro maculatis, antennis 3-coloribus.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Long. ovip. $\frac{3}{4}$ lin.; Exp. Alar. 4^1 —6 lin.)

Cry. minutorius. *Fabricius.—Steph. Catal.* 346. No. 4321.

Head black: orbits slightly, palpi, a dot on the mandibles, and another on the cheeks, straw-colour; antennæ shorter than the body, slender, a little curved at the apex, the 3 basal joints black, 4th to 8th, or most of them, rusty, 3 following white, remainder fuscous, or rusty; thorax bright red, the neck, breast, and margin red, the scutellum black; metathorax with 2 minute rather acute tubercles; scutellum blood-red; abdomen oblong-ovate, basal segment red, or red-chestnut, petiole generally black, 2nd and 3rd red, or chestnut-brown, the latter sometimes dusky on the back, remainder black; ovipositor about a third or half the length of the abdomen black; legs slender, rusty-red, coxæ and trochanters black, 4 anterior femora, more or less black on the convex side towards the base, posterior entirely black; hinder tibiæ generally dusky at the apex; wings somewhat smoky-hyaline; cellule 5-angular.

Not common: found in June at Darenth wood, and in other places within the metropolitan district.

Sp. 48. flagitator. *Abdominis basi rufo, apice albo, thorace rufo, maculâ pectorali et regione circa scutellum nigris, tibiis ferrugineis, posticis apice nigro, annulo antennarum albo.* (Long. corp. $2\frac{1}{2}$ lin.; Long. ovip. $\frac{3}{4}$ lin.; Exp. Alar. 5 lin.)

Ich. flagitator. *Rossi Mant.* ii. App. 83.—Cry. flagitator. *Steph. Nomen. 2d edit. Gen.* 721. 48.

Head black, with the clypeus and an obscure spot between the antennæ and eyes reddish; antennæ involuted at the apex, rather longer than half the body, 2nd to 4th joints rusty-red, 9th to 11th white, dusky beneath, remainder black; thorax red, the neck, a spot on the back, and the margins of the scutellum black; metathorax with 2 spines; scutellum red; abdomen



ovate, rather depressed, thickened towards the apex, black, the 1st segment and base of the 2nd red, the 6th and 7th with the membrane white above; ovipositor black, half the length of the abdomen; legs moderate, black, 4 anterior with the tarsi, tibiæ, and tip of the anterior femora rusty, posterior coxæ and trochanters above reddish, tibiæ rusty towards the base; wings somewhat smoky-hyaline; cellule 5-angular.

Rather scarce: taken in June near London.

Sp. 49. *Tyrannus*. *Segmentis 1 et 2 rufis, 5-7 albomarginatis, tibiis rufis, posticis apice nigro, thorace bispino rufo, annulo antennarum albo.* (Long. corp. $2\frac{1}{2}$ lin.; Long. ovip. $\frac{3}{4}$ lin.; Exp. Alar. 5 lin.)

Cry. *Tyrannus*. *Gravenhorst*, ii. 630.—*Steph. Nomen*. 2d edit. Gen. 721. 49.

Black: inner orbits reddish; antennæ curved, half the length of the abdomen, 3rd and 4th joints rusty-red, 8th to 10th white; thorax red, black round the scutellum, the latter red: metathorax with 2 acute spines; abdomen with the 2 basal segments red, the 2nd with a fuscous fascia, remainder black, the 3 terminal ones with the margins white; ovipositor nearly half the length of the abdomen; legs moderate, black, 4 anterior with the tips of the femora, and the tibiæ and tarsi red; posterior tibiæ red towards the base; wings smoky-hyaline; cellule 5-angular.

Also rare, and found in June near London.

Sp. 50. *Carnifex*. *Niger, abdominis basi, pedibus et metathorace rufis, ano albo, antennis 3-coloribus.* (Long. corp. $4\frac{1}{2}$ lin.; Long. ovip. $\frac{3}{4}$ lin.; Exp. Alar. $6\frac{1}{2}$ lin.)

Cry. *Carnifex*. *Gravenhorst*, ii. 631.—*Steph. Nomen*. 2d edit. Gen. 721. 50.

Black: antennæ with the 3rd to 5th joints red, 9th to about the 11th white above; thorax either black, with the metathorax and sides of the prothorax below the wings red, or red, with the collar and back of the prothorax black; scutellum red; abdomen with the 3 basal segments red, remainder black, the 4th occasionally with the margins obsoletely red, and the 7th white on the back; ovipositor black, half the length of the abdomen; legs red, hinder tibiæ with the extreme tip blackish; wings rather smoky-hyaline; cellule 4-rate.

Scarce: taken within the metropolitan district in June.*

* For additional descriptions of some species of this genus and of the following, contained in my collection, I must request the reader to refer to the Appendix, to be given at the end of the present volume; serious indisposition having prevented me from duly investigating them in time to insert in their respective places. It may be remembered that, including this sheet, I have already described 843 Hymenoptera, of which 503 are Ichneumonidæ.



GENUS LII.—PHYGADEUON, *Gravenhorst*.

Antennæ moderate, of the male porrect, longer and generally more slender than in the females, in which sex they are curved or involuted; in both sexes the basal joints are more or less elongated: *head* short, transverse, rather narrower than the thorax: *eyes* ovate, prominent: *thorax* slightly gibbous, or somewhat cylindric: *metathorax* occasionally with spines: *scutellum* more or less convex, 3-angular, with the apex a little obtuse: *wings* moderate: *cellule* 5-angular, rarely with the outer nervure obsolete: *abdomen* petiolated, of the male narrow, of the female oblong or ovate, slightly convex, or a little depressed, the basal segment generally smooth, in some species with 2 elevated lines, the petiole mostly obsoletely grooved: *ovipositor* exerted: *legs* moderate, sometimes a little thickened, at others rather slender.

Of this genus Gravenhorst remarks that it differs from *Cryptus* in having the antennæ, legs, and ovipositor moderate, the cellule 5-angular, the abdomen of the female oblong or ovate, of the male narrower, the 1st segment with the petiole longer and narrower than the anterior part, the surface smooth, &c.; to which may be added, the length of the basal joints of the antennæ, and these organs are in general longer and rather more slender in the males than in the females.

§ I. *Scutellum* and *abdomen* black.

Sp. 1. *flavimanus*. *Niger*, *pedum anteriorum tarsis tibiis et femorum apice testaceo-stramineis*. (Long. corp. $2\frac{1}{2}$ — $2\frac{1}{2}$ lin.)

Phy. *flavimanus*. *Gravenhorst*, ii. 647.—*Steph. Nomen*. 2d edit. *Gen.* 722. 1.

Black: palpi pale fuscous, middle of the mandibles chestnut; inner orbits generally whitish; antennæ slender, porrect, as long as the body; abdomen a little depressed, the basal segment with 2 elevated lines, the lateral tubercles scarcely placed before the middle; legs moderate, 4 anterior testaceous-straw-colour, the femora entirely, or on their convex side, black; coxæ and trochanters black, the apex of the latter rusty-brown; posterior black, with the tips of the trochanters and of the femora, as well as the extreme base of the last, testaceous; tibiæ either obscure rusty-brown at the base, or totally red, with the apical spines rusty; wings rather smoky-hyaline, iridescent; cellule 5-angular.

Not common: found in the south of England in the beginning of summer.

§ II. *Scutellum* pale: *abdomen* black.

Sp. 2. *pumilio*. *Niger*, *metathorace bispino, abdominis medio, femoribus tibiisque rufis, tibiis posticis apice nigro, picturis faciei et lineâ infra scutellum albis*. (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. 4—6 lin.)

Phy. *pumilio*. *Gravenhorst*, ii. 653.—*Steph. Nomen*. 2d edit. *Gen.* 722. 2.



Black: inner orbits, and sometimes a transverse line on the clypeus and a dot on the face white; palpi whitish or fuscous; mandibles rusty-brown; antennæ porrect, half the length of the body, the basal joint whitish beneath; metathorax with 2 acute tubercles; scutellum white, a line beneath it whitish; abdomen narrower than the thorax, oblong, the basal segment slightly channelled, black, its apex testaceous, 2nd and 3rd testaceous-red, 4th the same, or fuscous with the edge chestnut, remainder black; legs rather slender, tawny, coxæ and trochanters, and the tip of the hinder tibiæ and tarsi, and also occasionally the base of the anterior femora, black; wings rather smoky-hyaline; cellule 5-angular.

Not common: found within the metropolitan district in June and July.

Sp. 3. *jucundus*. *Niger, abdominis medio rufo, femoribus tibiisque rufis, posticis pro parte nigris*. (Long. corp. 2l.—4 lin.; Exp. Alar. 4—6 lin.)

Phy. *jucundus*. *Gravenhorst*, ii. 658.—*Steph. Nomen*. 2d edit. *Gen*. 722. 3.

Black: inner orbits in general slightly whitish; mandibles dusky, or sooty; palpi pale straw-colour; antennæ porrect, shorter than the body, the basal joint reddish or dull ochreous beneath, the following reddish or dusky; thorax with a white dot below the scutellum, and the tip of the latter whitish; abdomen narrower than the thorax, its basal segment somewhat linear, and rather long and narrow, edged with red, 2nd to 4th red, the margin of the latter occasionally black, 5th black, with the edge chestnut, or at times totally red, remainder black; legs moderate, 4 anterior red, coxæ and trochanters black, posterior with the coxæ, trochanters, and femora black, the base of the latter red; tarsi and tibiæ black, the base of the last red or fuscous, with the apical spines whitish; wings somewhat hyaline, cellule 5-angular.

Not very uncommon, in the neighbourhood of the metropolis, in June.

Sp. 4. *larvatus*. *Niger, picturis faciei et scutelli, nec non trochanteribus coxisque anterioribus, albis, abdominis medio femoribus tibiisque rufis, harum posticis apice nigris*. (Long. corp. 4 lin.; Exp. Alar. 7 lin.)

Phy. *larvatus*. *Gravenhorst*, ii. 622.—*Steph. Nomen*. 2d edit. *Gen*. 722. 4.

Black: mouth, clypeus, a spot on the face, and inner orbits broadly white; antennæ porrect, shorter than the body, and stoutish, the basal joint white beneath; thorax slightly clothed with a griseous pile, with a white dot before, and another beneath, the wings; scutellum with 2 white dots; abdomen rather narrower than the thorax, the basal segment black and finely channelled, its margin red, 2nd to 4th red, the edge of the last black, remainder black; legs moderate, anterior pale red, coxæ and trochanters whitish, the middle coxæ black at the base; posterior coxæ black, trochanters black, red at the base, femora and tibiæ red, black at the tip, tarsi brown-black; wings smoky-hyaline; cellule 4-rate.

Found, not commonly, within the metropolitan district, in June.



§ III. *Scutellum* black; *abdomen* either wholly red, or red and black.

Sp. 5. *exiguus*. *Niger*, *antennarum basi pedibus abdomineque testaceis, segmento 1-mo nigro*. (Long. corp. 2 lin.; Exp. Alar. $3\frac{1}{2}$ lin.)

Phy. *exiguus*. *Gravenhorst*, ii. 666.—*Steph. Nomen. 2d edit. Gen. 722. 5.*

Black: palpi whitish; mandibles with a red dot; antennæ rusty towards the base, the 1st joint testaceous beneath; metathorax with 2 rather acute tubercles; abdomen ovate, depressed, as wide as the thorax, testaceous straw-colour, the basal joint black and somewhat linear, 2nd to 4th with the sides fuscous; ovipositor about the 5th part of the abdomen in length; legs moderate, straw-coloured, posterior tarsi and the extreme apex of the tibiæ fuscous; wings smoky-hyaline, iridescent; cellule 5-angular.

Taken, not rarely, in June, near Hertford, and in other places within the metropolitan district.

Sp. 6. *ovatus*. *Niger*, *metathorace subbispino, segmentis 2 et 3, antennarum basi pedibusque rufis, horum posticis apice femorum et tibiæ nigris*. (Long. corp. $2\frac{1}{2}$ —3 lin.; Exp. Alar. $3\frac{1}{2}$ —5 lin.)

Phy. *ovatus*. *Gravenhorst*, ii. 668.—*Steph. Nomen. 2d edit. Gen. 722. 6.*

Black: mouth red; antennæ with the 1st to 7th or 8th joints, or some of them, red; metathorax with 2 rather acute spines; abdomen as wide as the thorax, ovate, the basal segment channelled and black, 2nd and 3rd red, remainder black, 6th and 7th with the margins slightly white; ovipositor about one-third the length of the abdomen; legs red, posterior with the tips of the femora and of the tibiæ black, tarsi fuscous; wings smoky-hyaline; cellule 5-angular.

Found near London in June, not common.

Sp. 7. *quadrispinus*. *Niger*, *metathorace 4-2 spino, segmentis 2 et 3 rufis, femoribus tibiisque rufis, posticis summo apice nigris: mas facie et coxis anterioribus albomaculatis; foemina antennarum annulo albo*. (Long. corp. 3—4 lin.; Exp. Alar. 5—8 lin.)

Phy. *quadrispinus*. *Gravenhorst*, ii. 674.—*Steph. Nomen. 2d edit. Gen. 722.—Cry. quadridentatus. Steph. Catal. 345. No. 4115.*

Black: male with the mouth, clypeus, a spot on the face, and the inner orbits ochreous or white; antennæ porrect, half the length of the body, the basal joint beneath white or ochreous; of the female involuted, scarcely half the length of the body, about the 7th to 11th joints whitish above, with a fuscous dot beneath; metathorax very rugose, with 4 acute tubercles, the 2 upper ones most robust and acute, the other shorter and at times rather obsolete; abdomen ovate, of the female as wide as the thorax, of the male narrower, the basal segment aciculated, with 2 elevated lines, entirely red, or in some males with the petiole black, the latter short and broad, 2nd red, smooth in the females, aciculated at the base in the males, 3rd also red, often with the margin black, remainder black, the edges of the 6th and 7th glaucous-white; ovipositor scarcely a fourth of the abdomen in length; legs



moderate, red, coxæ and trochanters black, 4 anterior white beneath in the male, posterior with the tarsi and tips of the femora and of the tibiæ black; wings hyaline; cellule 5-angular.

This beautiful insect occurs in plenty in the vicinity of London in June; it is also found in the New Forest, in Salop, Scotland, &c.

Sp. 8. *curvus*. *Niger, abdominis medio, tibiis anterioribus, femoribusque rufis, stigmate piceo, annulo antennarum albo.* (Long. corp. 3—5 lin.; Exp. Alar. 5—7 lin.)

Ich. *curvus*. *Schrank, Boic. 2. 2087.*—Phy. *curvus*. *Steph. Nomen. 2d edit. Gen. 722. 8.*

Black: antennæ about half the length of the body, involuted, with about the 8th to 12th joints white: abdomen ovate, as broad as the thorax, the basal segment small, red or fuscous, a little dilated at the apex, petiole black and grooved, 2nd and 3rd chestnut or tawny-red, the apex of the latter sometimes black, remainder black, the edge of the 7th whitish; ovipositor about one-third the length of the abdomen; legs moderate, tawny or dull red, coxæ and trochanters, and the hinder tarsi and tibiæ black, the latter at times reddish at the base; wings smoky-hyaline; cellule 5-angular.

Rare within the metropolitan district: found in June.

Sp. 9. *galactinus*. *Niger, segmentis 2-3 rufis, tibiis femoribusque rufis, posticis summo apice nigro, ore, orbitis internis oculorum, coxis et trochanteribus anterioribus, albidis.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{4}$ lin.; Exp. Alar. 4— $6\frac{1}{2}$ lin.)

Phy. *galactinus*. *Gravenhorst, ii. 176.*—*Steph. Nomen. 2d edit. Gen. 722. 9.*

Black: mouth, clypeus, and inner orbits, and sometimes also a dot on the face, white or ochreous; mandibles with the tip fuscous; antennæ porrect, half the length of the body, the basal joint ochreous beneath; abdomen rather narrower than the thorax, oblong-fusiform, the basal segment slightly channelled, black, occasionally with the edge red, 2nd and 3rd red, 4th dull brown or reddish on the back, remainder black, with the anal membrane white; legs slenderish, red; 4 anterior trochanters and coxæ white, the latter sometimes red above, posterior coxæ, trochanters, tarsi, and tips of the tibiæ black; wings somewhat hyaline; cellule 5-angular.

Found at Darenth wood in June.

Sp. 10. *sperator*. *Niger, abdominis medio rufo, femoribus tibiisque rufis, posticis apice nigris, ore, et orbitis oculorum internis albis.* (Long. corp. $2\frac{1}{2}$ — $3\frac{1}{2}$ lin.; Exp. Alar 4—6 lin.)

Ich. *sperator*. *Müller, Prod. 1829.*—Phy. *sperator*. *Steph. Nomen. 2d edit. Gen. 722. 10.*

Black: mandibles, palpi, inner orbits, and a small dot on the clypeus, white; antennæ porrect, nearly the length of the body, the basal joint more or less white beneath; abdomen somewhat linear-fusiform, or a little dilated towards the apex, narrower than the thorax, basal segment slightly chan-



nelled, black, its margin occasionally red, 2 following red, at times clouded with fuscous, 4th red or black, remainder black, the last 2 sometimes edged with white; legs rather slender, red, coxæ black, 4 anterior sometimes reddish beneath; trochanters black, 4 anterior occasionally yellowish at the tip; posterior tarsi and tips of the tibiæ and of the femora black, the latter sometimes black nearly to the base; wings rather hyaline; cellule 5- or somewhat 3-angular.

Taken in June at Darenth wood, and in other places within the metropolitan district.

Sp. 11. fumator. *Niger, segmentis intermediis, femoribus, tibiisque rufis.* (Long. corp. 2—3½ lin.; Exp. Alar. 3½—5½ lin.)

Phy. fumator. *Gravenhorst*, ii. 687.—*Steph. Nomen. 2d edit. Gen. 722. 11.*

Black: palpi pitchy straw-colour, middle of the mandibles red; antennæ of the male nearly as long as the body, the basal joint red beneath; of the female half the length and curved, the 1st or 3 basal joints rusty beneath; abdomen of the male oblong, of the female oblong-ovate, the basal segment black, slightly aciculated occasionally in the female, and of the male with the margins reddish, 2nd and 3rd red, or chestnut in the female, and sometimes with the edge or a fascia dusky, 4th generally black, the base sometimes red, rarely wholly red; 5th of the male occasionally red at the base; ovipositor rarely one-third the length of the abdomen; legs red, 4 anterior coxæ generally black at the base, rarely wholly red, or wholly black; posterior either entirely black, or black with a red spot beneath; trochanters generally black, with the tip red, rarely entirely red, or entirely black; posterior tarsi fuscous, the apex of the tibiæ, and also of the femora, fuscous; wings hyaline, iridescent; cellule 5-angular.

Common within the metropolitan district during the spring and summer months; found also in Salop, Scotland, &c.

Sp. 12. teneriventris. *Niger, segmento 3-tio pedibusque rufis, coxis posticis nigris.* (Long. corp. 2½—3 lin.; Exp. Alar. 4—5½ lin.)

Phy. teneriventris. *Gravenhorst*, ii. 698.—*Steph. Nomen. 2d edit. Gen. 722. 12.*

Black: palpi and generally a spot on the mandibles and the clypeus reddish; antennæ usually with the 2 basal joints red beneath; abdomen slightly elongated, a little dilated towards the apex, very glossy, smooth and depressed, basal segment black, 2nd generally black, with the apex and sides testaceous-red, 3rd either testaceous or red, generally black at the tip, 4th black, occasionally reddish at the base, remainder black; legs red; hinder coxæ black, reddish at the tip, tarsi brownish; wings hyaline, iridescent; cellule somewhat 5-angular.

Found within the metropolitan district in June.

Sp. 13. nitidus. *Niger, abdomine lanceolato, segmentis 2-4 pedibusque rufis, trochanteribus et coxis nigris.* (Long. corp. 2½—3 lin.; Exp. Alar. 3½—5 lin.)



Phy. nitidus. Gravenhorst, ii. 708.—*Steph. Nomen. 2d edit. Gen. 722. 13.*

Black: antennæ about half the length of the body, the 2nd to 4th joints more or less distinctly red beneath; abdomen rather narrower than the thorax, lanceolated, with the 2nd to 4th segments chestnut-red; ovipositor about one fourth the length of the abdomen; legs red; coxæ and trochanters black; wings more or less hyaline; cellule 5-angular.

Taken at Darenth wood in June, and also in other places within the metropolitan district, and in Salop.

Sp. 14. *assimilis.* *Niger, abdominis medio, femorum anteriorum apice, tibiisque, rufis, harum posticis apice nigro.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7 lin.)

Phy. assimilis. Gravenhorst, ii. 711.—*Steph. Nomen. 2d edit. Gen. 722. 14.*

Black: palpi fuscous, or dull straw-colour; antennæ porrect, half the length of the body; abdomen rather narrower than the thorax, somewhat oblong-ovate, basal segment foveolated, black, 2nd and 3rd red, 4th either totally red, or black, with the base and sometimes the margin reddish, remainder black, silky; legs moderate, black, posterior trochanters generally rusty at the tip, 4 anterior femora rusty-red at the apex; tibiæ red, posterior black at the tip; 4 anterior tarsi red, middle sometimes fuscous at the apex, hinder fuscous; claws all black; wings smoky-hyaline; cellule 5-angular.

Found, but not commonly, in June, within the metropolitan district.

Sp. 15. *Spinolæ.* *Niger, segmentis 2-4 pedibusque rufis, femorum latera altero nec non tarsis posticis et tibiæ apice nigris, antennæ tricoloribus.* (Long. corp. 3½ lin.; Exp. Alar. 6 lin.)

Phy. Spinolæ. Gravenhorst, ii. 712.—*Steph. Nomen. 2d edit. Gen. 722. 15.*

Black: palpi and middle of the mandibles rusty; antennæ scarcely half the length of the body, incurved, a little compressed and dilated in the middle, slender at the tip, 5 basal joints fuscous, rusty beneath, 2 next fuscous, 8th to 10th white, fuscous beneath, remainder fuscous; abdomen as wide as the thorax, oblong-ovate, the basal segment smooth, petiole black, red anteriorly, 2nd to 4th segments red, remainder black, the terminal one white at its apex; ovipositor half the length of the abdomen; legs moderate, red, 4 anterior with the outer edge of the trochanters and femora blackish: posterior with the tarsi, the apex of the tibiæ and the femora black, the base of the latter red, chestnut within; wings somewhat hyaline; cellule narrow, nearly 3-angular.

Found near London, and in Salop, in June.

Sp. 16. *erythrostickus.* *Niger, abdominis medio, stigmatæ, femoribus anterioribus, tibiisque, rufis.* (Long. corp. 4—5 lin.; Exp. Alar. 7—8 lin.)



Phy. erythrostickus. *Gravenhorst*, ii. 714.—*Steph. Nomen. 2d edit. Gen. 722. 16.*

Black: palpi straw-colour; mandibles yellow in the middle; antennæ porrect, the extreme tip incurved, rather shorter than the body; abdomen silky, narrower than the thorax, the basal segment smooth, a little grooved, chestnut, the petiole black, 2nd and 3rd red, 4th red, with the margin black, remainder black; legs moderate, red, coxæ and trochanters, and hinder femora black; hinder tarsi fuscous; wings smoky-hyaline; stigma red; cellule 5-angular, pyramidal.

Taken in June, near London, and in Salop.

Sp. 17. senilis. *Niger, facie cano pubescente; abdomine rufo, basi et ano nigris, femoribus tibiisque anterioribus rufis.* (Long. corp. 3—4 lin.; Exp. Alar. 5—7 lin.)

Ich. senilis. *Gmelin, p. 2704.*—Phy. senilis. *Steph. Nomen. 2d edit. Gen. 722. 17.*

Black: face and cheeks clothed with an ashy silken pile; palpi long, ochreous; antennæ with several of the basal joints rusty beneath, the 1st occasionally fuscous; metathorax with 2 rather acute tubercles; abdomen narrower than the thorax, the basal segment black, somewhat linear, grooved, 2nd generally fuscous, with the edge paler, sometimes rusty or red, 3rd rusty or tawny, sometimes fuscous towards the base, 4th and 5th rusty-red or tawny, 2 following black, the 6th occasionally reddish; legs slender, 4 anterior red, coxæ and trochanters black, the latter more or less testaceous at the apex, the middle femora sometimes fuscous above, tibiæ whitish within, posterior black, the apex of the trochanters rusty, tarsi and tibiæ fuscous, the last frequently rusty beneath at the base and apex, or wholly chestnut within; wings rather smoky-hyaline; cellule somewhat 5- or 3-angular.

Taken, in June, near London.

Sp. 18. procerus. *Niger, segmentis 2-4-5 rufis, femoribus tibiisque rufis, posticis apice nigris.* (Long. corp. $2\frac{1}{2}$ —5 lin.; Exp. Alar. 4— $6\frac{1}{2}$ lin.)

Phy. procerus. *Gravenhorst*, ii. 722.—*Steph. Nomen. 2d edit. Gen. 722. 18.*

Black: antennæ half the length of the body, porrect; thorax slightly cylindric, or a little gibbous; abdomen with the basal segment black, sometimes with a chestnut spot at the apex, the anterior portion small, quadrate, the lateral tubercles prominent, 2nd to 4th red, 5th red, with the angles, a dorsal spot on the apex black, sometimes wholly black, remainder black; legs rather slender, 4 anterior red, with the base of the femora sometimes black; coxæ and trochanters black, and also the hinder pair; posterior femora red, more or less black at the tip; tibiæ red, with the apex black; wings smoky-hyaline; cellule 5-angular.

Found near London, in June.

Sp. 19. abominator. *Niger, abdomine rufo, petiolo nigro, tibiis rufis, posticis*



apicem versus nigricantibus, femoribus posticis totis, anterioribus pro parte, nigris; fœmina annulo antennarum albo. (Long. corp. $2\frac{1}{2}$ —4 lin.; Exp. Alar. 4—7 lin.)

Phy. abdominator. *Gravenhorst*, ii. 726.—*Steph. Nomen*. 2d edit. Gen. 722. 19.

Black: palpi generally fuscous; middle of the mandibles and the labrum reddish; antennæ with the 5th to 11th joints, or the greater portion of them, white, the 2 basal ones often rusty beneath; metathorax slightly bispinose; abdomen red, petiole black, the basal segment and sometimes a dorsal spot on the 2nd black, the 3 terminal ones occasionally fuscous; ovipositor scarcely half the length of the abdomen; legs rather silky; coxæ and trochanters black; 4 anterior femora red or rusty, black towards the base, and sometimes almost wholly blackish; the anterior in the male often wholly red, posterior always black; tibiæ red, or ochreous, posterior with the apex blackish, rarely wholly red, or entirely blackish; tarsi reddish; wings hyaline; cellule more or less 5-angular, or somewhat 4- or 3-angular.

Common within the metropolitan district, in June; found also in Salop, Scotland, &c.

Sp. 20. protligator. *Niger, abdomine rufo, petiolo nigro, tibiis femoribusque rufis: mas femorum posticorum apice nigro; fœmina antennarum annulo albo* (Long. corp. $2\frac{1}{2}$ —3½ lin.; Exp. Alar. 3—6½ lin.)

Ich. profligator. *Fabricius*.—*Steph. Catal.* 345. No. 4112.

Black: palpi and middle of the mandibles reddish; antennæ of the male porrect, half the length of the body, rusty-brown beneath, or wholly black; of the female involuted at the apex, the basal joint black, the 5 next fuscous or rusty, the 7 following, or most of them, white, tawny beneath, the remainder brown-black; abdomen of the male narrower than, and of the female as wide as, the thorax, red, the basal segment smooth, with 2 raised lines, the base black, the 7th occasionally dusky; ovipositor scarcely a third of the length of the abdomen; legs stout, shortish, clothed with a silky pile, red; coxæ and trochanters black, coxæ of the females at times dull ferruginous; posterior femora of the male at the tip, and sometimes above, black; hinder tarsi and apex of the hinder tibiæ, in the same sex, black; wings rather smoky-hyaline; cellule irregularly 5-angular, or 3-angular.

Abundant within the metropolitan district in the summer; found also in Salop, &c.

Sp. 21. cnemargus. *Niger, abdomine rufo, petiolo nigro, pedum anteriorum femoribus tibiisque rufis, his externè albis.* (Long. corp. 3½ lin.; Exp. Alar. 6½ lin.)

Phy. cnemargus. *Gravenhorst*, ii. 734.—*Steph. Nomen*. 2d edit. Gen. 722. 21.

Black: palpi whitish; abdomen with the basal segment black, its apex red, remainder red, with the sides of the 5th to 7th fuscous; legs moderate, 4 anterior with the coxæ and trochanters black, femora tawny-red, middle pair a little fuscous without; tibiæ tawny, whitish without; tarsi testa-



ceous, claws fuscous, posterior legs black, with the base of the tibiæ reddish; wings smoky-hyaline; cellule somewhat regularly 5-angular.

Found near London in June; not common.

Sp. 22. *variabilis*. *Niger, segmentis 2 et 3 nec non femorum anteriorum apice rufis, tibiis rufis, posticis basi apiceque nigris; fœmina antennis basin versus rufis, ovipositore brevi.* (Long. corp. $2\frac{3}{4}$ — $3\frac{1}{2}$ lin.; Exp. Alar. 4— $7\frac{1}{2}$ lin.)

Phy. *variabilis*. *Gravenhorst*, ii. 705.—*Steph. Nomen*. 2d edit. Gen. 722.

Black: head rather large, especially of the male; palpi and middle of the mandibles rusty; antennæ black, scarcely above half the length of the body, of the female incurved, the basal joint fuscous or red, 2nd to 6th rusty, remainder fuscous; metathorax of the male slightly bispinose; abdomen oblong-ovate, rather narrower than the thorax, the basal segment black, aciculated, somewhat linear, 2nd and 3rd red, 4th either wholly red, or red, with the apex black, remainder black, the terminal one with the margin whitish; ovipositor scarcely the fourth part of the abdomen in length; legs of the male with the coxæ and trochanters black, the 4 anterior femora black, red at the apex; posterior black, with the base and inner edge red, tibiæ red, posterior wholly black, or at the base and apex only; of the female the 4 anterior are red, the femora blackish towards the base, the coxæ and trochanters sometimes black above, posterior black, trochanters at the apex, or wholly, red; tibiæ occasionally red in the middle; the legs vary in being red, with the coxæ dusky, or black, with all the femora and the 4 anterior tibiæ red; wings smoky-hyaline; cellule 5-angular.

Not uncommon in the vicinity of London; found also in the New Forest, Salop, Scotland, &c. about June.

Sp. 23. *vagabundus*. *Niger, abdomine rufo, petiolo nigro, tibiis femoribusque rufis; fœmina antennis rufo testaceis, articulis ultimis et 1-mo nigris.* (Long. corp. $2\frac{3}{4}$ —4 lin.; Exp. Alar. $3\frac{1}{2}$ —7 lin.)

Phy. *vagabundus*. *Gravenhorst*, ii. 735.—*Steph. Nomen*. 2d edit. Gen. 722. 23.

Black: antennæ of the female with the 3rd to 13th joints, or most of them, testaceous-red; male generally with rather acute spines on the metathorax; abdomen red, the petiole more or less black; ovipositor above half the length of the abdomen; legs of the male rather slender, of the female stouter, red, with the coxæ and trochanters black; tibiæ of the female slightly ciliated externally, posterior pair of the male dusky at the tip; tarsi in that sex either all, or only the 4 posterior, blackish; wings smoky-hyaline; cellule rather irregularly 5-angular.

Not uncommon in the vicinity of London, during the summer.

Sp. 24. *gravipes*. *Niger, segmentis 1-4 pedibusque rufis, antennis 3-coloribus.* (Long. corp. $2\frac{1}{2}$ lin.; Exp. Alar. $4\frac{1}{2}$ lin.)

Phy. *gravipes*. *Gravenhorst*, ii. 740.—*Steph. Nomen*. 2d edit. Gen. 722. 24.

Black: mouth tawny; antennæ with the 6 basal joints tawny-red, 7th to 11th white, with a brown dot, the rest black; metathorax with 2 rather acute



tubercles; abdomen with the 4 basal segments red, the margin of the 4th fuscous, remainder black; ovipositor about one-third the length of the abdomen; legs stoutish, wholly red; wings smoky-hyaline; cellule 5-angular.

Not common: found, in June, near London.

Sp. 25. *podagricus*. *Niger, abdomine, basi antennarum, tibiis et femoribus apice, rufis.* (Long. corp. 3—3½ lin.; Exp. Alar. 5—6 lin.)

Phy. *podagricus*. *Gravenhorst*, ii. 710.—*Steph. Nomen. 2d. edit. Gen. 722.*

Black: antennæ with the basal joint black, 2 following the same, but rusty-red beneath, 16 next entirely rusty-red, remainder black; abdomen shining red, petiole black; ovipositor about the fourth part of the abdomen in length; legs stout; coxæ and trochanters black; anterior femora red, slightly black towards the base, middle pair black, with the apex red, posterior black with the tip red, or red with the base black; tibiæ red; anterior tarsi red, middle brownish, hinder black; wings smoky-hyaline; cellule minute, 5-angular.

Found within the metropolitan district and in Salop, in June; not uncommon.

Sp. 26. *erythrogaster*. *Niger, abdomine rufo, petiolo nigro, tibiis nec non femorum anteriorum apice rufis, antennarum articulis 2-10 ferrugineis.* (Long. corp. 2½ lin.; Exp. Alar. 4½ lin.)

Phy. *erythrogaster*. *Gravenhorst*, ii. 741.—*Steph. Nomen. 2d. edit. Gen. 722.*

Black: antennæ with the 2nd to 10th joints rusty-red; abdomen red or testaceous, the basal joint either red with the petiole black, or black with the margin red, the terminal one sometimes slightly fuscous; ovipositor nearly half the length of the abdomen; legs black; 4 anterior femora more or less reddish at the apex, tibiæ red; antennæ occasionally fuscous at the tips; tarsi red, hinder pair fuscous; wings somewhat hyaline; cellule 5-angular.

Also found, in June, near London and in Salop.

Sp. 27. *parviventris*. *Niger, abdomine, femoribusque rufis, horum posticis apice nigro; tibiis anterioribus rufis, posticis nigris, omnibus aulem extra albis; scæmina antennarum annulo albo.* (Long. corp. 3—4½ lin.; Exp. Alar. 4½—7½ lin.)

Phy. *parviventris*. *Gravenhorst*, ii. 746.—*Steph. Nomen. 2d. edit. Gen. 722.*

Black: palpi fuscous; antennæ of the male porrect, above half the length of the body, rusty-brown; palest beneath, the basal joint black; of the female involuted, nearly half the length of the abdomen; the 6th to 11th joints white; metathorax with 2 short obtuse spines; abdomen red or brownish, of the male somewhat fusiform, of the female subovate; ovipositor about half the length of the abdomen; legs moderate; coxæ and trochanters black, femora of the female

whitish, with the tip black, of the male red, 2 or 4 hinder ones black at the extreme apex; 4 anterior tibiae rusty within, whitish without, the extreme tip rusty-brown; posterior black, exteriorly white in the middle; wings more or less hyaline; cellule rather irregularly 5-angular.

Apparently scarce; found, in June, near London.



10
The first of these is the fact that the
country is a very fertile one, and
the soil is very rich. The second is
the fact that the climate is very
pleasant, and the third is the fact
that the people are very friendly.



INDEX.

	Page		Page		Page		Page
ABIA . . .	5	ANOMALON . . .	125	marginata . . .	12	titillator . . .	289
ACÆNITES . . .	125	APHIDIIDÆ . . .	117	CLISTOPYGA . . .	125	tuberculatus . . .	283
AGRIOTYPUS . . .	ib.	ATHALIA . . .	6, 41	COLEOCENTRUS . . .	ib.	tyrannus . . .	295
AMASIS . . .	5, 14	abdominalis . . .	44		ib.	viduatorius . . .	280
Jurinæ . . .	15	ancilla . . .	43	CREMASTUS . . .	126	Decatria <i>West.</i> . . .	94
obscura . . .	14	annulata . . .	44	CRÆSUS . . .	5, 38	DOLEPUS . . .	5, 85
ALLANTUS . . .	5, 57	centifoliæ . . .	42	laticrus . . .	39	Anthræcinus . . .	86
agilis . . .	72	cordata . . .	ib.	septentrionalis . . .	38	coracinus . . .	87
albicinctus . . .	61	lineolata . . .	43	varus . . .	39	fumosus . . .	ib.
annulatus . . .	58	lugens . . .	44	CRYPTUS . . .	125, 276	gonager . . .	88
arcuatus . . .	59	Rosæ . . .	43	areus . . .	290	hamatodes . . .	86
ater . . .	68	spinarum . . .	42	albatorius . . .	285	niger . . .	ib.
aterrimus . . .	66	suessionensis . . .	43	annalis . . .	289	palmatus . . .	87
Aucupariæ . . .	71	ATRACODES . . .	126	anatorius . . .	279	picipes . . .	ib.
balteatus . . .	66	BANCHUS . . .	125	apparitorius . . .	283	vestigialis . . .	80
bicolor . . .	71	BASSUS . . .	126	arrogans . . .	281	DOSYTHEUS . . .	5, 81
blandus . . .	63	BRACHYPTERUS . . .	124, 210	assectorius . . .	ib.	anticus . . .	82
bipunctatus . . .	67	means . . .	ib.	bicinctus . . .	290	Bajulus . . .	83
cinctus . . .	64	BRACHYGASTER . . .	117	brachycentrus . . .	278	dubius . . .	85
Colon . . .	67	fulvipes . . .	119	brachyurus . . .	290	Eglanteria . . .	82
conspiciuus . . .	65	minutus . . .	ib.	brevicornis . . .	283	fulviventris . . .	83
Corvli . . .	67	BRACONIDÆ . . .	117	Carnifex . . .	295	fuscipennis . . .	85
dispar . . .	68	CEPHUS . . .	5, 103	cinctorius . . .	281	hyalinialis . . .	83
12-punctatus . . .	61	analís . . .	106	confactor . . .	284	Junci . . .	84
ferus . . .	ib.	atripes . . .	105	cyanator . . .	276	lateritius . . .	82
flavicornis . . .	64	floralis . . .	106	Dianæ . . .	287	madidus . . .	84
hematopus . . .	62	immaculatus . . .	107	erythrinnus . . .	294	timidus . . .	ib.
laticinctus . . .	65	pallipes . . .	105	flavigator . . .	ib.	triplicatus . . .	ib.
lividus . . .	66	Populi . . .	103	fugitivus . . .	284	tristis . . .	89
mandibularis . . .	69	pygmaeus . . .	ib.	furcator . . .	279	ECHTHRUS . . .	126
neglectus . . .	63	quinque-fas- ciatus . . .	104	grisesens . . .	280	EMPHYTUS . . .	5, 88
nitidas . . .	71	Satyrus . . .	105	incubitor . . .	271	calceatus . . .	91
pictus . . .	70	tabidus . . .	106	leucostictus . . .	286	cereus . . .	92
punctulatus . . .	69	troglodytes . . .	104	leucostarsus . . .	285	cinctus . . .	89
Punctum . . .	62	CIMBEX . . .	4, 6	migrator . . .	291	cingulatus . . .	ib.
Ribis . . .	ib.	annulata . . .	8	minator . . .	288	coronatus . . .	93
rufipes . . .	72	decemmaculata . . .	7	minutorius . . .	294	didymus . . .	90
rufiventris . . .	65	femorata . . .	6	moschatus . . .	277	filiformis . . .	ib.
rusticus . . .	68	Griffinii . . .	7	nubeculatus . . .	293	gilvipes . . .	73
scalaris . . .	70	humeralis . . .	8	obfuscator . . .	290	immersus . . .	92
serophulariæ . . .	57	maculata . . .	ib.	obscurus . . .	287	impressus . . .	ib.
solitarius . . .	66	pallida . . .	7	ornatus . . .	295	melanarius . . .	90
strigosus . . .	63	varians . . .	6	parvulus . . .	279	nigricans . . .	83
tenulus . . .	60	CLADIUS . . .	5, 22	pellucidator . . .	291	pallimaculatus . . .	92
Tiliæ . . .	70	difformis . . .	23	peregrinator . . .	292	patellatus . . .	93
velox . . .	68	immunis . . .	24	perspicillator . . .	283	Perla . . .	89
vespiformis . . .	58	Juviperi . . .	22	pygoleucus . . .	286	rufocinctus . . .	91
Viennensis . . .	ib.	luteicornis . . .	24	quadrilineatus . . .	285	serotinus . . .	ib.
viridis . . .	69	Morio . . .	23	rufiventris . . .	282	succinctus . . .	89
zonæ . . .	59	pilicornis . . .	24	sedulus . . .	ib.	tibialis . . .	91
zonatus . . .	64	rufipes . . .	23	spiralis . . .	278	togatus . . .	90
zonulus . . .	59	CLAVELLARIA . . .	5, 11	sponsor . . .	288	ENICOSPILUS . . .	126
ALOMYA . . .	126, 273	Amerinæ . . .	12	subcinctus . . .	287	EPHIALTES . . .	125
nigra . . .	274			subguttatus . . .	292	EUCEROS . . .	126
ovator . . .	273			subpetiolatus . . .	280	EVANIDÆ . . .	117
semiflava . . .	274			tarsoleucus . . .	277	EVANIA . . .	ib.
ALYSIDÆ . . .	11					appendigaster . . .	118
						flavicornis . . .	ib.



	Page		Page		Page		Page
EXETASTES	125	analis	205	fulvicornis	182	parvulus	203
Exochus	125, 264	anator	156	fulvipes	144	pedatorius	142
Æthiops	265	arrideus	193	fumigator	195	perileucus	152
asper	267	atripes	167	funereus	148	persecutor	191
coronatus	266	bellus	200	fuscipes	151	picipes	204
cristator	267	biannulatus	152	fusorius	187	pisorius	188
curvator	265	bidentorius	154	gasterator	199	pistorius	153
femoralis	266	bilineatus	132	gemellus	147	prateusius	149
fræmator	264	binotatus	247	glaucoatorius	185	primatorius	165
funebriis	268	bipunctorius	154	Goedarti	189	procerus	ih.
gravipes	267	bisignatus	181	gracilicornis	160	Proteus	150
lentipes	266	brevicornis	136	guttulatus	201	pumilus	138
mansuetor	265	brunnicornis	ih.	hamorrhoidalis		punctus	169
podagricus	ih.	cedator	162		195	pyrrhopus	198
prosopius	267	caudiculatus	135	hilaris	170	quadrialbatus	156
FENUSA	5, 40	candidatus	145	hostilis	171	quadrifasciatus	
nana	41	castaneus	199	illuminatorius			176
pygmaea	ih.	castaneoventris			163	quadrimaculatus	ih.
FENUS	117		198	incubitor	205		
assectator	121	castanopyga	199	infractorius	172	quadrinotatus	168
jaculator	120	castigator	131	iocerus	170	quesitorius	156
GLYPTA	126	cerinthius	161	iridipennis	145	raptorius	162
HEMICHRŌA	5, 55	cessator	138	laboratorius	168	repentinus	189
Alni	ih.	cinctorius	189	laminatorius	150	rubellus	134
rufa	ih.	cingulipes	157	lanius	192	rufator	201
stigma	56	clericus	135	latrator	201	rufescens	207
HEMITELES	125	cognatus	239	leucocerus	148	ruficeps	206
HETERARTHUS		comitator	127	leucophygus	138	ruficollis	ih.
	5, 94	compunctor	131	leucomelas	158	ruficoxatus	203
ochropodus	94	computatorius	158	lineator	130	rufifrons	134
HOPLEMENUS		conciunatorius		luctatorius	182	rufilimbatus	204
	125, 275		166	luctuosus	146	rufipes	131
albifrons	275	confector	201	lugens	149	salicorius	155
pernicius	ih.	confusorius	160	luridus	180	sanguinatorius	
HYLOTOMA	5, 15	conspurcatus	181	maculicornis	236		164
Anglica	16	corruscator	133	maculifrons	133	sarcitorius	165
Berberidis	ih.	crassicornis	140	melanocastaneus		saturatorius	154
cerulea	17	crassipes	206		197	sedulus	191
cyaneo-crocea	18	culinator	194	melanagonus	202	semiorbitalis	149
enodis	16	culptorius	196	melanopyrrhus		semirufus	191
femoralis	18	deceptor	170		195	semivulpinus	199
Klugii	17	defensorius	181	mercatorius	172	septemguttatus	
Leachii	ih.	deliratorius	150	microcephalus	158		169
pagana	19	designatorius	186	microcerus	166	serenus	190
pilicornis	16	dimidiatus	193	militaris	172	sexlineatus	ih.
Rosæ	18	dissimilis	144	mitigosus	204	silaceus	160
segmentaria	ih.	diversorius	175	molitorius	159	stimulator	135
Stephensii	19	flavisarius	189	motatorius	172	stramentarius	161
ustulata	17	dolorosus	148	monitorius	193	subbellus	171
violacea	16	dumet cola	147	monticola	127	subcylindricus	
HYMENOPTERA	3	edictorius	152	multiannulatus			169
ICHNEUMON		equitatorius	180		151	subguttatus	187
	124, 126	erythraeus	206	mutabilis	203	submarginatus	
abdominator	202	erythrogaster	188	natatorius	184		155
æthiops	132	erythropygus	177	nigerrimus	130	sugillatorius	185
africus	197	eximius	186	nigritarius	128	tenuicornis	125
albicillus	141	extensorius	ih.	nigrocyaneus	129	tergenus	205
albicinctus	193	fabricator	143	ochropis	143	terminatorius	161
albifrons	144	fasciatorius	175	occupator	183	tibiator	137
albilarvatus	198	fasciatus	129	opprimator	203	transfugus	139
abinamis	133	femoratus	142	opticus	132	triangulator	177
albolineatus	187	femorator	200	orbitalis	191	tricinctus	193
albosignatus	140	flavolineatus	165	oratorius	199	trilineatus	142
albuguttatus	123	flavoguttatus	185	ornatorius	167	trifasciatus	196
alticola	190	flavoniger	180	palliatorius	177	tristis	134
amatorius	168	fossorius	139	pallidatorius	145	Troglodytes	202
ammonius	160	fugitivus	196	pallidicornis	164	trucidator	140
ammutator	137	fulvo cutellatus		pallifrons	129	umbraeculosus	146
amputatorius	194		162	pallipes	153	uniguttatus	167

	Page		Page		Page		Page
vaccillatorius	192	betus	219	oblitus	31	pallipes	25
vadatorius	166	hevigatus	230	pallipes	27	rufipes	26
vaginatorius	174	limitaris	213	pectoralis	28	testacea	25
vespertinus	154	luridator	228	proximus	36	testaceicornis	26
viridatorius	184	luteolatus	217	Ribesii	32	varipes	27
Xanthorius	175	melanocephalus	216	ruficornis	36	PTILIA, St. F.	16
ICHNEUMONIDA				Salici	31	PUPOPHAGA	116
	117, 121	mirabilis	223	Suessoniensis	35	RHYSSA	126
ISCHNOCERUS	125	mundus	224	tanitatus	34	SCHIZOCERUS	
ISCHNUS	124, 207	narrator	212	testaceus	29		5, 19
porrectorius	208	nemoralis	222	trimaculatus	31	furcatus	ib.
sannio	ib.	pallidus	216	varius	30	pallipes	20
JANUS	5, 107	pectoralis	214	vicinus	38	SCHIZOPYGA	125
connectens	108	quadriannulatus	212	viridis	30	SCIAPTERYX	5, 56
femoratus	ib.	regenerator	223	vittatus	34	costalis	ib.
LAMPYRONOTA	126	ruficornis	219	ODONTOMERUS		SCOLOBATES	
LOPHYRUS	5, 20	rufocinctus	229		126		125, 268
pallidus	21	rufoniger	224	OPHION	ib.	crassitarsus	269
Pini	ib.	sericeus	212	ORYSSUS	112	SELANDRIA	5, 44
rufus	ib.	seminiger	226	coronatus	ib.	adumbrata	48
LYDA	5, 97	spheginus	219	PACHYMERUS	125	Æthiops	51
Arbustorum	100	sponsorius	218	PANISCUS	126	albipes	49
aurita	101	sternolencus	227	PAXYLOMMA	117, 119	alternipes	52
Betulae	102	subcompressus	228	apicalis	120	annulipes	51
cingulata	100	submarginatus	214	PELTASTES	126	atra	52
Cynobati	98	suborbitalis	222	PEZOMACHUS	125	Betuleti	50
depressa	101	sulphuratus	225	PHYGADEUON	125, 296	brevicornis	49
erythrocephala	103	testaceus	216	abdominator	302	brevis	47
fallax	99	trimaculatus	217	assimilis	301	biloba	54
fasciata	102	Typhæ	221	cnemargus	303	cinereipes	51
flava	101	variator	227	curvus	299	ciuxia	52
flaviventris	ib.	xanthostigma	220	erythrogaster	305	dorsalis	45
fumipennis	98	MESOSTENUS	125	erythroctictus	301	ephippium	48
hortorum	99	MESSA	5, 40	exiguus	298	feruginea	47
inanita	100	Microleptes	124, 211	flavimannus	296	fuliginosa	48
lutescens	102	splendidulus	ib.	fumator	300	fulvicollis	47
margiata	98	NEMATUS	5, 27	galactinus	299	fulvicornis	48
pratensis	ib.	afinis	31	gravipes	304	funerea	50
stigma	97	analis	35	Jucundus	297	fuscula	ib.
sylvarum	100	apicalis	32	larvatus	ib.	hvalina	56
sylvatica	97	bicolor	27	nitidus	300	Klugii	53
varia	99	bipartitus	32	ovatus	298	geniculata	49
MELICERTA	5, 94	Capreae	33	parviventris	305	lineolata	53
ochroleucus	95	cinctus	37	podagricus	ib.	luteiventris	56
MESOCHORUS	125	clitellatus	28	procerus	302	Morio	50
MESOLEPTUS	125, 211	crassicornis	ib.	profligator	303	ovata	54
albolineatus	215	dimidiatus	29	pumilio	296	parvula	52
annulator	223	dorsalis	ib.	quadrifidus	298	pulchella	54
Antilope	221	fallax	34	semilis	302	pusilla	52
arridens	221	flavescens	29	sperator	299	serva	45
bipunctatus	220	fuscipennis	31	Spinole	301	Scapularis	46
cinctulus	218	fumipennis	35	temniventris	300	Spinole	ib.
cingulatus	215	gallicola	36	vagabundus	304	stramineipes	49
decipiens	230	gonymelas	34	variabilis	ib.	tibialis	ib.
defectivus	234	hamorrhoidalis	35	PHYTONIETES	125	tenuicornis	53
dehisor	225	intercus	36	PIMPLA	ib.	testudinea	47
Evanialis	213	lucidus	37	PLECTISCUS	ib.	uncta	54
exornatus	215	luteus	29	PORIZON	ib.	varipes	51
flavopictus	217	melanopsis	ib.	POLYSPHINCTA	ib.	verna	47
filicornis	227	melanosternus	33	PORIZON	ib.	SIREX	112, 113
fortipes	225	melanostigma	35	POLYSPHINCTA	ib.	augur	114
fugax	220	niger	37	PRISTIPHORA	5, 24	bizonatus	ib.
fuscicornis	227	nigricornis	ib.	atra	26	gigas	113
geniculosus	228			duplex	ib.	Juvenius	114
gracilis	229			fusca	ib.	Magnus	116
indefessus	222			Myosotidis	25	spectrum	115
infernalis	213					STILPUS	124, 208
						blandus	210
						deplanatus	209

	Page		Page		Page		Page
<i>dryadum</i>	210	<i>Latreillii</i>	9	<i>facialis</i>	263	<i>quadrilineatus</i>	263
<i>gagates</i>	209	<i>Lucorum</i>	10	<i>fasciatus</i>	236	<i>quadrisculptus</i>	252
<i>Pavonia</i>	ib.	<i>pusillum</i>	11	<i>flavilabris</i>	232	<i>quinaquecinctus</i>	239
TARPA	5, 95	<i>Scalesii</i>	10	<i>flavipes</i>	230	<i>rufulus</i>	244
<i>cephalotes</i>	96	<i>sylvaticum</i>	9	<i>flavomaculatus</i>	253	<i>rutilator</i>	261
<i>Fabricii</i>	ib.	<i>tibiale</i>	10	<i>formosus</i>	242	<i>sanguinicolis</i>	242
<i>Pauzeri</i>	ib.	<i>unidentatum</i>	ib.	<i>fulvilabris</i>	260	<i>scalaris</i>	235
TENTHREDO	5, 72	TROGUS	124, 269	<i>hæmotodes</i>	240	<i>scapularis</i>	257
<i>ambigua</i>	76	<i>alloguttatus</i>	269	<i>hæmulus</i>	263	<i>scotopterus</i>	250
<i>analis</i>	80	<i>atrocaudatus</i>	271	<i>impresus</i>	237	<i>segmentarius</i>	246
<i>antennata</i>	74	<i>Atropos</i>	ib.	<i>insolens</i>	258	<i>semicaligatus</i>	258
<i>atricornis</i>	80	<i>dissimulator</i>	272	<i>integrator</i>	234	<i>sexcinctus</i>	238
<i>caliginosa</i>	78	<i>flavatorius</i>	271	<i>lateralis</i>	255	<i>sexlituratus</i>	237
<i>cingulata</i>	80	<i>luteiventris</i>	272	<i>lineola</i>	255	<i>signator</i>	261
<i>dimidiata</i>	ib.	TRYPHON	125, 231	<i>lucidulus</i>	238	<i>sphærocephalus</i>	251
<i>femorialis</i>	80	<i>alacer</i>	233	<i>luteifrons</i>	246	<i>sternoxanthus</i>	240
<i>fulviceps</i>	75	<i>albocinctus</i>	245	<i>maculicollis</i>	234	<i>subfasciatus</i>	251
<i>Geeri</i>	80	<i>albovinctus</i>	249	<i>melanocerus</i>	258	<i>subnitidus</i>	234
<i>ignobilis</i>	79	<i>anceps</i>	243	<i>marginatorius</i>	242	<i>thoracicus</i>	241
<i>labiata</i>	78	<i>apiarius</i>	ib.	<i>mesoleptoides</i>	245	<i>tricolor</i>	246
<i>melanorhœa</i>	75	<i>armillatorius</i>	241	<i>mesoxanthus</i>	248	<i>trisculptus</i>	252
<i>microcephala</i>	78	<i>atriceps</i>	262	<i>mitigosus</i>	254	<i>varitarsus</i>	247
<i>nassata</i>	75	<i>aulicus</i>	239	<i>nævius</i>	236	<i>vernalis</i>	260
<i>neglecta</i>	77	<i>axillaris</i>	256	<i>nanus</i>	ib.	<i>xanthostomus</i>	254
<i>ornata</i>	ib.	<i>basalis</i>	255	<i>nasutus</i>	236	<i>zonatus</i>	258
<i>Pavida</i>	76	<i>bicolor</i>	266	<i>niger</i>	231	URO CERIDÆ	111
<i>Rapæ</i>	73	<i>bidentatus</i>	253	<i>nigricollis</i>	248	XIPHYDRIIDÆ	108
<i>Rubi</i>	75	<i>bisculptus</i>	252	<i>nigritarsus</i>	237	XIPHYDRIA	110
<i>simulans</i>	73	<i>brachyacanthus</i>	250	<i>nitidus</i>	233	<i>Camelus</i>	ib.
<i>scutellaris</i>	76	<i>brunnicans</i>	257	<i>notatus</i>	254	<i>Dromedarius</i>	111
<i>spretæ</i>	77	<i>calicator</i>	235	<i>obscurus</i>	253	XORIDES	126
<i>socia</i>	80	<i>caligatus</i>	233	<i>opticus</i>	240	XYELA	109
<i>tristis</i>	78	<i>cephalotes</i>	250	<i>pachysoma</i>	245	<i>pusilla</i>	ib.
<i>xanthocera</i>	81	<i>compunctor</i>	232	<i>pastoralis</i>	251	XYLOXOMES	136
TENTHREDINIDÆ	4	<i>conspicuus</i>	244	<i>petulans</i>	259	ZARIA	5, 12
TEREBRANTIA	3	<i>elegans</i>	239	<i>pinguis</i>	235	<i>fasciata</i>	13
TRACHYDERMA	120	<i>elegantulus</i>	249	<i>prærogator</i>	232		
TRICHIOSOMA	4, 8	<i>elongator</i>	ib.	<i>pratensis</i>	260		
<i>biverrucatum</i>	11	<i>erythrocerus</i>	247	<i>procurator</i>	257		
<i>laterale</i>	9	<i>erythropalpus</i>	259	<i>propinquus</i>	261		
		<i>exolans</i>	ib.	<i>quadratus</i>	262		



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Pl. XXXVI



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PL. XXXVII.



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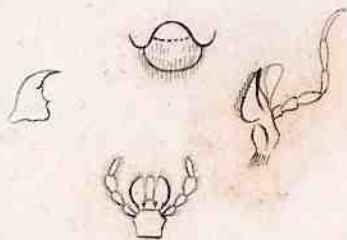
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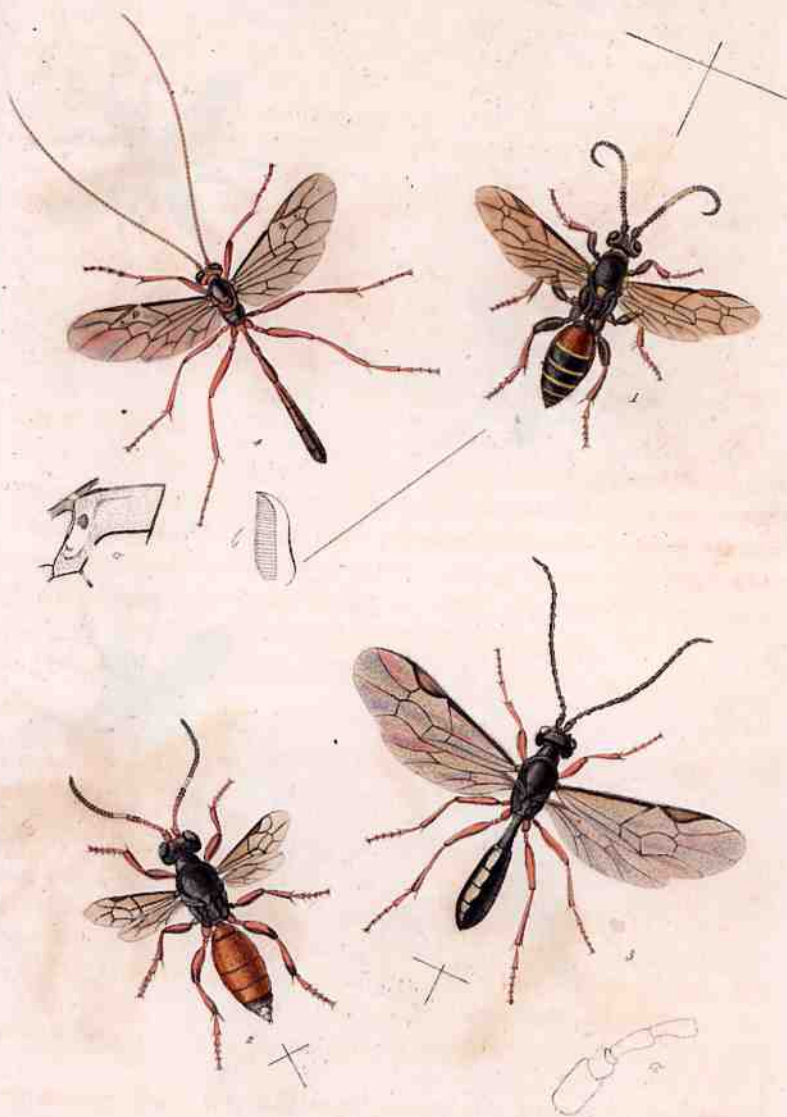
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Plate XLI



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C.E. Wagstaff. sc.

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J. O. Westwood. del.

C. E. Waastatt sc.

London. Published by J. S. Stephens. Nov. 30 1835.





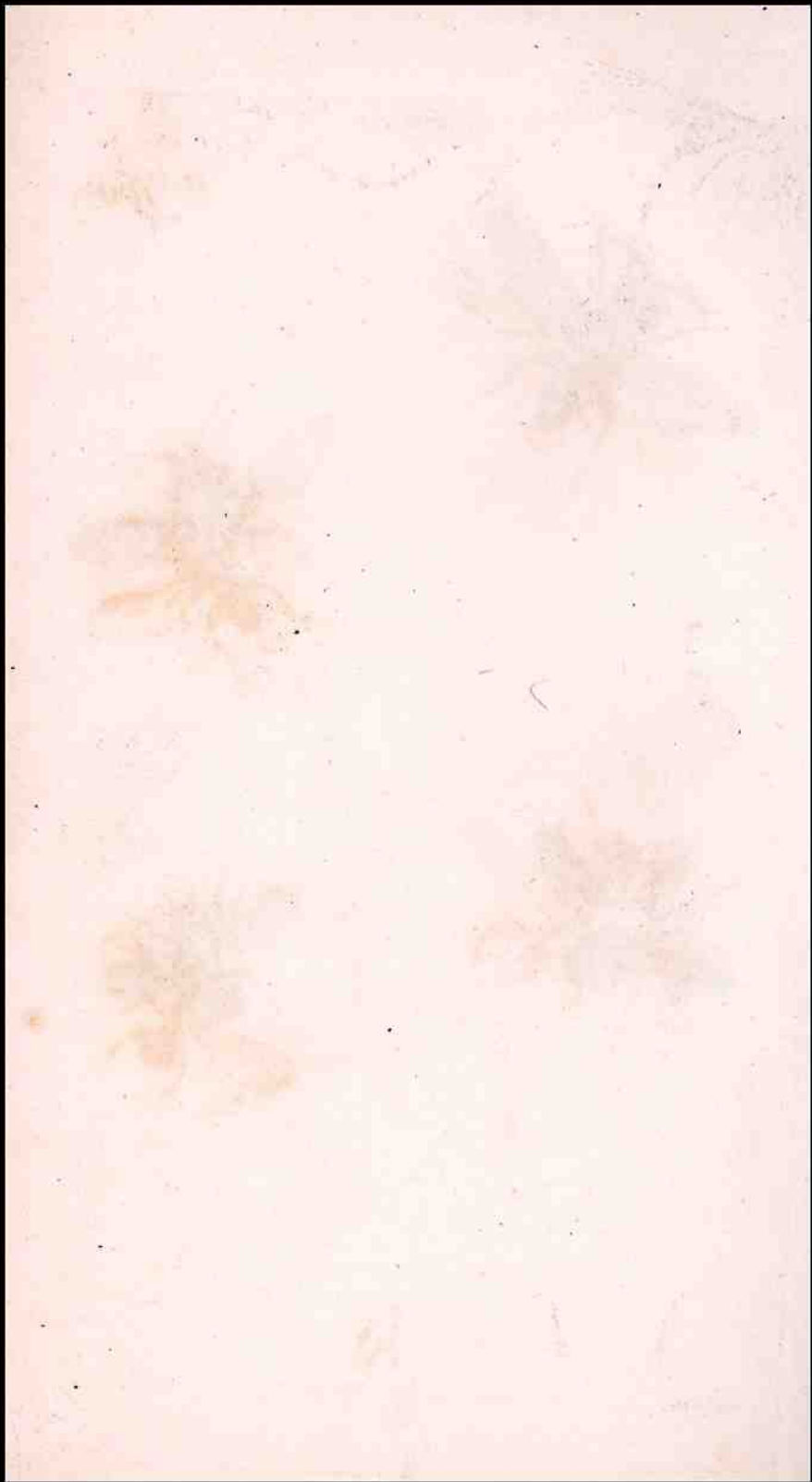


J. O. Westwood. sc.

C. E. Whistler. sc.

London. Published by J. F. Stephens. Dec. 31. 1835.







J. O. Westwood. del.

C. E. Wagstaff. sc.

London. Published by J. F. Stephens Jan^y 21st 1836





J.O. Westwood del.

C.E. Waystaff sc.

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J. O. Westwood. del.

G. E. Wapstead. sc.

London. Published by J. F. Stephens. April 30th 1836.





