

Neue Hayen de TM



BRITISH ENTOMOLOGY;

BEING

ILLUSTRATIONS AND DESCRIPTIONS

OF

THE GENERA OF INSECTS

FOUND IN

GREAT BRITAIN AND IRELAND:

CONTAINING

COLOURED FIGURES FROM NATURE

OF THE MOST RARE AND BEAUTIFUL SPECIES,

AND IN MANY INSTANCES

OF THE PLANTS UPON WHICH THEY ARE FOUND.

BY JOHN CURTIS, F.L.S.

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OF THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, ETC.

VOL. VIII.

DIPTERA. OMALOPTERA.

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TO  
HENRY BROWNE, Esq.,  
OF HETHERSETT, NORFOLK,

AND  
HENRY NISBETT, Esq.,  
OF CLAPTON,

*THIS VOLUME IS DEDICATED*

AS A TOKEN

OF THE SINCERE REGARD AND FRIENDSHIP

OF

THE AUTHOR.

London, December 1, 1838.



TO

THE RIGHT HONOURABLE

THE EARL OF MALMESBURY,

OF HERON COURT, HAMPSHIRE,

THIS VOLUME IS RESPECTFULLY DEDICATED

AS A GRATEFUL TESTIMONY

OF HIS LIBERAL PATRONAGE AND KIND ENCOURAGEMENT

DURING THE PROGRESS OF THIS WORK

TO

THE AUTHOR.

London, December 1, 1839.

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Sepsis annulipes . . . . .	245	15 Tipula longicornis . . . . .	493
23 Simulium trifasciatum . . . . .	765	Trigonometopus frontalis . . . . .	689
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9 711. Briza media . . . . .	186	766. Caulalis Anthriscus . . . . .	14
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## ERRATA.

Folio.

- 9 line 32 after Tarsi 5 add jointed.  
 14<sup>b</sup> line 23 for Omoptera read Omaloptera.  
 14 line 32 for excluded before read excluded after  
 46<sup>b</sup> line 11 for albipes read albiceps.  
     line 14 for Hæmatopota read Tabanus.  
 50 line 13 for (2\* g) read (2\* g).  
 66 *Helcomyza ustulata*. Either Dr. Leach made some mistake in the names sent to him by Meigen, or else he has changed them; for our insect is the *Actora æstivans* of this author's last work.  
 70 line 24 for articulated read pedicled.  
 106<sup>b</sup> line 22 after Bovis omit Linn.  
 110<sup>b</sup> line 35 for laid read lay.  
 126 The genus *Tyrophaga* is we believe *Piophila* of Fallen.  
     line 4 for putris read Casei.  
 ib.<sup>b</sup> line 11 dele the *T. putris* L. and.  
 162 line 27 for Coccæ read Coxæ.  
     The male of *M. notatus* has 2 long curled membranous appendages, one on each side the apex of the abdomen; the anterior tibiæ have a strong bifid tooth on the inside near the middle, the 2nd joint of the tarsi is not short, and the tibiæ of the middle pair of legs have a fascicle of hair near the apex.  
 241 5 from bottom for June read July.  
 393<sup>b</sup> line 8 for one read our.  
 469 *Borborus hamatus*, add to the specific description, hinder thighs of the male armed at the base with a hooked tooth.  
 477 *Tachydromia*. The three following species have been discovered by Mr. Haliday.  
     3<sup>a</sup> *umbrarum* Hal., Holywood, County Down.  
     5<sup>a</sup> *arenaria* Hal. Ditto.  
     5<sup>b</sup> *Graminum* Hal. Taken in England.  
 621 ♂ instead of ♀ has been added by mistake to fig. 7 in the Plate.  
 649<sup>b</sup> line 24 for *oscillaris* read *oscillans*.  
     line 25 for *paludium* read *paludum*.

The letter <sup>b</sup>, following the number of the folio, indicates a reference to the second page of the leaf.

N.B. In many instances opportunities have offered of correcting the Errata, and it is hoped that in the reprinted Folios none will occur.





537. *Culex communis* De Geer 1776

= CULEX (GUTTATUS) = *uncinatus* Mg.  
= *lybaticus* Mg.

The white spotted Gnat or Mosquito.

ORDER Diptera. FAM. Culicidæ.

Type of the Genus, *Culex pipiens* Linn.

CULEX Linn., Fab., Lat., Meig., Curt., &c.

*Antennæ* attached to the internal margin of the eyes, shorter than the proboscis, porrected, 15-jointed in the males, basal joint stout and globose, 12 following short and obovate, gradually increasing in length, each producing a ruff of very long fine hairs, 14th and 15th long, slender and pubescent, the latter rather the shortest and attenuated, each with a few long hairs at the base (3): setaceous pubescent and 14-jointed in the females, basal joint large globose, the remainder elongated, each producing a few long hairs at the base (3 ♀).

*Trophi* of equal length, excepting the female palpi.

*Labrum* rather broad, hollow, margined and acute (B ♀ b).

*Tongue* like a fine hair (c); wanting in the male.

*Mandibles* as long as the lip, thick at the back with a fine margin, very acute and a little dilated before the apex and apparently serrated (d); none in the male.

*Maxillæ* very delicate flaccid and filmy, a little dilated at the base (e), from whence arise the *Palpi*, which are porrected and clothed with scales, pilose, clavate, very short and 5?-jointed in the female (f), 1st joint membranous at the base, 2nd small, 3rd clavate, 4th the longest and stoutest, subclavate, 5th a tubercle at the apex: longer than the proboscis in the male (f ♂), clavate, clothed with scales and very hairy on the inside, 6-jointed, first 2 joints short, 3rd long and slender, 4th the longest, clavate, 5th and 6th of nearly equal length, rather shorter than the 4th; the terminal one being the broadest, elliptical and less hairy on the inside than the 2 preceding joints.

*Labium* long and hollow, receiving the trophi, excepting the palpi, hairy outside, terminated by 2 lobes, with a minute one between them at the apex (g).

Head small, subglobose: eyes large meeting above, lunular, being emarginate on the inside at the insertion of the antennæ: ocelli none.

Thorax ovate: scutellum semicircular. Abdomen slender, sublinear, terminated by 2 lobes in the males. Wings longer than the body, incumbent, subelliptic, densely ciliated, the nervures scaly (9). Legs long and slender, especially the hind pair: tarsi long and 5-jointed, basal joint very long, terminal the shortest in the posterior: claws small and acute.

Larvæ and Pupæ living in the water: vide Kleeman tab. XV.

GUTTATUS Meg. ?—Curt. Guide, Gen. 1137. 5<sup>a</sup>.

In the Cabinets of Mr. Cooper and the Author.

PROBABLY there is no region free from Mosquitos, under which appellation are comprised various species of the genus *Culex*—the genuine Gnats of this country: even in the Arctic regions, Capt. James Ross and his companions were compelled

• Göttinger Ges. 50310, Seebeck, Fauna etc. etc. 1816 p. 75

to wear gauze over their faces during the summer months, to protect them in their fishing excursions from the venomous attacks of these tormenting Insects; in the collection, also, made by Capt. P. P. King in his survey of the Straits of Magellan I find specimens of a Mosquito, and others I have received from New Holland. I have long entertained an opinion that, like the Tabanidæ, it is the females only that bite, and this opinion is almost confirmed by a careful dissection of the trophi, since I could not discover either a tongue or mandibles in the males; it may therefore become a question, what does this sex live upon? I rather suspect on flowers, and it is remarkable that in out-houses and places where these insects abound, the sexes are not often found together; I remember in the month of June to have seen the males of *C. annulatus* repeatedly, without observing one female, and last May I met with the males of *C. nemorosus* flying in a large swarm in the afternoon in Coomb-wood, in a dark shady hollow, and not one female was amongst them; but on sitting down a few came out of the grass and lit upon my hand. I do not remember ever to have been bitten by *C. pipiens* in Sept.; although I have seen great numbers of the females in my sleeping-room at that period of the year, but in July I have suffered very much from the bites of this and other species, and on the shores of the Mediterranean their piping note was the most terrific noise that could have assailed my ears at night, for to sleep it was impossible, until they were either satiated or destroyed.

It may be useful to observe, that the Pupæ are frequently conveyed into the sleeping-room in the ewer, especially when it is filled from butts of rain-water; in such cases the Gnats escape from the Pupæ in the evening, and as soon as they can take wing, they are prepared with a keen appetite, having fasted during their imprisonment in the pupa, to attack the inmates of the apartment.

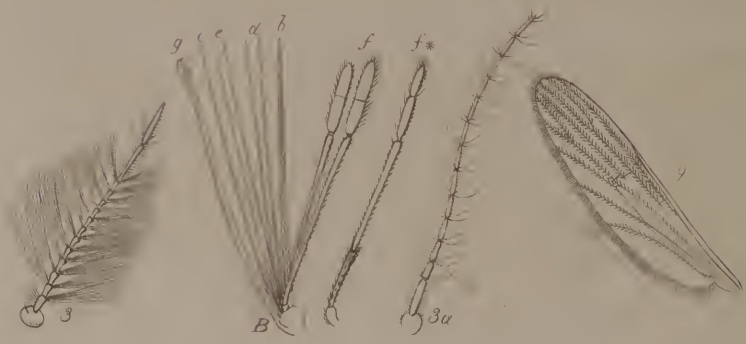
There are near 20 species found in this country, a list of which is given in the Guide: I have only seen 2 specimens of the species figured; both of them were taken at Cobham in Surrey.

*C. guttatus* Meg.?—*Curt. Brit. Ent. pl.* 537 ♀.

Pubescent, reddish-brown; antennæ pale; hinder margin of eyes white: thorax black? the sides griseous with at least 6 white spots on the pleuræ: margins of abdominal segments ciliated with ochreous hairs, each banded with pure white scales beneath at the base, and appearing like 12 trigonate spots on the sides: wings fuscous, transparent and beautifully iridescent at the interior margin: halteres pale lurid: legs with a cupreous lilac tinge; coxæ white; thighs beneath whitish, the posterior brown only towards the extremity, all tipped with white.

The Plant is *Ajuga Chamæpitys*, (Ground Pine).





Publ. by J. Curtis Apr. 1. 1828

## ANOPHELES BIFURCATUS.

ORDER Diptera. FAM. Culicidæ Lat.—Tipulidæ Lat., Meig.

*Type of the Genus Culex bifurcatus Linn.*

ANOPHELES Meig., Lat.—Culex Linn., Fab., Meig., &c.

*Antennæ* inserted between the eyes in front of the head, setaceous, attached to large globose scapes, longer than the thorax and composed of 14 joints in the *Male*, the first 12 joints dilated at their apex and producing fascicles of very long hairs, short only on one side of the basal joint, 13th joint long slender and pilose, the 14th scarcely so long, attenuated and pilose, with a few long bristles at the base (3) : shorter than the thorax and 13-jointed in the *Female*, pubescent with a few long bristles arising from the base of each joint excepting the first which is the longest, 2d the shortest, remainder of nearly equal length (3a).

*Trophi* longer than the antennæ, of equal length (B).

*Labrum* slightly attenuated and transparent, broad, hollow, appearing articulated at the apex (b).

*Tongue* transparent, slender with a rib down the middle (c).

*Mandibles* very slender and transparent with a rib at the back (d).

*Maxillæ* very slender and transparent, dilated at the base (e), from whence arise the *Palpi* which are equally long in both sexes, but more robust in the male (f) than female (f\*), covered with scales at the base, pilose at the apex, 5-jointed, basal joint minute, 2d long and slender, 3d twice as long, 4th and 5th forming an elongated oval club in the male, but slender in the female.

*Labium* very long and hollow, receiving the other *Trophi* excepting the *Palpi*, externally clothed with scales, and terminated by 2 united lobes (g).

*Clypeus produced, concealing the base of the Palpi. Eyes large lunular.*

*Ocelli none. Thorax oblong. Scutellum distinct. Abdomen linear as long as the Wings, which are incumbent and ciliated, the nervures producing lanceolate scales (9). Halteres small. Legs very long, anterior the shortest. Tarsi 5-jointed, basal joint very long.*

BIFURCATUS Linn. Faun. Suec. 465. 1891.—Meig. l. 11. 1.—trifurcatus Fab.—claviger Fab., Meig., Klass.

Tomentose, dull ochraceous. *Antennæ* with the apex of the joints, the hairs and palpi fuscous. Eyes black. Head and thorax cinereous, sides of the latter brown. Abdomen variegated with piceous, the incisures and apex of the same colour. Wings tinged with ochre, nervures brown. Legs variegated with pale brown, darkest towards the apex.

*In the Author's and other Cabinets.*

\* G. Oberlin G. 11951 (30x). *Spizy Fauna B. K. 1. 111 Culicidæ p. 65 1891*  
 11951

WHEN the genus *Pulex* was illustrated, we assigned to it a new station, considering that it was allied to *Culex*, not only in its mode of subsistence, but as might be expected from that circumstance in the form of the trophi. This opinion we still entertain; for the differences of structure that we find are only such as might be expected to entitle it to form a distinct order, and the differences in the structure of the mouth are less than we meet with in many dipterous genera; for example, between the *Culicidæ* and *Tipulidæ*, the family in which it was till lately included, (vide *Limnobia*, pl. 50.) and still greater compared with the *Æstridæ*. We must content ourselves by referring to the dissections of *Pulex*, first observing that the tongue of the *Culicidæ* has never before been represented in any figure, and that the maxillæ, from their extreme delicacy, having broken in extricating them from the labium, their exact length may not be quite correct, but they appeared to resemble the mandibles; and it may be remarked that the same perfection of organs and uniformity in their length are observable in the mouths of the sanguinary *Tabani*.

*Anopheles* has been separated from *Culex*, and is distinguished by the palpi of the males being shorter, and of the females very much longer, than in the latter genus. *Anopheles* embraces only two described species, both of which are natives of Britain.

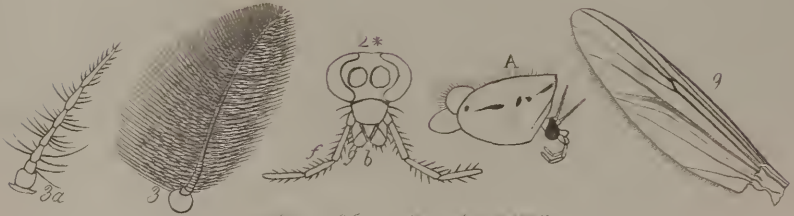
1. *A. bifurcatus* Linn., *Nob.*—Wings immaculate.

This insect, which I have frequently taken upon my windows at Lisson Grove, is found from the middle of June to the same period of July; and Mr. Haliday, who has met with it in Ireland, says, “the males hover in small flights about the skirts of groves near rivulets in the still evenings of June: during the day among brambles in shady ditches and swamps: the females are rare, and generally solitary.” Linnæus says, the larvæ live in water, and that the flies do not bite or wound as the gnat does.

2. *A. maculipennis* Hoff.—*Meig.* 1. 11. 2. tab. 1. f. 17.—*bifurcatus* *Meig.*, *Klass.*—Wings with five fuscous spots on each.

Occurs in May in the neighbourhood of London; and the beginning of September I observed a few at Niton in the Isle of Wight. Mr. Haliday says, “these also fly in small swarms in the evenings of June, when I have taken them paired in the air; they are however much more abundant in dark out-houses and about sewers from May to September. They are very much infested by a small reddish parasite (*Ocypete rubra*?); I have found ten of these attached to the abdomen of a male.”

*Agaricus plicatilis* Curtis, accompanies the insects.



Painted by J. Edwards London Oct 1825

Chironomus

CHIRONOMUS ÆSTIVUS.

ORDER Diptera. FAM. Tipulidæ Lat., Leach.

Type of the Genus Tipula plumosa Linn.

CHIRONOMUS Meig., Lat., Fab., Panz. Tipula Linn., Fab., &c.

Antennæ approximating, arising from the crown of the head. Male plumose, 13-jointed, basal joint large globular, 2nd small, 10 following very minute, transverse, terminal joint very long, nearly filiform (fig. 3). Female shorter, 7-jointed, basal joint large, somewhat globose, 2nd small, 4 following ovate, elongate, increasing in length from the 1st, with a few long bristles, terminal joint long, attenuated, pilose (3 a).

Labrum and tongue horny, short, acute (2\* b).

Lip small, bilobed, membranaceous, hairy (g).

Palpi 2, exerted, incurved, cylindric, pilose, 4-jointed, basal joint small, the following long, of equal length (f).

Head small, transverse. Clypeus large, semiorbicular. Eyes kidney-shaped, approximating behind. Ocelli none. Thorax gibbose, rounded behind. Scutellum formed apparently of 2 plates, one lying over the other. Abdomen of males linear, slender; of females robust. Wings not longer than the body, lanceolate, deflexed, transparent, sometimes hairy, interior margin ciliated (9). Halteres short, naked. Legs, anterior the longest, and distant from the others. Tarsi 5-jointed. Claws and Pulvilli distinct.

ÆSTIVUS Nob.

Female pale sulphur colour, very hairy. Eyes black. Thorax very globose, projecting over the head like a hood (fig. A), with 2 abbreviated stripes down the centre and the sides towards the base ferruginous, 10 long and round black spots forming an interrupted line round the thorax, and 3 others very minute at the base of the wings. Abdomen robust, ferruginous at the base, ochraceous towards the apex, reticulated with black down the back. Wings hairy, iridescent, stained ochraceous, deepest towards the costa, with a fuscous spot near the interior angle, and 2 paler spots towards the posterior margin. Thighs and tibiæ very robust, ochraceous, the latter fuscous at their extremities. Tarsi with the 4 first joints fuscous at their apex, terminal joint and claws nearly black.

In the Cabinet of Mr. Bentley.

Wied. Zool. J. 1828. p. 115. 6h. 20p.  
Goeppferden Chironomidae p. 26/57  
Edwards British non biting insects p. 102/115 (1812)

THIS beautiful and extensive genus is distinguished by the structure of the antennæ and the nerves of the wings from *Corethra* and *Tanytus*, which it appears to connect. There are already in our cabinets about 70 species, most of them described by Meigen and Fabricius; that which has been selected for the drawing is a female of a nondescript species taken by Mr. Bentley upon Brockenhurst Heath, Hampshire, the beginning of June 1823: it is so nearly allied to Meigen's *C. elegans* (v. 1. p. 48. n. 63. and tab. 2. f. 7.), that I at first considered it to be the same; but it differs not only from his figure, but also materially from the description. Panzer's *C. crassipes* (fasc. 109. pl. 22.), which I am sorry to see Meigen does not refer to, is probably the male of his *C. elegans* above mentioned: it is a larger insect than ours, and differently marked.

Reaumur, in his valuable work (*Mem. 1 de l'Hist. des Ins. tom. 5. pl. 5.*), has given copious illustrations of the larvæ and pupæ of the type of the genus, which were amongst the earliest objects in nature that attracted our notice: the former are the beautiful red worms seen in stagnant water so peculiar in their mode of jerking themselves about; and the latter are the little objects with a globular thorax and feathered head and tail seen lying close to the surface of the water, and descending to the bottom when any one approaches.

The plant is *Pinguicula vulgaris* (Common Butterwort).



4 Macleay N 259  
 Chamberson N 36  
*Aristolochia clematitis*



*Aristolochia clematitis*



*Macropodina* (TANYPUS) NEBULOSUS. *Fig. = littoralis Fig*

ORDER Diptera.

FAM. Tipulidæ.

Type of the Genus, *Tipula monilis* Linn.

TANYPUS Meig., Lat., Curt.—Chironomus Fab.—Tipula Linn., Fab.

Antennæ inserted in two contiguous cavities in the centre of the face, plumose and 15-jointed in the males, basal joint very large and globose, the remainder gradually diminishing in size, subglobose, cup-shaped towards the base, the 14th joint longer than all the others, linear and compressed, the apical one elongate-conic and pubescent (3); pilose and short in the female, basal joint very large, the remainder slender and linear, excepting the apical joint, which is as long as the two preceding, rather stouter and ovate-conic (3 ♀).

Labrum rather stout.

Palpi longer than the head and incurved, very pilose and 4-jointed, basal joint the shortest, 4th a little the longest and less hairy than the others (2\* f).

Labium bilobed and pilose (g).

Head small, nearly concealed under the thorax: eyes large, lateral, prominent and notched on the inside: ocelli none (2\* front view of head). Thorax thick, subglobose, projecting in front: scutellum transverse, semioval. Abdomen 8-jointed, long, slender, slightly clavate and furnished with 2 hooked acute appendages at the apex in the males, shorter and stouter in the females. Wings deflexed when at rest, somewhat ovate-lanceolate, pubescent and ciliated, with 4 longitudinal nervures united before the middle (9): halteres small and capitata. Legs nearly of equal length, anterior sometimes the longest: thighs rather short: tibiæ longer and simple: tarsi longer than the tibiæ, 5-jointed, basal joint long, apical the shortest: claws distinct, curved and acute.

Obs. The dissections were made from the species figured.

NEBULOSUS Meig., v. 1. p. 57. 2.—Curt. Guide, Gen. 1142. 2.

Ochreous; antennæ fuscous; eyes black; head and thorax cinereous, the latter with 2 brown stripes down the back, a dot on each side before and a stripe at the base; abdomen clothed with long ochreous pubescence and fuscous, except a band at the base of each segment: wings iridescent, with a small brown spot at the centre, and another nearer the apex and variegated with pale fuscous along the hinder margin, leaving a pale spot between all the nervures; tips of thighs, and tibiæ and tarsi (except at the base) brown. Female stouter, the antennæ ochreous at the base, the abdomen entirely dark and griseous; the wings broader, more pubescent and the brown spots darker.

In the Author's and other Cabinets.

\* Gobat G. n. 34 (14 sp.) - Goetzheben Chironomidae Tanyptinæ  
(Fauna de Fr. X V) p. 396 n. 2.  
Edwards "British non biting midges" p. 20 (195)



THESE insects are so very similar to the Chironomi, especially the females, that it is very difficult to separate them. By comparing the wing in our plate with that of *Chironomus* in pl. 90, amongst other differences it will be seen that in one there are 4, in the other 3 nervures springing from the apex of the discoidal cell, the joints of the antennæ are also very dissimilar, which is useful in distinguishing the females, but they are frequently very difficult to detect in the males. Meigen describes the antennæ as 14-jointed from his not including the basal joint.

The following species have been detected in Britain.

1. *varius* *Fab.*—*Meig. tab. 2. f. 12* ♂. Female middle of April, Lisson Grove.
2. *nebulosus* *Meig.*—*Curt. Brit. Ent. pl 501* ♂. Beginning of May, Regent's Park and Coombe-wood; male middle of October, Isle of Wight.
3. *punctatus* *Fab.*—4. *notatus* *Meig.*—27. *flabellicornis* *Meig.* 6. 260. 27.—5. *melanurus* *Meig.*
6. *zonatus* *Fab.*—Taken at Oxford.—7<sup>a</sup>. *lætus?* *Meig.*
7. *monilis* *Linn.*—*maculata* *DeG.* 6. *tab. 27. f. 15—19.* Middle of June, walls near Ambleside; August, Gardens, Scotland; female beginning of September, Durnford, Wilts.
8. *punctipennis* *Meig.*—*cinctus* *Panz.* 105. 6. May, June, August and September, marshy places, Mr. Samouelle.
9. *præcox* *Meig.*—10 *choreus* *Meig.*—Scotland.—11. *culiciformis* *Linn.* July.—12. *nervosus* *Hoff.*—13. *ferruginicollis* *Meg.*—14. *pallidulus* *Meg.*—15. *melanops* *Wied.*—16. *Arundineti* *Linn.*—17. *carneus* *Fab.*—23. *lentiginosus* *Fries?*—24. *albipes* *Fries?*
30. *nigrimanus* *Meig.* 6. 261. 30.—May and beginning of June on a post by a river in the New Forest; end of July, several on paling near Hampton Court.

The Plant is *Aristolochia Clematidis* (Common Birthwort), communicated by the Honourable C. A. Harris and the Rev. P. Hansell from Godstone Nunnery near Oxford. Mr. W. Baxter of the Botanic Garden, called my attention to a curious fact in the œconomy of this plant; he pointed out to me a minute black Gnat inclosed in the globular base of the flower, which it enters, and being confined there brushes the pollen upon the stigma, and impregnates it. For want of specimens I have not been able to ascertain the species of the insect, which I at first took for a *Tanypus*: it nearly resembled the *Chironomus occultans* *Meig.*, but it may possibly be a *Ceratopogon*.



*Orchis sp. (Plate 1, 184)*

*Xylocrypta* (SPHÆROMIAS) ALBOMARGINATUS. = *Processus* Zett.

ORDER Diptera. FAM. Tipulidæ Lat., Leach.

Type of the Genus, *S. albomarginatus*.

SPHÆROMIAS Stephens.

*Antennæ* alike in both sexes? inserted in front of the face (2), not quite so long as the thorax, slightly setaceous pilose, 14-jointed, basal joint robust, subturbinate, 2nd longer than the 7 following, which are nearly cylindrical, the 10th and remainder twice as long, the terminal one being subacuminate (3).

*Labrum* coriaceous, hollow and attenuated to the apex which is rounded (b).

*Tongue* longer than the lip, sublanceolate, the margins thickened (c).

*Mandibles* rigid, dilated towards the base, slightly curved and acute at the apex, with several sharp teeth on the inside (d).

*Maxillæ* short, lanceolate, very thin at the apex (e).

*Palpi* longer than the rest of the trophi, 4-jointed, pilose, 1st and 2nd joints of equal length, the former rather more robust and bent at the base, 3rd the shortest, 4th the longest and clavate (f).

Head rather small and suborbicular. Clypeus not produced, convex. Eyes reniform approximating above. Ocelli none? (2, front view of the Head, showing the insertion of the antennæ, &c.) Thorax ovate truncate, sloped off behind. Scutellum elevated, semicircular. Abdomen broad and flat, gradually increasing in diameter to the apex which is triangular and incurved in the males? Wings longer than the body with a costal and 2 perfect subcostal cells (9). Halteres short naked and capitate. Legs rather stout. Tibiæ simple. Tarsi 5-jointed, pubescent beneath, basal joint the longest, 2nd and 5th shorter, of equal length, 4th the shortest, terminal joint armed with a double row of spiny bristles. Claws very long and much bent, (8, a tarsus).

ALBOMARGINATUS Stephens.

Cinereous. Eyes and antennæ blackish, the latter fulvous at the base, with a channel between and 2 punctures above them. Thorax silky, with very short bristles scattered over it, a pale brownish stripe on each side and 2 abbreviated ones near the middle. Scutellum castaneous at the margin. Abdomen with the margins whitish, the base piceous, forming a triangular mark in the centre of every joint beyond the middle. Wings iridescent, yellowish at the costa, the nervures tawny. Halteres whitish. Legs pilose, ferruginous ochre, black where articulated. Thighs of hinder legs piceous, except at the extremities, the tibiæ of these and the intermediate pair piceous, the latter lightest. Tarsi paler, with the tips of the joints, the whole of the 4th and 5th and the claws black.

In the Cabinets of Mr. Cooper and the Author.

Edwards British Entom. middle p. 278, 24.  
 Krieger Chironomidae (Ceratopogoninae) 112/3  
 n. n. Gohert Catal. Dipt. cl. fr.

It is evident that *Sphæromias* will follow *Chironomus* (pl. 90); but it will be an anomaly in this portion of the *Tipulidæ* should there be no sexual difference in the antennæ, and all the specimens I have seen of two species were alike simple; they are very different also to *Chironomus* and *Tanytus* both in the nervures of the wings and the form of the palpi. The trophi are likewise remarkably complete, and the powerful claws and singularly spined terminal joints of the feet are characteristic of the genus.

I have adopted the names that have lately been given to these insects, but no characters have hitherto been recorded.

1. *S. albomarginatus* *Curtis Brit. Ent. pl.* 285.

I am indebted to A. Cooper, Esq. for examples of these insects, accompanied by the following memorandum :

“ One specimen was taken by me the latter end of May, 1828; and about the same time this year I was fortunate enough to capture several more. They were all beaten from a white-thorn bush, in Copenhagen fields.

2. *S. annulitarsis* *Steph.*

I do not know this species; but as the annulation of the tarsi is common to the genus, it does not appear to be a well chosen name. This insect was also taken, I believe, in the neighbourhood of London.

3. *S. varipes* *Steph.*

Black, shining. Antennæ ochreous, blackish beyond the middle, basal joint brown. Halteres, body and legs sulphur and straw colour; the tips of the thighs and tibiæ, and a ring round the latter in the hinder pair, as well as the terminal joint of the tarsi and claws, black.

Taken at the same time and place, by Mr. Cooper, as the first.

The plant is *Orchis maculata* (Spotted Orchis).



Drawn by J. Currier Aug. 1. 1827

CECIDOMYIA VERNA. *Curtis.*

ORDER Diptera.

FAM. Tipulidæ *Lat., Leach.**Type of the Genus Cecidomyia lutea Lat.*CECIDOMYIA Meig., *Lat.*—Oligotrophus *Lat.*—Chironomus *Fab.*—  
Tipula *Linn., DeG., Fab.**Antennæ* porrected inserted in front of the face, approximating, as long or longer than the body, more or less moniliform, and pilose, composed of 13 subovate joints in the females (fig. 3 a), of 25 globose remote joints in the males (3).*Labrum* and *Tongue* not visible.*Mandibles* and *Maxillæ* none.*Palpi* exserted, incurved, longer than the lip, 4-jointed, slightly pilose (2 f).*Lip* short, bilobed, pilose (g).*Eyes* lateral, coarsely granulated (2), sometimes covering the wholeHead which is globose. *Ocelli* none. *Thorax* globose. *Scutellum* rounded. *Abdomen* long, linear in the males; short in the females.*Ovipositor* retractile as long as the body. *Wings* incumbent ciliated and pubescent, longer than the abdomen in the females, costal nervure surrounding the wing, subcostal short, 2nd and 3rd extending to the margin, 4th angulated and producing a transverse nervure which unites with the 3rd. *Halteres* large capitate. *Legs* simple nearly of equal length. *Thighs* and *Tibiæ* of equal length. *Tarsi* 5-jointed, basal joint minute in all, 2nd as long as the tibiæ, the remainder decreasing in length. *Claws* very minute (8, a fore leg).*Larvæ* cylindrical, elongated, attenuated to the apex with 14 feet; deforming the leaves of plants by producing what are improperly called Galls, in which they undergo their metamorphoses.*Pupæ* inclosed in a case. *Lat.**Obs.* The dissections and descriptions are made from *C. verna* Nob. The antenna of the male is copied from Meig. *Klass.*

VERNA Nob.

*Female.* Head and eyes intense black. *Antennæ* fuscous. *Thorax* cinereous, pubescent, having 3 abbreviated stripes down the back, the spaces between them producing ochraceous hair. *Scutellum* and *halteres* ochraceous. *Abdomen* hairy, dull castaneous, *ovipositor* ochraceous. *Wings* iridescent, pale yellowish fuscous, ferruginous at their insertion, the subcostal nervure of the same colour, the others fuscous. *Legs* straw colour pubescent, *thighs* with a black stripe on the top; *Tibiæ* fuscous especially at their base; *tarsi* black.*In the Author's Cabinet.*

THESE little insects with their beautiful antennæ and curious tarsi are by no means unimportant objects, and their history

*Canad. Entom. 63, 25 fig.*

and œconomy cannot fail to interest every lover of Nature, who will be much gratified by the perusal of papers in the third, fourth and fifth volumes of the *Linnean Transactions*, where full accounts are given of the *Tipula Tritici*; the following remarks relating to the same insect we have copied from the *Introduction to Entomology*.

“When the wheat blossoms, another marauder, to which Mr. Marsham first called the attention of the public, takes its turn to make an attack upon it, under the form of an orange-coloured gnat, which, introducing its long retractile ovipositor into the centre of the corolla, there deposits its eggs. These being hatched, the larvæ, perhaps by eating the pollen, prevent the impregnation of the grain, and so in some seasons destroy the twentieth part of the crop.” Mr. Kirby has further observed that the perfect insects fly from seven to nine in the evening all June, and their larvæ were attacked by three species of *Ichneumon*, that deposited their eggs in them. Another species, *T. pennicornis*, is the insect that impregnates the flowers of *Aristolochia clematis*, an amusing account of which will be found in the first volume of the *Introduction to Entomology*, p. 289.

Meigen has described twenty-two species, most of which are probably inhabitants of this country; but his descriptions are too slight to identify them to our satisfaction. The following, however, appear to be natives of this country.

1. *C. lutea* Lat.—May, June, August and September.
2. *Tritici* Kirby *Linn. Trans.* v. 5. p. 106. *tab.* 4. *fig.* 1—3.
3. *verna* Nob.—The end of April.
4. *nigra* Meig. v. 1. *tab.* 3. *f.* 11.
5. *lateralis* Meig. 1. 96. 5.
6. *palustris* Linn.? *Faun. Succ.* 1775.
7. *nigricollis* Meig. 1. 97. 8.
8. *flava* Meig. 1. 99. 17.

Independent of the early period of the year at which our insect (*C. verna*) was taken, the colour of its wings, which are cinereous, will separate it from *C. Tritici*, of which Mr. Kirby says in his description, “*Alis lacteo-iricoloribus*.” The females appear to be the most abundant, and we have not yet seen a male of our species; when the female figured was alive, its antennæ were curved upward, which gave it the character of an *Ichneumon*, and the tube or ovipositor was not exerted till it was killed.

The plant is *Galeobdolon luteum* (Yellow Archangel).

7.15

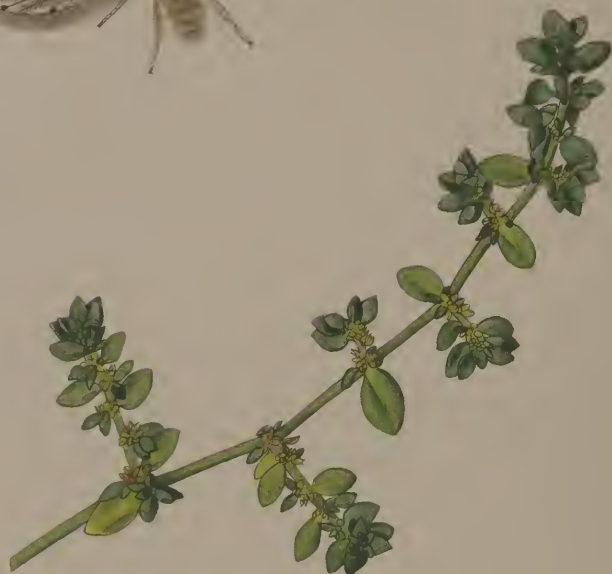


Illustration by Charles Sumner, 1854



## PSYCHODA SEXPUNCTATA.

ORDER Diptera.

FAM. <sup>Psychodæ</sup> Tipulidæ.*Type of the Genus, Tipula phalænoides, Linn.*

PSYCHODA Lat., Fab., Meig., Macq., Curt.—Trichoptera Meig.—Tinearia Schell.—Bibio Geof.—Tipula Linn.

*Antennæ* inserted between the eyes, in front of the face (2), not approximating, nor longer than the thorax, slender, moniliform, from 14 to 17-jointed, basal joint stout and more or less elongate, 2nd stout and globose or cup-shaped, the following globose nodules, connected by slender pedicles and surrounded by whorls of hairs, or elongate-ovate, decreasing in size to the apex (3).

*Labrum* compressed, deeply channeled beneath. Hal.

*Maxillæ*? lying close to the labium, stout, compressed and obtuse. *Palpi* rather large, incurved, attached to the apex of the maxillæ, pilose and 4-jointed, 2 basal joints robust, the 1st ovate, 2nd rather longer, somewhat compressed, 3rd and 4th more slender, clavate, latter the shortest (2\**f*).

*Labium* compressed, deeply channeled or cleft (*g*). Hal.

Head small, concealed under the thorax: eyes large lunate, approximating on the crown (2): ocelli none. Thorax gibbose (T), very woolly, sometimes producing tufts of hairs in front, and occasionally two biarticulate appendages (*p*). Abdomen rather short and thick, often inflexed, with a long fascicle or pencil of hairs at the base.

Wings large (9), deflexed in repose and a little divaricating, ovate-lanceolate, the apex pointed, with numerous longitudinal and 2 or 3 furcate but no transverse nervures, generally ciliated on both sides: cilia dense and surrounding the wing, longest on the costa towards the base, and on the posterior margin: halteres small and capitate. Legs moderate, rather slender, more or less woolly: coxæ short: tibæ simple: tarsi not long, 5-jointed, basal joint the longest, 4th and 5th minute, as well as the claws.

Larvæ living in dung; long subfusiform, depressed, with a short tubular tail, and lateral spiracles. Bouché, pl. 2. f. 20. Pupæ with 2 appendages behind the head; abdomen tapering: f. 22.

SEXPUNCTATA Curt. Guide, Gen. 1151, 10.

Very pale ochreous-gray and downy: antennæ 11-jointed? moniliform: eyes black: thorax pale ochreous: abdomen more cinereous: wings slightly iridescent, some of the hairs black, forming a pale fuscous fascia before the middle, across which runs a horizontal < shaped mark, white in some lights, as well as 6 or 7 spots along the margin at the apex of the nervures; 3 on the costa bearing a black dot each, also 3 of the alternate ones on the interior margin; cilia pale fuscous: legs unspotted.

THE Psychodæ are active little flies, which we see upon our windows in April and May; they are also found on walls, in drains, on aquatic plants, in hedges, on the trunks of trees, &c., and sometimes they appear in prodigious quantities. My friend Mr. Haliday having transmitted to me his views regarding this singular genus, I shall give as ample an abstract

of his Synopsis as my limits will allow. A little further explanation, however, of one of the figures which refers to the 2nd species will be necessary. T represents the thorax in profile; *w*, the base of the wing; *a*, the base of the antennæ, and *p*, some remarkable appendages pointed out to me by Mr. Haliday: they seem to me to be the analogues of those developed in the pupæ, and it may be by accident that they are not united to the prothorax, or absorbed in their change to the Imago, otherwise it would be difficult to explain the reason why they are not common to the genus.

A. SACCOPTERYX Hal. Wings with a coriaceous pouch in the middle, at least in the males; 6 external cells. Antennæ moniliform, verticillate.

1. fuliginosa Meig. v. 1. p. 107. 8.

B. PSYCHODA. Wings tense; 6 external cells, 3rd petiolate. Antennæ moniliform, verticillate. Valves of oviscapt attenuate. Hal.

2. auriculata Hal. with 2 clavate appendages on the front of the thorax.

3. ocellaris Lat. Meig. pl. 3. f. 14-17.

4. tristis Meig.—5. nubila Meg.

6. sexpunctata Curt. Brit. Ent. pl. 745.

Taken the middle of October at Niton, in the Isle of Wight. The figure at the bottom of the plate shows the natural size.

7. canescens Meig.—8. phalænoides Linn.—DeGeer. 6. pl. 27. f. 6. 9.

8. nervosa Schr. In this species the males are twice as large as the females.

C. TRICHOMYIA Hal. Wings with 5 external cells, 2nd petioled, 5th complete: brachial cells not exceeding the 1st third of the wing; costal half divided; nerves very hairy. Antennæ elongate, 1st and 2nd joints thick, the rest longer, somewhat conic. Valves of oviscapt broad ovate.

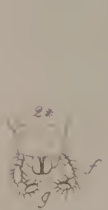
9. urbana Hal. Brown, front thorax and base of abdomen clothed with dark yellow hairs, the rest of abdomen, antennæ and legs with black hairs; wings obscure, yellowish, with 2 black bands; poisers pale, with the knob black-brown: coxæ, thighs, tibiæ and oviscapt yellowish. Male unknown. One of the largest, found by Dr. Coulter in Dublin, in the morning on the walls of offices, in the day settling on the trunks of elms in the College park.

D. SYCORAX Hal. Wings with 5 external cells, 2nd petioled, 5th incomplete; 3 costal cells, 2 brachial, extending to the middle of the wing; nerves only pubescent: body nearly naked. Antennæ slender, pubescent, 1st joint very short, 2nd globose, the rest linear.

10. silacea Hal.—Male, pale ochre, wings obscure hyaline.

A very minute and fragile species, found very rarely in drains at Holywood.

The plant is *Herniaria ciliata* (H. glabra Linn.) Ciliated Rupturewort, communicated by J. Janson, Esq., from a root which he brought from the Lizard.



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**MOLOPHILUS BREVIPENNIS.**

ORDER Diptera.      FAM. Tipulidæ.

*Type of the Genus, M. brevipennis Curt.*

**MOLOPHILUS Curt.**

*Antennæ* inserted close to the eyes at the base of the clypeus, not longer than the thorax, moniliform, pubescent and hairy; 16-jointed, 1st and 2nd joints stout, the former the longest, the latter somewhat obcordate, the remainder gradually decreasing in size to the apex, the 3rd ovate, penultimate joint globose (3). *Palpi* rather short pilose and 5-jointed, 1st and 2nd joints minute, 3rd ovate, a little longer than the 4th which is subtrigonal, 5th about the same size as the 3rd and ovate (2\* f). *Lip* very short and bilobed (g).

Head globose: eyes lateral and globose. Ocelli none. Prothorax elongated, cylindrical: Mesothorax trilobed; scutellum somewhat lunate, and slightly notched. Abdomen somewhat ovate 9-jointed, terminal joint semiorbicular and producing 2 large lobes in the male; the terminal joint ovate in the females and furnished with an exerted ovipositor, formed of 3 horny acute spines (7 ♀). Wings small (9) the margin and nervures hairy. Halteres conspicuous, capitate. Legs very long and rather stout, anterior the longest; tarsi 5-jointed, basal joint long: claws minute.

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**BREVIPENNIS Curtis's Guide, Genus 1152, 1.**

Greyish fuscous, wings pale brown, straw-coloured at the base, nervures darker brown: halteres nearly white: abdomen pilose, the lobes at the extremity in the males blackish; the ovipositor in the females ferruginous: legs very pubescent.

*In the Cabinets of Mr. Dale, the Author, &c.*

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THIS minute and singular insect was swept off heath, the 7th June 1827, in some abundance by Mr. Dale and myself at the top of a mountain between Ambleside and Ullswater, called Red skrees, on the sides of which we took the *Hipparchia Cassiope*.

It is undoubtedly allied to Erioptera of Meigen, which it resembles in having hairy wings, and the males have the abdo-

ndant volants. It. Meigen's Dipt.

Alexander 5/11/27 - 6 1/2 lines 5/2/100 - 19 cop

men somewhat similarly terminated, but not with the distinct lobes that form so prominent a feature in our genus. In its lengthened prothorax, and the shape of the abdomen, it widely differs from Erioptera, and I can discover no difference in the antennæ of the sexes, which I fortunately secured. The neu-ration of the wings is very different to any of the Tipulidæ that I remember, and I think they must be too small for flight. Probably many insects that inhabit very elevated situations do not often use their wings, and I suspect mountain species of many of the orders are not generally long-lived, in consequence of the frequent wet, cold and high winds that assail them. I remember in ascending Schichallion, that towards the summit we found considerable numbers of the *Orthotænia* (*Tortrix*) *Bentleyana* in the greatest perfection, but on the following day I did not see a specimen that was not worn and faded as if it had been several weeks old. To the same cause probably may be attributed the variation in the localities of winged insects in different years; for as we know that elevated and exposed places are seldom free from the effects of the wind, some Lepidoptera may move from one side to another of a mountain to seek shelter, for if they were to conceal themselves for any very long time, their lives would be too short to fulfill the objects of nature; the males of others take wing at favourable opportunities, and in this way we saw numbers of the *H. Cassiope* caught in the wind and carried to mountains quite out of our reach, and where the valleys are wide they are no doubt transported to a great distance. Providence has guarded however against a too great decrease by casualties, for the females seldom taking wing, the eggs are more likely to be deposited where the parents were produced, and where the food that the caterpillars live upon is to be found.

For the beautiful plant figured, *Gentiana verna* (Spring Gentian), I am indebted to George Wailes, Esq. who gathered it at Teesdale widdy-bank, Northumberland, the middle of April.



... .. July 7, 1888

*Chionea* (ERIOPTERA) CRASSIPES. *Böhm.*

ORDER Diptera.

FAM. Tipulidæ.

*Type of the Genus, Tipula flavescens Linn.*ERIOPTERA *Meig., Curt.*—*Polyraphia Meg.*—*Tipula Linn.*

*Antennæ* inserted in the middle of the face, approximating, sometimes a little longer than the thorax, 16-jointed, each joint, excepting the first 2, clothed round the middle with a whorl of beautiful hairs; basal joint short ovate, 2nd small, somewhat cup-shaped, 3rd elongated, flask-shaped, the remainder insensibly diminishing in size, the apical one elongate-ovate (3 ♂); shorter and less pilose in the female, with all the joints oval, excepting the 2 basal ones (3 ♀).

*Labium* short bilobed and hairy (2\**g*). *Palpi* incurved, clothed with rough hairs, 4-jointed, basal joint slender and not longer than the 2 following, which are short broad and truncated obliquely, 4th rather long and slender (*f*).

Head *small subglobose*: eyes *oval* (2): ocelli *none*. Thorax *ovate*: scutellum *rather large and oblong, rounded*. Abdomen *short, bilobed in the male and acuminate in the female*. Wings *rather long, incumbent and parallel, mostly villose, with about 9 longitudinal nervures, 2 of them furcate and most of them united by transverse nervures on the disc* (9): halteres *elongated, capitate*. Legs *rather long, intermediate the shortest*: thighs *slightly thickened towards the apex*: tibiae *not longer and simple*: tarsi *5-jointed, anterior the longest, basal joint elongated, 4th and 5th short*: claws *minute*.

*Obs.* The dissections were made from *E. Hederae Curt.*

CRASSIPES *Curt. Guide, Gen. 1153. 1.*

Ochreous; antennæ short, stout, pilose and brown; head slate-colour: thorax with the disc and 2 oval spots on the collar ferruginous; scutellum greyish, except at the base; abdomen brown on the upperside, excepting the apex: wings iridescent, the pubescence and nervures ochreous: legs yellowish brown, excepting the coxæ, which are deep ochreous; base of the thighs of a paler tint.

*In the Author's Cabinet.*

THE pubescent nervures of the wings will for the most part distinguish this from neighbouring genera, and the legs are stouter than in most of the surrounding groups. *Molophilus* (fol. 444.) is undoubtedly allied to *Erioptera*, but on comparing the dissections the necessity of separating them will be readily admitted.

*v. in aut. cabinet in 51. l. figure p. 44. Inq. I 115. Alexander 950/2*

The British species may be thus divided.

A. Wings entirely villose. \* Antennæ short in both sexes.

1. *E. crassipes* Curt. Brit. Ent. pl. 557 ♂.

I took a pair in Scotland in July 1825.

2. *maculata* Meig. Beginning of June, male common near the river at Lyndhurst and in the Isle of Wight; female beginning of September on paling Regent's Park.

3. *flavescens* Linn.—Meig. v. 1. tab. 4. f. 9. the wing. Beginning of July on grass, Duddingstone Loch, Mr. Dale.

4. *lutea* Meig. 5. *montana* Meig.

6. *tænionata* Wied.—Polyraphia pallidipennis Meg. Middle of October, Isle of Wight, J. C.

7. *fuscipennis* Meig. Beginning of May, Suffolk.

18. *varia* Hgg.

\*\* Antennæ long in the male and beautifully verticillated.

8. *lineata* Meig. Glanville's Wootton; beginning of June, trunks of trees, New Forest; beginning of September, Regent's Park.

10. *Hederæ* Curt. Guide. Brownish; antennæ of male nearly as long as the body (fig. 3 ♂); head and thorax grayish; wings iridescent, yellowish-fuscous, pubescent, stigma and nervures brown; halteres yellowish-white; coxæ and base of thighs ochreous. ♂  $2\frac{1}{4}$  lines long, expansion  $5\frac{1}{2}$ .

I took both sexes in great abundance on an Ivy-bush in a garden in Suffolk the 11th of May. It differs from *E. lineata* in having the nervures lighter and less distinct.

9. *trivialis* Hgg. Beginning of September, Regent's Park.

B. Wings with the first transverse nervure nearer to the base than in A.

11. *grisea* Meig. 12. *atra* Fab.—Meig. Klass. tab. 3. f. 8 & 9. Beginning of June, New Forest; July, Scotland.

13. *murina* Meig. 14. *obscura* Meig.

15. *ochracea* Hgg. Beginning of June, New Forest; beginning of July, Duddingstone Loch; end of August, common in damp places, Isle of Skye.

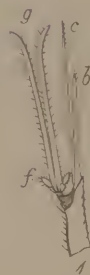
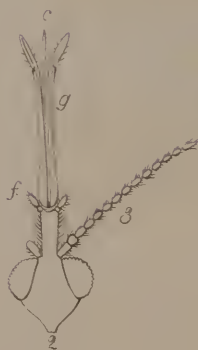
C. Nervures villose only towards the apex of the wings.

16. *imbuta* Wied.—Meig. tab. 4. f. 8. Beginning of July, Duddingstone Loch.

17. *cinerascens* Meig. tab. 4. f. 6. the antenna.

The Plant is *Hedera Helix* (Common Ivy).





*Handwritten text, possibly a signature or date, partially obscured and illegible.*

## GERANOMYIA UNICOLOR.

ORDER Diptera. FAM. Tipulidæ.

*Type of the Genus, Geranomyia unicolor Hal.*

GERANOMYIA Hal., Curt.

*Antennæ* alike in both sexes, short, pubescent and slightly bristly; 14-jointed, basal joint a little the longest, subcylindric, 2nd rather stouter, globose, the remainder slightly tapering and oval, distinctly articulated, terminal joint a little longer and attenuated (3).

*Trophi* elongated and porrected, forming a proboscis considerably longer than the antennæ.

*Labrum* long and linear, slightly hairy at the apex (1 b).

*Tongue* very long and linear, pointed and a little dilated below the apex, which is hairy (c).

*Mentum* short. *Lip* very long, divided from the base, forming 2 pilose branches, terminated by oblique elliptical lobes (g).

*Palpi* clothed with short hairs, attached to the anterior angles of the mentum, short biarticulate? basal joint globose, 2nd subovate (f).

Males smaller than the females. Head subglobose, obtrigonal above, the clypeus rostriform, produced, cylindric, hairy, acuminate above (1 a): eyes remote above, but contiguous beneath in both sexes, large lateral and granulated: ocelli none? Thorax gibbose and ovate; scutellum semiovate. Abdomen elongated, slender, linear in the male and terminated by a central and 2 large lateral lobes, (7 ♂ underside of the apex); conical and furnished with horny spines in the female. Wings parallel and incumbent in repose, with 9 longitudinal and 4 transverse nervures towards the apex: halteres rather elongated and clavate. Legs simple, long and very slender; tarsi 5-jointed, basal joint very long.

UNICOLOR Hal., Ent. Mag. 1. 155.—Curt. Guide, Gen. 1155<sup>b</sup>. 1.

Yellowish fuscous; eyes black: abdomen slightly pubescent: wings iridescent and vitreous, nervures fuscous, subcostal one ochreous at the middle, bearing 3 fuscous spots, one at the middle, a 2nd towards the base, and a 3rd nearer the apex, the nervure in those places being black, transverse nervures suffused: ovipositor ochreous.

*In the Cabinets of Mr. Haliday and the Author.*

I FIRST discovered one of these curious insects in the Isle of Wight in 1828, and from the nervures of the wings agreeing with those of the *Limnobia longirostris* of Wiedemann, I concluded that it belonged to the same division, where it stood in my Cabinet under the name of 'maculipennis'.

\* n. and Robert - C. Picard 70/1/24. Inq. J 651/2. Alexander II 816/9

Wiedemann's insect has since been formed into the genus *Rhamphidia* by Meigen, and it differs essentially from the species before us in having 16-jointed antennæ; it is the clypeus that is so much elongated and not the trophi, and the palpi are 4-jointed.

My friend Mr. Haliday having found a female specimen of our insect on some rocks near the harbour of Donaghadee in Ireland, established it as a genus in the *Entomological Magazine*, and gave it the name of

*GERANOMYIA UNICOLOR.*

*Curt. Brit. Ent. pl. 573 ♀,*

and the 26th of last July we found both sexes in multitudes on the sides of damp and shady rocks on the shores of the Shannon near Tarbert.

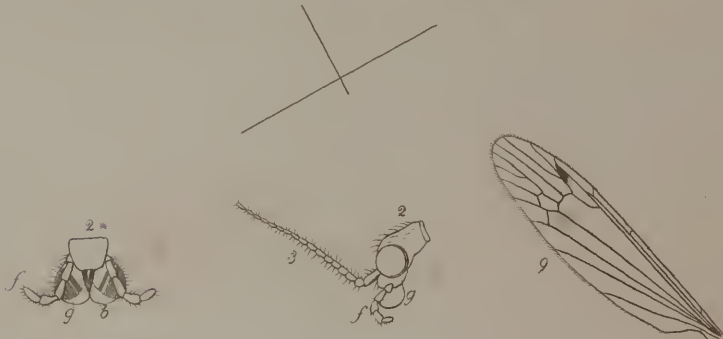
I must here remark that the black line on the thorax is too strongly marked in our figure, and it seems generally to vanish after death, and totally disappears in the males. The other species,

*G. MACULIPENNIS Curt.,*

is rather larger than *G. unicolor*, and is of a lurid ochre, the wings tinged with the same colour. It may be merely a variety differing principally in colour, arising possibly from age.

On the 1st of August, 1828, I took a female on the wet side of a cliff at Ventnor in the Isle of Wight, where I have since met with another specimen; and Mr. Dale has captured specimens at Durdle-door rocks, which are covered at high water.

The Plant is a variety of *Saxifraga umbrosa* (London Pride) from rocks near the Lakes of Killarney.



*Epitragma* (LIMNOBIA) OCELLARIS. L.

ORDER Diptera. FAM. Tipulidæ Lat., Leach.

Type of the Genus L. dispar Megerle.

LIMNOBIA Meig. Limonia Meig., Lat. Tipula Linn., Fab.

Antennæ porrected, longer than the head, abruptly setaceous, 15—17-jointed, each joint having a few hairs arising round the middle, first joint long, robust, cylindric, second globose, four or five following subturbinate, the remainder more or less clavate. (f. 3.)

Labrum and } horny, short, acute. (2\*b.)  
Tongue }

Lip very large, dilated, bilobed, membranaceous, hairy. (2\*9.)

Palpi 2, exerted, incurved, cylindric, composed of five joints of nearly equal length. (2. f. and 2\*f.)

Head small, long, oval, slightly inclining downward, narrowed behind, and like a cylindric, compressed, attenuated rostrum before. (2.)

Clypeus? broad quadrate. (2\*.) Ocelli none. Eyes oval, entire.

Thorax gibbous with a distinct transverse segment before. Body very long, cylindric, apex somewhat incrassated in the males, acuminate in the females. Oviduct spiniform, corneous, bivalved, valves very acute.

Wings incumbent, parallel, ciliated, having about 17 cells, 3 of which are discoidal, nerves naked. (9.) Halteres naked, club trigonate. Feet very long, vibratory. Tarsi 5-jointed, first joint very long.

OCELLARIS Linn. Syst. Nat. 2. 973. 17. Fab. Ent. Syst. v. 4. p. 240. n. 30. Meig. Syst. Bes. v. 1. p. 152. n. 65.

Dull ochraceous, hairy. Eyes, first and second joints of antennæ, sides of the abdomen, a line down the back of the four last joints and a ring round the middle of each thigh, black; four lines on the thorax, 2 spots near the base of the wings, and scutellum fuscous. Wings stained pale yellow, deepest towards the costa, with many fuscous ocelli towards the middle, and spots of the same colour along the margins, nerves fuscous. Halteres very pale.

In the Cabinets of Mr. Stephens and Mr. Haworth.

MEIGEN enumerates 65 species of *Limnobia*, including *Tipula rivosa* and one or two others, which ought probably to be removed from the Genus; and so various are the nervures of their wings, that he has divided them into 21 sections. In

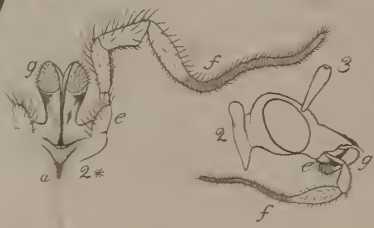
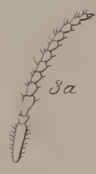
Robert (p. 63, 110;) (p. 65) - C. Linn. 116. Alexander Wien.

Britain there are at least 50 species in our cabinets ; amongst which are, *L. picta* F. ; *fuscipennis* Meig. ; *nemoralis* Meig. ; *ferruginea* Meig. ; *littoralis* Meig. ; *imbriata* Meig. ; *fusca* Meig. ; *lutea* Meig. ; *tripunctata* F. ; *xanthoptera* Meig. ; *longirostris* Wied. ; *immaculata* Meig. ; *pilipes* F. ; and *ocellata* L. ; all of which are examples of different sections of Meigen.

The transformations of our Genus do not appear to have been noticed. There can be little doubt, however, that in their economy these insects resemble the *Tipulæ*, from which in the perfect state they may be easily distinguished, by the shortness of the terminal joint of the palpus.

Of the rare and prettily marked species figured, I have seen but two examples, both of which are females ; and although it was described by Linnæus, as it has not I believe hitherto been figured, it will undoubtedly be interesting and acceptable to the entomologist.

The plant selected is *Potentilla reptans* (Common Cinquefoil).



Painted by J. Curtis London June 1 1824



## CTENOPHORA ORNATA.

ORDER Diptera. FAM. Tipulidæ Leach. Tipulariæ Lat., Meig.

Type of the Genus *Tipula pectinicornis* Linn.

CTENOPHORA Meig., Ill., Lat., Fab., Leach.—Taniptera Lat.—*Tipula* Linn., Fab.

*Antennæ* porrected, pilose, longer than the thorax and pectinated in the males; shorter and simple in the females; composed of 13 joints, 1st joint long cylindrical, 2nd very small, 3rd robust, somewhat cup-shaped, the remainder long and slender, each producing from 2 to 4 rays in the males (fig. 3. and A, B, C); short, robust and rhomboidal in the females, the terminal joint minute ovate (3 a).

*Labrum* none.

*Tongue*? very short robust and horny.

*Mandibles* none.

*Maxillæ* short, rounded and pilose (2\*c), to the base of which are attached the *Palpi*, which are very long pilose pubescent, and incurved (2, f), 4-jointed, 1st joint very small, 2nd and 3rd large, 4th very long and flexible except at its base where it is rigid (2\*f).

*Mentum* concealed. *Lip* very fleshy and pubescent, short and bilobed (2\*g).

*Head transverse*. *Nasus* horny cylindrical, projecting in a lobe above. *Eyes* large oval. *Ocelli* none. (2, head in profile.) *Thorax* gibbous. *Scutellum* small rounded. *Abdomen* clavate in the male; elongate-conic in the female, the latter with the apex horny, acuminate and furcate (7\*).

*Wings* divaricating, shining, containing about 18 cells. *Halteres* long clavate. *Legs* long robust. *Tibiæ*; each producing a spine at the apex, the last pair 2. *Tarsi* 5-jointed, basal joint long. *Claws* bent. *Pulvilli* distinct.

*Larvæ* inhabiting decayed trees.

ORNATA Meg.—Meig. Syst. Besch. v. 1. p. 166. n. 10.

*Male*: pubescent, yellow tinged with ferruginous. *Antennæ* pubescent, each joint excepting the 3 first and 2 last producing 4 branches, in pairs, alternately long and short. *Head* and *thorax* black, the latter margined with yellow, and ferruginous behind. *Abdomen* with the 3 first joints banded with black, the 5th and 6th with a triangular black spot in the centre, the remainder ferruginous and black. *Wings* yellowish, ferruginous at the costa, with a large blackish spot at the apex. *Tarsi* black, excepting the base of the 1st joint.

In the Cabinet of Mr. Dale.

THE genus *Ctenophora*, which is the handsomest of the *Tipulidæ*, and remarkable for its beautiful *antennæ*, has been divided by Meigen, in his admirable work now publishing, into three sections, taken from the structure of the *antennæ* of the males, examples of which have been copied from his work, and are marked A, B, C in the plate.

It is worthy of remark, that the *palpi* of this genus, and probably

✓ Jobert G. 77, 1001. L. Meier 2012, 8 esp. Macquart Dipt. I 77  
Alexander 1861/7

others of the family, are very different in structure to any that I have before observed: the greater part of the last joint being composed of rings, which render it perfectly flexible, and enable the insect, I imagine, to use it with nearly the same facility as an elephant can his trunk; and it is necessary to observe that in the view of the underside of the trophi, the maxillæ and palpi are represented too far from the lip, occasioned by the pressure used in dissecting, and the basal joint of the palpus is concealed under the clypeus, in the profile of the head.

The following species have been detected in this country.

A. Antennæ, of the males; each joint producing 2 unequal branches.

1. *C. bimaculata* Linn. Faun. Suec. 1750.—Schæff. Icon. tab. 111. f. 5. 6.  
Black; abdomen of the female variegated with rufous; wings with 2 blackish fuscous spots. Meig.

End of June. Darent Wood, Kent, and other places.

2. *C. paludosa* Fab. Ent. Syst. 4. 239. 26.  
Ferruginous; thorax with 3 black stripes; wings with 2 fuscous spots. Meig.

B. Antennæ of the males; each joint producing 2 long and 1 short branches.

3. *C. atrata* Linn. Faun. Suec. 1749.—Schæff. Icon. tab. 32. f. 1.—*Ichneumonea DeGeer*.  
Antennæ ferruginous; abdomen ferruginous, with black dorsal spots in the male; black, ferruginous at the base in the female. Meig.

Mr. Samouelle possesses a female of this rare insect, taken in Epping Forest, in May.

4. *C. nigricornis* Meig. Syst. Besch. 1. 159. 4.  
Black; abdomen with 2 ferruginous, interrupted fasciæ at the base; antennæ blackish. Meig.

C. Antennæ of the males; each joint producing 2 long and 2 short branches.

5. *C. pectinicornis* Linn. Faun. Suec. 1735.—Schæff. Icon. tab. 106. f. 5. 6.—*variegata* Fab.  
Abdomen ferruginous: dorsal spots black, and lateral stripes sulphureous. Meig.

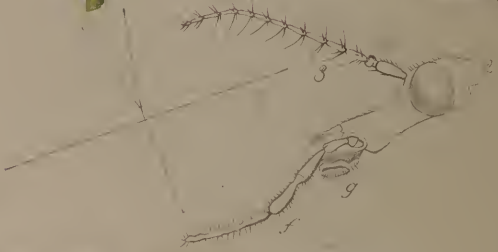
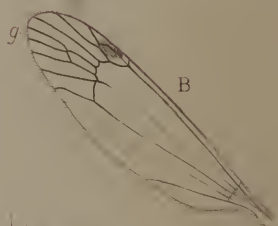
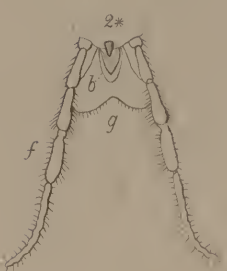
Beginning of June. New Forest, Hampshire, and Darent Wood, amongst underwood and bushes.

6. *C. flaveolata* Fab. Ent. Syst. 4. 234. 6.—Reaum. 5. tab. 1. f. 14—16.  
Black; abdomen with yellow rings. Meig.

Mr. Haworth possesses a female of this rare insect, taken many years since in Yorkshire by Mr. Rippon.

7. *C. ornata* Meig.—Curtis Brit. Ent. pl. 5.

The specimen figured in the plate is a male, and was taken upon an oak, by J. C. Dale, Esq. in company with the Rev. W. Kirby, near Lyndhurst in the New Forest, July 7, 1821. It is the only one known to have been found in this country: but I have seen a foreign female of this beautiful species in the collection of the Museum at Edinburgh. The plant is *Polygonum aviculare* (Common Knotgrass).



*Crane fly on the plant*

TIPULA LONGICORNIS. *Schum*  
= *Tipula cerca* *Wiedem.* 1817

ORDER Diptera. FAM. Tipulidæ.

*Type of the Genus, Tipula gigantea Fab.*

TIPULA Linn., Fab., Lat., Meig., Curt.

*Antennæ* inserted before the eyes, as long or longer than the head, setaceous, slightly pubescent, 13-jointed, each joint excepting the 2 first having a few spreading bristles arranged round the base, 1st joint the longest and stoutest, 2nd cup-shaped, 3rd longer subelliptic, the remainder slightly attenuated and decreasing in length and size to the last, which is minute and suddenly narrowed towards the apex (3).

*Labrum* with a membranous margin covering the larynx (2\* b).

*Lip* stout formed of 2 large lobes, cordate when opened (g), bristly outside with two irregular horny bands (2 g).

*Palpi* as long as the head, incurved, hairy and 5-jointed, basal joint subglobose, 3 following long, of nearly equal size, stout and subclavate, 5th as long or longer than the 3rd and 4th united, filiform membranous and wrinkled (f).

Head elongated into a cylindrical rostrum, terminating in a hairy beak over the mouth: eyes large lateral and globose approximating more beneath than above (2, the head, &c., in profile): ocelli none. Thorax thick and ovate: scutellum small transverse and semioval. Abdomen long slender and clavate in the male, subfusiform in the female with 2 horny lateral and a central lobe. Wings divaricating when at rest, with 2 discoidal cells, an areolet, and 7 cells at the apex (B, the wing of *T. quadrifaria*), the 4th sometimes pedicled: halteres long and capitate. Legs very long and slender, especially the anterior: tibiæ with 2 divaricating spines at the apex: tarsi tapering, 5-jointed, basal joint very long, 4th and 5th the shortest: claws curved, acute. Larvæ living in the ground, vermiform, attenuated towards the head, truncated and rayed at the tail.

Pupæ cylindrical, with 2 short spines before, the margins of the segments serrated, the apex more or less tuberculated.

LONGICORNIS Curt. Guide, Gen. 1160.

*Male.* Ochreous, antennæ fuscous, 3 basal joints ochreous, crown of the head and upper side of rostrum slate-colour: Thorax black, with cinereous pubescence, a double line down the centre and one on each side darker, a yellow lunulate spot before each of the wings, a spot on each side the scutellum pale ochreous: abdomen with a short slate-coloured stripe on each side at the base, sometimes interrupted and forming a lozenge spot on the back, extremity of the same colour, the margins of the segments yellowish, the apex ochreous: wings tinged with very pale fuscous, costa and base yellow, stigma and nervures brown: halteres with the club fuscous: thighs at the apex and tibiæ and tarsi fuscous ochre. *Female* unknown.

*In the Cabinets of Mr. F. Walker and the Author.*

THE large Tipulæ are known in this country by the name of "Old Father," or "Daddy Long-legs;" and the almost voluntary manner in which the legs fall off on the least touch,

\* Gobel's G. 76, 29 up. L. Pica p. 56 (30/65. 113 up  
Mey. Hist. nat. 1817, 180/8. Alexander 995/1016

is most remarkable, and renders them very difficult to preserve. Their larvæ live under ground, principally in pasture and meadow lands, where they undergo their metamorphoses; and at particular seasons the empty pupæ may be found in thousands, half obtruding perpendicularly from the ground.

I shall describe 2 new species, give the names of some that have never been recorded as British, and as many references and habitats as space will allow.

A. Wings with the 4th cell peduncled.

1. *gigantea* F.—*rivosa* Don. 2.48.2 ♂.—Harris, *Expo. pl.* 14. f. 1.

2. *vittata* Meig.—*Sam. pl.* 9. f. 2.

3<sup>a</sup>. *marginata* Meig.? v. 1. p. 173. 5.

6<sup>a</sup>. *irrorata* Macq.—September, Parley Heath, Hants.

9<sup>a</sup>. *montana* Curt.

16 to 18 lines broad, dark ochreous, palpi and antennæ piceous, excepting the 2 basal joints of the latter, and each joint kidney-shaped: head and thorax grey, the latter with 3 brown lines down the back, and an oval ring on each side: abdomen with a white line down the sides and an undulating brown line above it, apex ferruginous in the female, the lobes broad obtuse and serrated beneath: wings fuscous, spotted with white, the nervures stigma and a spot near the disc dark fuscous; tips of thighs tibiæ and tarsi fuscous.

July, Skiddaw, and mountains in Scotland.

13<sup>a</sup>. *scripta* Meig.? v. 6. 286. 45.

19. *ochracea* Fab.—*Albin, pl.* 61?

M. May, Isle of Portland; e. July, hedges, Isle of Wight.

23. *oleracea* Linn.—*terrestris* Harr. *pl.* 14. f. 2.

May and Aug., meadows; female, m. Oct., Heron Court.

25<sup>a</sup>. *plumbea* Fab. *Ent. Syst.* 238. 19?

25<sup>b</sup>. *longicornis* Curt. *Brit. Ent. pl.* 493 ♂.

For my specimens I am indebted to F. Walker, Esq., who took four males at Southgate on a laurel-hedge in May.

B. Fourth cell not pedicled, fig. B. g.

26. *nigra* Linn.

July 18th, in abundance at Whittlesea Mere, J. C.; b. June, Coomb, and Castle Eden Dean; end of May, Battersea.

26<sup>a</sup>. *fuscipennis* Curt. ♂. 11. ♀.

13 lines broad; dull and dark ochre, antennæ tarsi and tips of tibiæ and thighs blackish, head and thorax grey before, the latter with a blackish double stripe down the middle, a shorter one on each side, and 2 on the mesothorax, apex of the postscutellum black; abdomen long and slender in the male, a brown stripe down the back of the female: wings rusty brown, stigma and nervures deeper, costa yellowish.

Beginning of June, New Forest.

27. *crocata* Linn.—Don. 2. 48. 1 ♀.—*flavofasciata* De G.

29. *imperialis* Meig. v. 1. *pl.* 6. f. 9 ♀.

32. *Histrio* Fab.—*flavomaculata* De G. 6. *pl.* 19. f. 2 & 3.

The remaining species will be found in the Guide.

The Plant is *Sanguisorba officinalis* (Great Burnet).



*Curculionidae. Curcul. Lond. in Mus. 1866*

DOLICHOPEZA SYLVICOLA. <sup>Emt = albipes Stöm.</sup>

ORDER Diptera. FAM. Tipulariæ Lat. Tipulidæ Leach.

*Type of the Genus Dolichozeza sylvicola nob.*

## DOLICHOPEZA nobis.

*Antennæ* rather longer in the male than in the female, porrected, approximating, longer than the head and thorax, composed of 12 joints, hairy with a few bristles irregularly situated, 1st joint cylindric, 2nd cup-shaped, small, 3rd the longest, the following decreasing in length to the end (3).

*Lip* small, membranaceous, bilobed, externally pilose (2 g and 2 \*g).

*Palpi* 2, exerted, incurved, hairy, 5-jointed, 1st and 2nd joints short, 3rd and 4th longer, robust, 5th very long, pilose, flexible, composed of numerous muscular rings (2 f and 2 \*f).

Head small, short, globular, produced into a short cylindric rostrum (2). Clypeus very broad (2\*). Ocelli none. Eyes oval, entire. Thorax gibbous with a distinct transverse segment before. Abdomen very long, cylindric, apex somewhat incrassated in the males, acuminate in the females. Oviduct spiniform, corneous, bivalved. Wings lanceolate divaricate, ciliated, having about 14 cells, 2 of which are discoidal, nerves naked (9). Halteres long, naked. Feet very long, slender, hairy, vibratory. Tarsi 5-jointed, 1st joint longer than the tibiæ, last terminated by claws and pulvilli (8, terminal joints of the fore leg).

## SYLVICOLA nobis.

Piceous inclining to cinereous. Head, a spot behind the thorax and 1st joint of antennæ pale: apex of abdomen in the male and style in the female ochraceous. Wings iridescent, yellowish fuscous with a blackish spot covering the oval cell and extending to the costa. Legs piceous, tarsi white excepting the base of the 1st and the terminal joint which are piceous.

*In the Cabinets of Mr. Stephens and the Author.*

*DOLICHOPEZA sylvicola* is one of those valuable insects which from its partaking of the characters of neighbouring genera

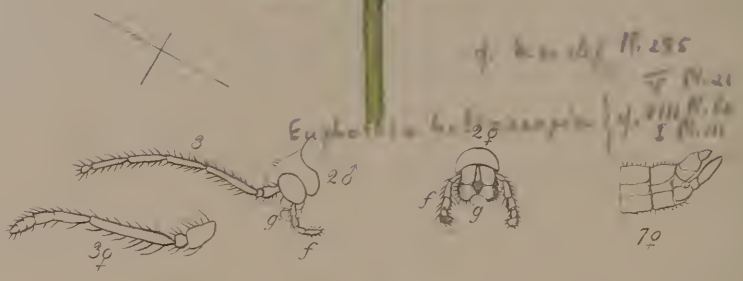
• Gubern & J. C. S. in Tipulidæ et Sarcophagidæ



has been called conterminous: it exhibits to us affinities existing in nature by which we are enabled to approach nearer to a natural arrangement. It differs from *Tipula* in having only 12 joints in the antennæ, and a few scattered bristles upon them, instead of 13 joints ornamented with whorls of hairs; from *Limnobia* it differs in the length of the terminal joint of the palpus, and the long cylindric joints of the antennæ; but the most decided and remarkable characters which at once distinguish it from both these genera are the absence of the 3rd discoidal cell, which in them is never wanting, various as the wings of these genera are, and the extraordinary length of the basal joints of the tarsi, which are all very much longer than the tibiæ:—to this circumstance the generic name that I have adopted refers.

In my ramble through the New Forest the beginning of last June, in a part that lies rather low and was at that time swampy from springs that appeared to rise there, upon the mossy trunk of one of the magnificent beech-trees that ornament the neighbourhood of Lyndhurst I saw many of both sexes of this elegant insect; they rested as represented in the plate with their wings spread, and although it was a fine calm morning, their hinder legs, which did not touch the tree, waved backward and forward, as if the least touch would disjoint them: the trunk was so much overshadowed that had it not been for the white feet of the insects, which rendered them conspicuous, they would have escaped my observation; and it is a little singular that although this was on my first arrival, and I stayed some time in that neighbourhood, I never saw any more of them. Upon looking over Mr. Stephens's cabinet I found one female which he had always considered as being different to other described genera, neither does it appear, as a species, to have been before noticed.

*Polygala vulgaris* (Milkwort), which was in flower at the time near the spot, is figured with the insect.



*Euphylloba heliogramma*

f. h. 185  
 f. h. 21  
 f. h. 22  
 f. h. 23

Edwards, 1891

PERONECERA FUSCIPENNIS.

ORDER Diptera. FAM. Tipulidæ.

Type of the Genus, *Peronecera fuscipennis* Curt.

PERONECERA Curt.—*Anisomera* Curt.

*Antennæ* inserted in the middle of the face, not so long as the thorax in the male (♂), somewhat filiform, pilose and 7-jointed, basal joint rather stout and obovate, 2nd small and cup-shaped, 3rd long, the 3 following shorter, nearly of equal length, 7th small and ovate: shorter and 8-jointed in the female (♀), the 5th joint short, the 3 following forming an ovate mass.

*Labrum* very short and trigonate.

*Palpi* short, pubescent, incurved and 4-jointed, basal joint a little elongated, 2nd stouter and subovate, 3rd obtrigonate, 4th as long as the 1st, rounded at the apex (f).

*Labium* short, broad, bilobed and externally pilose (g).

Head small, bent under the thorax, the forehead produced and forming a tubercle (2♂): eyes lateral ovate: ocelli none. Thorax ovate: scutellum semiorbicular. Abdomen sublinear, recurved at the apex, which is furnished with 2 large globose horizontal lobes in the male; acuminate in the female with 2 vertical appendages (7♀). Wings longer than the body, parallel, and incumbent in repose, with 3 submarginal cells, the 1st very long, 3rd elongate-trigonate: halteres capitate. Legs moderate, hinder the longest, simple; tibiæ with a very minute spine at the apex of each: tarsi shorter than the tibiæ, 5-jointed, basal joint the longest, 4th small: claws and pulvilli small.

FUSCIPENNIS Curt. *Guide, Gen.* 1164<sup>a</sup>. 1.

Male slate-black, clothed with short ochreous hairs; crown of the head and a stripe on the thorax, finely divided, and 2 ovate spots on each side, shining black: wings reddish-brown, the nervures piceous, the apical furcate nervure very short; halteres whitish ochre; legs pitchy, rather paler in the female, in which sex the wings also are paler, with the disc of the cells more hyaline: expanse 8 to 9½ lines.

*In the Cabinets of Mr. Dale and the Author.*

MEIGEN having united *Nematocera* and *Anisomera* in his Supplement, it is probable he would also include our species with them, but as he, as well as Macquart, characterizes his group as having 6-jointed antennæ, it would not be advisable to form one genus of the whole; and unless there be individuals with modified antennæ, connecting the long- with the short-horned species of *Anisomera*, one would judge from Meigen's figures that the species ought at least to be formed

into sections; but as I do not possess any of the typical species, I am unable to throw any light upon the subject.

My genus *Peronecera*, in allusion to the button-headed antennæ, comprises

1. *fuscipennis* Curt. *Brit. Ent. pl.* 589. ♂.

Which I discovered in abundance upon grass in a meadow by the side of the river near Ambleside, the 21st of June, where numbers of them were paired; about the same time Mr. Dale took a pair near Low Wood, on the banks of Windermere.

2. *lucidipennis* Curt. *Guide*.

*Female* piceous: antennæ cinereous-brown at the base, 3 terminal joints of equal length, and a little elongated; head and thorax cinereous, 2 pale brown spots behind the eyes: thorax with a broad piceous shining stripe down the middle, faintly divided, and 2 ovate spots on each side; wings rather milky-white, nervures ochreous-brown, apical furcate nervure elongated; halteres pale ochreous; legs fuscous-ochre, thighs and tibiæ darkest at the tips, the former pale ochreous at the base: expanse 12 lines.

The only specimen I have seen I took in Perthshire in July. I may add that Mr. H. Walker has found *Nematocera nigra* at New Lanark, and Capt. Blomer took a pair probably of the same species at Kenfig Pool, Glamorganshire, in June, which is now in Mr. Dale's Cabinet.

I should not here notice Meigen's having given M. Wintham credit for my genus *Dolichozeza*, had not Macquart seemed to be equally ignorant of its true source: it therefore becomes necessary to state that the genus was established in this work in March 1825, as will be seen by reference to the date on plate 62, where *Dolichozeza sylvicola* is figured; and it will not be irrelevant to add that upwards of 70 dipterous Genera have been already illustrated in this publication.

The Plant is *Euphorbia helioscopia* (Sun Spurge or Wartwort).

"Giller. *Magaz. Natur. Flora. Aug.* p. 350

→ I (R. III, V (P. 21, VIII. 56



*Ligustrum vulgare*  
(Troëna / Jeannel)



*Tabanus (Troëna) Jeannel*

## DIXA NEBULOSA.

ORDER Diptera. FAM. Tipulidæ.

*Type of the Genus, Dixa maculata Meig.*

DIXA Meig., Macq., Curt.

*Antennæ* inserted between the eyes in two large fleshy cavities, as long as the thorax, setaceous, pubescent, composed of 16? joints, basal joint robust subquadrate, 2nd larger subovate, the remainder slender and tapering, the 3rd the longest, the following of nearly equal length (3).

*Trophi* short, excepting the *Palpi* which are incurved, pubescent, pilose and 4-jointed, basal joint small, 2nd and 3rd twice as long, nearly of equal length, 4th long and slender (f). *Labrum* acuminate. *Maxillæ* or *Mandibles* and the *Tongue* acute.

*Lip* dilated, pilose and bilobed, each lobe truncated obliquely (g).

*Head* small subglobose: eyes prominent and globose (fig. 2, head viewed behind; 2\* front view of head). *Ocelli* none. Thorax gibbose, projecting over the head: scutellum small and semicircular (A). Wings longer than the abdomen, incumbent and parallel when at rest, iridescent with 2 furcate nervures on the margin. Halteres clavate. Abdomen linear. Legs long and slender. Thighs and Tibiæ of equal length. Tarsi 5-jointed, basal joint nearly or quite as long as the tibiæ, 4th and 5th nearly of equal length. Claws minute, curved and acute.

NEBULOSA Meig. v. 6. p. 293. 5.—Curt. Guide, Gen. 1166.

Ochreous: eyes black: antennæ fuscous: thorax with a double black line down the centre of the anterior half, and a double black one on each side, abbreviated before, and between them is a fine line down the middle: postscutellum black: Abdomen rosy brown, margins of the segments pale: Wings pale yellow, clouded with cinereous, with portions round the nervures and a spot on the transverse nervures at the disc, brown: tips of thighs and tibiæ black, tarsi fuscous.

*In the Cabinet of Mr. Haliday.*

THIS genus, like many others of the Tipulidæ, is very much confined to northern latitudes. Macquart has described only two species, the *D. æstivalis* and *D. aprilina*, and says they inhabit marshy woods in the North of France, but are both rare.

The name *Dixa* is descriptive of the two bifurcate nervures of the wings, which distinguish it from its congeners. I am indebted to A. H. Haliday and F. Walker, Esquires, for

v. Gobert 6.81 Séjour Vénérables p. 109/55

many of the following localities, as well as for several of the species.

1. *D. cinctus* *Curt. Guide, No. 1.*

Cinereous black, margin of the thorax ochreous, two stripes down the middle, scutellum and base of the halteres pale dirty yellow: wings immaculate: legs rather stouter than in the other species, and dull ochreous, tips of the tibiæ and tarsi blackish.

Taken at Southgate by Mr. F. Walker.

1<sup>a</sup>. *D. fuliginosa* *Walk. MSS.*

Cinereous black, posterior portion of thorax lurid; wings pale yellowish fuscous: legs dull ochre, tips of thighs and tibiæ and the tarsi blackish.

Taken at Southgate by Mr. F. Walker.

2. *D. æstivalis* *Meig. 1. 218. 2.*

July on aquatic plants, Southgate, Mr. F. Walker.

2<sup>a</sup>. *D. serotina* *Hgg.—Meig. 1. 217. 1.*

Inhabits the verge of the sea, Ireland, Mr. Haliday.

3. *D. aprilina* *Meig. 1. 218. 3. tab. 7. f. 12. ♂.*

In the spring at Southgate, Mr. F. Walker.

3<sup>a</sup>. *D. mœsta* *Hal. MSS.*

Very similar to *D. maculata*, but it is smaller, of a duller colour, the wings are darker, and the tarsi are blackish.

Taken in Ireland by Mr. Haliday, who thinks it may be a variety of *D. maculata*.

4. *D. maculata* *Meig. 1. 219. 4.*

Mr. Walker says "it is common at Southgate in April and October, flying in company in the evening like *Trichocera*. In April on aquatic plants, where it had recently assumed its perfect state."

5. *D. nubilipennis* *Curt. Guide, No. 5.*

Smaller than the insect figured; and as all the specimens I have seen were alike, I think it is distinct from *D. nebulosa*: the 2 central black lines on the thorax are much longer, and the clouds on the wings much less distinct than in that species.

I have taken this insect the middle of November, in the flowers of the Ivy at Arno's Grove, where Mr. Walker also finds it, as well as in the Isle of Wight, the middle of October.

6. *D. nebulosa* *Meig.—Curt. Brit. Ent. pl. 409. ♀.*

The only specimen I have seen was taken by Mr. Haliday in Ireland.

The Plant is *Ligustrum vulgare* (The Privet).





## MESSALA SAUNDERSII.

ORDER Diptera. FAM. Tipulidæ.

*Type of the Genus, Messala Saundersii Curt.*

MESSALA Curt.

*Antennæ* of the male as long as the whole body, inserted in front of the face, approximating, slender, very pilose and 16-jointed, 2 basal joints robust, the 1st subovate truncate, the 2nd cup-shaped, the remainder long and slender, gradually decreasing in length and clothed with long hairs (3).

*Labrum* elongate-trigonal (2 + b).

*Palpi* elongated, slightly pubescent, 4-jointed, 3 basal joints short, 4th longer and slender (*f*).

*Lip* rather short and broad (*g*).

Female *unknown*. Head *short, vertical, crown transverse, face orbicular*: eyes *large and granulated, slightly reniform* (2); *remote on the crown* (2\*); *approaching in front of the face* (2†): ocelli 3 *in a transverse line, in front of the crown and elevated*. Thorax *short and thick*: scutellum *semiorbicular*. Abdomen *very long linear and compressed, terminated by a cordate lobe*. Wings *ciliated, with 2 large and elongated subcostal cells, a long furcate nervure beneath them, and 3 others reaching the posterior margin*: halteres *long and slender, terminated by an ovate club*. Legs *long, nearly of equal length*: tibiæ *longer than the thighs, with very minute spurs*: tarsi *longer than the tibiæ and 5-jointed, basal joint very long*: claws *minute*.

SAUNDERSII Curt. MSS.—*Guide, Gen. 1167<sup>b</sup>. 1.*

Fuscous, with an ochreous tinge; eyes piceous; hypostoma slate-black, hoary with pubescence; antennæ with the first 2 joints and base of the 3rd ochreous; postscutellum subferruginous; sides of abdomen ochreous-brown: wings iridescent, slightly fuscous, a spot at the stigma rather darker; nervures fuscous: coxæ, trochanters and base and underside of thighs ochreous; tarsi blackish.

*In the Author's Cabinet.*

THIS remarkable insect is distinguished from all others by its long pubescent or rather pilose antennæ: it seems to be intermediate between *Bolitophila* and *Macrocera*, having the neuuration of the wings of the one, and the elongated antennæ of the other; but these contain 16 joints, which is a greater number than they are composed of in those genera: the situation also of the ocelli is different to those of *Macrocera*, and their equal size do not accord with the *Bolitophilæ*.

The only example I have seen of this pretty insect was taken by W. W. Saunders, Esq., whose name it bears, and to whose liberality I am indebted for the specimen, accompanied by the following observations.

“The Gnat I caught on the 9th of April last, while it was resting on a wall in an outhouse at Weston Turville, near Aylesbury. I remarked that the hind legs of the insect were stretched out behind, without touching the wall, in the way that Gnats are often seen to hold them, and that the antennæ were gently curved forward, forming perhaps an angle of forty-five degrees between them.”

The Plant is a variety of *Thymus Serpyllum* (Mother of Thyme).



MACROCERA STIGMA.

ORDER Diptera.

FAM. Tipulidæ.

Type of the Genus, *Macrocera lutea* Panz.

MACROCERA Meig., Panz., Curt., Macq.

*Antennæ* inserted in front of the face, contiguous, porrected, setaceous, bristly at the base, very pubescent towards the apex, as long as the insect, sometimes twice as long in the males, 16-jointed, 2 basal joints stout, 1st large ovate, 2nd cup-shaped, 3rd and following long, cylindrical and nearly of equal length (3, basal and apical joints).

*Palpi* rather short, incurved, pubescent and 4-jointed, basal and terminal joints a little the longest, the former with some long hairs on the inside, the latter slightly clavate, 2nd and 3rd short subovate (*f*).

*Lip* forming 2 large pubescent lobes.

Head a little transverse, forehead and clypeus sometimes produced, the latter bristly: eyes large, oval and pubescent, more remote above than below: ocelli 3 in a compact triangle on the forehead (2 the profile; 2† the face; 2\* the crown). Thorax gibbose ovate: scutellum lunate. Abdomen long, slender and subfusiform, the apex more rounded in the male, with 2 incurved strong processes, the apex more lanceolate, with 2 small appendages in the female. Wings incumbent, parallel, broad, with an oblique nervure towards the apex, the 2nd longitudinal nervure forming a long fork, 2 anal ones curved: halteres rather long and clavate. Legs simple, anterior not very long, hinder the longest: thighs not stout: tibiæ longer, with small spurs at the apex: tarsi as long and 5-jointed, basal joint long, 3 terminal ones short: claws very minute.

STIGMA Curt. Guide, Gen. 1168. 6.

In the Author's Cabinet.

THIS genus is readily distinguished by its long horns, from whence its name *Macrocera*. Their metamorphoses have not been discovered that I am aware of, but very probably they are bred in Fungi. The following species have been found in Britain.

\* *Antennæ* twice or thrice as long as the body in the males.

1. *phalerata* Hgg.

Ochreous spotted with black, wings with an abbreviated fascia, a spot on the costa and the apex fuscous: 2½ lines long.

Beginning and middle of June, Blarney and Coombe Wood.

2. *angulata* Meig. v. 1. p. 224. no. 4.  
 "Ferruginous, wings with an angulated fascia and the apex fuscous; abdomen black behind in the male, annulated with black in the female. 3 lines."
3. *centralis* Meig. 225. 5.  
 "Thorax ferruginous with 3 black stripes; abdomen black with ferruginous bands; wings with a fuscous spot on the disc. 3 lines."  
 Beginning of August, off an oak at Bognor.
4. *maculata* Hgg.—Meig. 225. 6.  
 Ochreous, thorax striped with fuscous, abdomen banded with fuscous; wings somewhat spotted with fuscous. 2 lines.
5. *lutea* Panz. 105. 7.  
 Ochreous, abdomen with a black stripe down the back. 3 lines.  
 June, under a tree in the Edgware Road.
6. *Stigma* Curt. Brit. Ent. pl. 637. ♂.  
 Ochreous, thorax inclining to ferruginous, antennæ fuscous except at the base, abdomen hairy, with a black line down the 2nd and 3rd segments and a dark dot on each side and also on the 4th, apex fuscous; wings very pale fuscous, stigma and tarsi fuscous.  $2\frac{3}{4}$  lines.  
 Middle of June, windows and bushes Ambleside, and in a hedge by a running brook Niton.
7. *dorsalis* Curt. Guide.  
 Similar to the last but distinguished by three broad stripes on the thorax.  
 End of May, Southampton, beginning of July under Turk Mountain near Killarney.

\*\* *Antennæ not longer than the body in both sexes.*

8. *fasciata* Meig. tab. 8. fig. 5.  
 Yellow: 3 fuscous stripes on the thorax; abdomen banded with black. 3 to  $3\frac{1}{2}$  lines.  
 June, New Forest; August at a window, and September in a hedge at Niton.
9. *multicincta* Curt.—*pusilla* Meig.?—*nana* Macq.?  
 Ochreous, antennæ fuscous except at the base, thorax with 3 narrow fuscous stripes, abdomen brown, margins of the segments ochreous, tibiæ fuscous, tarsi darker. 2 lines.  
 Beginning of September, a pair on a window at Niton.  
 For specimens of *Rhodiola rosea* I am indebted to Mr. T. Howson, who took me to a locality near the summit of Ingleborough, called the Foal's-foot Scaur.



*Illustration of a fly-like insect and its larva, with botanical details.*



*Mycetophilidae*

PLATYURA FLAVIPES.

ORDER Diptera. FAM. Tipulidæ Lat., Leach.

Type of the Genus *P. flavipes* Meig.

PLATYURA Meig.—Asindulum Lat.—Ceroplatus Fab.—Rhagio Fab.—Sciara Fab.

*Antennæ* alike in both sexes, porrected, longer than the head, inserted between the eyes in large fovea, pilose, 17-jointed, basal joint short, 2nd more robust, cup-shaped, 3rd nearly as long as the 2nd, remainder transverse, terminal joint conical (fig. 3).

*Labrum* and *Tongue* obscure.

*Mandibles* and *Maxillæ* none.

*Palpi* exerted, incurved, longer than the lip, 4-jointed, 1st joint small, 2nd robust, 3rd large, 4th elongate-ovate (1\*f).

*Lip* short, bilobed (g).

Head small, vertical, obovate. Eyes lateral. Ocelli 3 in triangle, below the crown of the head, in some the anterior one is the smallest. (2\*, the head viewed from above with the basal joints of the antennæ.) Thorax gibbous. Scutellum small, rounded. Abdomen large, sometimes depressed, more slender in the males. Wings not longer than the abdomen, parallel, incumbent, naked, containing about 12 cells, having a transverse nervure near the apex uniting the costal and subcostal nervures. Halteres distinct. Legs simple, naked, anterior the shortest. Tibiæ unarmed on the sides, terminated by spurs. Tarsi 5-jointed, basal joint long. Claws and Pulvilli minute.

FLAVIPES Meig. Syst. Besch. v. 1. p. 237. n. 9.

Female shining, pubescent. Antennæ fuscous. Head and thorax black, the latter pubescent and inclining to red behind. Scutellum and abdomen fuscous, the posterior margins of the segments ochraceous. Wings short, slightly fuscous with a yellow tinge, very iridescent. Halteres pale fuscous. Legs pale ochraceous; tibiæ inclining to fuscous; tarsi to black.

In the Cabinets of Mr. Stephens and the Author.

\* Gehlen v. 24, up. Edwards no. 247, 519

I SHOULD not have relinquished Latreille's generic name *Asindulum* had he not by some accident described (in his *Histoire Naturelle*, t. 14, p. 290, and in his *Genera Crustaceorum*, &c. t. 4, p. 261) and figured (in the latter work, tab. 15, f. 1.) an insect for the type which appears to be more allied to the *Empidæ*, having an elongated proboscis inflected under the breast, "Proboscis elongata, sub pectore inflexa," &c. which would exclude it from the *Tipulidæ*, none having a long proboscis excepting *Culex* and *Anopheles*, and in them it is porrected.

*Platyura* is distinguished at once from the neighbouring genera by the transverse nervure at the apex of the wings, and many of them by their depressed abdomens. With their habits and economy we are unacquainted: it is supposed they live upon fungi. The following species are in Mr. Stephens's cabinet.

- 1 *P. atrata* *Fab.*
- 2 *lineata* *Fab.*
- 3 *laticornis* *Meig. pl. 8. f. 19—21.*
- 4 *rufipes* *Hgg.*
- 5 *semirufa* *Meig.*
- 6 *nemoralis* *Meig.*
- 7 *flavipes* *Meig.*
- 8 *cingulata* *Steph. MSS.*
- 9 *ochracea* *Meig.*
- 10 *discoloria* *Meig.*

Of these there appears to be only one figured. Our species, a female of which is represented, is not uncommon in the neighbourhood of London; I have met with it in Coombe Wood and upon paling near Kilburn, in the early part of June of the present year. Some of the species are much larger, and far more rare.

*Poa rigida* (Hard Meadow-grass) accompanies the insect.



*Myetophila*

SCIOPHILA SYLVATICA.

ORDER Diptera.

FAM. Tipulidæ.

Type of the Genus, *Sciophila hirta* Hgg.

SCIOPHILA Hgg., Meig., Macq., Curt.—*Platyura* Meig.—*Asindulum* Lat.

*Antennæ* inserted close to the internal margin of the eyes, longer than the head and thorax, porrected, pubescent, compressed and 16-jointed; 2 basal joints small, somewhat obconic, the following oblong, slightly tapering towards the apex, the terminal joint conical (3).

*Trophi* short, excepting the *Palpi*, which are as long as the head, incurved, slender, slightly pubescent and 4-jointed, 2 basal joints short, 2nd longer, 3rd twice as long, slender and flexible (2, f).

Head *subglobose*; face narrow: eyes large lateral and ovate, slightly emarginate on the inside, at the insertion of the antennæ: ocelli 3, more or less in a depressed triangle on the crown of the head, the anterior one the smallest: (2\* upper side, 2 † the face, 2 the profile). Thorax larger than the head, *subglobose*. Abdomen *subfusiform* or *clavate*, sometimes compressed in the males, with the apex bilobed. Wings a little longer than the body, parallel and incumbent, with 2 or 3 longitudinal costal nervures, an areolet and 2 long furcate nervures (9): halteres *capitate*. Legs generally long, thighs shorter than the tibiæ which are spurred at the apex, hinder pair very long and sometimes bristly, as well as the intermediate: tarsi longer than the tibiæ, except in the hinder pair, slender, 5-jointed, basal joint very long: claws minute.

SYLVATICA Curt. Guide, Gen. 1171. 16.

In the Author's Cabinet.

THE appearance of the fungivorous Gnats being influenced by the moisture of the atmosphere, which is so essential to the generation of the vegetables on which the larvæ feed, we meet with them in woods and even at our windows at late and early periods, and in wet seasons and in humid situations during the greater part of the year. The *Sciophilæ* are admirably characterized by the minute aehrolet in the wings. I am now able to record 16 British species, all of which have been found near London, excepting *S. rufa*; but not having seen Nos. 10 and 11 it is possible that they may be placed in a Section not quite agreeing with the wings referred to.

\* (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)

1. *Wings with an areolet as in fig. f\**.

1. fimbriata Meig. 1. 247. 3.      2. annulata Meig.  
3. cingulata Meig.                      4. maculata Fab.  
5. marginata Meg.                      6. ferruginea Meig.

2. *Wings like fig. 9, the 1st furcate nervure nearly sessile.*

7. rufa Meig. Supp. 6. 295. 16.  
Holywood, Downshire, Mr. Haliday.

8. hirta Hgg.  
April and September, in a house at Lisson Grove.

3. *Wings with an areolet like fig. 7 a.*

9. fenestella Curt. Pale piceous; sparingly clothed with yellowish hairs; legs ochreous, tips of trochanters and tarsi fuscous:  $1\frac{3}{4}$  line.

Beginning of September, on windows, Lisson Grove.

10. lutea Macq. Dipt. 1. 139. 10.  
11. rufilatera Walk. Ent. Mag. 4. 115.

4. *Wings with an areolet as in fig. 7 b.*

12. subincana Curt. Similar to *S. hirta*: black, sparingly clothed with hoary hairs, legs yellowish ochre, tips of trochanters and of hinder thighs blackish; tibiæ fuscous, tarsi darker:  $1\frac{3}{4}$  line long.

Beginning of May, Coomb Wood.

5. *Wings with an areolet as in fig. n.*

13. nigra Macq. Dip. 1. 138. 7.  
June, both sexes on damp decayed stumps of trees in the New Forest.

6. *Wings like Meigen's fig. 8. tab. 9.*

14. vitripennis Meig. May and July, near London.

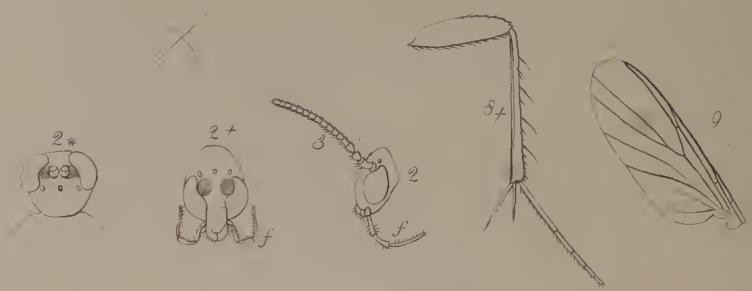
7. *Wings with an areolet as in fig. u.*

15. unimaculata Macq. Dipt. 1. 137. 5.  
In December, on windows, at Arno's Grove.

8. *Wings like the coloured figure.*

16. sylvatica Curt. Brit. Ent. pl. 641. ♂.  
Black, shining; head and thorax clothed with long whitish shining hairs; antennæ rather long and stout, 2nd joint deep ochre; legs pallid ochre, a line beneath the thighs and apex of the posterior piceous, tibiæ dusky, tarsi darker.  
I took several specimens the 16th of May in a wood near Southgate.

For specimens of *Orchis* (*Habenaria*) *albida*, Whitish Orchis, I am indebted to Mr. T. Howson, who gathered them at Giggleswick in Yorkshire: the root is represented uncoloured.



## LEIA PULCHELLA.

ORDER Diptera.

FAM. Tipulidæ.

*Type of the Genus, Leia fascipennis Meg.*

LEIA Meig., Lat., Macq., Curt.

*Antennæ* inserted in large cavities close to the inner margin of the eyes below the forehead, approximating, as long as the thorax, porrected, filiform or compressed, pubescent and 16-jointed, basal joint rather the longest, subclavate, 2nd subcordate, 3rd ovate-truncate, the remainder oblong, gradually tapering to the apex, the terminal joint rounded at the tip (3).

*Trophi* very short, excepting the *Palpi*, which are rather long, slender, slightly pubescent and incurved, 4-jointed, basal joint globose, 3rd elongate-clavate, 4th much longer and filiform (f).

*Lip* broad and somewhat bilobed.

Head ovate; face narrow (2† front view): eyes rather large lateral ovate, emarginate inside next to the antennæ: ocelli 3, often in a line across the crown (2\* upperside of head, 2 the profile). Thorax globose, compressed, raised very much above the head: scutel small, transverse ovate: metathorax short semiovate. Abdomen more or less cylindric in the males, more fusiform in the females. Wings scarcely longer than the body, parallel and incumbent, with 3 costal and 2 long furcate nervures (9): halteres short and clavate. Legs rather stout than long: thighs short compressed: tibiæ, anterior short with small spurs at the apex, the 4 posterior with long spurs and 2 series of bristly spines outside: tarsi long and 5-jointed, basal joint long: (8†, hind leg).

PULCHELLA Curt. *Guide, Gen.* 1172.

Bright ochreous, shining, finely pubescent, antennæ fuscous except at the base, eyes and patch on the crown black, a fuscous spot on the metathorax, a black spot at the apex of the 1st and 2nd abdominal segments, 3 following with a black ring on the margin, 2 apical joints glossy black: wings iridescent, yellowish, with a long fuscous mark at the apex of the costa: tibiæ brownish-ochre; tips of hinder thighs and tarsi blackish.

*In the Author's Cabinet.*

THIS genus approaches so near to *Mycetophila* that it is difficult to separate them; Meigen however says, that 3 distinct ocelli distinguish *Leia*, one being either absent or exceedingly minute in the other group.

\* Ocelli forming a triangle on the crown of the head.

1. pulchella Curt. *Brit. Ent. pl.* 645. ♂.

The only specimen I have seen of this pretty insect I took on Turk Mountain near Killarney, the 9th July.

2. nitidicollis Meig. vol. 1. p. 255. n. 3.

60686 to 20, d.c.p. Edwards British Mycetophilidae (Fungus gnats) I 265, 577/550



\*\* *Ocelli forming an arch on the crown of the head.*

3. *flavicornis* Meig. 1. 255. 4. tab. 9. f. 11.

4. *fascipennis* Meig. 1. 255. 5.

End of May, on umbellate flowers near Hampstead and Southampton, and under trees in June.

5. *fasciola* Meig. 1. 256. 6.

Summer and autumn on Oaks, Mr. F. Walker.

6. *consobrina* Curt. 2 lines long.

I have females taken at Tollsbury the 25th of July with the band on the wings very faint: one has a fuscous stripe on the metathorax and apex of scutel; the antennæ are much longer than in my female of *L. fasciola*, the abdomen is darker, and the tips of the hinder thighs are fuscous; but probably it is only a variety.

7. *bimaculata* Meig. 1. 256. 7.

Taken in the neighbourhood of London.

8. *octomaculata* Curt.

Ochreous, crown of head and antennæ fuscous, excepting the 2 basal joints; thorax with 3 united black stripes not reaching the front, scutel and abdomen black, 2nd and 3 following segments with an ochreous trigonate spot on each side of the base: wings with a lunate fuscous spot near the apex, tibiæ dull ochreous, tarsi and tips of hinder thighs black:  $1\frac{3}{4}$  line.

I took a female in a fir plantation on Parley Heath in October.

9. *Winthemii* Lehm. Nov. Act. P. M. 12. pl. 15. f. 1.—Meig. 6. 296.

May and June, on Box-trees, Southgate, Mr. F. Walker.

10. *pubescens* Walk. Ent. Mag. v. 4. p. 115.

Southgate, Mr. F. Walker.

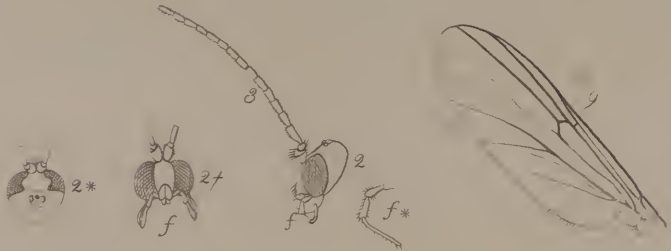
11. *analís* Meig. 1. 257. 9.

12. *crassicornis* Curt.

Dull ochreous; head excepting the mouth black; antennæ thick and orange-coloured; abdomen cylindric the apex incurved; wings slightly fuscous at the apex; tibiæ fuscous-ochre with very short bristles, tips of hinder thighs and tarsi fuscous.

I took a male the middle of October in the Isle of Wight.

*Gnaphalium dioicum*, Mountain Cat's-foot, I gathered at Giggleswick.



*Drawn by J. Curran July 4, 1857*

## LEPTOMORPHUS WALKERI.

ORDER Diptera. FAM. Tipulidæ.

*Type of the Genus, Leptomorphus Walkeri Curt.*LEPTOMORPHUS Curt.—*Mycetophila Curtis's Guide.*

*Antennæ* contiguous, longer than the thorax, slightly tapering and compressed; indistinctly pubescent; composed of 16 joints, the basal one robust, bristly and subovate-truncate, 2nd small, 3rd the longest, the remainder oblong, terminal joint a little longer than the penultimate (3).

*Trophi* short, excepting the *Palpi*, which are slender, slightly hairy and incurved, composed of 4 joints, the terminal one long and slender (f).

Head small subglobose, cordate viewed above (2\*). *Eyes* large ovate lateral. *Ocelli* 3, approximating nearly in a line on the crown of the head, the central one very minute (fig. 2 the head in profile; 2† the under side; 2\* the upper side). *Thorax* gibbose. *Scutellum* transverse and truncated. *Wings* not longer than the abdomen parallel and incumbent, the inferior margin ciliated, the subcostal nervure not extending beyond the middle, the 2nd not reaching the apex, and connected to the 1st at the middle by a transverse nervure; one discoidal cell, 4th and 5th nervures furcated (9). *Halteres* short and capitate. *Abdomen* long slender, somewhat compressed and clavate, the back keeled, the apex producing 2 small laminae. *Legs* long and slender. *Thighs* short. *Tibiæ*, anterior short, the others long, clothed with a few short hairs, the former with one sharp spur at the apex, the others with 2. *Tarsi* very long and 5-jointed, basal joint the longest, terminal the shortest. *Claws* minute.

WALKERI *Curtis's Guide*, Gen. 1173. 1. & 1173<sup>a</sup>. 1.

*Male* pale ochraceous, deep ochreous on the upper side, sparingly pubescent: antennæ fuscous, except the basal portion: eyes and ocelli black: thorax with a dark brown oblong spot on the disc: abdominal segments ferruginous at their margins, the 6th piceous: wings iridescent, stained with yellow, deepest at the costa, nervures fuscous, superior ones piceous, a fuscous spot on the transverse nervures in the middle, a large portion of the apex light fuscous, palest at the tip, the inferior margin slightly clouded: tibiæ fuscous ochre: tarsi fuscous.

*Female* unknown.*In the Cabinets of Mr. F. Walker and the Author.*

THE nervures in the wings of our insect agreed so well with those of one of Meigen's divisions of *Mycetophila* (tab. 9. f. 18.),

\* near to *Coelocera*

that I included it in that Genus in my Guide. On a more careful investigation, however, I find that the ocelli are distinct, and not remote, as in *Mycetophila*, neither are the posterior tibiæ spined externally. *Leptomorphus* seems to make a near approach to *Gnoriste*, of which having no specimens I cannot speak with confidence; but it is at once distinguished from that Genus by its short Trophi: and the lengthened terminal joint of the palpi, and the situation and relative proportions of the ocelli, seem to connect it with *Platyura*. I suspect, therefore, that its natural situation will be between those two Genera.

Most, if not all of the insects forming this part of the family of Tipulidæ live in Fungi in the larva state: and the following table of Genera may be of service to the student in separating them.

Antennæ nearly as long, or longer than the body.	
2nd subcostal nervure terminated abruptly.....	BOLITOPHILA.
———— continued to the apex.....	MACROCERA.
Antennæ much shorter than the body.	
Terminal joint of Palpi elongated.	
3rd lateral nervure forming a cell in the centre..	SYNAPHA.
Antennæ with cup-shaped joints.	
Nervures simple.....	MYCETOBIA.
With an oblique nervure at the apex.....	PLATYURA.
Antennæ with oblong joints.....	LEPTOMORPHUS.
Terminal joint of Palpi short.	
Trophii elongated.....	GNORISTE.
Trophii short.	
Wings with a subquadrate areolet.....	SCIOPHILA.
Wings without a subquadrate areolet.	
Ocelli approximating.....	LEIA.
Two remote ocelli or none.....	MYCETOPHILA.

Of the economy of *Leptomorphus* we are ignorant; it is the largest British species of the above group that I have seen, and was taken in July on the windows at Arno's Grove, and off a hedge by a wood at Southgate, by my friend Francis Walker, Esq., to whom I have the pleasure of dedicating this fine addition to our Fauna.

Specimens of *Jungermannia epiphylla*\* were communicated by E. T. Bennett, Esq.

\* G. & M. 1853



*Limosella equalis*



*Limosella equalis*

## SIMULIUM TRIFASCIATUM.

ORDER Diptera.

FAM. Tipulidæ.

*Type of the Genus, Culex sericea Linn.*

SIMULIUM Lat., Macq., Curt.—Simulia Meig.—Atractocera Meig.—Culex Linn., Fab.

*Antennæ* inserted at the base of the clypeus, approximating, porrected, very short, stoutish, somewhat filiform, pubescent, 11-jointed, 1st and 2nd joints somewhat separated from the others, 3 basal joints the largest, cup-shaped, 4 following shorter and bowl-shaped, remainder more globose, apical joint elongate-ovate (3).

*Labrum* rather short broad and linear, the apex rounded and ciliated (b).

*Tongue* shorter, broad and rounded at the apex (c).

*Mandibles* spatulate lancets, slender and curved at the base, the apex ovate (d).

*Maxilla* nearly as long as the labrum, sublanceolate, the apex not acute (e). *Palpi* nearly thrice as long, exerted, incurved, pubescent, pilose and 4-jointed, basal joint short, 2nd large, stout, elongate-ovate, 3rd not quite so large, obovate, 4th very long, slender, subcylindric, a little dilated at the base (f).

*Lip* short, deeply cleft, forming 2 rounded and slightly hairy lobes (g).

Head small, subglobose, attached low down the thorax: eyes contiguous in the male (2 ♂), coarsely granulated, excepting a portion of the lower part, nearly covering the head, leaving only the clypeus in front, which is very small: remote and internally emarginate in the female (2 ♀): ocelli none. Thorax globose, the back very much elevated: scutellum sublunate. Abdomen small, especially in the male, and linear; stouter and elongate-ovate in the females. Wings very ample, broad and oval, incumbent and parallel in repose? costal nervures strong, the others very faint (9): halteres small, with a spoon-shaped club. Legs moderate, very much compressed, anterior sometimes as long and as large as the hinder, which are often stout: thighs moderate, not stout: tibiae dilated towards the apex, hinder with minute spurs: tarsi 5-jointed, tapering, generally thickened at the base, excepting the intermediate; basal joint long, 3rd small, 4th bilobed, 5th very slender, clavate: claws and pulvilli small.

TRIFASCIATUM Curt. MSS.—Guide Gen. 1176.

Female cinereous; 2 basal joints of antennæ ochreous; eyes castaneous; head and thorax black, sparingly clothed with golden pubescence, the latter silvery before, divided by 2 oblique black stripes; abdomen carneau at the base, the first 3 segments with deep castaneous fasciæ, each formed of 3 united semiorbicular spots, apex with scattered golden hairs; wings iridescent, a little ochreous at the base, costal nervures brown; halteres yellow; legs ochreous; thighs brownish towards the apex; tibiae silky-white externally, especially the anterior, apex fuscous; tarsi black, excepting the base of the 4 posterior.

*In the Author's Cabinet.*

SIMULIUM is a singular little genus, forming a link between *Molobrus* and *Scathopse*. Its aspect reminds us of *Stylops*, and it is not unlike *Callomyia*, the peculiar character of the legs as well as the wings furnishing a resemblance. These minute insects fly in immense swarms in marshy and heathy situations, and cause a most distressing irritation of the skin and eyelids, when they alight on the face, which they occasionally do in such numbers as to drive one away from the spots they inhabit. The following are recorded as British species.

1. trifasciatum *Curt. Brit. Ent. pl.* 765 ♀.

This specimen I took off a Sallow in June, at Niton in the Isle of Wight.

2. ornatum *Meig. vol. 1. tab. 10. f. 6.*—regelationis *Meig. Klas.*

3. reptans *Linn.—Fries. Mon. tab. 1. f. 6. 7,* larva and pupa.—*Tipula erythrocephala DeG. 6. tab. 28. f. 5. 6. ♂.*—sericeum *Gmel.—argyropeza Meig. Klass.*

Found from March to November, Powerscourt waterfalls, Mr. Davis; and about ponds, bay of Belfast; the females in little swarms and very troublesome, Mr. Haliday; Glanville's Wootton, Mr. Dale; Scotland, Mr. Lyell. The larvæ live in the stalks of *Sium latifolium*, pl. 750, and *Phellandrium aquaticum*.

4. variegatum *Hoff.—Hirtea livida Schel. t. 38. f. 3.*

5. varium *Meg.—Meig. v. 1. p. 292.*

6. lineatum *Meig.*

July and Aug. Isle of Bute, Scotland.

7. marginatum *Meg.—fuscipes Fries.*

In myriads on the *Ericæ* at Ramsdown in June and July, when they tormented my face and eyelids: Aug. and Sept., on trunks of fir trees, Parley-heath, and Castle Connel, Ireland.

8. elegans *Meig.* July, on sedges on Thetford warren.

9. auricomum *Meg. Meig.*

10. latipes *Meig.—aurea Fries.*

In abundance in October at Heron Court, settling on our hats, also at Glanville's Wootton.

11. nigrum *Meig.*

Beginning of March, when a great number settled on a white beaver hat at Cobham, Surrey.

12. cinctum *Meig. 6. 311. 14.* April, Reading, Berks, Mr. Davis.

13. sericatum *Meig. 6. 310. 13.*

For specimens of *Limosella aquatica*,<sup>\*</sup> Mudwort, I am indebted to Mr. Kippist, who found them last Aug. at Goldington green, Bedfordshire.

\* *Scrophulariæ*. G. & M. p. 296





*Chrysothrix*

## BIBIO VENOSUS.

*Bibio venosus*

ORDER Diptera. FAM. Tipulidæ Lat., Leach.

*Type of the Genus Tipula hortulana Linn.*

BIBIO Geoff., Oliv., Lat., Meig.—Hirtea Fab., Meig., Panz.—Tipula Linn.

*Antennæ* porrected, not very remote, inserted a little before the eyes, nearly alike in both sexes, submoniliform, 9-jointed, 2 first joints pilose, forming a scape for the remainder, which are transverse, terminal joint rounded (fig. 3).*Labrum* short, triangular, membranous and pubescent at the apex (b).*Tongue* as long as the labrum, dilated at the base, lanceolate, membranous at the apex and pubescent (c).*Mandibles* and *Maxillæ* none.*Palpi* 2, exerted, incurved, pilose, 5-jointed, basal joint minute, 2nd long linear, 3rd robust clavate, 4th smaller clavate, 5th slender, elongate ovate (1 \* f).*Lip* shorter than the head, membranous, very hairy bilobed (g).

Male. Head large. Eyes contiguous. Ocelli 3 contiguous (2 \*).—

Female. Head small, ovate. Eyes remote, lateral. Ocelli 3 contiguous (2). Thorax globose. Scutellum small. Abdomen of the males elongate linear, emarginate at the apex, of the females ovate, frequently elevated down the back. Wings incumbent, with about 12 cells some of which are imperfect, nervures more distinct in the females than in the males. Halteres distinct. Legs alike in both sexes, hinder the longest, the thighs being very long and subclavate: anterior the most robust, the thighs incrassated. Tibiæ short, mucronated. Tarsi 5-jointed, basal joint the longest. Claws distinct. Pulvilli trilobed (8, a fore leg).

Obs. The dissections are from a male, excepting fig. 2, the head of a female in profile.

VENOSUS Meig. Syst. Besch. v. 1. p. 315. n. 10.

*Male.* Black, shining, covered with short pale yellow pubescence. Eyes and line dividing the collar and dorsolum ochraceous, the former black in the middle. Wings hyaline iridescent. Stigma, costal and subcostal nervures piceous, the others fuscous.*Female.* Eyes cinereous. Wings stained yellowish fuscous, darkest round the nervures and posterior margin. Nervures darker than in the male.*In the Cabinets of Mr. Stephens and the Author.*

\* Gohier (s. 475) 4 (16 esp.) Meig. I 177.

*BIBIO* may be distinguished from *Dilophus* Meig., which it most resembles, by the mucronated anterior tibiæ and by its 9-jointed antennæ, the nervures of the wings are also different.

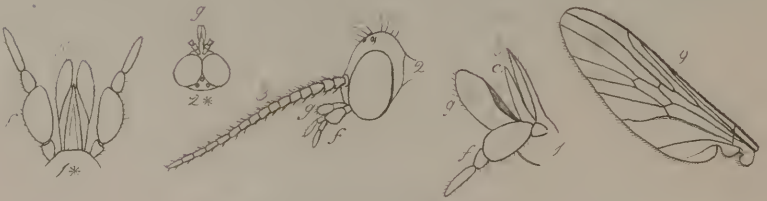
The large heads and transparent wings of the males give them an appearance so dissimilar to the females, which are in one instance of a totally different colour, that no one would at first believe them to belong to the same genus. During May the flowers in the fields and meadows round London swarm with the *B. hortulanus*, and about the same period our streets are frequently visited by the large, heavy and sombre-coloured *Bibio Marci*, figures of which with its larva and pupa are given by Reaumur, tom. 5. pl. 7.

We find in our cabinets the following species; and there may be 2 or 3 more unnamed.

- 1 *B. Pomonæ* F., *Don. Br. Ins.* 9. 300.
- 2 *Marci* L., *Reaum.*, *Panz.* 95. 20.—*brevicornis* Linn.,  
*Fab., mas.*
- 3 *hortulanus* L., *Schæff. pl.* 104. f. 8—11.
- 4 *Johannis* L., *De G.* 6. tab. 27. f. 12-20.—*Pyri* *Fab. Ent.*  
*Syst.*—*præcox* *Fab. Syst. Ant.*
- 5 *vernalis* *Meig.*
- 6 *nigripes* *Meig.*
- 7 *venosus* *Meig.*
- 8 *ferruginatus* L., *De G.* 6. 160. 35.
- 9 *lanigerus?* *Hgg., Meig.*
- 10 *clavipes* *Meig.*—*Johannis* *Fab.*
- 11 *dorsalis?* *Meg., Meig.*

The beautiful female figured I took at Birch Wood, Kent, in the early part of May a few years since, and Mr. Stephens has 2 males in his cabinet.

For specimens of the plant *Paris quadrifolia* (Herb Paris) I am indebted to Professor Henslow and Mr. George Charwood, who found it at Harefield, Middlesex.



in. by J. Curtis. London, Jan. 1. 1811

## RHYPHUS FENESTRALIS.

*Rhyphidae*ORDER Diptera. FAM. <sup>*Rhyphidae*</sup> (Tipulidæ) Lat., Leach.*Type of the Genus* Tipula fenestralis Scop.

RHYPHUS Lat., Meig. Tipula Beau., Scop. Rhagio Fab. Sciara Fab.—Anisopus Meig., Ill.

*Antennæ* alike in both sexes, inserted nearly in the centre of the face, porrected, longer than the head, attenuated, very hairy, 16-jointed, first 2 joints forming a base for the remainder, which increase in length to the end (fig. 3).*Labrum* horny, as long as the lip, broad and acute (1 b).*Tongue* shorter than the labrum, horny acute (c).*Mandibles* and *Maxillæ* none.*Palpi* exserted, incurved, longer than the lip, 4-jointed, 1st and 3rd joints small, 2nd very large, somewhat ovate, 4th elongate-ovate (f, f, f).*Lip* not longer than the head, bilobed hairy (g, g, g, g).*Head* small globular. *Eyes* large ovate, contiguous in the males (2\*), distant in the females. *Ocelli* 3, placed on the crown of the head in the females (2), and behind the eyes upon tubercles in the males (2\*). *Thorax* gibbous. *Scutellum* semicircular. *Abdomen* nearly linear. *Wings* rather large, parallel, incumbent, ciliated, slightly pubescent, containing about 15 cells, the discoidal one being small and narrow (9). *Halteres* distinct, somewhat trigonate. *Legs*, anterior the shortest. *Tarsi* 5-jointed, basal joint the longest. *Claws* and *Pulvilli* minute.*FENESTRALIS* Scop. Carn. 322. 858. Meig. Syst. Besc. v. 1. p. 323. n. 3.—cinctus Fab. Ent. Syst. 4. 275. 15.—nebulosus Meig. Klass. d. Zweif. t. 6. f. 5.Pale ochraceous. *Eyes* rufous. *Antennæ* black. *Head* and *thorax* slightly pubescent, cinereous, the latter with 3 longitudinal deep brown stripes. *Abdomen* pubescent, clouded with fuscous down the back on both sides and at the apex. *Wings* very iridescent, stained very pale fuscous, with a large spot at the apex, a darker brown one like a stigma, 2 others upon the marginal and 3 round the discoidal cell. *Thighs* and *tibiæ* of the 4 posterior legs and all the *tarsi* brown at their apex.*In the Author's and other Cabinets.*

60822 5. 78 31.

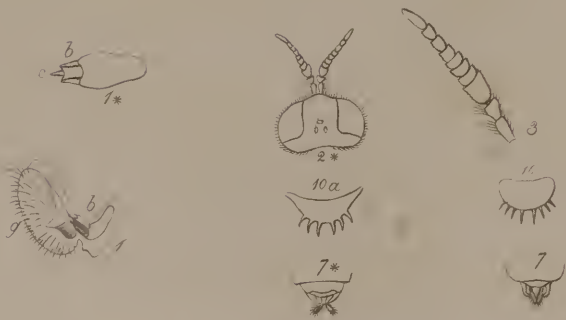
OF this genus there are but 3 species, all of which are British.

1. *Rhyphus fuscatus* Fab.—*Meig. Syst. Besc. v. 1. tab. 11. f. 18.*
2. *punctatus* Fab.—*Meig. Klass. d. Zweif. pl. 6. f. 4.*
3. *fenestralis* Scop.

This last is one of our commonest insects, being almost always to be found inside the windows of our houses. Although the other 2 species are by far more rare than *R. fenestralis*, they are well represented in Meigen's works: our species he has drawn with the wings closed, which renders it less satisfactory; and as I do not know of even a tolerable portrait of it, a figure of the female has been given in preference to the others.

Latreille says the larvæ inhabit houses, and feed upon decaying and moist linen; and Reaumur, who has figured *R. fenestralis* in its different states (*v. 5. tab. 4. f. 3. 10*), found the larvæ in the dung of cows: they soon became pupæ, and the fly appeared about 8 days after. The perfect insect, from its figure and markings, might be easily mistaken for some gnat; but the structure of the mouth is very different, not being armed in the formidable way that the *Culices* are. *R. fuscatus* I think I found beneath damp boleti; but as I have no memorandum respecting the specimens, it is doubtful.

The plant is *Solanum Dulcamara* (Bitter-sweet, or Woody Nightshade).



*W. G. Carter, 1881*



## BERIS GENICULATA.

ORDER Diptera. FAM. ~~Xylophagidæ~~. Xylophagi Meig.

Type of the Genus, *Musca clavipes* Linn.

BERIS Lat., Meig.—Stratiomys Panz.—Actina Meig.—Musca Linn., Fab.

*Antennæ* inserted in the centre of the face, approximating, sometimes a little longer than the head, porrected, divaricating, pubescent, 10-jointed, 1st and 2nd joints pilose, nearly of equal length, the latter the broadest at the apex, the remainder forming an elongated claveola robust at the base and tapering to the apex, 3rd joint the largest, ovate-truncate, 4th 5th and 6th cup-shaped, 7th a little longer, 8th and 9th oblong, 10th elongate-ovate (3).

*Labrum* very short broad and hollow, emarginate at the apex, the sides thickened (1\* b).

*Tongue* horny rather longer than the labrum and acuminate (1\* c).

*Mandibles* and *Maxillæ* none.

*Labium* large, fleshy, bilobed and pilose externally (1, g).

Head hemispherical. Eyes large, contiguous and covering nearly the whole head in the males, remote in the females (2\*). Ocelli 3, forming a triangle near the base of the head; placed on a tubercle in the males. Thorax subovate, the neck short. Scutellum rounded, producing 6 or 8 spines (10 a, and 10). Abdomen very flat, more or less tongue-shaped, the apex furnished with 4 appendages in the males (7), with two in the females (7\*). Wings horizontal and decumbent in repose, with a rhomboid cell near the disc, and an oblique nervure near the apex. Halteres with an oval club. Thighs and tibiæ simple. Tarsi 5-jointed, basal joint long, the others short, the penultimate the shortest; the posterior tarsi are generally incrossated, especially the basal joint in the males.

GENICULATA Hal. MSS.

*Male*. Black, shining and pubescent: thorax metallic green; scutellum producing 6 spines: abdomen with a slight chalibeous tint: wings iridescent, brown, especially at the costa; stigma blackish: halteres ochreous, black in the middle: tips of thighs and base of tibiæ ochreous.

*Female*. Abdomen shining black: wings pale fuscous, yellowish at the costa; stigma dark brown: halteres entirely ochreous: apex of thighs, base and tips of the tibiæ and base of anterior tarsi ochreous.

In the Author's and other Cabinets.

LATREILLE has included this family with his Stratiomydæ, to which it appears to me to be closely allied; but Meigen con-

\* Golow 6.91, before p. 77. Meig. I 231

Stratiomyidæ  
of Beris

siders it more nearly related to the Tabanidæ. The antennæ are not triarticulate as he describes them; for the third portion, which he terms annulated, is composed of eight distinct joints.

The following are recorded as British species of this pretty genus, and are divided,

I. With an eight-spined scutellum (fig. 10.)

1. *B. abdominalis* Steph.
2. *B. lucida* Steph.
3. *B. fuscipes* Meig. 2, 8, 11.—Black shining; scutellum eneous; feet fuscous: base of tibiæ yellow.

II. With a six-spined scutellum (fig. 10 a).

4. *B. femoralis* Meig.—Thorax chalybeous, shining eneous behind; abdomen cæruleous-black; feet fuscous yellow at the base.
5. *B. nigra* Meig.—Black shining; feet rufescent, thighs and tarsi fuscous at the apex.
6. *B. similis* Forst.—*nigripes* Meig.?—Feet simple and black; wings subferruginous; halteres white; thorax bluish-green, shining; abdomen chalybeous black.
7. *B. chalybeata* Forst.—*atra* Meig. Kl.—*6-dentata* Fab. ♀?—Thorax shining blue-black; abdomen black, holosericeous; wings and halteres black; feet testaceous, posterior tarsi dilated and black.

June, Bay of Belfast, and near Bexley, Kent, Mr. Haliday; and bred in May in moss from Leicestershire, by Mr. Davis.

8. *B. geniculata* Hal.—*Curt. Brit. Ent. pl. 337.* ♂.—Taken by Mr. Haliday with the last in Ireland, from June to the 8th of August: Mr. Davis, from Hebden Bridge.
9. *B. clavipes* Linn.—*Panz. 9. 19.*—Thorax black, shining; abdomen and feet rufous; tarsi fuscous; wings smoky.

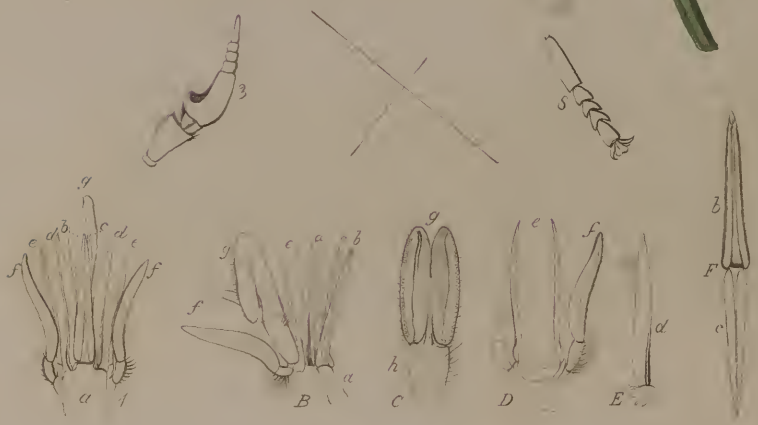
From Hebden Bridge, Yorkshire, Mr. Davis.

10. *B. vallata* Forst.—*Meig.*—*clavipes* Fab.—*nigritarsis* Lat.—Thorax black, shining; abdomen and feet rufous; apex of tibiæ and tarsi fuscous; wings smoky in the male, subhyaline and yellow at the base in the female.

Found from April to the middle of July, on palings near meadows, on grass, oaks, &c. at Darent and Beerwood in Kent, at Wanstead Essex, Hebden Bridge, and Ambleside.

*B. tibialis* would associate better with *Xylophagus*, from which it is distinguished by its 4-spined scutellum. I shall give it Meigen's name of *ACTINA*; it is characterized by long palpi, the eyes are not contiguous in the male, the wings have an additional nerve, and the posterior tibiæ are incrassated.

The plant is *Antirrhinum Orontium* (Less Snapdragon).



*Handwritten text, possibly a date or signature, partially illegible.*

## TABANUS ALPINUS.

Schr. Curt.

= fulvus? Meig. = rufus? Meig.

ORDER Diptera. FAM. Tabanidæ Leach. Tabanii Lat.

*Type of the Genus Tabanus bovinus Linn.*

TABANUS Linn., Fab., Lat., Schr., Leach, Meig., &amp;c.

*Antennæ* inserted in front of the face, porrected, approximating as long as the head, 7-jointed, 1st joint clavate-truncate, 2nd small cup-shaped, 3rd large compressed, lunate-truncate, 3 following small quadrate, 7th slender attenuated (3).

*Labrum* long, lanceolate, grooved margined, acute (b).

*Tongue* long, lanceolate, very acute, margins sharp (c).

*Mandibles* long, lanceolate, very smooth, and acute, thickened externally from the base (d).

*Maxillæ* long, slender, acute (e).

*Palpi* attached to the base of the maxillæ, exerted, villose, incurved at the base, 2-jointed, 1st joint short, cylindric, with long hair externally, 2nd joint long robust, short and capitate in the males, somewhat attenuated in the females (f).

*Lip* large, hairy, bilobed, each lobe hollow externally (g).

*Mentum* elongate cylindric, pilose (h).

Head transverse, somewhat hemispherical. Proboscis exerted as long as the head. Eyes contiguous in the males, approximating in the females. Ocelli none. Thorax large oval-quadrate. Scutellum without spines. Abdomen cylindric-conic in the males, broad depressed in the females. Wings divaricating, with 3 discoidal cells, sometimes having a short branch in the submarginal cell. Squamulæ large. Halteres distinct. Legs strong. Tarsi 5-jointed, 1st joint long, 3 following short, cordate, 5th obovate, truncate. Claws simple acute. Pulvilli trilobed, very distinct (8 tarsus of a fore leg).

Obs. the dissections are from a female. Fig. 1 represents the trophi viewed from above, fig. a being the clypeus: B, the same in profile: C, the lip: D, the maxillæ and a palpus: E, a mandible: F, the tongue and labrum. The corresponding small letters denote the same organs in all the figures.

ALPINUS Schrank *Fauna Boica*. 3. 2534.—Fulvus Meig. 2. 61. 40.

*Female*. Black sparingly clothed with short aureous hairs. Face and Palpi pale ochraceous, with one black minute spot between the eyes, which as well as the scutellum are fuscous-ochraceous, the former with a slight rosy tinge. Abdomen with a ferruginous spot on each side covering one third of the 2nd segment from the base and extending over part of the 1st segment, edges of the segments appearing aureous with pubescence. Wings ochraceous at the costa and base. Antennæ ferruginous. Halteres ochraceous. Legs ferruginous. Anterior tarsi and apex of tibiæ black, posterior tarsi fuscous towards their extremities.

In the Cabinets of Mr. Stephens and Captain Blomer.

7. Gobel v. 98 326. Syn. p. 148. Surcouf p. 154

THE terrors created amongst cattle by the *Tabani* (called by the Greeks *Æstrus*, by the Romans *Asilus*) have been recorded by the ancient poets; modern naturalists have unfortunately applied these terms to insects of very different habits, our *Æstri* appearing to have been totally unknown to them.

In this country they are called *the Breeze*. Their flight is easily detected by the vibration of their wings, which greatly terrifies and agitates cattle, especially horses and horned cattle, the hides of which they are able to pierce, making a wound that must be very painful, when we consider the compound apparatus with which it is made. The dissections of these parts are more elaborate than usual, no less for the information of those who may feel interested in the history and curious structure of this well known genus, than for the instruction they afford to the student from the completeness of every part. The lip (g), composed of 2 muscular hollow lobes, enables the insect, I imagine, to attach itself firmly to any object it is desirous of attacking: the parts marked b, c, d, and probably e, are forced into the object in a compact body, the mandibles assisting principally in this operation, being most exquisite lancets, one of which is figured separately at E, if the maxillæ (e) be admitted into the wound, from their elasticity, it is probable, for the purpose of dilating it. The palpi (f) are useful in dividing the hair of the animal, and assist in determining the blood to the spot; and the lip and tongue (b and c, highly magnified at F, at which point is the pharynx) are grooved, and when united form a tube for the blood to pass through: the former appears to have a gland at the apex, which may assist in drawing it up.

There are 11 or 12 species of this genus in Britain, and we may expect to discover many more, as Meigen has described 42. We have, 1. *T. bovinus* L.; 2. *autumnalis* L.; 3. *signatus* Meig.? 4. *micans* F.; 5. *tropicus* L.; 6. *solstitialis* Meig.; 7. *luridus* Fallen; 8. *montanus* Meig.; 9. *paganus* F.; 10. *rusticus* L.; 11. *alpinus* Schr. The last species being new to Britain has been selected for the drawing. Two females were taken last autumn by Captain Blomer near Bidford, North Devon. Schrank having first given it the name of *alpinus*, Meigen's name has been here dropped. The *Tabani* are all to be found from June to September in places inhabited by cattle, viz. marshes, meadows, heaths and forests, frequently settling upon gates and paling, the males upon flowers: those of *T. rusticus* I have found in gardens.

The plant is *Matricaria Chamomilla* (Chamomile Feverfew).



Drawn by S. Curle Nov 1 1884

*Juncus eximius*

## HÆMATOPOTA ITALICA.

ORDER Diptera. FAM. Tabanidæ.

*Type of the Genus, Tabanus pluvialis, Linn.*HÆMATOPOTA Meig., Lat., Fab., Curt.—*Tabanus Linn.*

*Antennæ* inserted in front of the face, longer than the head; 6-jointed basal joint very much incrassated in the males, ovate and very hairy (2 ♂, 3); scarcely stouter than the 3rd in the females and elongate-obovate (2 ♀, 3), 2nd cup-shaped and bristly, the remainder compressed and nearly naked, the 3rd joint being almost as long as the 1st, rather stout and attenuated to the apex, the remainder small and quadrate, the apical joint a little longer, and rounded at the apex.

*Labrum* as long as the lip, lanceolate and hollow in the male (1 ♂, *b*); broader and stouter in the female (1 ♀, *b*).

*Tongue* as long as the labrum, lanceolate and very acute (*c*).

*Mandibles* none in the male, broad and like 2 lancets in the female and as long as the tongue (*d*).

*Maxillæ* as long as the tongue, curved and acute (*e*): *Palpi* almost as large as the lip, biarticulate, very hairy outside in the male, the 1st joint somewhat obtrigonal, 2nd much larger and subovate (1 ♂, *f*); not so stout in the female and pubescent only (1 ♀, *f*), the basal joint rather small, 2nd long curved, somewhat reverse pear-shaped. *Lip* terminated by a divided lobe, a little hairy, more membranous in the females (*g*).

Head transverse, somewhat lunate, the trophi forming a vertical beak in the females: eyes splendidly green when alive, covering the whole crown of the head in the males (2 ♂), remote in the females: ocelli none. Thorax narrower than the head, especially in the female, orbicular-quadrate: scutellum ovate-trigonal. Abdomen depressed, linear, apex subtrigonal. Wings deflexed when at rest, similar to those of *Tabanus*: halteres small and capitata. Legs of equal length: thighs not thicker than the tibiæ, which are compressed, the middle pair alone having a pair of spurs at the apex: tarsi 5-jointed, basal joint the longest, 4th the smallest somewhat obtrigonal-lunate: claws and pulvilli distinct.

ITALICA Meig., Klass.—Curt. Guide, Gen. 1186. 4.—*pluvialis Meig. var.*

Cinereous, face and underside hoary; antennæ considerably longer than the head, 3rd joint ferruginous at the base, a space between the eyes, surrounding the antennæ shining black, 3 velvety black spots on the crown margined with ochre, the hinder one minute, 3 whitish lines down the thorax, the outer ones curved at the base; abdomen black, margins of segments dull ochreous, with a triangular spot on the centre of each and a dot on either side of the same colour: wings pale fuscous with numerous white dotted curved lines; nervures and stigma piceous; halteres yellow, black beneath: legs ochreous, tips of the thighs and base apex and centre of the tibiæ brown; tarsi black, the 1st joint subochreous at the base in the posterior.

*In the Author's and other Cabinets.*



THE most remarkable circumstances relating to the Tabanidæ, are, the different habits of the two sexes, and the multitudes of females we encounter without meeting a single male; this is particularly the case in the genus *Hæmatopota*: any one who has been in the woods and marshes in June and July, in the heat of the day, cannot fail to remember having been annoyed if not bitten by these sanguinary flies, whose presence is often not known till we are informed by the pain of the wound they have inflicted, and every one of these flies will prove on examination to be the female. The males I believe, like those of the true Tabani, resort to flowers, but whether for animal or vegetable food I have not ascertained. In consequence of this difference in their habits, the trophi or parts of the mouth are dissimilar, the palpi being very hairy in the male and the mandibles altogether wanting; from this we learn that these organs are more immediately employed for inflicting the wound, the labrum, tongue and maxillæ being inclosed between them and all entering the flesh together, when the tongue and labrum being applied to each other, the blood flows through a channel formed by the two into the stomach.

They are called Stouts in Dorsetshire, and Clegs in other parts of England and Scotland.

1. *H. hirsuta* Curt.—*ocellata* Meig.

Our specimens are merely the males of *H. pluvialis*, which we received many years since as the *H. ocellata*.

2. *H. Equorum* Fab.

Meigen had never seen this insect I believe, and I have little doubt of its being a mere variety of the former, for I have never seen a corresponding female.

3. *H. pluvialis* Linn.—Panz. 13. 23 ♀.—Don. 5. 151. 3 ♀.—Meig. tab. 14. f. 16 ♀.

Common everywhere in woods, on palings in lanes &c., in June, July and August, in England, Scotland and Ireland; the females, which attack both men and horses, sometimes appear in myriads without one male.

4. *H. italica* Meig.—Curt. Brit. Ent. pl. 525 ♀.

Meigen gave this insect as a distinct species in his *Klassifikation d. Zweifl. Ins.*, but in his subsequent work he considers it as a var. only of No. 3., as the antennæ are considerably longer in *italica* than in the other species, (see fig. *I.*) at least in the females; as it is a much larger insect and the *thighs* are ochreous, I am disposed to think it is distinct. I have never seen the male, and am indebted to Mr. J. M. Churchill, for specimens of the other sex which were discovered by him in Mersey-Isle, Essex.

The eyes were probably of a splendid green colour when alive, with darker bands as in the other species.

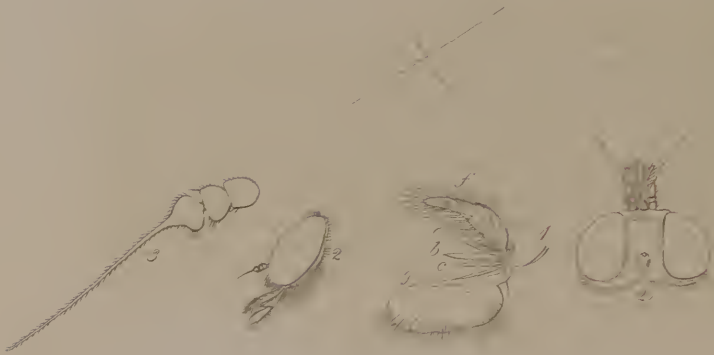
The plant is *Juncus cænosus*, Smith, communicated by James Paget, Esq.

\* new to a m. p. 185



4. Macleay M. 52

*Sisymbrium (Erysimum) officinale*



## RHAGIO HEYSHAMI.

ORDER Diptera.

FAM. Rhagionidæ or Leptidæ.

*Type of the Genus, Musca tringaria Linn.*RHAGIO *Fab., Oliv., Lat., Curt.*—*Leptis Meig., Macq.*—*Atherix, Sciara Fab.*—*Asilus Geoff.*—*Nemotelus DeG.*—*Musca Linn.**Antennæ* inserted at the middle of the face, approximating, small, porrected, pubescent, triarticulate, 2 basal joints cup-shaped, 3rd similar in size and form, but the apex is produced and forms a long pubescent filiform seta (3).*Labrum* rather short, stout, horny and lanceolate (1 b).*Tongue* nearly as long, slender and very flexible, almost membranous (c).*Maxillæ* as long as the labrum, slender and pointed (e). *Palpi* much longer, exerted, very large, drooping, curved, subfusiform and very hairy, narrowed beyond the middle and appearing biarticulate (f).*Labium* short and stout, forming 2 long oval hairy lobes (g).

Head not large, very short, the face orbicular: eyes contiguous in front and nearly covering the head in the males (2 the profile); remote in the females (2 ♀, the upper side): ocelli 3, minute, mounted on a tubercle near the base and forming an elongated triangle. Thorax globose, the shoulders prominent: scutell hemispherical. Abdomen long, slender, and tapering in the male with the apex obtuse, conical in the female, the 3 apical joints very slender and capable of great elongation. Wings divaricating in repose, very ample, with one discoidal and 5 marginal cells: halteres capitate. Legs long, especially the hinder: tibiæ spurred, except the anterior: tarsi long and 5-jointed, basal joint long, attenuated in the hinder, 4th joint the shortest except in the anterior, in which it is as long as the 5th, this is obovate: claws and pulvilli distinct, the latter trilobed.

Larvæ fleshy, long and cylindrical, attenuated to the head, which is small with two little antennæ; feet none, but their place is supplied by papillary tubercles; they cast their skins to become Pupæ. *De Geer.*HEYSHAMI.—*Curt. Guide, Gen. 1188. 3.*

Pale slate colour: eyes bronzed; face and underside clothed with white hairs, those on the thorax and abdomen black: antennæ fuscous: thorax with 3 pale lines down the back, uniting at the base, the lateral margins of the same colour: abdomen orange-ochre, basal segment, a large spot on the disk of the 2nd and 3rd, and a larger quadrate one on the 4th black, the following segments entirely black: wings yellowish brown, brightest at the costa, nervures and a long stigmatic spot brown: halteres ochreous: legs piceous, tips of anterior thighs, tibiæ and base of tarsi ochreous, the hinder legs with the base only of the tibiæ ochreous.

*In the Author's Cabinet.*

\* 60665 G. 143, 1397. Super 100/100. Inq. I 125

MEIGEN has included in *Leptis* insects which I have long considered as forming two genera, and I find that Macquart holds the same opinion. Meigen has taken an objection to the name of *Rhagio* because it is similar to *Rhagium*, a genus of beetles, which I conceive is not a sufficient reason for dropping the original name given to the group by Fabricius, adopted by Latreille and Olivier, and by which they are generally known.

*Rhagio* is easily distinguished from *Leptis* (fol. 713) by its smooth body and drooping attenuated palpi; the wings and antennæ offer but trifling differences.

These flies like many other diptera delight in resting on the trunks of trees, generally standing high on their legs, with their wings half expanded and their heads downward. De Geer says the larvæ live in the earth, and that of *R. vermileo* is very remarkable: we learn from him and M. De Romand that this larva forms small pits in the sand like the ant-lion, at the bottom of which it lies, and devours ants and other prey which fall to the bottom. M. De Romand has ascertained that the larva can exist upwards of six months without food, and M. Macquart states that they live at least three years (months?) before they change to pupæ!

1. *strigosus* Meig. vol. 2. p. 88.

2. *scolopaceus* Linn. Panz. 14. 19.—*solitarius* Harris Expo. pl. 31. f. 1. 2 and 5 var.

May and June, on grass in meadows round London in abundance, and July on trunks of trees, New Forest, &c.

3. *Heyshami* Curt. Brit. Ent. pl. 705 ♂.

The only specimen I have seen is a male, which I think I brushed off a whitethorn near Ambleside; as it differs essentially from every other species, I have great pleasure in dedicating it to my friend T. C. Heysham Esq., of Carlisle, whose valuable contributions of plants and insects have added so greatly to the interest of this work during its progress.

4. *tringarius* Linn. De Geer, 6. pl. 9. f. 10.—Harris, pl. 31. f. 4 and 7.

On grass in meadows round London in May, and abundant in June on trunks of trees in the New Forest.

5. *annulatus* De Geer, vol. 6. p. 69.

6. *immaculatus* Meig. p. 93. n. 7.—*vanellus* Fab.?—*reconditus* Harris, pl. 31. f. 3.

7. *Lineola* Fab. Meig.—*Monachus* Harris, pl. 31. f. 9.

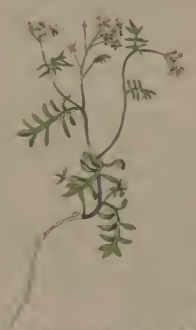
End of July, Coombe Wood and Lake of Killarney; 1st August, Roundstone in Connemara.

8. *notatus* Gürtl. Meig. p. 95. n. 11.

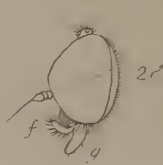
June, near Cambridge; New Lanark, Mr. H. Walker.

The Plant is *Erysimum officinale*, Common Hedge Mustard.

\* G. & M., p. 29



*M. rubra* *setacea*



*Tab. 14*

Rhagio

(LEPTIS) DIADEMA. <sup>F. Mg.</sup>  
<sub>= *andrea* Fab.</sub>

ORDER Diptera. FAM. Rhagionidæ or Leptidæ.

Type of the Genus, *Leptis helvola* Meg.

LEPTIS Meig., Curt.—Rhagio Fab., Lat.—Chrysopila Macq.—Anthrax Panz.—Musca Linn.

*Antennæ* inserted near the middle of the face, porrected, approximating, compressed, triarticulate, hairy; basal joint cup-shaped, 2nd transverse-oval, 3rd as large as the 1st, orbicular-conic, the apex acuminate and elongated into a setaceous pubescent seta (3).

*Labrum* longish, hollow and broad, the apex rounded (1 b).

*Tongue* nearly as long but narrower, the sides thickened or reflexed, the apex obtuse (c).

*Maxillæ* nearly as long as the tongue, lancet-shaped and a little curved (e). *Palpi* exerted, longer, stout, recurved, clavate and bristly (f).

*Lip* short and thick, composed of 2 large oval lobes with a few hairs or quite naked (g).

Head broad, transverse-ovate: eyes very large and meeting on the crown (2\*), with the superior portion more coarsely granulated than the inferior half in the males (2 ♂); remote and smaller in the females (2 ♀): ocelli 3, mounted on a tubercle, near the base of the head. Thorax ovate-quadrate: scutel semiorbicular. Abdomen rather short and slender in the males, stouter and conical in the females, the apex telescopiciform. Wings divaricating, ample, with 1 long discoidal cell, and 1 long, 2 short and 3 other marginal cells: halteres long and capitate. Legs long and slender, especially the hinder: thighs long: tibiæ longer and very slender, with 2 distinct spurs at the apex of the intermediate, and 2 minute ones in the hinder pair: tarsi long, slender and 5-jointed, basal joint very long, 4th small: claws small: pulvilli trilobed.

DIADEMA Linn.—Curt. Guide, Gen. 1189. 4.

*Male*. Head slate colour: antennæ and palpi piceous, lip ochreous, eyes purplish black: thorax, scutel and abdomen clothed with aureous hairs, the base of the segments in the latter black: wings iridescent with a yellowish tinge, stigma and nervures pale brown, the former margined with yellow: halteres pale ochreous, the club piceous: legs ochreous, upper edge of hinder thighs, apex of tibiæ and tarsi fuscous. *Female* clothed with shining yellowish or greenish depressed hairs, the segments slightly fuscous: stigmatic spot yellowish.

In the Author's and other Cabinets.

IN illustrating the genus Rhagio, I lately observed that it is principally distinguished from Leptis by the shape and attitude of the palpi, which in the latter are recurved, and the 4th

v Goleur G. 11h 5 2. Symp p 112

joint of the anterior tarsi is shorter than the 5th; the abdomen also is clothed with short depressed hairs in *Leptis*, whilst it is more shining and pilose in *Rhagio*. Meigen describes the palpi as biarticulate.

The following are the British species, which seem to be attached to damp situations, as the sides of ditches, ponds, &c.

1. *aurata* *Fab.*—*atratus* *Fab.* ♂.—*tomentosus* *Fab.* ♀.—*cingulata* *Don.* 13, *pl.* 465 ♂.

“Aureous (♂) or pale yellow, tomentose (♀); halteres and costal stripe fuscous: 3 to 4 lines long.”

“Taken in July on the hedges near the road-side about Nutfield in Surrey:” *Donovan.*

2. *flaveola* *Meig.* v. 2. p. 100. No. 17.—*Genius* *Panz.* 54. 4?

“Pale yellow, tomentose; legs yellow; thighs fuscous; wings yellowish, stigma pale; halteres fuscous:  $3\frac{1}{2}$  lines.”

End of May, Netley Abbey; end of June in woods, Dorset; and the females in marshes at Horning.

3. *helvola* *Meg.*—*Meig.* 2. 100. 18.

“Golden tomentose; halteres fuscous; legs rufous; thighs fuscous; wings light fuscous: stigma pale: 3 lines.”

June, Hampstead Heath: males beginning of August, ditches, Sandwich.

4. *Diadema* *Linn.*—*Curt. Brit. Ent. pl.* 713. ♀.—*gracilis* *Curt. Guide* ♀.

Male, 13th June, Coomb-wood: Females, beginning of July near Cambridge, and 1st Aug. near Ventnor in the Isle of Wight.

Meigen having stated that the stigmatic spot of the wings was fuscous and that the length of his insect was 3 lines, I considered my specimen, having at that time only the female, to be a new species, which I called “*gracilis*,” but having since obtained the male of *Diadema*, I think they are one and the same.

The plant, *Hutchinsia petraea*, Mountain Pepperwort, was communicated by the Rev. J. Howson from Malham Tarn, Yorkshire, and by Mr. Thwaites from St. Vincent’s Rocks.



*Anthemis cotula*, Pl. 32.





## ATHERIX IBIS.\*

ORDER Diptera. FAM. Rhagionidæ Lat., Leach.

*Type of the Genus A. Ibis Fab.*

ATHERIX Meig., Lat. Rhagio Fab., Lat. Anthrax, Bibio Fab.

*Antennæ* porrected, approximating, much shorter than the head, 3-jointed; first and second joints nearly globose, hairy; third joint transverse, semi-globose, with a long naked seta inserted on the upper side. (f. 3.)*Labrum* robust, channelled beneath. (1. b.)*Tongue* subulate, very acute, nearly as long as labrum. (c.)*Mandibles* none.*Maxillæ* rather broad, attenuated, acute, as long as labrum (e.) :*Palpi* porrected, pilose, subcylindric, 2-jointed; first joint nearly ovate; second very long, attenuated, longer than the maxillæ. (f.)*Mentum* robust, narrow at the base. (h.)*Lip* submembranaceous, hairy, longer than the palpi; apex large, bilobed. (g.)*Proboscis* not so long as the head, porrected. (2.) Head hemispherical, transverse, nearly as broad as thorax. Eyes large and contiguous in the males, distant in the females. Stemmata 3, approximating. Thorax: posterior angles slightly tuberculated. Halteres naked. Abdomen conical, elongated in the males. Wings divaricating with 16 or 17 cells, four of which are costal; anal cells complete. Legs rather long, posterior pair in males robust. Tarsi 5-jointed; first joint the longest. Pulvilli 3.IBIS Fab. Ent. Syst. Supp. p. 556. mas. Anthrax Titanus F. E. S.  
Supp. p. 554. 18. fem.*Male* hairy. Head black, eyes green (when alive). Thorax black, with four paler lines down the back. Scutellum and first segment of abdomen pure black, the three next segments dark orange, with three black spots in the centre, and fuscous spots down the sides; two following segments orange, with a black band; following joints ferruginous; anus black. Wings slightly ferruginous, clouded; costa and three transverse irregular spots fuscous. Legs yellowish. Tarsi black. *Female* hairy, brownish-green. Head yellowish, two pale longitudinal stripes down the thorax, and margins of the segments of abdomen of the same pale colour. Wings larger and paler than in the male. Legs yellowish. Tarsi black.*In the Cabinets of Mr. Stephens, Mr. Stone, and the Author.*Robert G. 185, Sup. *Seque Rhagionidæ* p. 98  
A. Giard *Bull. S.E.F.* 1902 p. 250/2

THE two insects figured are considered by Mr. Stephens to be the sexes: one specimen of the female he received from Devonshire, and another was contained in the Cabinet of the Author of *Entomologia Britannica*, which is now incorporated with his unrivalled Collection of British Insects. For specimens of the male, I am indebted to the liberality of Mr. Stone, who received them last summer from Derbyshire.

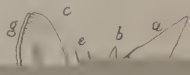
Meigen informs us, in the second volume of his *Systematische Beschreibung*, &c. p. 105, that *Atherix maculatus* of Lat., *Rhagio Ibis* and *Anthrax Titanus* of Fab., are merely the sexes of the same species; errors likely enough to occur from the great disparity which exists between them.

There are at present but two species of this Genus recorded as natives of Britain, although twelve are enumerated as European,—the rare and beautiful species figured, which has never before been published in this country, and *Bibio marginata* F., which has been taken in Devon, and, Mr. Samouelle says, on the borders of woods at Darent in June: a figure of it may be seen in Donovan's *British Insects*, vol. xvi. p. 549, under the name of *Musca Atherix*.

The plant is *Anthemis Cotula* (Stinking Chamomile).



*Anthemio nobilior*  
 q. N. 51



ANTHRAX (ORNATA) Curt.  
= A. Enclavata Fl.

ORDER Diptera. FAM. Anthracidæ. *Bombylidæ*

Type of the Genus, Anthrax hottentotta Linn.

ANTHRAX Scop., Fab., Lat., Meig., Curt.—Musca Linn., Geof.

*Antennæ* porrected, remote, 4-jointed, basal joint twice as long as the 2nd, cylindrical subclavate, producing long and thick bundles of hair, 2nd nearly globose, hairy, 3rd with a few hairs only, very long, the base stout, subconic, the apex forming a long beak, 4th joint minute ovate (3); sometimes there is a 5th joint like a short bristle, at others the 3rd joint is terminated by a coronet of short bristles.

*Trophi* either entirely concealed, or projecting a little beyond the head.

*Labrum* horny, acute, concavo-convex, inclosing the tongue (1 b).

*Tongue* considerably longer than the labrum, corneous, acuminate (c).

*Mandibles* none.

*Maxillæ* horny, linear, acute, nearly as long as the labrum (e). *Palpi* received into the cavity of the mouth, attached to the sides of the maxillæ near the base, half their length, slender, cylindrical and pilose (f).

*Mentum* cylindrical, hollow above (h), receiving the tongue and labrum.

*Lip* fleshy, oblong, bilobed at the apex, ribbed, extending as far as the tongue (g).

Head globose. Eyes alike in both sexes, reniform, covering nearly the whole head, approximating behind (2). Ocelli elevated, placed in a compact triangle at the back of the head. Thorax large orbicular-quadrate. Scutellum broad and subtrigonal. Abdomen oblong, truncated, composed of 7 joints, terminal one small and triangular. Wings expanded when at rest, long and lanceolate, with numerous nervures, the costa dilated at the base and generally bristly. Halteres small and capitate, often concealed. Legs slender, simple, posterior the longest. Tarsi attenuated to the apex, 5-jointed, basal joint the longest, terminated by 2 bent claws. Pulvilli minute (8† hind leg).

ORNATA Hoff.?—Curtis's Guide, Gen. 1193. 4.

In the Cabinets of Mr. Dale, the Author, &c.

MEIGEN having very judiciously separated *A. Belzebul* from Anthrax, and given it the generic name of *Stygia* (since superseded by *Lomatia*), the family now contains four genera, two of which are British. It is probable that the sombre aspect of some of the exotic species may have induced authors to apply the name of Anthrax to this genus; and the association being carried further, has led to the

\* 506 Curt. G. 1035 g (13 sp.). <sup>1</sup> Stygia p. 192/105

eccentric use of such names as Abaddon, Belzebub, Cerberus, Hottentotta, Lar, Lucifer, Tantalus, &c. for some foreign species.

The Anthracæ fly in the sunshine, they delight in dry sandy districts, and subsist upon the juices of flowers, which accounts probably for their wanting mandibles. The origin as well as the form of the parts composing the mouth, not being so accurately exhibited as could be wished by Meigen and other authors, I have endeavoured, as far as possible, to investigate the subject for the information of the student.

Meigen has described 58 European species; but as they delight in a warm climate, we cannot ever hope to increase our genus much beyond its present number, and even those that have been met with in Britain are far from common.

\* Submarginal nervure united at its origin, to the transverse one of the discoidal cell.

1. *A. flava* Hgg.—Meig. 2. 143. 1.—hottentotta Lat.—Meig. Klass. 1. 199. 1.—Don. 14. 494.

Length  $4\frac{1}{2}$  to 6 lines. Black, clothed with yellow ochreous hair: antennæ and hair on crown of the head black: eyes when dead reddish brown: thorax densely clothed all round and beneath with yellow ochreous hairs: abdomen with the anterior marginal portion black and producing black hairs, leaving 5 bands of yellowish hair, the 2nd frequently interrupted in the centre, the sides fringed with yellow-ochre hairs forming a bundle on each side every segment, the 5th and 6th with the hairs black. Wings transparent, iridescent, the costa yellowish brown, costal nervure black at the base and pectinated: squamulæ yellow: halteres and legs black.

End of June, borders of woods, Devon. Parley Heath, upon places where the turf had been peeled off, and hovering over a bank; Mr. Dale. Monk's Wood, Huntingdonshire; Rev. W. L. P. Garnons. I found it tolerably abundant, flying about and alighting on the chestnut and hazel, in a warm valley ascending a mountain near Claremont in Auvergne, 15th of July, 1830.

2. *A. hottentotta* Linn. Faun. Suec. 44. 1789.—Schæf. tab. 12. f. 10—12? and tab. 76. f. 7.—circumdata Hgg.—Meig. 2. 143. 2.

Length 5 to 6 lines. Black, densely clothed with long soft fulvous yellow hairs: antennæ and hair on the crown of the head black: abdomen deeply fringed down the sides, 5th and 6th joints and the apex fringed with black hairs, on each side of the latter the hair is whitish: wings transparent iridescent, costa yellowish brown, nervures piceous, the costa black at the base and pectinated, the squamulæ forming a silver spot on each shoulder: halteres ochreous: legs black, clothed with black hairs; thighs and tibiæ with shining ochreous scales above.

I was so fortunate as to meet with specimens of this insect the beginning of July 1822, flying amongst rushes and lighting upon the sand near the sea-shore at Covehithe, Suffolk; on the sand hills, Dawlish-warren, Captain Blomer; at Braunton Burrows, Mr. Dale and Mr. Cocks, as late as the 26th of July, and on the borders of woods in Devon; and I believe near London, by Mr. Hatchet; also by Mr. Wailes on the sea-shore at Marsden, near South Shields.

3. *A. cingulata* Meig. 2. 145. 3. tab. 17. f. 9. mas.  
Length 5 to 6 lines. "Rufous hairy: abdomen black, with yellow bands, wings cinereous, anterior margin chestnut, with a silver spot at the base (male), or fuscous and immaculate (female)." Meig.

Never having seen a British specimen of this insect, I have copied the above characters from Meigen.

\*\* Submarginal nervure originating before the transverse one of the discoidal cell.

4. *A. ornata* Hgg.?—Curt. Brit. Ent. pl. 9.  
Black, shining: head covered with black hair between the eyes, silvery behind the eyes; clypeus and under side of head clothed with golden hair: thorax covered with ochraceous hair before, nearly naked in the centre: scutellum brownish: abdomen covered with short golden hair, the sides surrounded with fasciculi of fine black hair, excepting at the base and the sides of the 4th segment which are white; 3rd and 4th segments with white fasciæ interrupted in the middle, 6th with a white spot in the centre, last joint very white with hair: wings transparent, with a dark brown cloud extending two thirds the length, sinuated obliquely at the posterior margin, with a transverse transparent spot near the base, a larger one in the centre and 2 others near the margin at the union of the nervures: halteres yellow: legs black, thighs and tibiæ covered with close yellow shining scales.

This beautiful insect does not appear to be described by Meigen: it comes very near to *A. italica*, but that has the halteres black. Sturm sent me our *A. ornata* under the name of *A. Pandora*, and this I received from M. Passerini as the *A. italica* of Rossi. It is now in every one's cabinet, but was first discovered by my friend J. C. Dale, Esq. on Parley Heath; also at St. Leonard's and Hurne, on the borders of Dorset and Hants, in July 1821, and afterwards in September. It was found settling upon heath, banks, and on the ground where the turf had been pared off: in September I took 3 or 4 near the centre of Parley Heath, and in August 3 specimens in sandy paths at Ramsdown, where it has also been observed by the Hon. C. A. Harris. Mr. Dale thinks it has been captured on Braunton Burrows, in Devon.

5. *A. Pandora* Fab. Syst. Ant. 121. 10.—Meig. 2. 170. 44. tab. 17. f. 12.  
Length 3 to 5½ lines. Black, shining, covered with short hairs: face and behind the eyes clothed with shining ochreous scales: thorax with the margins and 3 obscure stripes down the back of shining ochreous scales, scutellum and abdomen scattered with the same, 2nd articulation of the latter with a silvery spot on each side extending along the base, 3rd with a curved but interrupted fascia, 4th with a spot on each side, and 5th and 6th with a band at the base silvery: wings with a dark brown cloud extending along and near to the posterior margin, very deeply and irregularly sinuated, with a pale lunular bar near the base, and 3 transparent spots beneath the costa, the central one embracing the union of the nervures: halteres piceous.

Specimens of this beautiful insect, which I took at Marseille, are said to have been captured at Dover.

As I shall not illustrate the genus *Lomatia*, it will be useful to add its characters from Meigen, with a few additions.

LOMATIA Meig.—*Curt. Guide, Gen.* 1192.—*Stygia Meig.*—*Anthrax Fab., Panz.*  
*Antennæ* porrected, approximating, triarticulate; basal joint with the apex dilated, truncated obliquely; 2nd cup-shaped; 3rd conical, attenuated like a beak and terminated by a short bristle.

*Proboscis* slender, nearly concealed.

Head subglobose: eyes reniform: wings divaricating, the submarginal nervure branching off towards the base: abdomen rather long, narrow, and slightly convex, not thickly clothed with pubescence.

1. *L. Belzebul Fab.*—*Meig. v. 2. p. 139. n. 2.*

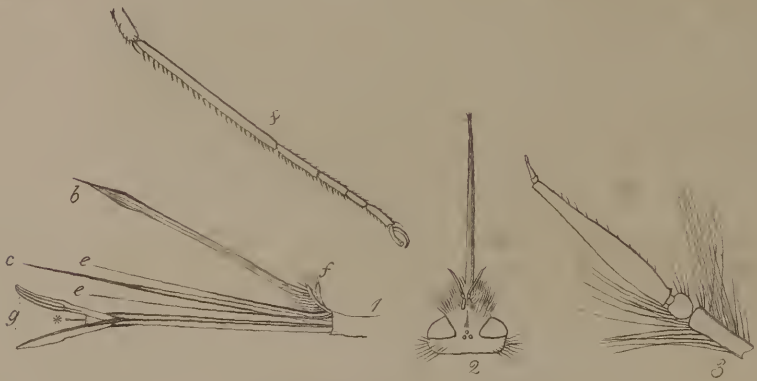
Black, shining; the incisures of the abdominal segments fimbriated with yellow; belly black. 5 or 6 lines long. *Meig.*

2. *L. lateralis Meig. 2. 140. 3.*—*Belzebul Panz. 45. 16.*

Black, shining, slightly pubescent, the hairs on the thorax and base of abdomen fulvous, the incisures yellow, the sides of the 2nd segment and the underside of the body orange: wings with a brown stripe along the costa joining an ochreous tint in the centre, the tips transparent: halteres ochreous tipped with yellow: 3 to 3½ lines long.

The above two species are recorded as British; the latter I took amongst grass in the forest of Fontainebleau, 22nd of July 1830.

The Plant figured is *Anthemis nobilis* (Common Chamomile).





## BOMBYLIUS MAJOR.

ORDER Diptera.

FAM. Bombyliidæ.

*Type of the Genus, Bombylius major Linn.*BOMBYLIUS *Linn., Fab., Lat., Meig., Mik., Curt.*—Asilus *Geof.*

*Antennæ* porrected, inserted close together in front of the crown, short, slender and 6-jointed, basal joint long stout and clothed with very long hairs, as well as the 2nd, which is cup-shaped, 3rd very long, subfusiform, attenuated, the remainder slender, 4th minute, cup-shaped, 5th a little elongated, attenuated, 6th minute ovate (3).

*Proboscis* very long and porrected horizontally from the lower part of the face (2).

*Labrum* very long, spear-shaped, being somewhat lozenge-shaped towards the apex which is acuminate (1, b).

*Tongue* longer, broadest at the base, attenuated, being very slender and acute at the apex (c).

*Maxillæ* shorter than the labrum, setiform (e), curved at the base where the *Palpi* are attached (f); they are short, curved, clavate, and clothed with long hairs on the inside.

*Lip* as long as the tongue, rather stout and linear (g), terminated by 2 elongated narrow recurved lobes united at the base by a horny biacuminated plate, with a slender process in the centre (\*).

Head *subtrigonate*, the forehead narrowed and projecting: eyes lateral, elongated, meeting behind in the male, remote in the female (2): ocelli 3, very minute and forming a compact triangle near the base of the head. Thorax large, subglobose: scutellum transverse. Abdomen short, trigonate-conic and very downy. Wings *divaricating*, long and narrow, rounded at the apex, with 2 discoidal cells: halteres capitate, concealed. Legs long and very slender: thighs, hinder the longest: tibiæ nearly of equal length: tarsi long, slender, attenuated and 5-jointed, first 3 joints only spined beneath in the anterior pair (8), basal joint very long, 4th a little shorter than the 5th: claws curved, pulvilli bilobed long and slender.

MAJOR *Linn.*—*Curt. Guide, Gen. 1194. 1.*

Black, entirely clothed with soft ochreous yellow hairs: wings with the upper portion brown, forming internally an oblique sinuated line extending nearly to the apex: legs pale ferruginous, tarsi fuscous: underside with the hairs yellowish-white, the breast and a triangular space forming the apex of the abdomen, with a portion of the hairs on each side black.

*In the Author's and other Cabinets.*

ON fine bright mornings in the early part of spring, the entomologist is delighted at seeing the two larger varieties of these beautiful flies hovering over sunny banks covered with prim-

roses and violets, from which they extract the honey contained in the nectaries, whilst on the wing: they also frequent woods and plantations, where the sun has access, before the trees are clothed with their summer verdure.

As the species are not numerous I shall give the characters of those which have been recorded as British. I appear to have two that are undescribed, one of which I supposed was the *B. nitidulus* Fab., but I am now convinced it is not, and Nos. 3, 4, and 8 are admitted on the authority of the Systematic Catalogue.

1. major *Linn.*—*Curt. B. E. pl.* 613. ♂.—*sinuatus Mik.*

April and beginning of May, open places in woods, Coomb, Norfolk, &c.

2. medius *Linn.*—*Don. 5. pl.* 146. 1.—*Sam. pl.* 9. f. 10.—*discolor Mik.*

Clothed with soft ochreous hairs, underside and apex of abdomen black; base, costa and numerous dots on the wings brown; legs pale ferruginous:  $6\frac{2}{3}$  lines, proboscis  $4\frac{1}{2}$  long.

Middle of April, open places in woods, Norfolk, Essex, and around London.

3. pictus *Panz.* 24. 24.—*Meig. v. 2. t.* 18. f. 3. antenna.—*planicornis Fab.*

“Third joint of the antennæ dilated, compressed; wings spotted with fuscous: 5 lines.” *Meig.*

4. posticus *Fab.*—*Meig. v. 2. p.* 200. n. 17.

Clothed with rufous hairs, apex of abdomen white, base of wings black:  $4\frac{1}{2}$  lines, proboscis 3 lines.

5. minor *Linn.*—*Don. 15.* 536.—*venosus Mik.*

“Black clothed with yellowish hairs; wings subhyaline, base rufescent; halteres fuscous; whiskers yellowish, black on the sides.” *Meig.*  $3\frac{1}{2}$  lines, proboscis  $2\frac{1}{4}$ .

July, woods? Devon.

7. ctenopterus *Mik. Mon. tab.* 3. f. 8.

“Fuscous with reddish hairs, clypeus griseous; base of wings and costa rufous, pectinated; halteres white; legs yellowish:  $4\frac{1}{2}$  lines, proboscis  $2\frac{1}{2}$ .” *Meig.*

July Dover, Devon Mr. J. Cocks, and near Perth.

8. cinerascens *Mik. Mon. tab.* 3. f. 10.

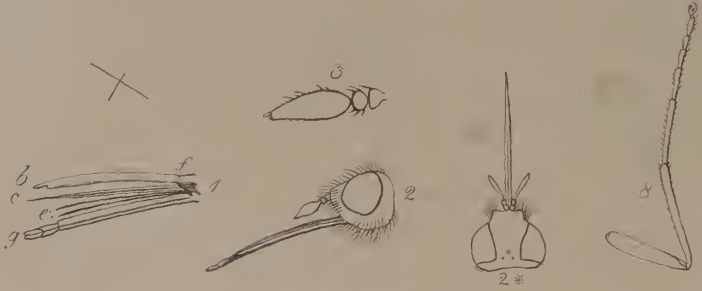
“Clothed with cinereous hairs; whiskers blackish above, griseous beneath; base of wings and halteres black:  $2\frac{1}{2}$  lines, proboscis  $1\frac{2}{3}$ .” *Mik.*

The Plant is *Salix repens*, Creeping dwarf Willow.



V 6

*Lonicera sordida*



*Lonicera sordida*

PHTHIRIA PULICARIA.

ORDER Diptera.

FAM. Bombyliidæ.

*Type of the Genus, Bombylius pulicarius Mik.*

PHTHIRIA *Lat., Meig., Curt.*—*Bombylius Mik.*—*Volucella Fab., Fall.*

*Antennæ* attached to the fore part of the head, short, porrected, approximating and 4-jointed; 2 basal joints producing a few bristles, the 1st cup-shaped, the 2nd subglobose, 3rd large fusiform compressed and truncated, with a small spine at the apex, above which is a minute ovate joint (3).

*Proboscis* nearly twice as long as the head, porrected, inserted in a cavity in the face (2).

*Labrum* stout, slightly incurved, hollow, acuminate at the apex (1 b).

*Tongue* as long as the labium, with a membranous margin, except at the apex, which is excessively acute (c).

*Maxillæ* rather shorter than the labrum, slender, a little thickened towards the apex (e). *Palpi* short, slender, slightly clavate and pubescent (f).

*Labium* longer than the labrum and equally stout, terminated by 2 oval articulated lobes (g.)

Head as broad as the thorax in the male, and very hairy in front, a little narrower and more depressed in the female, (2 the profile, 2\* the crown): eyes large and contiguous above in the male, remote in the female: ocelli 3 in triangle at the back part of the head, very minute. Thorax subquadrate, the angles rounded: scutellum rather large and semiovalate. Wings ample, and generally expanded, with only one discoidal cell: halteres capitate. Abdomen short and subovate in the male, stouter and conical in the female. Legs slender: thighs short, posterior a little the longest: tibiæ slender and simple: tarsi much longer than the tibiæ, simple and 5-jointed, basal joint very long, 2nd shorter, the remainder nearly of equal length: claws and pulvilli very distinct (8, a fore leg).

PULICARIA *Mik., Meig.*—*nigra Meig.*—*pygmæa Fab.*—*campestris Fall.*—*Cinctum Curt. Guide, Gen. 1195. 1.*

*Male* black, clothed with fine silvery hairs; eyes red-chestnut; face and head beneath cinereous, thickly clothed before with long hairs: thorax and scutellum cinereous, the former with the sides and a stripe down the middle darker: wings iridescent, with the costa a little tinged with yellowish brown, nervures piceous; halteres yellow, the club black. *Female* black, densely covered with short depressed aureous-ochre hairs; underside of head yellowish, the hairs in front short and black, eyes darker, their orbits yellowish ochre, a line on each side the thorax, and a spot at the apex of the scutellum, as well as the halteres, of the same colour.

*In the Author's and other Cabinets.*

\* See also *136. Macpua. f. I 392/17*

PHTHIRIA is one of the Bombylidæ, from the type of which family it is distinguished by the neuration of the wings, the narrowness of the abdomen, and the shortness of the basal joint of the antennæ. They seem also to differ in their habits, for I have never seen the Phthiriæ hovering over flowers like the large and beautiful Bombylii.

It is probably 20 years since I took two females of *P. pulicaria* on the coast of Suffolk, one of which I presented to my friend Dr. Leach, who placed it in the British Muséum. Before that time it was unknown in this country; and it is remarkable that it should not have been detected since, until I visited Suffolk last June, when I found a sufficient number to supply all my friends, and had the good fortune to detect the male, which I had never before seen. The sexes are so very dissimilar, that unless they were taken together, any one would consider them as different insects.

*P. pulicaria* was recorded in my Guide under a new name, for Mikan, who describes only the female in his "Monographia Bombyliorum Bohemiæ," takes no notice of the yellow line bordering the sides of the thorax, which is very conspicuous, especially in rubbed specimens; neither does Meigen, in his essential character.

I found both sexes of the Phthiria sucking the florets of *Hieracium pilosellæ* and *Hypochæris radicata* (pl. 385.) on the Denes at Covehithe, Suffolk, and I observed a few also, probably sheltering themselves from the wind, in the flowers of the Yellow Horn Poppy (pl. 66.) and the plant figured. In the neighbourhood of Montpellier I saw 2 or 3 in the flowers of a Thistle, but could not capture one. It seems to be rare upon the continent, for when I sent to Germany for specimens to dissect, I only obtained a female; and Mikan says, he *once* took it the beginning of summer in the flowers of *Chrysanthemum Leucanthemum* (pl. 162), in the vicinity of Prague.

The handsome Plant represented, with a specimen of the male insect, is *Convolvulus Soldanella* (Sea Bindweed).

\* G. & M. p. 270 (how. near Prague.)



Plate by J. Curtis London 1785

*Dasygogon*  
 (DASYGOGON) BREVIROSTRIS.

ORDER Diptera. FAM. Asilidæ *Lat. Leach.*

*Type of the Genus Asilus Diadema Fab.*

DASYGOGON *Meig., Lat., Fab., Leach.*—*Asilus Linn., Fab., Panz.*—*Erax Scop.*

*Antennæ* contiguous, porrected, inserted in the middle of the face, not longer than the head, 5-jointed, basal and 2nd joints of equal size, subovate, pilose, 3rd joint long pubescent, attenuated, 4th small, 5th rather long, slender and terminated by a transparent bristle (fig. 3).

*Labrum* very short, broad, acuminate (1 b).

*Tongue* long horny acute, very hairy on the upper side (c).

*Mandibles* none.

*Maxillæ* long linear, submembranous towards the apex (e).

*Palpi* short, cylindric, 2-jointed, covered with woolly hair (f).

*Lip* large, very horny, hairy, hollow, open and narrowed at the base (g).

*Head* transverse, very short, attached by a distinct neck. Proboscis exerted obliquely, as long as the head. Clypeus convex bearded. Eyes remote in both sexes. Ocelli 3 in triangle (2, the head in profile). Thorax gibbous. Scutellum rounded. Abdomen cylindrical, shorter than the wings, more slender in the male. Wings incumbent, containing about 15 cells, with 5 perfect upon the posterior margin, 1st costal cell extending only to the middle. Halteres naked, trigonate. Legs rather robust. Tibiæ straight simple. Tarsi 5-jointed hairy, basal joint the longest. Claws distinct. Pulvilli 2, with a bristle arising from the centre at the base.

*Obs.* The dissections were made from *D. brevirostris*.

BREVIROSTRIS *Meig. Syst. Besch. v. 2. p. 273. n. 24.*—*fem. D. armillatus Fall.*—*male D. longitarsis Fall.*

*Male.* Black, shining, minutely punctured, covered with yellowish hair. Hair on the clypeus ochraceous. Thorax with the hair long and fine. Abdomen cinereous black, covered with short pubescence, rather longer at the base. Wings hyaline, iridescent, fuscous at the apex, nervures piceous. Halteres with the club yellowish. Anterior tibiæ rufous at their insertion, middle and posterior rufous, black at their apex, the latter robust, narrowed at the base: posterior tarsi very slender, the basal joint very long, the remainder very short (fig. 8†).

*Female.* Larger, pubescence rather aureous. Wings yellowish towards their base, not fuscous at the apex. Posterior tibiæ robust, but not suddenly incrassated; posterior tarsi scarcely longer than the others, but more robust.

*In the Author's and other Cabinets.*

*DASYPOGON* is a handsome genus embracing 44 described European species; it is closely allied to *Asilus*, and probably connects that genus with *Laphria*: it is easily distinguished from either by the nervures of the wings, those of *Asilus* having 2 discoidal cells, and *Laphria* having a pedicel to the sub-marginal cell, the structure of the antennæ is also very different to those of the latter genus.

Hitherto there has been but one species recorded as British, we therefore consider ourselves fortunate in adding this second to our catalogue, and in Mr. Walker's cabinet at Arno's Grove we lately saw another with clouded wings.

1. *D. punctatus*<sup>2</sup> *Fab. fem.*,—*Panz.* 45, 24.—*diadema Fab. mas.*, *Panz.* 45, 23.—*D. nervosus*, *Panz.* 105, 9, var.

Specimens of this fine insect have been taken I believe near Bristol, in sandy situations in June and July, and are in the cabinets of the British Museum and Mr. Stephens.

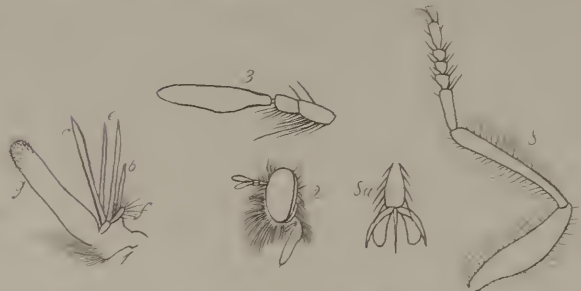
2. *D. brevisrostris.*

The male of this insect, which is remarkable for the length of its posterior feet as exhibited in the figures annexed, I first took at Darent Wood, Kent, the end of June: about the same period Mr. Dale and the Rev. L. Jenyns met with it in plenty on Newmarket Heath, in a place commonly called the Devil's Dyke, and the middle of August I found several pair settling upon the plants that grow in profusion in the North-Foreland meadow, Dover. Its habits are very similar to those of *Asilus*, and a female that I saw resting upon paling early in the morning exceedingly resembled the smaller species of that genus: at a more advanced period of the day, they became like their congeners very wild and active.

They are evidently attached to chalky districts, where the plant figured, *Chlora perfoliata* (Perforated Yellow-wort), is also abundant.

43 Aug 18 2000 I 193





*Phaenocarpa* Linn.

## LAPHRIA NIGRA.

ORDER Diptera. FAM. Asilidæ *Lat., Leach.**Type of the Genus Laphria gilva Linn.*LAPHRIA *Fab., Lat., Meig.* Asilus *Linn.* Erax *Scop.*

*Antennæ* approximating, porrected, inserted near the middle of the face, scarcely longer than the head, 3-jointed, 1st joint short, 2nd shorter, 3rd long obovate, naked, slender at the base, considerably dilated in the middle (3).

*Labrum* short, somewhat membranaceous at the apex, attenuated (1 b).

*Tongue* very long, horny, acute, grooved beneath, hairy on the upper side excepting at the apex and base (c).

*Mandibles* none.

*Maxillæ* horny, nearly as long as the tongue, very acute dilated towards the base, ciliated internally (e).

*Palpi* short cylindrical, hairy, 2-jointed (f).

*Lip* large, compressed, dilated towards the base, bilobed, with a small process arising between the lobes, very horny, hairy at the base and apex, hollow, open above, receiving the tongue and maxillæ (g).

Head transverse, as broad as the thorax, attached by a distinct neck. Proboscis exerted. Clypeus slightly produced, bearded (2). Eyes distant in both sexes. Ocelli none? Thorax gibbous. Scutellum rounded. Abdomen rather long and cylindrical, somewhat ovate in the females, terminal joint produced and inflected in the males. Wings incumbent with about 15 cells, 4 perfect cells upon the posterior margin, submarginal cell with a long pedicle at the apex, 1st marginal cell narrowed, extending only to the middle. Halteres naked. Feet robust long. Thighs incrassated in the males. Tibiæ, hinder arcuated unarmed. Tarsi 5-jointed, hairy, 1st joint the longest (8 a fore leg). Pulvilli and Claws 2, long and distinct, with a bristle arising from the centre at the base (8 a).

NIGRA *Meig. Syst. Bes. v. 2. p. 293. n. 11.*

Black, shining, hairy. Clypeus covered with yellowish silvery hair, whiskers yellowish, exterior margin of eyes silvery. Thorax with a slight tinge of blue, the sides and a short line on each side the anterior part gray. Abdomen with a cupreous tinge, pubescent with ferruginous hairs, incisures, especially on the sides, aureous with hairs. Wings stained brown, transparent at their base. Halteres ochraceous. Tibiæ aureous with pubescence.

*In the Cabinets of Mr. Stephens and the Author.*

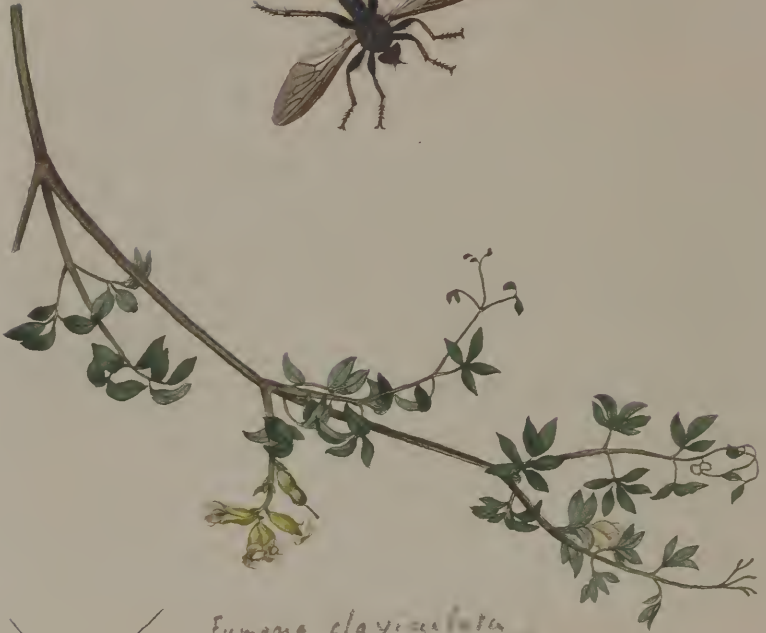
*Copy of the Plate 95/105. I 210/7. 60 but 6. 129*

It is singular we should possess only 1 species of this fine genus, of which there are 32 described by Meigen in his work upon European *Diptera*; there are indeed two specimens in the cabinet of the British Museum which may be distinct from *Laphria nigra*, as they are somewhat different, but it is very doubtful.

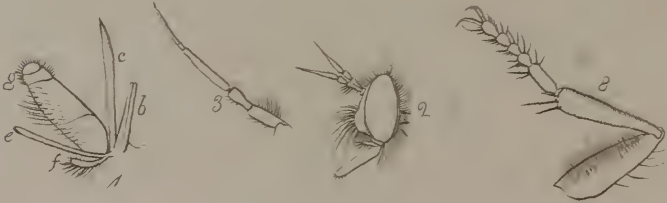
It has been before observed that the family *Asilidæ* embraces the genus *Asilus* of Linnæus, with which *Laphria gilva* (the type) was associated: it will however be evident on comparison with plate 46 that their structure is very different: we need here only notice the form of the antennæ and lip, and the articulate palpi.

*Laphria nigra* appears to be partial to nut-trees, upon the leaves of which I took a male in a very hot day in the month of June 1821, in Darent Wood, Kent, since which I have not met with it. In the neighbourhood of London it occasionally appears, and has been captured by Mr. Stephens at Darent, and at Coombe Wood by Mr. Westwood the middle of June: it is, however, by no means a common insect, and has never before been figured.

*Sison Amomum* (Bastard Stone Parsley) is figured in the plate.



*Fumana claviculata*  
III 83. V. 70



*Pamphorus* (ASILUS) GERMANICUS.

ORDER Diptera. FAM. Asilidæ Lat., Leach.

Type of the Genus *Asilus forcipatus* Linn.

ASILUS Linn., Fab., Lat., Meig. Erax Scop. Dasygogon Fab.

*Antennæ* approximating, porrected, inserted in the middle of the face, scarcely longer than the head, 5-jointed, first joint cylindrical, second clavate or cup-shaped, shorter than the first, third long, attenuated, slightly compressed, fourth small, fifth long, slender like a bristle. (3.)

*Labrum* short, broad, obtuse, membranaceous at the apex, coriaceous at the base. (1. b.)

*Tongue* very long, horny, acuminate, grooved beneath, pubescent towards the apex. (c.)

*Mandibles* none.

*Maxillæ* not so long as the tongue, slender, rather dilated and membranaceous towards the apex. (e.)

*Palpi* short, cylindrical, clavate, hairy. (f.)

*Lip* large, cylindrical, very horny, hairy, hollow, open at the base, terminated by two small lobes surrounded by hairs. (g.)

Head rather small, transverse, short, attached by a distinct neck.

Proboscis exerted. Clypeus produced, bearded. (2.) Eyes distant in both sexes. Ocelli 3. Thorax large, gibbous. Scutellum rounded.

Abdomen long, obtuse in the males, acuminate and compressed at the apex in the females. Wings incumbent, with 15 or 16 cells,

4 perfect cells upon the posterior margin, submarginal cell pedicled at the apex, first marginal cell narrowed, extending only to the middle. Halteres naked, elongated. Feet robust, long. Tibiæ

straight spined. Tarsi 5-jointed, hairy, first joint the longest. Pulvilli 2, large (8 a fore leg.)

GERMANICUS Linn. Syst. Nat. 2. 1008. 12. Fab. Ent. Syst. t. 4. p. 383. n. 31. mas.—Meig. Syst. Bes. v. 2. p. 318. n. 18. Tibialis Fab. Ent. Syst. n. 30. fem.

Male black, shining, hairy. Eyes cupreous. Thorax black, with two pale longitudinal lines. Abdomen black, glossy, tinged with blue, the last three segments with black hair, the remainder of the abdomen, thorax, underside and head with yellowish hairs. Wings fuscous, pearly white towards the base. Thighs black. Halteres, tibiæ and tarsi red brown, black at their extremities.

In the Cabinet of the British Museum.

THE vast stores of Natural History, especially insects that have been received from all parts of the globe since the days

\* Sequoy 112/15. Insequoy I 105-Gobert Gr. 181 § 26

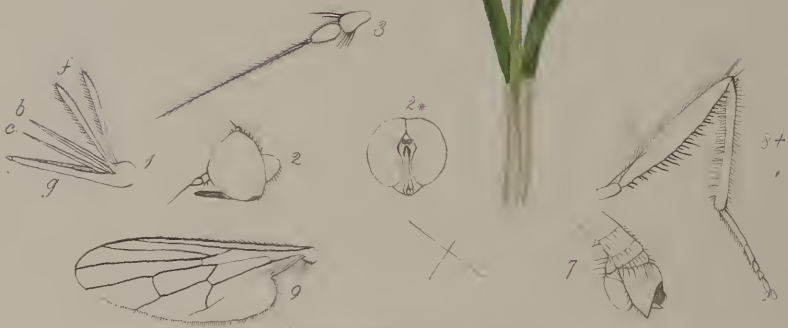
of the immortal Linnæus, have increased our subjects to so great an extent, that the Genera of that illustrious man now form (as in the present instance) natural families composed of groups which modern authors have found it necessary and convenient to constitute into Genera, thereby rendering the investigation, so far as relates to species, much more easy and intelligible.

Meigen describes 56 European *Asili*; about 11 of them are British, amongst which are, *A. crabroniformis* L.; *forcipatus* L.; *astivus* Schr.; *opacus* Gürth.; *germanicus* L.; *albipes* Meig.; &c.

The *Asilus* of the Romans (Mr. W. S. MacLeay observes in the Linnean Transactions) was the *Æstrus* of the Greeks and the *Hæmatopota* of the present system, a fly exceedingly annoying to horses, whereas our *Asili* prey upon other insects, especially the Diptera; they prefer resting upon the ground, particularly in sandy situations; and the larvæ feed upon the roots of plants under ground, where they change to pupæ covered with spines.

One of the most beautiful of our species is *A. crabroniformis*, (figured by Donovan, v. 5. pl. 180.) which is not uncommon about heaths and commons from June to September: the rarest species at present known is *A. germanicus* (a male of which is figured): two specimens are preserved in the British Museum, sent from Bristol by Mr. Millard. It has also been observed in Devonshire.

The plant given in the plate is *Fumaria claviculata* (Climbing Fumitory).



*Empidæ Hybotidæ*

661.  
*Hybos grossipes*  
= (HYBOS PILIPES. Curt.)

ORDER Diptera. FAM. Hybotidæ.

Type of the Genus, *Hybos funebris* Fab.

HYBOS Meig., Fab., Macq., Curt.—Asilus Fab.—Acromyia Bon.

*Antennæ* inserted at the middle of the face, contiguous, porrected, short, pubescent, 4-jointed, 2 basal joints stout, 1st obovate and surrounded with strong bristles at the apex, 2nd nearly as long and oval, 3rd attached to the apex, minute, 4th a very long seta, pubescent, except at the apex (3).

*Trophi* short, exerted horizontally a little beyond the head (2).

*Labrum* long, lanceolate, bifid, terminating in 2 fine points (1 b).

*Tongue* as long as the labrum, slender and lanceolate (c).

*Maxillæ* wanting. *Palpi* as long as the labrum, clavate and pubescent with a few bristles inside (f).

*Labium* long and horny, rather stout, tapering, hollow and terminating in a small cleft apex (g).

Head small and spherical, largest in the male; face very narrow (2\*); eyes large, covering nearly the whole head (2), contiguous on the crown, slightly notched internally: ocelli 3, placed on a small tubercle at the base of the head. Thorax globose and very gibbose: scutel small and lunate. Abdomen rather long, slender and clavate in the males: (7, the apical joints). Wings longer than the body, incumbent, horizontal, with a large discoidal cell and a stigmatiform spot (9): halteres rather large and capitate. Legs spiny, hinder the longest and stoutest: thighs, posterior incrassated, with series of spines beneath: tibiæ, anterior with bristles, hinder stouter and more hairy: tarsi 5-jointed, hinder the shortest, the basal joint elongated and very pubescent beneath, 4th joint the smallest, obtrigonal: claws and pulvilli large (8 †, hind leg).

PILIPES Meig.—Curt. Guide, Gen. 1201. 5.

Dull black; eyes ochreous, metathorax and scutel cinereous with fine short pubescence; wings fuscous, yellowish at the base, the costa and a stigmatiform spot yellowish-brown; halteres ochreous; posterior thighs incrassated, pilose, spiny beneath: base of tibiæ ferruginous, 4 anterior, especially the 2nd pair, furnished with long fine porrected bristles.

*In the Author's Cabinet.*

As the genus *Hybos* and its allies seem to be related to the Tachydromidæ, Empidæ, and Asilidæ, I have thought it better to adopt Meigen's view of the subject and consider them as a distinct family. Meigen says the two basal joints of the an-

\* Goeber 6. 149, 3 esp.



tennæ are united; I could not discover a suture; if there be one, the antennæ ought to be described as 5-jointed.

These insects frequent plants and flowers in search of other Diptera upon which they live: the following are British species:

1. *funnebris* Fab.—*culiciformis* Fab. *Ent. Syst.*

Black, wings fuscous with a distinct brown stigmatiform spot: 2 to  $2\frac{1}{4}$  lines long.

End of July, amongst rushes, Black-gang-chine, Isle of Wight; middle of August, Isle of Arran; end of August alighting upon the leaves of Rhododendrons in Lord Malmesbury's plantations near Heron Court.

2. *vitripennis* Meig. v. 2. p. 348. n. 2.

Black, wings hyaline, the stigmatiform spot pale ochreous:  $1\frac{3}{4}$  to 2 lines.

End of July, Black-gang-chine, with the last species.

3. *flavipes* Fab.—Meig. pl. 21. fig. 20.

Black, anterior legs and hinder tarsi ochreous; wings hyaline:  $1\frac{1}{2}$  to 2 lines.

June, Dorsetshire and New Forest.

4. *fumipennis* Hoff.—Ahrens 12. 25.

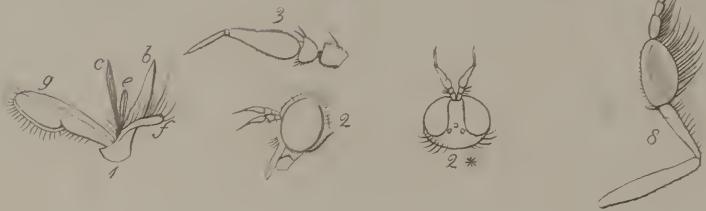
Black, shining; thorax with cinereous stripes; wings pale-brownish, anterior legs deep dull ochreous as well as the hinder tarsi: 2 lines.

June Dorset, and Horning marshes Norfolk; 9th July Turk Mountain near Killarney.

5. *pilipes* Meig.—Curt. Brit. Ent. pl. 661. ♂.

The only specimens I have seen are two which I took the beginning of September, flying about Laurel-trees in the gardens at Durnford near Salisbury, the seat of the late Honourable Mrs. Robinson.

For specimens of *Sesleria cœrulea*, Blue Moor-grass, I am indebted to the Rev. I. Howson, who gathered them on Giggleswick Scarrs, Yorkshire.



*g. M. ...*

## HILARA CILIPES.

ORDER Diptera. FAM. Empidæ *Lat., Leach.**Type of the Genus Empis Maura Fab.*HILARA Meig.—*Empis Fab., Lat., Harris, Fallen.*—*Biblio Panz.**Antennæ* porrected, contiguous, inserted between the eyes in front of the head, pubescent, 5-jointed, basal joint short cylindrical, 2nd cup-shaped, 3rd long ovate, subulated, 4th minute, 5th long cylindrical, terminated by a short hair (fig. 3).*Labrum* long, horny, hollow, cleft at the apex (1, b).*Tongue* long lanceolate acute (c).*Mandibles* none.*Maxillæ* much shorter than the tongue, obtuse, thin at the edges (e). *Palpi* as long as the maxillæ, very pilose beneath, formed of one long fleshy joint (f).*Lip* long, large, fleshy, bilobed, pilose, very membranous at the upper surface (g).*Proboscis* exerted vertically, nearly as long as the head, which is small and globose (2). *Eyes* large lateral, remote, alike in both sexes.*Ocelli* 3 in triangle (2\*). *Halteres* 2. *Abdomen* of male compressed, obtuse, recurved at the apex; of female cylindrical, the last three or four joints forming a small tube terminated by a small style. *Wings* incumbent, parallel, ciliated, containing about 15 cells, one near the apex being oblique. *Thighs and Tibiæ* simple. *Tarsi* 5-jointed, basal joint the longest, dilated and globose in most of the males (8).*Claws* small. *Pulvilli* bilobed with a seta between.*Obs.* The dissections are made from a male of *H. cilipes*.CILIPES Meig. *Syst. Besch.* v. 3. p. 3. n. 1. tab. 22. f. 3. mas.—*clavipes Harris's Exposition*, p. 150. tab. 44. f. 3. mas.

Olivaceous-black, slightly pilose. Head and antennæ black. Thorax with five obscure stripes of a darker colour: Abdomen pubescent, pilose at the base in the female: Legs black. Wings fuscous, very iridescent. Halteres black.

*Male.* Base of tibiæ ferruginous; tibiæ and 2 first joints of tarsi in the anterior pair of legs clothed with long hairs on the external side, the basal joint of the tarsus being dilated and elliptic (fig. 8).*In the Cabinets of Mr. Stephens and the Author.*HAVING no doubt that Harris's *Empis clavipes* is intended for our insect we should have adopted his name, had not

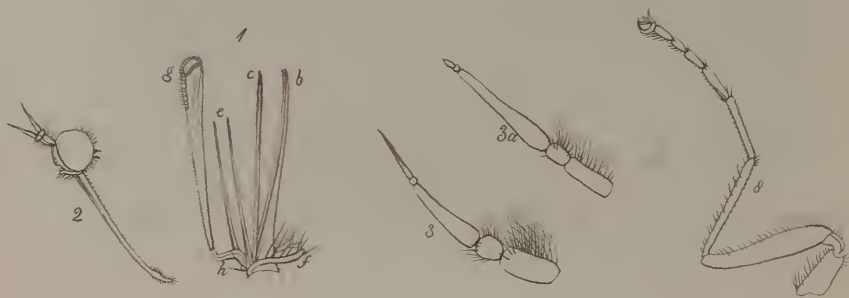
Fabricius described an *Empis clavipes* with which we are unacquainted, and therefore cannot ascertain whether it be a true *Empis* or an *Hilara*. As no figure has hitherto appeared of the female, we have preferred giving that sex, with a fore leg of the male. Although it has not been uncommon in the neighbourhood of London the last two years, we know of no cabinet in which it was to be found, until we gave it to our friends Mr. Dale and Mr. Stephens. The latter gentleman possesses the following British species,

- 1 *H. cilipes* Meig.
- 2 *globulipes* Meig.—*B. senilis* Panz. 54. 3.
- 3 *chorica* Fall., Meig.
- 4 *nigrina* Fall., Meig.
- 5 *clypeata* Meig.
- 6 *manicata* Meig.
- 7 *modesta* Meig.
- 8 *interstincta* Fall., Meig.
- 9 *fuscipes* Fab., Meig.
- 10 *4-vittata* Wied., Meig.
- 11 *pruinosa* Meg., Meig.
- 12 *litorea* Fall., Meig.
- 13 *lurida* Fall., Meig.
- 14 *flavipes* Meig.—*E. acephala* Panz. 54. 24.
- 15 *obscura* Meig.
- 16 *fasciata* Meig.

*H. cilipes* is to be seen the whole day flying about little swamps and stagnant water, and alighting upon the surrounding plants in the month of May, amongst which we particularly noticed the flower introduced in the plate, which from its being the only white one, might be the cause of attraction.

I was much amused at the end of the same month by another species (probably *H. globulipes*) which was flying in multitudes over a pond at Hampstead, close to the surface: upon a closer view I saw the males frequently alight upon drowned gnats (*Culices*), holding with their dilated fore feet and whirling about the water with them; probably extracting nutrition from them at the time.

*Stellaria holostea* (Greater Stitch-wort) accompanies the insect.



Printed by S. Hurst, London, April 11, 1852

*Empidæ Empidæ*

EMPIS BOREALIS.

ORDER Diptera. FAM. Empidæ Lat.

Type of the Genus *E. tessellata* Fab.

EMPIS Linn., Fab., Lat., Meig. Asilus Linn.

*Antennæ* porrected, 5-jointed; first joint cylindrical, second obconic or turbinate; third long, subulate; fourth very small, cup-shaped; fifth long, slender, attenuated. (3.) The antennæ of *E. borealis* is also figured (3. a.), to show the great length of the third, and the shortness of the terminal joint.

*Labrum* horny, hollow, bifid, dilated at its base. (1. b.)

*Tongue* horny, linear, acute, as long as labrum. (1. c.)

*Mandibles* none.

*Maxillæ* attenuated, acute, shorter than labrum. (1. e.) *Palpi* erect, filiform, pilose, attached to the base of maxillæ, not half their length. (1. f.)

*Mentum* bent, slender, rather short. (1. h.)

*Lip* siphon-formed, submembranaceous, very long, clavate, bilobed, ciliated. (1. g.)

*Proboscis* often as long as the head and thorax, perpendicular or in flected under the breast. (2.) Head small, globose; eyes distant only in the females, with 3 stemmati. Halteres 2. Abdomen of male truncate and bilobed at apex; of the female robust, attenuated, with 2 appendages at the apex. Wings incumbent, parallel, with 4 marginal cells, including the small one near the apex, 2 submarginal, 3 discoidal and 4 posterior marginal cells. Posterior legs the longest. Tarsi 5-jointed. Pulvilli 2. (8. a fore-leg.)

BOREALIS Linn. Syst. Nat. 2. 1003. 1. Fab. Ent. Syst. v. 4. p. 403. n. 1.

*Male* very dark gray, pilose. Eyes contiguous. Thorax with 4 black stripes. Body shining. Wings lanceolate, ciliated, pale brown, transparent in the centre, slightly ferruginous at the costa, with a brown spot towards the apex. Halteres yellow. Legs black. Thighs more or less ferruginous, as well as tibiæ in last pair. *Female*: Eyes distant, marks upon thorax very distinct. Wings large, broad, obtuse, semi-transparent, brown, ferruginous at the costa and base.

In the Cabinet of Mr. Vigors.

THIS curious Insect, which has never been ascertained to be a native of Great Britain, has been found in Ireland by James Tardy, Esq. of Dublin:—for specimens, and the following ex-

60625 b. 153, 37 cys

tract from Mr. T.'s letter upon the subject, I have to acknowledge my obligations to N. A. Vigors, Esq.—“I took this insect two succeeding years (1822 and 1823) early in the month of May along the margin of Lough-bray, a small lake in the county of Wicklow, close to which the military road passes. I have not been able to ascertain the elevation above the level of the sea of this lake; but I think I do not err much in saying that it may be about 1200 feet. The rocks surrounding it are primary (granite), and the surface is *entirely* a black peat in many places several feet in depth; the plants almost exclusively prevailing are our Common Heath (*Erica vulgaris*), *Vaccinium Myrtillus*, and a variety of Mosses occurring in such situations; there are also a few stunted Willows, Mountain Ash, and Birch. I have seen few places of the same elevation so perfectly alpine: at the period of my visits the insect occurred in great numbers, almost like some of the *Ephemeridæ*.”

Linnæus finding this species in Lapland gave it the specific name of *borealis*: it has since been taken in Bavaria and near Aix-la-Chapelle, upon the flowers of the willow: Fabricius says that in Sweden it is seen in clear and serene evenings dancing in the air.

Mr. Kirby, in his entertaining Introduction to Entomology, compares the rostrum of the *Empidæ* and *Asili* with the beak of a bird, and some of their wings with the fins of a fish, of which there cannot be better examples perhaps than the head of *E. tessellata*, and the wings of the female *E. borealis* figured in the plate; from the peculiar form of which, Mr. Stephens is disposed to consider the latter a distinct genus, in which opinion he is supported by the difference of the antennæ from the generic type. Meigen in his last volume, published in 1822, enumerates 47 European species of *Empis*; in this country there are only about 12 known.

The female *Taxus baccata* (Common Yew-tree), found in mountainous woods, is figured in the plate.



*Y. hirsuta* N. 180  
(Bull. N. 198)

*Bellis prostrata* (Päquenet)



(Gardner, J. Reson. 4, 1881)



RHAMPHOMYIA PENNATA. *Meig.*

ORDER Diptera. FAM. Empidæ.

*Type of the Genus, Rhamphomyia sulcata, Meig.*RHAMPHOMYIA *Hoff., Macq., Curt.*—*Empis Fab., Lat., Fall.*

*Antennæ* not longer than the head, inserted at the middle of the face, contiguous at the base, porrected, pubescent, stout and 5-jointed; 2 basal joints producing a few long bristles, the 1st oblong, 2nd globose, 3rd long, ovate at the base, attenuated to the apex, 4th joint minute cup-shaped, 5th longer, slender and tapering to a point (3).

*Trophi* exerted vertically, generally longer than the head (2).

*Labrum* longer than the head, stout, horny hollow and acute (1 b).

*Tongue* as long as the labrum and resting in it, flat lanceolate and very acute (c).

*Maxilla* long, slender and acute, but considerably shorter than the tongue (e). *Palpi* much shorter, clavate and pilose (f).

*Lip* as long as the labrum, very slender at the base, clavate, bilobed and pilose at the apex (g).

Head *small and globose*: eyes *large and ovate*, covering nearly the whole side of the face (2): *contiguous above in the male* (2 ♂), *remote in the female*: ocelli 3 on a tubercle behind the eyes in the male, and on the crown of the head in the female (2). Thorax *considerably larger than the head and globose*: scutellum rounded. Abdomen *tapering*, but *clavate at the apex in the male*, *conical in the female*, the apex furnished with two compressed hairy lobes. Wings *ample*, *incumbent and parallel in repose*, with a *subtrapezate discoidal cell*, the 3rd longitudinal one *not furcate at the apex*: halteres *rather large and capitate*. Legs *long*, especially the *hinder pair*, which are also the *stoutest*: tibiae *more or less clavate*: tarsi *5-jointed*, basal joint *frequently the stoutest in the hinder pair*, especially in the males (8 †): claws and pulvilli *distinct*.

PENNATA *Macq.*—*Curt. Guide, Gen. 1207. 5<sup>a</sup>.*

*Female ochreous*: antennæ shorter than the head and black, excepting the 2 basal joints which are bright ochreous; head and thorax gray, the latter with 3 brown stripes down the middle: abdomen generally with a dusky spot or two on the back, the lobes black: wings pale yellowish brown, darkest at the costa and tips, richly iridescent, the nervures brown: legs compressed, with the hairs black, the 4 hinder thighs and tibiae ciliated above and below with long black clavate scales; tarsi black, except at the base.

*In the Cabinets of Mr. Walker and the Author.*

RHAMPHOMYIA is closely allied to *Empis* (pl. 18.) and *Hilara* (pl. 130.), but is readily distinguished by the absence of the transverse or oblique apical nervure. They feed on other insects, and the females are generally seen sucking some fly. The following appear to be two new British species.

17. *R. dispar* *Curt. Guide*. Length  $1\frac{2}{3}$  line, breadth  $4\frac{1}{3}$ .

*Male* slender, pale ochreous, antennæ and upper side of head, thorax and abdomen velvety blackish; halteres, tips of thighs and extremity of tarsi fuscous; wings beautifully iridescent, tinged with yellowish fuscous. *Female* ochreous, antennæ and head blackish, 3 ferruginous stripes on the thorax, club of halteres, tips of thighs and extremity of tarsi fuscous; wings but slightly iridescent, tinged with yellow.

I once found these insects in abundance on flowers of the Ragwort at Arrochar in Scotland, the 7th of August 1825, and as I observed only males of the one and females of the other, I considered them at the time to be one species, but I am not certain that the male may not be the *E. sciarina* Fall.

17<sup>a</sup>. *Saniculæ* *Curt. MSS*. Size of the last, and the females very similar.

*Male* dull ochreous: labium, antennæ, head and tarsi black, thorax bright ochre, club of halteres and edges of abdominal segments fuscous.

Beginning of June in abundance in Bagley Wood near Oxford, on the flowers of the *Sanicula europæa* (pl. 189).

The following are the localities, &c., of some of our species, and a list of the genus will be found in the Guide:

3. *sulcata* *Meig.*—*Harr. Expo. pl. 44. f. 8.*

Beginning and middle of May, in plenty, upon the pales in the Regent's Park; 4th of June Coomb-wood and Suffolk.

5<sup>a</sup>. *pennata* *Macq.*—*Curt. Brit. Ent. pl. 517 ♀.*

28th of May on pales under oak trees near Southampton, and beginning June near Oxford.—J. C.

6. *cinerascens* *Meig.*? beginning of June New Forest.

7. *nigripes* *Fab.*—*Harr. Expo. pl. 44. f. 9.?*

Middle of May about a pond near Kelsal Green, London, and beginning June New Forest.

9. *culicina* *Fall.*—*Harr. Expo. pl. 44. f. 10.*—In Scotland, J. C.

10. *tenuirostris* *Fall.*—Fem. middle of October, Isle of Wight.

The plant is *Bellis perennis* (Common Daisy).



Empididae  
1/1. Tachydromiidae

HELEODROMIA BISTIGMA.

ORDER Diptera.

FAM. Tachydromidæ.

Type of the Genus, *H. immaculata Hal.*

HELEODROMIA *Hal.*—*Brachystoma* and *Gloma Curt.*

*Antennæ* inserted between the eyes, near the middle of the face, small porrected pubescent and 5-jointed, 3 basal joints stout, 1st subobtrigonal, 2nd cup-shaped, 3rd pear-shaped, being attenuated at the apex to which is attached the 4th joint, which is very minute, 5th long and filiform (3).

*Labrum*? transverse, and very broad at the apex (1, b).

*Tongue* broad and lanceolate, with an obtuse tooth on the upper side at the base (c).

*Palpi* large clavate and pilose (f).

*Lip* short thick bilobed pubescent and pilose (g).

Head small nutant, globose above, the face elongated and attenuated (2\* front view); neck distinct: clypeus apparently divided: eyes remote in both sexes, not very large, lateral and ovate: ocelli 3 in triangle on the crown of the head (2 profile): Thorax elongate ovate: scutellum semiorbicular. Abdomen rather short, conical at the apex, terminated by a conical compressed process in the male and by 2 small lobes in the female. Wings long and narrow, incumbent and parallel in repose, generally with the 4th longitudinal nervure furcate at the apex, an elongated, perfect discoidal cell, with 2 small ones at the base, and emitting 3 nervures to the margin: halteres clavate. Legs long and slender: coxæ, anterior large: Thighs and tibiæ simple: tarsi long and 5-jointed, basal joint long, 4th small: claws and pulvilli simple but distinct (8 fore leg).

Obs. The description and dissections are from the species figured.

BISTIGMA *Curt. Guide, Gen. 1206. 2.*

Opake slate-colour pale blueish beneath, slightly pubescent: eyes and antennæ black, back of thorax and sometimes of the abdomen, ochreous brown: wings pale fuscous, base and halteres pale ochreous; nervures and a round spot close to the costa beyond the middle piceous, the nervure being a little bowed to inclose it. Obs. Sometimes the spot on the wing is very faint.

*In the Cabinets of Mr. Rudd and the Author.*

At the time the Guide was published I found much difficulty in locating the insect figured, of which I had only one injured specimen, and as the antennæ appeared to agree better with those of *Gloma* than *Brachystoma*, I included it in that genus. Mr. Haliday has since formed it and some others into the genus *Heleodromia*, and as I possess an undescribed species, I shall give short characters of the whole, which he thus divides.

“A. Proboscis perpendicular, longer than the head, palpi short, incumbent.”

1. *H. immaculata* Hal. *Ent. Mag.* 1. 159.

“Cinereous: antennæ and feet black, wings ferruginous immaculate (Long: .1.).

In woods rare.”

“B. Proboscis short thick somewhat exerted: wings with an oblique apical nervure.”

3. unicolor Curt. Olive-brown, beneath grey, coxæ and tips of thighs ochreous, wings immaculate. Length  $1\frac{1}{2}$  line, breadth 3 and  $\frac{3}{4}$ .

In abundance the 15th of August standing on wet moss at the spring near Ventnor in the Isle of Wight, and Mr. Dale has taken it at Black Gang Chine.

2. *bistigma* Curt. *Brit. Ent. pl.* 513.

I took a single specimen of this rare insect many years back in Norfolk, and the Rev. G. T. Rudd has favoured me with the sexes and the following memorandum: “I find it abundant on the edges of large stones on the rocky shores of the Tees, between Middleton and Croft. The insect is difficult to see, and still more difficult to capture.”

5. *bipunctata* Hal. *Ent. Mag.* 1. 159.

“Cinereous: with a fuscous dorsal stripe, legs testaceous, wings with a fuscous stigma. (Long: .12.)

About ditches in summer very rare.”

4. *stagnalis* Hal.—*punctipennis* Curt. Olive-brown, beneath slate-colour, tips of thighs ferruginous; transversenervures of wings suffused with fuscous. Length 2 lines, breadth  $4\frac{1}{2}$ .

The Hon. C. A. Harris and myself found this insect the beginning of October flying over and alighting on little puddles in a brick-field near Pool. Mr. Walker takes it the end of March at Southgate, and Mr. Haliday says it “inhabits duck-meat (*Lemna*) on the surface of ponds early in the spring, skipping very actively in small troops, and scarcely to be taken without sweeping the surface of the water.”

6. *fontinalis* Hal. Olive-brown, beneath slate-colour, legs ferruginous, tarsi dusky; wings with 3 yellow-brown spots round the disc, the costa fuscous. Length 2 lines, breadth 4.

Mr. Haliday finds this insect in the shady beds of small rivulets in summer; it is rare, but he has been so kind as to add specimens to my Cabinet.

For the beautiful and rare Plant figured (*Tulipa sylvestris*, The wild Tulip), I am indebted to W. W. Saunders, Esq., who gathered it in Lord Spencer's park at Wimbledon.



Tab. by S. ...

## TACHYDROMIA ARROGANS.

ORDER Diptera. FAM. Tachydromidæ.

*Type of the Genus, Musca arrogans Linn.*

TACHYDROMIA Meig., Fab., Macq., Curt.—Sicus Lat.—Calobata Fab.—Empis Panz.—Musca Linn.

*Antennæ* inserted between the eyes at the middle of the face, contiguous, as long as the head, 3-jointed, basal joint subglobose, 2nd ovate and hairy beneath, 3rd a long naked seta inserted a little above the apex of the 2nd joint (3).*Labrum* and *Tongue* undiscovered.*Mandibles* and *Maxillæ* none?*Palpi* large and drooping, oval cylindric, densely clothed with long hairs, and furnished with a bristle at the apex (f).*Labium* short, horny and attenuated, hollow and slightly cleft at the apex (g).*Proboscis exerted* (2 g). Head *ovate*: eyes *large and lateral*, covering a great portion of the head: ocelli 3 in triangle on the crown of the head (2\*). Thorax *broader than the head*, *elongate-ovate*: scutellum short and transverse. Abdomen *short, obtuse in the males*, attenuated at the apex in the females. Wings *much longer than the body*, *incumbent and parallel when at rest*; costal cell short, 4 longitudinal nervures, 2nd and 3rd united by a straight nervure nearer to the base than that uniting the 3rd and 4th, forming 2 discoidal cells, the superior being shorter and broader than the inferior; anal nervure rudimentary (9). Halteres *large*, the peduncle short and stout, the club *elongate-ovate*. Legs *rather long*. Thighs; the 1st and sometimes the 2nd pair *incrassated with a double row of minute spines beneath*, the posterior long and slender: tibiæ, anterior *clavate with a series of spines on the inside*, posterior the longest. Tarsi longer than the tibiæ, 5-jointed, basal joint very long, 4th the shortest. Claws and Pulvilli distinct (8, a fore leg).

ARROGANS Linn. Faun. Suec. 1857.—Curt. Guide, Gen. 1210, 1.

Black, shining: eyes castaneous, not meeting in front; antennæ with the 1st and 2nd joints subferruginous. Thorax with a cupreous tint. Wings very iridescent, with 2 broad fuscous bands, leaving transparent spaces at the base and tip, and a narrow curved fascia near the middle: halteres yellowish white, the peduncle dusky. Legs ferruginous ochre, posterior thighs black, and anterior tibiæ dusky, except at their bases, the posterior tibiæ blackish the base and apex whitish: tarsi ochreous, anterior black at the tips, the posterior with the tips of the 1st and 2nd joints dusky, the others entirely black.

*In the Author's and other Cabinets.*

MONS. J. MACQUART has added several new genera to the Tachydromidæ, and he has restricted the typical genus, which

\* Gabel 6. 167, 8 cop.

Eucritæ  
1/1 Tachydromidæ

now contains only 6 British species. The principal distinction of this group is the incrassated anterior thighs, which in the remainder, named by him *Platypalpus*, are more slender than the middle pair: I find that they are serrated beneath in the *Tachydromiæ*, and the tibiæ spined on the inside, which he has overlooked: the intermediate tibiæ are simple: the transverse nervures also in *Tachydromia* are straight, whereas they are oblique in the other group; the palpi and antennæ are likewise different; but the latter vary very much also in *Platypalpus*. These insects, like the *Empidæ*, seize and live upon other Diptera, for I have myself several times detected them feeding upon small flies.

The *Tachydromiæ* run with great swiftness, with their wings lying on their backs; and being prettily marked, they have the appearance of some of the small *Cimicidæ* (Gen. 1100. *Phytocerus*, &c.). I shall translate the specific characters from Meigen.

1. *T. arrogans* Linn.—*Curt. Brit. Ent. pl.* 477. ♀.—*cimicoides* Fab.

Found near London; b. June, on a wall and felled timber in abundance, in the New Forest; end of July and middle of October, Isle of Wight. J. C.

I have drawn this pretty insect, because nothing can be more interesting to the naturalist than to identify the Linnæan species; and it is remarkable that no figure of it should have been hitherto given.

2. *T. annulimana* Meig. 3. 69. 2. “Black shining; anterior thighs rufous, with 2 black rings; base of the tarsi rufous; wings with 2 fuscous fasciæ.  $1\frac{1}{4}$  line.”

Taken with the former.

3. *T. connexa* Meig. 3. 70. 3. *tab. 23. f. 24.* Black shining; anterior thighs entirely, and posterior with the base, rufous; wings with 2 broad fuscous fasciæ, united at the costa. 1 line.”

Taken by Mr. Walker at Southgate.

4. *T. fuscipennis* Fall.—*Meig.* 3. 71. 5. “Black; antennæ and legs ochreous; wings fuscous, apex white.  $1\frac{1}{4}$  line.”

- 4<sup>a</sup>. *T. nubila* Meig. 3. 71. 7. “Black, wings cinereous; legs variegated with black and yellow.  $1\frac{1}{2}$  line.”

My specimen was, I believe, from Hampshire.

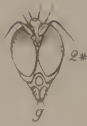
5. *T. nervosa* Meig. 3. 72. 8. “Black, wings hyaline, nervures fuscous; legs variegated with yellow and fuscous. 1 line.”

I observe the eyes are contiguous in front in the female.

Near London; end of May, Netley Abbey; beginning of June, New Forest; middle of October, Isle of Wight.

The Plant is *Senecio squalidus* (Inelegant Ragwort), from walls in Oxford.





*Illustration of the fly and its parts.*

## DRAPETIS ATERRIMA.

ORDER Diptera. FAM. Tachydromidæ.

*Type of the Genus, Drapetis exilis Meg.*DRAPETIS *Meg., Meig., Hal., Curt.*

*Antennæ* inserted between the eyes in the middle of the face, as long as the head, contiguous, compressed, 4-jointed, basal joint the smallest, 2nd obovate-truncate, producing a few bristles, 3rd the largest ovate-conic, 4th setiform and pubescent, forming at the base an obtuse angle (3).

*Labrum* long horny and very strong, broad ovate and convex at the base, lanceolate and curved at the apex (1 b, and 1\* b).

*Tongue* very horny, as long as the labrum, broadest at the base, pointed and curved at the apex (c).

*Mandibles* and *Maxillæ* none.

*Palpi* incumbent, large and ovate, furnished with a few bristles (f).

*Lip* not very large, terminated by 2 pilose lobes (g).

*Trophi* produced in a short beak. Head subovate, furnished with a few bristles on the top. Eyes covering nearly the whole head, oval, contiguous in front of the Face which is ovate (2\*). Ocelli 3 in triangle, elevated on the crown of the head (2, head in profile). Thorax subglobose. Scutellum semicircular. Abdomen somewhat ovate, or trigonate-conic, composed of 7 or 8 narrow annulations. Wings incumbent and parallel when in repose, pubescent, costal nervure extending to the 4th at the apex, marginal cell reaching the middle of the costa, 2 short cells at the base, the inferior one the longest and narrowest, from these issue 4 long nervures extending to the margin. Halteres clavate. Legs long. Thighs slightly incrassated. Tibiæ simple and slender, the 4 anterior spurred at the apex. Tarsi long, 5-jointed, basal joint the longest and stoutest in the posterior pair. Claws bent and acute. Pulvilli bilobed (8, a fore leg).

*Obs.* The dissections and descriptions are taken from *D. aterrima*.

ATERRIMA *Haliday's MSS.—Curt. Guide, Gen. 1210<sup>a</sup>.*

Shining black, slightly pubescent: wings iridescent pubescent, nervures brown, ochreous towards the base: halteres very pale ochreous: knees and tips of posterior tibiæ ferruginous.

*In the Cabinets of Mr. Haliday and the Author.*

THROUGH the zeal and kindness of my friend Mr. Haliday I am enabled to figure a new species of *Drapetis*, which he has discovered since the publication of my Guide.

*D. aterrima Hal.—Curt. Brit. Ent. pl. 397.*

Mr. Haliday says, "It is distinguished from *D. exilis* by the abdomen being entirely deep glossy black in the living in-

sects of both sexes": he adds, "The sea-coast seems the peculiar habitat of mine; I seldom have seen it a hundred yards from high-water mark. It was taken at Holywood."

Neither of Meigen's species have yet been discovered in our islands, but as it is very probable they soon may be, I shall give his descriptions.

1. *Dr. exilis* Meig.—*Meig. v. 3. p. 91. tab. 23. fig. 25—28.*

"Head black, nearly orbicular. Eyes a little separated in both sexes. Hypostoma very narrow. Three ocelli on the vertex. Antennæ black, approximate at the base, then bent upwards towards the side, shorter than the head with a long naked terminal bristle (25). Proboscis somewhat prominent with incumbent palpi, whose figure is not easily determined from their minuteness. Thorax shining black above, without any transverse suture. Abdomen in male entirely shining black, rather long nearly cylindric, of seven segments: in female more oval, acuminate, reddish yellow above, with black bands at the hind margin of the segments, entirely reddish yellow beneath. Thighs a little incrassated, black; tibiæ brown unarmed, feet yellow. Poisers black; wings hyaline, incumbent and parallel in repose, with microscopic hairs, rounded in front. The genus is easily distinguished by the neuration. After death the abdomen of the female becomes nearly all black from contraction, only a little of the yellow remaining visible. These flies run with extraordinary agility, so that they are hard to catch. In Aug. and Sept. common on palings. Megerle sent the same out of Austria. Male  $\frac{1}{2}$ , female  $\frac{3}{4}$  line long."

Meigen in a subsequent volume gives the following specific description of *D. exilis*. "Black shining; tibiæ and tarsi yellow; segments of abdomen equal". *v. 6. p. 344.*

2. *Dr. nigra* Meig. *Supp. v. 6. p. 344.* "Black, shining; anterior tibiæ and tarsi entirely yellow, fourth segment of the abdomen the largest."

"The fourth segment of the abdomen embraces more than half of its entire length. In my specimen the poisers are not visible. One male from Winthem. Fully half a line long."

Mr. Haliday says, "From the correction of the characters of *Dr. exilis*, Meigen seems to have found the yellow colour of the abdomen a delusive character, perhaps the effect of disease. I should add that, according to my observations, all the insects of this family have three-jointed antennæ. The difference therefore between this and the preceding family is, that in the Empidæ the 2nd joint is the smallest, and the palpi reflected; in Tachydromiæ the 1st joint is the shortest, the palpi incumbent."

The Plant is *Galium palustre?* (White Water Bed-straw).



## HENOPS MARGINATUS.

= Oncodes pallipes (Dartnall)ORDER Diptera. FAM. Acroceridæ Leach. Inflata Lat.*Type of the Genus Musca gibbosa Linn.*

HENOPS Ill., Meig., Fab. Ogcodes Lat., Leach. Syrphus Fab., Panz. Musca Linn.

*Antennæ* nutant, remote, inserted at the bottom of the head just above the mouth, 3-jointed, the basal joint large, subglobose, 2nd long, dilated at the base and apex, that being rigid, and this having a short seta near the extremity (f. 3).

Cavity of the mouth large.

*Trophi* imperfect or none.

Head very small, globose, much lower than the top of the thorax (2).

Eyes contiguous, covering the greater portion of the head (2\*).

Ocelli 3, placed behind the eyes on the crown of the head (2\*).

Thorax large, globular (A). Scutellum rounded, distinct (c). Ab-

domen very large, globose, inflated, apex deflexed. Wings longer

than the abdomen, nervures very obscure, forming a costal, sub-

costal and discoidal cell, apical cells imperfect. Squamulæ large,

rounded, covering the Halteres, which are clavate. Tibiæ simple.

Tarsi 5-jointed, basal and terminal joints the most robust and the

longest. Claws large, simple. Pulvilli distinct, trilobed (8, a fore

leg).

Obs. The dissections are taken from the species figured.

MARGINATUS Meig. Syst. Besch. v. 3. p. 100. n. 2.—gibbosus Meig. Klassif. 1. 151. 1.

Black, shining, pubescent. Head black, naked. Thorax having yellowish pubescence, minutely punctured. Scutellum more coarsely punctured. Abdomen minutely punctured, piceous, the margins of the segments dirty white, forming 5 transverse bands; beneath whitish. Wings slightly iridescent; the nervures, especially the costal, yellowish. Halteres ochraceous. Legs dull ferruginous, fuscous towards their base and apex.

Obs. Specimens are sometimes much less than the size represented by the crossed lines in the plate.

*In the Author's and other Cabinets.*

WITHIN the large cavity of the mouth may be seen a membranous flat substance surrounded by an interrupted coriaceous circle, with an appendage arising near the middle: this may probably answer to the lip in other Diptera, but without living specimens it appears to be impossible to arrive at the truth;

\* See my *Oncodidae* p. 167/8. (Larva parasite of *Crangon*)  
 Fabert Catal. 6. 118. — *muscipula* I 368

and the want of such an opportunity has prevented me from investigating the trophi of this genus so well as I could wish, which I the more regret, because Fabricius, who has given an account of those organs, appears not to have been satisfied; and I confess that in my specimen, which appeared to be quite perfect, I was not able to detect the parts that he has described. Meigen, for reasons similar to my own, has not given figures of the mouth. The different opinions respecting its affinities render a knowledge of the trophi very desirable, and absolutely necessary to decide this point. Latreille and Leach placed the family to which *Henops* belongs between the *Bombylidae* and *Syrphidae*; Meigen, between his *Tachydromiæ* and *Stratiomydæ*. I feel persuaded that Latreille's locality is the more natural, for even Meigen includes the genus *Cyrtus* with his *Inflata*; and the structure of the proboscis of that genus, no less than the nervures of the wings, render it impossible, we conceive, to remove it from the *Bombylidae*; whilst the structure of the antennæ and the inflated abdomen show that there is nothing but the wings in *Henops* analogous to the habit of the *Stratiomydæ*.

Our genus is distinguished from *Acrocera*, to which it is closely allied, by its subclavate antennæ, which are inserted below the union of the eyes, by its almost nerveless wings and large squamulæ.

The only 2 species in British cabinets are,

1. *Henops gibbosus* Linn.—*Meig. Syst. Besch. tab. 24. f. 15.*  
—Taken in May and June on Wimbledon Common, and in Coombe Wood.
2. *Henops marginatus* Meig., which has several times occurred in the New Forest. My specimens I purchased of Mr. Joseph Standish, who beat them out of old white thorn bushes that were covered with lichen, the end of June and beginning of July. They were so sluggish in the net that they laid with their wings closed, which made it difficult to detect them; and the least pressure destroyed the rotundity of their bodies, which are very thin, and with the large wings and scales appear to be well adapted to enable the insect to float like a balloon in the air, subject to the influence of any current that may prevail.

The plant is *Chrysosplenium oppositifolium* (Opposite-leaved Sengreen).



Printed by J. Currier London Oct 1. 1824

## PACHYGASTER LEACHII.

ORDER Diptera. FAM. Stratiomydæ *Lat., Leach.*

*Type of the Genus Vappo ater Fab.*

PACHYGASTER Meig. *Vappo Lat., Fab. Nematelus Pz.*

*Antennæ* approximating, porrected, hairy, 3-jointed, first joint small, second large, transverse, third large, somewhat hemispheric, compressed, having a reticulated appearance under a lens, and 2 indistinct transverse rings (Meigen says 4) with a hairy seta attached to the outer side near the extremity. (3.)

*Labrum* horny, robust, cylindric, grooved beneath, dilated at the base, obtuse and notched at the apex. (1. b.)

*Tongue* horny, acute, attenuated from the base, shorter than the labrum. (c.)

*Mandibles* none.

*Maxillæ* long, slender, acute, concealed in the lip. (e.)

*Palpi* 2, oblong, cylindric, very minute, slightly pilose, attached to the base of the maxillæ. (f.)

*Mentum* large, cylindric, inclining upward. (h.)

*Lip* fleshy, large, oval, bipartite, pilose. (g.)

*Proboscis* shorter than the head, concealed when at rest. *Eyes* approximating above in the males. *Ocelli* 3, placed anteriorly in the males, posteriorly in the females. *Thorax* obovate, with a transverse suture. *Scutellum* without spines. *Abdomen* large, nearly globular, being convex above, composed of 5 obscure segments. *Legs* simple. *Tarsi* 5-jointed, with 2 claws and pulvilli (8. a fore leg.) *Wings* incumbent, when at rest placed parallel upon the abdomen, long, lanceolate, nerves very faint. *Halteres* large, ovate.

## LEACHII Stephens' MSS.

Black, shining, punctured. *Antennæ* orange, eyes purplish or slightly red, legs pale straw colour, the posterior thighs with a black spot near the apex. *Halteres* fuscous. *Wings* entirely transparent, iridescent, nerves very pale brown.

*In the Cabinets of the British Museum and the Author.*

*PACHYGASTER ater* is the only insect of this Genus hitherto described; it is figured by Panzer, is somewhat larger than our insect, and is at once distinguished by its wings, which are brown nearly half way from the base. *P. Leachii* appears to be very rare, the only specimens discovered, being a male in the

*Robert G. Sz. Inq., 1261 Sequoyia fauna fr. Stratiomyidae p. 10/11  
Larve dans les Bolets, dans les creux des vieux chênes, dans les  
piéds des haies en justification*



Cabinet of the British Museum, taken it is believed by Dr. Leach in Devonshire, and a female (the one figured) taken by myself in the autumn, I think in the same county; which is rendered the more probable, because, if it had been a species inhabiting the neighbourhood of London, it must have been met with before; for there can be little doubt that insects so very similar in form have nearly the same habitats. *P. ater* is by no means a rare insect; it may be found during the month of July in hedges and trees at Darent, Birch and Coombe Woods.

Meigen in 1804 first published this Genus under the name of *Pachygaster* in his celebrated work in 4to, *Klassifikation und Beschreibung* &c., t. 1. p. 146: in the following year Fabricius's *Systema Antliatorum* was published, where the Genus is called *Vappo*, which Latreille has adopted; but as it is clear that Meigen has a claim to priority, I have retained his name in preference, which I am the more inclined to do, because in his last invaluable work the Genus is again presented to us under the name of *Pachygaster*. It is a little unfortunate that Germar has applied that name to a Genus of the *Curculionidæ*; but as that was only published in 1817, it must of course be discarded.

The plant figured is *Viola odorata* var. *alba* (Sweet Violet).



*Sargus bipunctatus* Scop.  
= (SARGUS REAUMURI.)<sub>mg</sub>

ORDER Diptera. FAM. Stratiomydæ Lat.

*Type of the Genus, Musca polita Linn.*

SARGUS Fab., Meig., Lat., Sam.—Musca Linn., Fab.

*Antennæ* inserted in front of the head, approximating at the base, short, pilose, 4-jointed; basal and 2nd joints very pilose, the former ovate-truncate, the latter cup-shaped, 3rd joint suborbicular, densely clothed with short hairs, 4th forming a long seta, inserted on the upper part of the 3rd joint, producing a few bristles (3).

*Labrum* short and hollow, emarginate at the apex (1\* b).

*Mandibles* none.

*Maxillæ*? not longer than the labrum, horny, slender and acute (d). *Palpi* capitate. Meig.

*Tongue* none.

*Labium* large fleshy and bilobed, concealing the trophi (g).

Head hemispherical. Eyes large, covering nearly the whole head, sometimes contiguous in the males. Ocelli 3, sometimes forming an elongated triangle in the males (2, the head in profile; 2\* viewed from above). Thorax subovate, the neck distinct. Scutellum rounded and not spined. Abdomen oblong or spathuliform. Wings horizontal and decumbent when at rest, with a scutiform areolet near the disc, and an oblique nervure near the apex. Halteres with the club subtrigonate. Legs slender and simple. Tarsi 5-jointed, basal joint long, 4th the shortest, Claws and Pulvilli distinct (8†, a hind leg).

REAUMURI Meig. Syst. Besch. v. 3. p. 109. n. 6.

*Female.* Shining, pubescent, minutely punctured. Head and antennæ blackish, centre of hypostoma green, with 2 white spots at the base of the antennæ. Thorax aureous-green, with a white line on each side. Abdomen ferruginous ochre with a lilac tinge, basal joint with a quadrate, 2nd with an elongate-ovate, violaceous spot on the back; the remainder chalybeous, clothed with ochreous pubescence, excepting the margins of the 3rd and 4th joints. Wings iridescent, pale fuscous; stigma yellowish brown; nervures piceous. Halteres ochreous. Legs deep ochre, anterior with the 3 last joints, posterior with a larger portion blackish.

*In the Cabinets of Mr. Heysham, the Author, &c.*

THE flies contained in this pretty genus are distinguished from their congeners by the elegance of their form, as well as by the brilliancy of their colours. The areolet in the centre of

\* Golar b. 593, Squay p. 68 (G. Chrysochroma)

the wing is much smaller than in *Pachygaster* (pl. 42), which has also a subglobose abdomen; and the antennæ of our insects are very different to those of *Nemotelus*, to which it is closely related.

The following are British species of *Sargus*: and it is remarkable that Panzer has not illustrated one of them; and many of the figures referred to below are so bad that it is not easy to determine to which insects they belong. Most of these flies are common; they are fond of the sunshine, and are seen resting upon the leaves of plants on the borders of woods, in hedges and gardens.

1. *S. cuprarius* *Linn. F. S.* 1853.—*Meig.* 3. 106. 1.—*DeG. tab.* 12. f. 4.

June, umbelliferous flowers in meadows and marshes. I found this splendid insect in abundance on the borders of a wood near Dover, on the 14th of July, and took a female in Scotland the same month.

2. *S. infuscatus* *Meig.* 107. 3.—*auratus* *Meig. Klass.*—*indicus* *Harr. Expos. pl.* 11. f. 7. 72.

Beginning of June, roads and gardens near London.

3. *S. nitidus* *Meig.* 108. 4.

4. *S. flavipes* *Meig.* 108. 5. & *tab.* 25. f. 14.

5. *S. Reaumuri* *Meig.*—*Curt. Brit. Ent. pl.* 305.—The beautiful specimen figured was taken at Rockcliff Moss, Cumberland, on the 5th of July, by T. C. Heysham, Esq.; and the specimen that I possess was taken, I believe, in Kent.

6. *S. formosus* *Schr.*—*Meig.* 110. 8.—*auratus* *Fab.*—*Don.* 4. *pl.* 142. f. 1.—*xanthopterus* *Fab.*—*Meig. Klass. tab.* 8. f. 16—18.—*cicur* *Harris, pl.* 11. f. 8. 8.—b. July, gardens.

7. *S. politus* *Linn. F. S.* 1854.—*Meig.* 111. 9.—*splendens* *Meig. Klass.*—*vitreus* *Harris, pl.* 11. f. 9 & 10.—4th of August, Isle of Wight and near London.

8. *S. flavicornis* *Meig.* 112. 10.—*parvulus* *Harr. pl.* 11. f. 11? —I once took a specimen at Dover.

For the rare plant figured, *Epipactis grandiflora* *Linn., pallens* *Swartz* (White *Epipactis*), I am indebted to W. Peete, Esq. who gathered it last June, in Kent.



Pl. det. by C. G. Smith, 1834

## NEMOTELUS NIGRINUS.

ORDER Diptera.

FAM. Stratiomydæ.

*Type of the Genus, Musca Pantherina Linn.*NEMOTELUS *Fab., Meig., Macq., Curt.*—Stratiomys *Fab.*—Musca *Linn.*

*Antennæ* inserted far before the eyes, at the base of the clypeus, contiguous, porrected and divaricating, clothed with very short hairs, 8-jointed, basal joint oblong, 2nd the longest, pyriform-truncate, the 4 following forming an ovate-conic mass, 3rd transverse-obtrigonal, the base truncated, 2 following cup-shaped, 6th conical, 7th minute ovate, 8th slender and tapering, the apex producing a bristle with 2 or 3 others on the sides (3).

*Labrum* horny, stout, hollow and obtuse (1 b).

*Tongue, Mandibles, Maxillæ and Palpi* wanting.

*Mentum* elongated, geniculated (1). *Lip* twice as long, slender and forming two very long lobes, the edges membranous, slightly bristly (g).

*Trophi* received into a long cavity in the face. Head narrower than the thorax, horizontal: clypeus porrected and conical, most elongated in the females (2 ♀): eyes large and meeting above in the males (♂), very remote and much smaller in the females: ocelli 3, forming a triangle on the crown. Thorax oblong-ovate: scutellum sublunate, not spined. Abdomen orbicular or ovate, slightly convex, the apex incurved and pointed. Wings horizontal and incumbent in repose, much longer than the body, with a somewhat ovate discoidal cell producing 4 very faint nervures, the costal and basal nervures much stronger (9): halteres clavate, the club globose. Legs moderate: thighs simple: tibiæ simple, slender at the base, a little curved: tarsi longish, intermediate the shortest, 5-jointed, basal joint the longest, 4th the shortest, 5th short and a little dilated: claws short and stout: pulvilli bilobed.

NIGRINUS *Fall.*—*Curt. Guide, Gen. 1215. 3.*

Shining greenish black, slightly cupreous: antennæ and eyes brownish: thorax punctured, with a plain space in front and down each side: abdomen punctured: wings white, iridescent, nervures scarcely visible, excepting the costal and discoidal ones which are ochreous: halteres, tips of thighs, tibiæ and tarsi ochreous, apex of latter fuscous: anterior tibiæ with a brown spot towards the apex, posterior black, excepting the base and tip.

*In the Author's and other Cabinets.*

Signy p. 27/28. (Macquart I 265/7), Götting 6. 83, 7 1/2.

THE structure of the antennæ and the neuration of the wings show that *Nemotelus* is evidently nearly allied to *Oxycera* (Pl. 441), but the spined scutel, obtuse head, and short lip of this genus at once separate them; and the same characters, as well as the antennæ, will distinguish *Sargus* (Pl. 305) and *Pachygaster* (Pl. 42) from the *Nemoteli*.

I should observe that the trophi I have examined do not agree with fig. 17 in Meigen, the apex of the lip being thickened and bilobed as represented in our plate. The following are British species of *Nemotelus*.

1. *uliginosus* *Linn.*—*Meig. v. 3. 114. 1. pl. 25. f. 19 ♀.*—*Don. 15. pl. 519. f. 1. 2.*

“Thorax black with a lateral white stripe: abdomen white with a black spot before the apex in the males, or black with the margins and dots white in the female. 3 lines long.”

June, flowers in meadows, Tollsbury, Essex, and Thetford; July, a female, on Mangerton Mountain near Killarney.

2. *pantherinus* *Linn.*, *Meig. pl. 25. f. 20 ♂.*—*uliginosus* *Panz. 46. 21 ♂.*—*marginatus* *Fab. ♀.*—*Panz. 46. 22 ♀.*

“Thorax black, immaculate; abdomen white, with a black spot before the apex in the male, or black, with the margins and dots white in the females. 2 to  $2\frac{1}{2}$  lines long.”

End of May, marshy meadow, North Cray, Kent, Mr. Hali-day. June, Cambridgeshire, J. C.

3. *nigrinus* *Fall.*—*Curt. B. E. pl. 729 ♀.*—*Panz. 107. 17 ♂.*

Beginning of July, Swaffham, Thetford warren and Battersea; Bog of Allan, Connemara and Holywood, Mr. Hali-day.

4. *brevirostris* *Meg.*

“Black shining: legs white, thighs black: rostrum very short and obtuse.  $1\frac{1}{2}$  line long.”

Recorded as having been taken near London.

*Coriandrum sativum*, Common Coriander, I found last July in Battersea meadows.





*Hemiteles* (OXYCERA) MORRISII.

ORDER Diptera. FAM. Stratiomydæ.

Type of the Genus, *Stratiomys trilineata* Fab.

OXYCERA Meig., Lat., Curt.—*Stratiomys* Fab., Panz.—*Odontomyia* Lat.—*Musca* Linn.

*Antennæ* inserted below the middle of the face, contiguous, approximating, porrected, shorter than the head, 8-jointed, 1st and 2nd joints pilose, the former cylindric, the latter larger and cup-shaped, 4 following forming an elongate-conic mass, 3rd joint the largest, 7th inserted beneath the upper margin of the 6th, small ovate, 8th a short stout bristle (3).

*Labrum* short, broad, hollow and emarginate at the apex (1b).

*Tongue, Maxillæ* and *Mandibles* none.

*Palpi* short, linear, membranous and compressed, thickened opaque and pubescent at the apex (f).

*Labium* fleshy, terminated by 2 ovate hairy lobes, transversely striated beneath (g).

*Trophi* received into a groove at the bottom of the face. Head short semiglobose. Eyes lateral and oval. Ocelli 3 in triangle, placed round a slight protuberance on the crown of the head (2, the head in profile). Thorax not broader than the head, subovate. Scutellum transverse, producing a curved spine on each side (A, the thorax and scutellum in profile). Abdomen considerably broader than the thorax short and suborbicular. Wings horizontal and decumbent in repose, iridescent, with a subovate cell in the disc, from which issue 4 nervures, in rays, sometimes very faint (9). Halteres short with a large club. Legs equal in size. Thighs simple. Tibiæ a little thickened at the middle forming an obscure notch on the inside. Tarsi 5-jointed, basal joint the longest, 4th the smallest, 5th with some bristles at the apex. Claws acute. Pulvilli small.

MORRISII Dale's MSS.—Curt. Guide, Gen. 1217.

Black, shining, thickly and minutely punctured and clothed with very short gray pubescence: labium ochreous: eyes reddish brown with a whitish ring, interrupted at the top: a whitish line on each side of the thorax forming a minute spot at the anterior angle, a larger one before and another behind the base of the wing; apex of scutellum and the spines ochreous: abdomen with an oblique spot on each side the 3rd and 4th segments, smaller on the latter and a triangular spot at the apex of the same pale ochreous colour: wings transparent, the stigma yellowish brown, the costal and basal nervures only coloured with brown; halteres white: Legs ochreous; thighs black, except at the base and tips, posterior tibiæ black, except at the base: Tarsi black, excepting the basal joints of the 4 posterior which are whitish.

In the Cabinets of Mr. Dale, Mr. Morris, and the Author.

\* *Sepp's Fauna de St. Stratiomyidae* p. 42  
6. 1855

IN the structure of the antennæ this genus approaches *Beris* (*pl.* 337.); and it is remarkable that Meigen, Leach, and Samouelle, have described them as triarticulate, for, including the seta, they are composed of 8 joints. Within the last 3 years the British species of this pretty group have been more than trebled.

1. *O. pulchella* Meig. 3. *pl.* 25. *f.* 29.—hypoleon Don. 5. 146. 2.

From May to August flowers in meadows; gardens near London; Elder bushes, and amongst rushes, Battersea, J. C.; Glanville's Wootton, Puddletown and Lyme Regis, Dorset, and Teignmouth, Devon, J. C. Dale, Esq.

2. *O. trilineata* Fab.—Don. 5. 151. 5.—Panz. 1. 13.—pantherina Linn.

Middle of June and July, Teignmouth and Barum, Devon; Puddimore Milton, Somerset; Glanville's Wootton, and near Lyme Regis, Dorset, Mr. Dale; amongst Elder leaves, Battersea meadows, Mr. Donovan.

3. *O. formosa* Wied.—*muscaria* Meig.—Panz. 108. 15. & 16. ♂ & ♀.

Middle of June, beginning of July, Glanville's Wootton, and near Lyme Regis, Mr. Dale; on Sallows in hedges, J. C.

4. *O. pardalina*? Meig. *pl.* 25. *f.* 30. & 31. July; Pinny near Lyme Regis, Dorset.

5. *O. Morrisii* Dale's MSS.—Curt. Brit. Ent. *pl.* 441.

This beautiful species has been named by Mr. Dale in honour of F. O. Morris, Esq., who first discovered the former species: this was also taken near Lyme Regis.

6. *O. muscaria* Fab.—*pygmæa* Fall.

End of May, Isle of Portland; July, Charmouth, Lyme Regis, and at Seaton, Devon, in great plenty, Mr. Dale.

7. *O. affinis* Dale's MSS.

Found in company with the last, of which it may be only a variety; it has the scutellum partly or entirely black; Mr. Dale.

8. *O. leonina* Panz. 58. 21.

A female taken at Pinny by Mr. Morris.

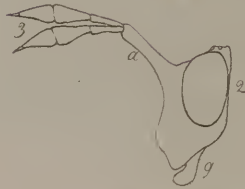
9. *O. analis* Meg., Meig.

From June 18th to July 1st, Glanville's Wootton, Mr. Dale; on small Oaks in a copse, J. C.

10. *O. terminata* Meg., Meig.

June and July, at Pinny, Mr. Morris; in a hedge with *O. pardalina*, J. C.

The Plant is *Epipactis ovata* (Common Twayblade).



## CERIA CONOPSOIDES.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach., Meig.*

*Type of the Genus Musca conopsoides Linn.*

CERIA *Fab., Lat., Meig., Ill., Leach.*—*Syrphus Panz.*—*Musca Linn.*  
*Antennæ* inserted at the extremity of a peduncle in front of the head, pubescent, 4-jointed, clavate, basal joint cylindric-clavate, 2nd and 3rd robust lanceolate compressed and velvety, the 4th forming an acuminate apex (fig. 3).

*Labrum* not so long as the lip, horny rounded, hollow to receive the tongue (1, b).

*Tongue* shorter than the labrum, acuminate (c).

*Mandibles* none.

*Maxillæ* short, bent and compressed (e). *Palpi* as long as the tongue, membranous compressed dilated, biarticulate, basal joint long, 2nd rhomboidal pubescent (f).

*Lip* large fleshy, terminated by 2 slightly pilose lobes (g).

*Proboscis* short, vertical (2 g). Head large vertical, with a horn in front (2 a). Eyes contiguous in the males (2\*), remote in the females. Ocelli 3 in triangle. Thorax quadratè rounded behind. Scutellum semicircular. Abdomen cylindric, subclavate, more robust in the females. Wings divaricating? containing about 10 perfect cells. Halteres small. Legs rather robust. Tibiæ subclavate. Tarsi 5-jointed, basal joint the longest, 4th very short, deeply cleft. Claws rather small. Pulvilli distinct (8, a fore leg).

CONOPSOIDES *Linn. Faun. Suec. 1790.*—*clavicornis Fab. Ent. Syst.* 4. 277. 1. *Meig. Syst. Besch.* 3. 160. 2.

Black, shining, thickly and minutely punctured, covered with very short pubescence. Head variegated with yellow, the process to which the antennæ are attached very long and ferruginous, base and apex of antennæ brown. Thorax with the anterior angles and 2 spots on each side above the insertion of the wings yellow, base of scutellum and halteres of the same colour; basal angles of abdomen and the margins of the 2nd 3rd and 4th segments pale yellow. Wings yellowish fuscous, a broad stripe upon the costa brown, nervures deep brown. Legs pale ferruginous; thighs black, except at their extremities; tibiæ fuscous towards their apex; posterior tarsi dull castaneous.

*In the Cabinet of the British Museum.*

THE extraordinary elongation of the head of *Ceria*, which forms a horn at the fore part, longer in some than in other species, will be an unerring mark to characterize the genus: the nervures of the wings are also peculiar as well as the incrassated basal angles of the abdomen.

Upon the continent two other species are known and described, one distinguished by a short peduncle (as the process has been called) to the antennæ, the other by the legs being entirely yellow, characters which might easily be overlooked by those who are not acquainted with the specific distinctions. The only species at present detected in this country is *C. conopsoides*, of which the female figured in the plate, presented by Dr. Leach to the British Museum many years back, is the only indigenous specimen that has come to our knowledge; and I regret that I am not able to give its locality or any satisfactory account of its capture: upon the continent our insect is found from May to October, and is not very uncommon.

The plant is *Briza media* (Common Quaker-grass or Maiden's Hair).



4. 21 \* 31

*Lamium proserpicum*



W. Curtis London May 1. 1820

## MICRODON APIFORMIS.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach.*

*Type of the Genus* *Mulio apiarius Fab.*

MICRODON *Ill., Meig.* *Musca Linn., De G. Mulio Fab. Syrphus Fab. Aphritis Lat., Leach. Stratiomys Panz.*

*Antennæ* considerably longer than the head, porrected, contiguous, inserted upon a tubercle at the top of the face, somewhat scabrous, 3-jointed, 1st joint long, slender at the base, 2nd short cupshaped, 3rd elongate-ovate, conic, near the base of which arises a seta as long as the joint, having a minute articulation at its base (f. 3).

*Labrum* short, horny, robust, obtuse (1, b).

*Tongue* as long as the labrum, slender, very acute (c).

*Mandibles* and *Maxillæ* none.

*Palpi* none?

*Lip* sub-membranaceous, retractile, hairy, bilobed, very much dilated (g).

*Proboscis* not longer than the head, nearly vertical. *Head* vertical, broad, short, obtuse (2). *Eyes* distant in both sexes, less so in the males. *Stemmata* 3. *Thorax* nearly globular. *Scutellum* emarginate behind. *Abdomen* large, trigonate. *Wings* incumbent, parallel, scarcely so long as the body. *Halteres* 2, small, distinct. *Legs* robust. *Tibiæ* posterior, slightly bent. *Tarsi* 5-jointed, articulated, dilated; 1st joint the longest, especially in the posterior pair, 2nd and 3rd transverse, 4th very small bilobed, 5th trigonate. *Claws* small. *Pulvilli* distinct (8 a fore leg).

APIFORMIS *De Geer, tab. 7. f. 18. 20. Meig. Syst. Besch. v. 3. p. 163. n. 1.—apiarius Fab. Syst. Ant. p. 185. n. 9.—auro-pubescent Lat. Hist. Nat. t. 14. p. 358.—mutabilis Panz. Faun. Germ. fasc. 82. pl. 21.*

Blackish green, tinged with yellowish purple, very pubescent, minutely punctured; face and abdomen densely covered with yellowish, shining, short hair. *Wings* pale fuscous, darkest round the nerves, sometimes slightly ferruginous. *Legs* ferruginous, with very short yellowish hairs. *Eyes* and *antennæ* black, *thighs* black excepting at their apex.

*Obs.*—The pubescence in some specimens is silvery, in others golden, varying probably according to the age of the insect.

*In the Author's and other Cabinets.*

THIS insect has been generally known as the *Aphritis auro-pubescent* of Latreille; but as Illiger in the 2nd volume of his

Magazine had previously established it as the genus *Microdon*, which has been adopted in both Meigen's works upon the *Diptera*, and De Geer having long since given it the specific name of *Apiformis*, following the principle upon which this work has been hitherto conducted, the original names have been restored.

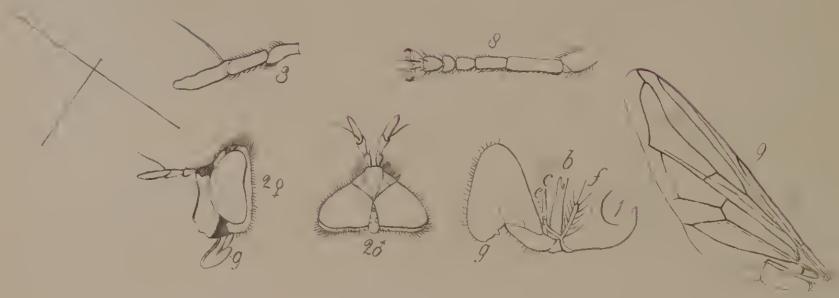
The genus *Microdon*, although decidedly distinct, is nearly related to, and, according to Meigen, connects *Ceria* and *Chrysotoxum*. I have to regret my inability to speak with certainty concerning the palpi, until recent specimens can be obtained; for after a careful examination of two examples of this rare insect, I could only discover the portion represented in the plate at fig. 1 *f*, which I suspect to be some extraneous substance, rendered still more probable by Meigen being silent upon the subject, and his figure only exhibiting the labium, tongue, and lip.

Meigen enumerates 4 European species; but that figured is the only one that has been found in our island, and which I believe was unknown to us until Mr. D. Bydder discovered it in the New Forest, where, however, it does not appear to be very common. I had the pleasure of seeing Mr. Dale beat one out of an oak in the beginning of June, near Lyndhurst, Hants; and he informs me that he has taken 3 off grass, and the birch, on the borders of Dorsetshire. It is common in the interior of France, upon heaths and in forests. It appears to be a long-lived insect, by the mutilated state of the wings of most specimens when taken, unless their shortness and strength assist in their destruction, or it may be occasioned by the short and frequent flights of the insect.

*Lamium purpureum* (Red Archangel) is the plant figured.

\* G. & M. p. 316





## CHRYSOTOXUM OCTOMACULATUM.

ORDER Diptera.

FAM. Syrphidæ.

*Type of the Genus, Musca arcuata Linn.*CHRYSOTOXUM Meig., Lat., Macq., Curt.—Syrphus Fab., Panz.—  
Mulio Fall.—Musca Linn.

*Antennæ* inserted on a small tubercle on the forehead, approximating, porrected, compressed, not longer than the head, 5-jointed, 2 basal joints rather elongated, nearly of equal length, and clavate, 2nd truncated obliquely, 3rd longer, subelliptic, 4th very minute, attached near the base of the 3rd, 5th a slender naked seta, scarcely longer than the 3rd joint (3).

*Labrum* rather large, horny, hollow, slightly tapering, with 2 short filaments and 2 lateral lobes at the apex (1 b).

*Tongue* rather shorter, lanceolate and acute (c).

*Maxillæ* short linear and curved, rounded at the apex (e).

*Palpi* longer, linear, straight, sparingly clothed with long hairs, the apex rounded (f).

*Lip* short but very large, the apex forming 2 large leathery lobes slightly hairy (g).

Head subtrigonal: eyes large, contiguous above in the male (2 ♂), remote in the female: ocelli 3 in triangle near the base; face vertical, concave, with a slight protuberance near the apex of the clypeus (2 ♀). Thorax subglobose: scutel transverse, semioval, unarmed. Abdomen broader than the thorax, ovate, subdepressed, sides margined. Wings long, divaricating, 4th longitudinal nervure sometimes sinuated (9): halteres small and clavate. Legs rather long and slender: thighs tapering to the apex: tibiæ clavate, curved, compressed towards the apex: tarsi 5-jointed, basal joint long, especially in the hinder pair, 4th joint lunate, 5th short: claws acute; pulvilli bilobed (8, a fore foot). Obs. The dissections are taken from *C. marginatum* Meig.

OCTOMACULATUM Curt. Guide, Gen. 1222. 5.

*In the Cabinets of Mr. Dale, Mr. Serrell, and the Author.*

MEIGEN places *Chrysotoxum* between *Microdon* (pl. 70), from which it is readily distinguished by the neururation of the wings, and *Psarus*, which has a linear abdomen, and antennæ attached to a distinct protuberance, the 3rd joint being short. The different species of *Chrysotoxum* fly about hedges, alighting upon the leaves and herbage; the following are British:

\* Eyes naked.

1. bicinctum Linn.—Panz. 45. 18.—Don. 10. pl. 346. 2.?

Abdomen black with 2 yellow bands; wings with a large brown patch on the costa.

June, July, Aug., Dover, Lulworth, Gl. Wootton, &amp;c.

2. arcuatum Linn.—Meig. 3. tab. 27. f. 7. ♀.

Abdomen black with 4 arcuated interrupted yellow bands.

June, July, Aug., flowers in hedges; abundant on Parley

Heath, Mr. Dale; Stourton Caundle, Mr. D. Serrell; Olden Barn, Hereford, Mr. Newman.

3. intermedium *Meig. v. 3. tab. 27. f. 6. ♂.*

“Abdomen black with 4 arcuated interrupted bands and the apex yellow.” *Meig.*

5. octomaculatum *Curt. Brit. Ent. pl. 653. ♀.*

Black, face ochreous with a black stripe down the middle, and one on each cheek; crown of the female with 2 pubescent yellowish spots behind the antennæ; base of seta ferruginous: thorax with 2 abbreviated grey stripes down the middle, a yellow interrupted stripe on each side and 3 yellow spots on the pleuræ: scutel margined with yellow: abdomen brown, with a broad arcuated yellow band on each segment, divided on the back by black spots uniting with the base, and a lunate fascia, which is black also in the 1st segment: nervures and stigma ferruginous, costa yellow; halteres and legs ochreous, tibiæ yellow.

August, on heath, by Bourne Mouth, J. C; near Lulworth and Portland, Mr. Dale; Stourton Caundle, Mr. Serrell.

\*\* *Eyes pubescent.*

4. fasciolatum *DeG.*—vespiformis *Fab.*—arcuatus *Panz. 2. 5.*

Abdomen black with 4 interrupted and 2 entire arcuated yellow bands, united on the sides, the apex yellow; scutel margined with yellow; wings immaculate.  
Rare, taken near Hammersmith.

6. marginatum *Meig. 171. 5.*—*Harr. Expo. pl. 15. f. 15.?*

Abdomen black with yellow pubescence; the yellow bands interrupted alternately; costa testaceous.  
June, Coomb, Glanville's Wootton, &c.

7. Scoticum *Curt. Guide.*

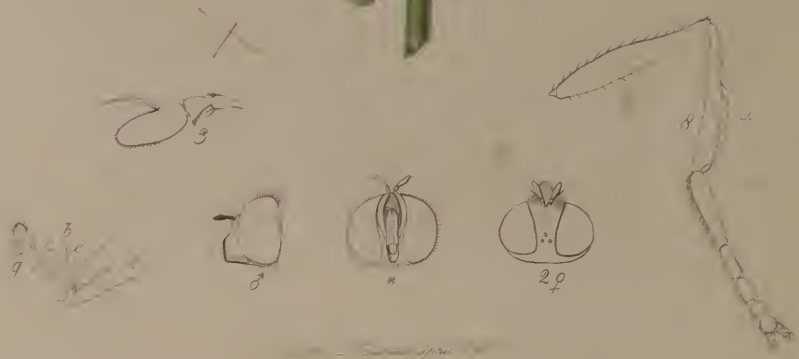
Black, shining, pubescent; face yellow with a black stripe down the middle, and one under each eye; seta ferruginous; 2 spots on the crown in the female and 2 stripes down the back of the thorax hoary, a broken yellow line on each side the thorax and 2 on the pleuræ; scutel yellow, dusky on the disc: abdomen short, broad and very convex, with an arcuated, interrupted, ochreous fascia on each segment, united on the sides to alternate entire bands: costa yellowish, stigma and nervures brownish-ochre; halteres yellow; legs bright ochre, base of thighs piceous; tibiæ yellow: length  $4\frac{3}{4}$  lines.

I took a pair the 23rd of August in the Isle of Skye.

8. hortensis *Meig. 173. 8.*—pubescens *Curt. Guide.*

Eyes hairy: abdomen black, the yellow bands alternately interrupted but united on the sides; scutel brown.  
I believe my specimen was taken in Scotland.

The Plant is *Hedypnois* (*Thrinicia* Roth) *hirta*, Deficient *Hedypnois*.



## PARAGUS SIGILLATUS.

ORDER Diptera.

FAM. Syrphidæ.

*Type of the Genus, Syrphus bicolor Fab.*PARAGUS *Lat., Meig., Curt.*—*Syrphus and Mulio Fab.*

*Antennæ* short, small and pubescent, inserted above the middle of the face, nearly contiguous, porrected and 4-jointed, basal joint a little elongated, pear-shaped, 2nd stouter obtrigonate, 3rd large, elongate-ovate, compressed, with a short curved naked seta attached towards the base at the upper side (3).

*Labrum* much shorter than the lip, hollow and notched at the apex (1 b).

*Tongue* shorter than the labrum, but strong horny and lanceolate (c).

*Maxillæ* shorter than the tongue, horny slender and curved (e); *Palpi* the same length, membranous, clavate and pubescent (f).

*Lip* as long as the head when exerted, slender and terminated by 2 hairy lobes surrounded by a membrane (g).

Head rather large: face produced below the antennæ (♂), smooth and forming an elliptical cavity to receive the trophi (\*): eyes large pubescent, meeting in front of the crown in the male, remote in the female (2 ♀): ocelli 3 in triangle, near the back of the head. Thorax suborbicular, not broader than the head: scutellum semicircular. Abdomen 6-jointed, scarcely so broad as the thorax, linear, stragulated at the middle, depressed at the base, a little convex at the apex. Wings rather small, parallel and incumbent in repose, the apical transverse nervure parallel to the margin and removed from it: halteres small and capitate. Legs rather short and slender: trochanters, posterior rather long: thighs and tibiæ simple, the latter a little clavate: tarsi 5-jointed, basal joint the longest and a little incrassated in the hinder pair, 4th and 5th joints short somewhat cup-shaped: claws and pulvilli distinct (8 †, a hind leg).

Obs. *P. obscurus Meg. was the species dissected.*

SIGILLATUS *Curt. Guide, Gen. 1224. 3<sup>a</sup>.*

Bluish-black, shining, minutely punctured and clothed with ochreous hairs: antennæ fuscous, with the 3rd joint ferruginous inside, especially at the base: eyes large and chocolate-colour: face pubescent, yellow, with the ridge down the middle and mouth black; halteres ochreous; a semiorbicular or trigonate ferruginous spot on the 3rd segment of the abdomen, the apex brownish: legs ochreous, base of thighs piceous, the apex yellow, as well as the base of the tibiæ.

*In the Author's Cabinet.*

PSARUS and Eumerus are related to Paragus, but the former has a protuberance in front of the head from which the an-

tennæ arise, and the latter has serrated posterior thighs and very short antennæ, and our pretty little group is readily distinguished by the shape of the abdomen, the 2nd and 3rd segments appearing as if a thread had been drawn tight round them at their attachment.

The following have been recorded as British species.

1. bicolor *Fab.*?—*Coquebert Icon. tab. 26. f. 9.*

“ Abdomen rufous; base and apex greenish-black; tip of scutellum white: 3 lines long.”

This and No. 2 are I believe in the British Museum.

2. arcuatus *Meig. v. 3. tab. 27. f. 20. & 21.*

“ Black, apex of scutellum white; abdomen with a testaceous fascia and 3 curved interrupted white bands: 3 lines.”

3. sigillatus *Curt. Brit. Ent. pl. 593. ♂.*

I have taken a single specimen at Darent I believe.

4. obscurus *Meg.—Meig. 3. 183. 12.*

Bluish-black, antennæ fuscous, face yellow with a black stripe; legs ferruginous, thighs black, the apex yellow as well as the base of the tibiæ:  $2\frac{1}{2}$  lines.

*Obs.* Sometimes the inside of the antennæ is slightly ferruginous in the male, and my *P. geniculatus* is a female with the base of the same colour.

I have taken both sexes on Hampstead Heath the beginning of July; they were flying over the ground, and so close to the surface, that it was difficult to catch them; I have also met with specimens at Dover the middle of the same month, and at Hurne, in Hampshire, the end of August.

6. femoratus *Meg.—Meig. 3. 184. 14.*

“ Black; hypostoma black, shining, with white hairs; legs yellow, thighs black, apex yellow; posterior tibiæ with a fuscous ring above the apex:  $1\frac{1}{2}$  line.”

Recorded by Mr. Stephens as inhabiting the neighbourhood of London.

The Plant is *Sonchus arvensis* (Corn Sow-thistle).



*Chelidonium* (L.)



## BACCHA ELONGATA.

ORDER Diptera.

FAM. Syrphidæ.

*Type of the Genus, Syrphus elongatus Fab.*BACCHA *Fab., Meig., Macq., Curt.*—*Syrphus Fab.*

*Antennæ* small, porrected, approximating at the base; inserted under a slight prominence in the middle of the face, 5-jointed, basal joint somewhat cup-shaped, 2nd broader, more bowl-shaped with strong bristles round the margin, 3rd the largest, pubescent, compressed, subovate or orbicular, the base emarginated, obliquely, 4th a minute joint inserted on the back of the 3rd near the base, 5th a rather short seta thickened and slightly pubescent externally at the base (3).

*Trophi* short and received into an oval cavity under the face.

*Labrum* large, broad, the apex bilobed with a spine in the centre, and a smaller one on each side (1 b).

*Tongue* longer stout horny and lanceolate (c).

*Maxillæ* short, slender, slightly curved and acute (e). *Palpi* longer, membranous, strap-shaped, slightly pubescent (f).

*Lip* rather short, stout, bilobed and hairy (g).

Head somewhat small, hemispherical, face globose, with a short concave space under the antennæ, formed by a shining tubercle on the clypeus (2 the profile, 2\* underside): eyes large, not very remote in the females, contiguous in the males: ocelli minute, 3 in triangle on the crown. Thorax small and oval: scutel semioval. Abdomen 6-jointed, elongated, clavate, very narrow at the base, the back slightly arched. Wings parallel and incumbent in repose, as long as the body and ample, the transverse nervures approximating on the disc, with a false longitudinal nervure passing through them: halteres capitate. Legs short and slender, hinder the longest: thighs and tibiæ very slender and simple: tarsi 5-jointed, basal joint the longest and slightly incrassated in the hinder pair (8†), 2nd oblong, the following turbinate, the 4th being the shortest: claws and pulvilli minute.

ELONGATA *Fab.*—*Curt. Guide, Gen. 1228. 1.*

Shining brassy-black, sparingly punctured and delicately pubescent: eyes and antennæ reddish-brown; head bluish-green, the face with grayish pubescence, tubercle black: thorax with a palish spot on each shoulder: scutel and base of abdomen chalybeous, base of 3rd and 4th segments with an ochreous band formed of 2 large spots, 5th with a small spot on each side: wings very iridescent, the base ochreous, costa towards the apex and the posterior margin suffused with brown, the stigmatic spot and sometimes the transverse nervures brown: halteres and legs ochreous, the hinder tarsi slightly dusky.

*In the Author's and other Cabinets.*



THIS little genus is readily distinguished from all other Syrphidæ by the long narrow clavate abdomen. Meigen gives a figure of the head of a male with the eyes contiguous, but I have never seen that sex, which is remarkable, and it proves the rarity of the males, whilst the females are by no means uncommon.

Whether all the species described by Meigen be distinct I am unable to determine; the essential differences are slight, and there seems to be intermediate varieties; even the specimen figured does not agree very well with that part of his description relating to the dusky transverse nervures; yet it cannot be the *B. scutellata*, which I first took it for, because Meigen only mentions yellow abdominal bands on the 4th and 5th segments. The following are recorded as British, but I possess only 3 of them.

1. *elongata* Fab.—*Curt. Brit. Ent. pl.* 737 ♀ ?

Taken in the vicinity of London, as well as Numbers 2, 3, and 6.

2. *scutellata* Meig. 3. 198. 2. Length, 5 lines.

Obscure æneous; scutel chalybeous; a abdomen with a yellow fascia on the 4th and sometimes 2 dots on the 5th segments; antennæ, stigma and transverse nervures fuscous.

3. *sphagina* Meig. 198. 3. Length  $4\frac{1}{2}$  lines.

“Obscure æneous; scutel of the same colour; abdomen with 2 yellow bands; antennæ rufous; wings immaculate.”

4. *obscuripennis* Meig. 199. 4. Length 4 lines.

Obscure æneous; antennæ fuscous; abdomen with 2 rufous bands, wings brownish.

June, banks, Bromley; 9th July, under Turk mountain, Killarney.

5. *tabida* Meig. 199. 5. Length 4 lines.

Obscure æneous, scutel chalybeous; abdomen with 2 yellow bands; stigma and transverse nervures fuscous; head black; antennæ rufous.

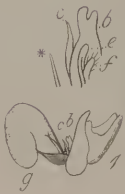
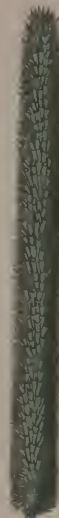
Middle of June, Knaresborough, hovering about flowers in shady places; Bury, Lancashire, Mr. I. Hutchinson.

6. *nigripennis* Meig. 200. 7.—*perexilis* Harr. *Expo. pl.* 24. f. 24.

“Length 3 lines. Æneous, abdomen with a yellow fascia; posterior legs fuscous; wings blackish with a fuscous stigma.”

In Stephens' systematic Catalogue Moses Harris's figure is referred to *B. obscuripennis*, but it cannot belong to that species, as the legs are reddish yellow, whereas Harris says the legs were black in his specimen.

The plant is *Agrostis vulgaris*, Fine Bent-grass.



Smithy & Co. Cambridge 1871

EUMERUS LITORALIS.

ORDER Diptera.

FAM. Syrphidæ.

Type of the Genus, *Syrphus tricolor* Fab.

EUMERUS Meig., Mcq., Curt.—Eristalis, Thereva Fab.—Syrphus Fab., Panz.—Milesia Lat.—Pipiza Fall.

Antennæ smallest in the male, inserted in front of the face, approximating, divaricating, small and 6-jointed, basal joint short, 2nd much larger, cup-shaped and bristly, 3rd large compressed, more or less ovate, the apex truncated obliquely with a fovea on the outside, 4th joint cup-shaped, seated towards the base of the 3rd, 4th small oblong, 5th a moderate seta incrassated towards the base (3).

Labrum very short and stout, the apex notched and lobed (b).

Tongue lanceolate (c) : a short piece (\*) which did not seem to be any portion of the tongue, was separated from it and attached closer to the base of the labium.

Maxillæ short horny lancets, a little falcated, the apex rounded (e). Palpi much shorter, linear, pubescent, the apex rounded and producing a few strong hairs (f).

Lip short thick, bilobed and slightly bristly (g).

Trophi received into a small orifice at the apex of the head (2\*) which is semiorbicular : face very hairy, simply convex : eyes large, more or less pubescent, meeting on the forehead in the males and leaving a long triangular space behind ; moderately remote in the females (2) : ocelli 3, forming a spacious triangle on the crown. Thorax scarcely broader than the head, orbicular-quadrate : scutel semiorbicular, the edge margined with short bristles. Abdomen subelliptic and depressed, or slightly convex with coarctate segments, the apex incurved and rounded, with the sexual organs beneath. Wings moderate, incumbent, parallel, the apical transverse nervure sinuated, somewhat bilobed : halteres capitata. Legs rather short, hinder longer and stout, with the thighs incrassate and serrated with a double row of minute teeth beneath towards the extremity : the tibiæ are curved and swell a little at the middle (8 ♂) : tarsi rather short and 5-jointed, basal joint short, longer and stouter in the hinder pair, 4th lunate, 5th short and broad : claws short : pulvilli bilobed.

LITORALIS Curt.—Guide, Gen. 1229.

Male shining greenish-black, punctured, face metallic green, with scattered white hairs : antennæ testaceous : eyes castaneous-brown : thorax with 2 narrow grey stripes down the back : abdomen bright ochreous, with 3 white lunules on each side of the three first segments, all of which are brownish at the base, 3rd and 4th slightly eneous : nervures piceous : legs brownish, anterior the darkest, base of tibiæ and of 4 anterior tarsi ochreous, hinder tibiæ with whitish pubescence.

In the Cabinets of Mr. Dale and Mr. Rudd.

THIS pretty genus of Syrphidæ is distinguished by spiny hinder thighs, by the scutel, which has a thin and sharp edge, somewhat denticulated, and the apical transverse nervure is lobed and sinuated very differently to congenerous groups.

Meigen has divided Eumerus into two sections, depending on the pubescence of the eyes; but as there are some species slightly pubescent, and age probably making a considerable difference in this respect in others, I fear it is not much to be relied upon; it is a point, however, which I cannot decide, having very few species: four of the following are admitted on the authority of the "Systematic Catalogue," where they are marked as inhabitants of the metropolitan district.

\* *Eyes hairy.*

1. *ornatus* Meig. 3. 205. 4. Length almost 4 lines.

"Thorax eneous, abdomen black, sides golden, with 3 pair of white lunules."

2. *ruficornis* Meig. 206. 5.—*fumipennis* Curt. ♂.

Thorax obscure eneous; abdomen black, with 3 pair of white lunules; antennæ and base of tibiæ rufous: length almost 4 lines.

I took a female, I believe at Coomb Wood, and a male in Norfolk with dark wings, which led me to consider it a distinct species.

\*\* *Eyes naked or almost naked.*

3. *strigatus* Fall.—Meig. 207. 7.—*annulatus* Pz. 60. 11.

"Thorax eneous with 2 white stripes: abdomen black with 3 pair of white lunules: tibiæ, excepting the hinder, rufous at the base: antennæ fuscous: 4 lines long."

4. *æneus* Macq. *Dip.* 1. 528. 11.

Metallic-green or blue, 4th abdominal segment with whitish pubescence: antennæ and legs black, base of tibiæ testaceous, tarsi of the same colour or blackish: length  $2\frac{3}{4}$  lines.

End of June, Clifton, near Bristol; end of July, flying about brambles in Coomb lane.

5. *funeralis* Meg.—Meig. 208. 9.

"Hypostoma somewhat cinereous: thorax eneous with 2 white stripes: abdomen black, with 3 pair of white lunules: legs black: full 3 lines."

6. *Selene* Meig. 210. 12.

"Eyes naked: black, thorax with 2 white stripes: abdomen with 3 pair of white lunules: 2nd segment testaceous:  $2\frac{1}{2}$  lines."

7. *litoralis* Curt. *Brit. Ent.*, pl. 749. ♂.

Three specimens of this nondescript were taken by the Rev. G. T. Rudd, and two by Mr. Dale, on the sand hills near Christchurch, the middle of August.

The Plant is *Phleum pratense*, Common Timothy grass.



Pub. by J. Curtis, Ed. 1. 1800

## XYLOTA BIFASCIATA.

ORDER Diptera. FAM. Syrphidæ.

*Type of the Genus, Musca segnis Linn.*

XYLOTA Meig., Curt.—Syrphus Fab., Panz.—Milesia Fab., Lat.—Merodon, Scæva and Thereva Fab.—Eristalis Fall.—Musca Linn.

*Antennæ* approximating, attached to a tubercle in front of the face (2), small porrected, nodding, 6-jointed, basal joint subquadrate, 2nd somewhat cup-shaped producing a few strong bristles, longest beneath, 3rd large subovate, fleshy and pubescent, 4th and 5th very minute, inserted near the base of the 3rd on the upper edge, 6th forming a long seta, slightly pubescent towards the base (3).

*Labrum* short, very robust and hollow, the apex notched (1 b).

*Tongue* not longer than the labrum, strong and acute (c).

*Maxillæ* short and slender (e). *Palpi* as long as the maxillæ, to which they are attached, slender and subclavate, producing long hairs on the upper side (f).

*Lip* rather large, perfectly bilobed and slightly pubescent (g).

Head broad, semiglobose, with a tubercle in front of the face, and concave below (2). Eyes large subovate, meeting before in the male, slightly remote in the female (2\*). Ocelli 3 in triangle. Thorax oblong. Scutellum semicircular. Abdomen sublinear, obtuse in the males, more conical in the females. Wings parallel and incumbent in repose, very like those of *Tropidia*, discoidal transverse nervure oblique. Halteres capitata. Trochanters, posterior sometimes with a long spine beneath in the male. Thighs; posterior incrassated, with numerous spines beneath. Tibiæ; posterior curved, the interior margin sinuated. Tarsi as long as the tibiæ, basal joint long, 4th bilobed, 5th short obtrigonal. Pulvilli large. Claws simple (8†, hind leg of male).

BIFASCIATA Meig. 3. 219. 10.—Curt. Guide, Gen. 1230.

Black, shining: face clothed with white pubescence; 3rd joint of antennæ brown: eyes reddish brown. Thorax and scutellum brassy with a spot of white pubescence at each shoulder, 1st and 4th joints of abdomen brassy gray, 2nd and 3rd joints with interrupted bright ochreous bands, forming 4 equal spots. Wings pale fuscous. Halteres pale ferruginous. Tips of 4 anterior thighs, and base of all the tibiæ ochreous. Tarsi ochreous, posterior piceous, tips of all black.

*In the Author's and other Cabinets.*

THE general appearance of some of the *Xylotæ* is so like *Tropidia*, that they may be easily confounded. *Xylota* is, however, distinguished by the posterior thighs of the males having no tooth, but a series of spiny bristles beneath; the 3rd joint of the antennæ is rounded, not truncated obliquely; the face

is concave below; the lip is large, and the rest of the trophi small. *X. pipiens* differs so widely from the others, that I have been compelled to separate it: and I shall here give the characters that distinguish it, and the name assigned to it by St. Fargeau and Serville, viz.

SYRITTA.

Face scarcely tubercled. Eyes with a large portion behind not united in the males. Wings with the discoidal transverse nervure united at right angles. Posterior thighs elongate ovate, dilated, especially towards the apex. Tarsi; posterior with the basal joint short and dilated.

1. *S. pipiens* Linn.—Panz. 32. 20.—Harris, pl. 32. f. 48.

May to the middle of August, flying about flowers, especially mint, in hedges and gardens everywhere.

XYLOTA.

- 1<sup>a</sup>. *X. abiens* Wied.—Meig. 3. 218. 9.

I am able to add 3 species unrecorded as British, this being one. I believe I took it in the Isle of Wight, and it may easily be mistaken for the female of *Syritta*.

- 1<sup>b</sup>. *X. bifasciata* Meig.—Curt. Brit. Ent. pl. 425. ♂.

This handsome insect has never been recorded as British, or figured in any work. Taken the beginning of June on the slapers of trees, and the trunks of those felled and barked in the New Forest; also on plants in ditches at Whittlesea Mere in July.

2. *X. segnis* Linn.—Panz. 60. 3.—*Brassicaria* Don. 5. pl. 151. f. 1.—*fucatus* Harr. pl. 24. f. 29.

The spine produced by the posterior trochanters of the male (f. 8†), has never been observed by any writer. On trunks of felled trees, New Forest, and on Laurels in May and June at Southgate; m. August, Dover.

3. *X. ignava* Panz. 60. f. 4. Recorded as found near London.

4. *X. lenta* Meig.—*piger* Panz. 60. 5.

Beginning of June on slapers of felled trees New Forest; in fields, margins of woods, Southgate; and end of May, Southampton, Mr. F. Walker: Dinmore, Hereford, Mr. Newman.

5. *X. sylvarum* Linn.—*impiger* Panz. 45. 21.—*longisco* Harr. pl. 24. f. 30.

Posterior trochanters bidentate in the males. On flowers of Dandelion (pl. 248): plants in lanes July and August, Mr. Walker.

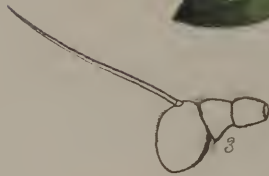
6. *X. lateralis* Fall.—Meig. 3. 224. 18.—*Thereva dubia* Fab.—*M. luteola* Gmel.

I took a female at Whittlesea Mere, which agrees admirably with Fabricius's description; but it may be added, that the posterior tarsi are ochreous, tipped with black.

The Plant is *Bunium flexuosum* (Common Earth-nut).



*Euphorbia amygdaloides* v. 11.15



Dist. by J. Curtis London Aug 1 1894



## MILESIA SPECIOSA.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach.*

*Type of the Genus Milesia speciosa.*

MILESIA *Fab., Lat., Meig. Musca Linn.*

*Antennæ* porrected, inserted upon a tubercle in front of the head, 3-jointed; first joint cylindrical; second short dilated anteriorly; third large, somewhat ovate, with a seta arising from a minute tubercle upon the superior margin towards the base. (3.)

*Labrum* very horny, robust, semi-cylindric, hollow, the apex bifid with three small teeth in the centre. (1. b.)

*Tongue* not so long as the labrum, corneous, flat, acute, keeled beneath. (c.)

*Mandibles* none.

*Maxillæ* small, horny, compressed, lanceolate, acute. (e.)

*Palpi* two, considerably longer than the maxillæ, received into the superior canal of the lip, membranaceous, hairy, clavate. (f.)

*Mentum* short, hollow, enveloping the base of the lip, terminating obliquely. (h.)

*Lip* sub-membranaceous, rough, hairy, retractile, bifid; lobes large, elongated, oval. (g.)

*Proboscis* not longer than the head, nearly vertical. Head produced in front. (2.) *Clypeus* impressed, smooth, shining. Eyes approximating in the females, contiguous in the males above. *Stemmata* three. *Halteres* two, small. *Abdomen* cylindrical. *Wings* incumbent, parallel; intermediate transverse nerve oblique. *Legs* robust, posterior the largest; thighs scarcely incrassated, without teeth. *Tibiæ* bent. *Tarsi* 5-jointed. *Pulvilli* two. (8. a fore leg.)

SPECIOSA *Fab. Syst. Ant. 188. 6. Meig. Syst. Bes. v. 3. p. 234. n. 7.*

Obscure, æneous, glossy, hairy. Face and antennæ pale ferruginous. Thorax with two white spots at the anterior angles. Abdomen with the margins of the segments pure black, the hairs forming four shining yellowish bands, and a line down the back. Wings yellowish, ferruginous towards the costa, and brunneous towards the apex. Legs yellowish brown, thighs black at their base.

*In the Author's and other Cabinets.*

THE Genus *Milesia* as laid down by Latreille comprised numerous Genera of Fabricius and Meigen, which rendered it extremely difficult to study and determine the species of the

numerous divisions which he gave: this difficulty, however, is greatly removed by Meigen in his last work, although I am at a loss to account for his having dropped the Genus *Spilomyia*, as his first subdivision of *Milesia* (none of which are British) appear to belong to that Genus as at first established, since from their posterior thighs being toothed they do not associate well with our Genus *Milesia*: of his 2d subdivision with posterior thighs without teeth, five species are described by him, the only one of which found in this country is figured in the Plate.

It is now several years since this fine and rare insect was discovered in the New Forest by Mr. D. Bydder, and the beginning of June of the present year I took four near Brockenhurst; they appear to delight in settling in the thickest parts of the Forest, where a partial shadow is thrown by the surrounding foliage upon the trunks of trees, or the flat surface remaining where they have been felled.

The female is much more rare than the male (a figure of which is given), and differs only in the eyes being separated from each other, and the apex of the abdomen being more acute.

Having taken a pair off *Euphorbia amygdaloides* (Wood Spurge), which was full in blossom at the time, it is figured with the insect.



## PIPIZA BIGUTTATA.

ORDER Diptera.

FAM. Syrphidæ.

*Type of the Genus, Musca noctiluca Linn.*PIPIZA *Fall., Meig., Macq., Curt.*—*Eristalis, Mulio Fab.*—*Musca Linn.*

*Antennæ* attached to the prominent margin of the forehead, short, porrected, 5-jointed, basal joint bristly, elongate, subpyriform-truncate, 2nd bristly, obconic, truncated at the base, 3rd large, velvety, subrhomboidal, compressed, a little hollowed at the base, 4th minute, inserted on the back of the 3rd near the base, 5th a stout, shortish, pubescent seta, slender at the apex (3).

*Trophi* short and concealed in a cavity under the head.

*Labrum* short, stout, trifold at the apex (1 b).

*Tongue* shorter than the labrum broad and ovate (c).

*Maxillæ* a little longer, lanceolate and acute (e).

*Palpi* as long, thick and pubescent, rounded at the apex (f).

*Lip* short and very thick, forming a large globose bilobed mass (g).

Head *transverse, semioval*: face *transverse-ovate, the forehead projecting* (2); clypeus *even* (♀): eyes *large, pubescent, meeting on the crown in the male, (♂), remote in the female*: ocelli *3 in triangle*. Thorax *globose*: scutel *semioval*. Abdomen *elongate-ovate, or elliptical*. Wings *parallel, incumbent, iridescent, rather short in some, the transverse nervure more or less waved and oblique, with a peduncle at the apex* (9). Halteres *small and capitate*. Legs *short and stout, hinder the longest and stoutest*: thighs *simple, hinder sometimes slightly thickened*: tibiæ, *hinder curved, with a slight tubercle on the inside towards the base*: tarsi *5-jointed, basal joint the longest, incrassated in the hinder, 4th lunate*: claws and pulvilli *moderately large*.

BIGUTTATA *Curt. Guide, Gen. 1234. 11<sup>b</sup>.*

Head thorax and scutel shining bluish-black, the two latter finely but sparingly punctured, clothed with a few short white hairs: antennæ dark brown, 3rd joint the longest. Abdomen dull violaceous-black, thickly punctured, with 2 ochreous spots on the 2nd segment, forming one large spot beneath: wings rather short, nervures piceous; halteres ochreous: legs shining black, tips of thighs and base of tibiæ ochreous, basal joint of anterior tarsi, 2 basal joints of intermediate, and the 2nd joint in the hinder pair ochreous.

*In the Cabinets of Mr. Dale and the Author.*

*PIPIZA* is nearly related to *Psilota* and also to *Milesia*, but is at once distinguished by the profile, the clypeus being plain or rounded, whereas in the cognate groups it projects, making the face concave. The *Pipizæ* delight in sunshine, and not only frequent flowers, but often settle on the leaves of laurels, hazels, brambles, &c. The following British species are thus divided :

A. *Transverse terminal nervure oblique* (9).

a. *Abdomen with yellow bands or spots.*

1. *Artemis* Meig. v. 3. p. 244. n. 5.
2. *noctiluca* Linn.—Don. 10. 346. 4.—*rosarum* Panz. 95. 21.
3. *genuiculata* Meig. Taken by Mr. Dale.
4. *signata* Meig. End of June on ranunculus flowers in a meadow at Glanville's Wootton, and July Glengariff: J. C.
5. *bimaculata* Meig.
6. *notata* Meig. 20th May, Coomb Wood.
7. *lucida* Meig. 8. *guttata* Meig.
9. *fenestrata* Meig.? 10. *vitrea* Meig.

b. *Abdomen unspotted.*

11. *funnebris* Meig.
12. *lugubris* Fab.—*mæsta* Gmel. 20th June, Glanville's Wootton.

B. *Transverse terminal nervure perpendicular at the base.*

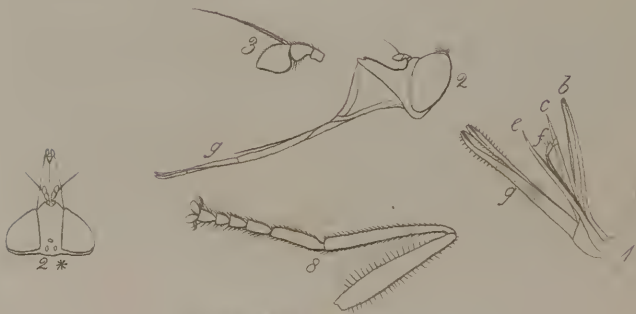
(*Vide the coloured figure.*)

13. *biguttata* Curt. Brit. Ent. pl. 669. ♀.  
Taken by Mr. Dale at Ambleside and Glanville's Wootton.
14. *melancholica* Meig.
15. *annulata* Macq. Hist. des Ins. Dipt. v. 1. p. 572. n. 16.  
End of June, Isle of Portland, J. C.
16. *virens* Fab.? May, Southgate.
17. *fulvitarsis* Macq.
18. *albitarsis* Meig.  
Beginning of June, New Forest. I have a male specimen with seven perfect legs, the duplicate being a hinder leg on the right side.
19. *carbonaria* Meig. 20. *chalybeata* Meig.
21. *vitripennis* Meig. 22. *interrupta* Hal.

The Plant is *Ægopodium Podagraria*, Gout-weed or Herb Gerard.



*Lychnis diurna*  
 f. III Pl. 116, VI Pl. 150



## RHINGIA CAMPESTRIS.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach.**Type of the Genus Conops rostrata Linn.*RHINGIA *Scop., Fab., Lat., Meig., Panz.*—*Conops Linn.*—*Musca DeGeer.*

*Antennæ* inserted in front on an elevated portion of the head, porrected; 5-jointed, basal joint small, 2nd larger subclavate pilose, 3rd the largest subcordiform, 4th minute, inserted on the side of the 3rd near the base producing a long slightly pubescent bristle (fig. 3).

*Labrum* long broad, hollow thin transparent, trilobed at the apex (1, b).

*Tongue* nearly as long as the labrum, thin transparent, lanceolate (c).

*Mandibles* none.

*Maxillæ* as long as the tongue, slender acute (e). *Palpi* long, united to the maxillæ at their base, detached towards the extremity, which is bent clavate and slightly hairy (f).

*Lip* retractile long fleshy pilose, terminated by 2 long lobes (g). *Proboscis* very long. (2 g). Head *subtrigonate*. *Nasus* produced, forming a long conical horn, hollow to receive the proboscis. *Eyes* contiguous in the males, remote in the females (2 \*). *Ocelli* 3 in triangle at the base of the head. *Thorax* globose. *Scutellum* semi-orbicular. *Abdomen* ovate shorter than the *Wings*, which are horizontal and incumbent when at rest, containing about 13 cells. *Halteres* small clavate. *Legs* simple. *Tarsi* 5-jointed, basal joint the longest and robust in the hinder pair, 4th joint minute. *Pulvilli* and *Claws* distinct (8, a fore leg).

CAMPESTRIS *Meig. Syst. Besch. v. 3. p. 259. n. 2.*—*rostrata DeGeer, v. 6. tab. 7. f. 21—23.*

*Nose* ochraceous black at the apex. *Eyes* rosy black. *Thorax* æneous black, with 2 pale abbreviated lines on the back. *Scutellum* dull castaneous. *Abdomen* bright ochre; basal joint, margins of the segments, a line on each side, and another down the back tapering to the apex, dark brown. *Wings* slightly iridescent, yellowish fuscous, darkest at the costa, nervures brown. *Legs* dull ochre. *Thighs* black at the base: *tibiæ* with a dark ring in the middle most distinct in the hinder pair: *tarsi* blackish above.

*In the Author's and other Cabinets.*

THE very prominent horn in front of the head, as well as the remarkably long rostrum which this insect inserts into flowers whilst on the wing, are sufficient characters to mark the genus *Rhingia*, of which there are but two European species known, and both of them are inhabitants of this country.

1. *R. campestris* Meig. 3. 259.

Common in May, June, and July, flying round and settling upon flowers in gardens, or sunny banks, &c.

2. *R. rostrata* Linn.—*Fab.*, *Panz.* 87. 22.

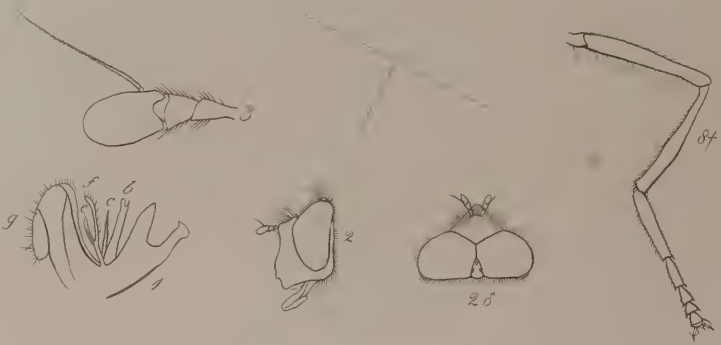
Less common than the other species; it is attached to the same situations; and has been observed from June to September in the neighbourhood of London and in the counties of Devon and Westmoreland.

The species figured (*R. campestris*) has been universally considered in this country as the *Conops rostrata* of Linnæus; but upon consulting his description we perfectly coincide with Meigen, to whom we are indebted for this correction, that the insect figured by Panzer answers best to the definition in the *Systema Naturæ*.

*Lychnis dioica*, var. *diurna*<sup>m</sup> (Red Champion), figured in the plate, is a plant to the flowers of which our genus is particularly attached.

*g. & H. p. 53, Synonymet p. 35*





Tab. by S. F. ...

## SYRPHUS LUCORUM.

ORDER Diptera.

FAM. Syrphidæ.

*Type of the Genus, Musca Lucorum Linn.*SYRPHUS *Fab., Meig., Macq., Curt.*—*Eristalis Fab., Lat.*—*Cheilosia Macq.*—*Musca Linn., Fab.*

*Antennæ* inserted on a slight prominence in front of the forehead, small, porrected, approximating at the base, 5-jointed, basal joint elongated, pyriform-truncate, very bristly as well as the 2nd, which is shorter and stouter, narrowest at the base, 3rd large, velvety, ovate, compressed, 4th a minute joint inserted near the base on the back of the 3rd; 5th a moderately stout and very pubescent seta, naked at the apex (3).

*Labrum* long, stout, hollow, the apex bilobed with a spine in the centre (1 *b*).

Tongue shorter, attenuated and acute (*c*).

*Maxilla* nearly as long as the tongue, slender and curved (*e*).

*Palpi* as long as the labrum, slender, nearly linear, pubescent, slightly pilose, the apex rounded (*f*).

*Lip* rather long when extended, large bilobed and hairy (*g*).

*Trophi* received into a large oval cavity. Head rather large, trigonate, a little broader than the thorax; face concave, the apex a little elongated, with a smooth tubercle on the nasus, which is notched (2 the profile): eyes large, vertical, hairy, contiguous on the crown in the males (2 ♂), moderately remote in the females: ocelli 3 in triangle near the base. Thorax ovate-truncate: scutel semiorbicular. Abdomen broader than the thorax, slightly convex, elongate-ovate. Wings incumbent and parallel, with 2 transverse nervures on the disc, and 2 parallel to the margin, one being waved, 2nd longitudinal nervure slightly undulating: halteres small, capitata. Legs slender, hinder the longest (8†): thighs, anterior a little thickened at the base: tibiæ slightly waved: tarsi 5-jointed, hinder attenuated, basal joint the longest, 4th the shortest, sublunate in the anterior, 5th short obovate: claws strong: pulvilli bilobed.

LUCORUM *Linn.*—*Curt. Guide, Gen. 1239. 23.*

Face whitish-ochre, crown with orange hairs, a stripe on the clypeus piceous; beneath bluish-brown: antennæ black: thorax dull olive-green with paler stripes, densely clothed with bright orange pubescence, especially the basal portion: scutel ochreous, with orange hairs: abdomen hairy, basal joint black, 2nd bright ochreous with a short black line on the back, 3rd segment chalybeous, the hairs black; the remainder chalybeous or greenish, with ochreous hairs: wings with a large brown patch on the disc, extending from the brown stigma to the centre: halteres brown: legs black, apex of thighs and basal half of tibiæ pale ochreous.

SYRPHUS being an extensive *Fabrician* group, containing the most heterogeneous types, it is necessary, in accordance with the objects of this work, to illustrate the genus, otherwise as that portion of it which is now indicated by the title of Syrphus is closely allied to Scæva (pl. 509), and the typical species of Fabricius being synonymous with Volucella (pl. 452), it might have been very well passed over. The principal distinctions between Syrphus and Scæva are to be found in the form of the head, and the greater length of the palpi. The following list comprises those species most worthy of notice, the remainder will be found in the Guide.

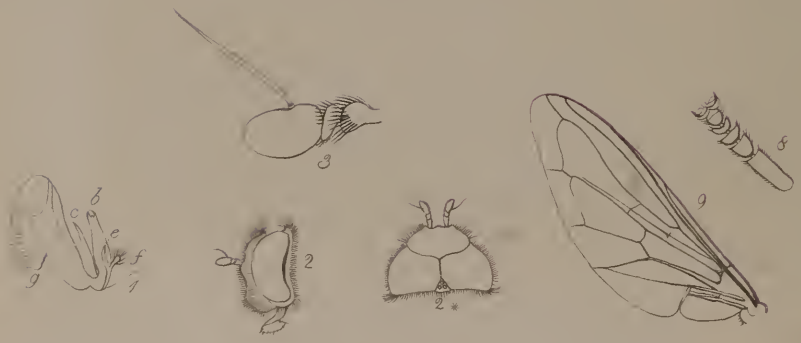
1. ruficornis *Fab.*—*Panz.* 77. 20.—July, Aug., Sept., trunks of trees, Dover, and Heron Court: bred by the Rev. G. T. Rudd from pupæ found in red fungi at the base of oak-trees.
2. œstraceus *Linn.*—*rupestris Panz.* 59. 13.  
July, on flowers by the sides of banks and ditches.
3. chrysocomus *Meig.* v. 3. p. 280. 4.  
Bottisham, Cambridgeshire, Rev. L. Jenyns.
4. grossus *Fall.*—*Corydon Harris.* *Expo.* pl. 32. f. 36.  
April, Covehithe, Suffolk: the abdomen was yellowish at the base when alive.
5. variabilis *Panz.* 60. 10.—*ater and nigrita Fab.*  
May, Battersea Fields, June, Darent, on flowers.
6. nigrinus *Meig.*—*Harris,* pl. 32. f. 37.
7. nigripes *Meig.*—July, Deptford, Waller Clifton, Esq.
8. Viduus *Meig.*—*viduata Fab.*—*Bardus Harris,* pl. 32. f. 39?  
June, Knaresborough, and Glanville's Wootton.
11. scutellatus *Fall.*—*Meig.* pl. 30. f. 29. 30. ♀. August, Ramsdown.
12. means *Fab.*—August, in Arran and Skye, Scotland.
13. flavicornis *Fab.*—July, Coomb Wood.
17. flavipes *Panz.* 54. 10.—June, Coomb Wood.
18. albitarsis *Meig.*—May, Dorsetshire, J. C. Dale, Esq.
19. antiquus *Meig.*—October, Heron Court.
- 22<sup>b</sup>. maculatus *Meig.*—Ireland, A. H. Haliday, Esq.
24. Lucorum *Linn.*—*Curt. Brit. Ent.* pl. 753 ♀.

This differs so much in habit from most of the foregoing species, that Macquart has placed it with his Syrphi, which are our Scævæ, but it comes very near to *S. œstraceus*, next to which, perhaps, it ought to be placed: it is found on white-thorn flowers, but not commonly, in the spring.

The Plant is *Marrubium vulgare*, White Horehound.



*Fragaria stultia*



*Melanosoma* (SCÆVA) UNICOLOR. *Meig.*

ORDER Diptera.

FAM. Syrphidæ.

*Type of the Genus, Musca Pyrastris Linn.*SCÆVA *Fab., Fall., Curt.*—Syrphus *Fab., Meig., Lat.*—Musca *Linn.*

*Antennæ* inserted a little above the middle of the face, short, porrected, 5-jointed, two basal joints furnished with long spiny bristles, the 1st subovate, the 2nd short and cup-shaped, 3rd large fleshy and ovate, 4th minute, inserted on the back of the 3rd, 5th a moderately long naked seta, a little attenuated to the base and pointed at the apex (3).

*Trophi* short, inserted in a small cavity beneath the head.

*Labrum* considerably shorter than the lip, broad concave and notched at the apex (1 *b*).

*Tongue* nearly as long as the lip and lanceolate (*c*).

*Maxillæ* very small, curved and lanceolate (*e*). *Palpi* very short, a little clavate and furnished with a few long hairs (*f*).

*Lip* large and terminated by 2 fleshy lobes, slightly hairy (*g*).

Head large, hemispherical, face sinuated in profile and thickly clothed with pile (2): eyes large, lateral, slightly kidney-shaped, very pubescent, contiguous above in the male (2\*), but separated in the female: ocelli 3, placed on a slight eminence at the back of the crown. Thorax globose-quadrate: scutellum semiorbicular. Abdomen depressed, and somewhat elliptical-ovate. Wings incumbent and parallel in repose, the 4th longitudinal nervure not lobed, stigmata coloured (9). Halteres small and capitata. Legs small, especially the anterior pair: tibiæ simple, slightly curved at the middle: tarsi depressed, 5-jointed, basal joint the longest, especially in the hinder pair, 2nd turbinate, 3rd cup-shaped, 4th lunate, 5th small subovate (8 the anterior tarsus); claws curved, pulvilli bilobed.

Larvæ attenuated to the head, feeding on Aphides. Pupæ somewhat ovate pear-shaped, generally attached to the leaves or stalks of plants. *Reaumur v. 3. pl. 30. and 31.*

UNICOLOR *Curt. Guide, Gen. 1240. No. 9.*

Chalybeous-black clothed with yellowish pubescence; face pale ochreous, with a pitchy line down the centre, darkest below, crown of head brownish, region of the ocelli black; eyes reddish brown; antennæ blackish, seta and underside excepting the 3rd joint ferruginous; sides of thorax and scutellum ochreous, with a chalybeous tinge, 2 last joints of abdomen margined with ochre, as well as all the segments beneath: wings hyaline, nervures piceous, subochreous at the base, subcostal cell stained with brownish-ochre: halteres whitish ochre: legs ferruginous, thighs piceous at the base, posterior with the apex only ferruginous, their tibiæ having a dusky line across the middle: tarsi piceous above.

*In the Author's Cabinet.*

SYRPHUS of Meigen is so large a group that it would be very desirable to divide it if good generic characters could be found; but I am not prepared to say that *Scæva* differs from *Syrphus* in structure, although the species may be distinguished by their transparent and immaculate wings, and their ornamented and very depressed abdomens; the clypeus also seems to be less tuberculated and projecting than in the *Syrphi*.

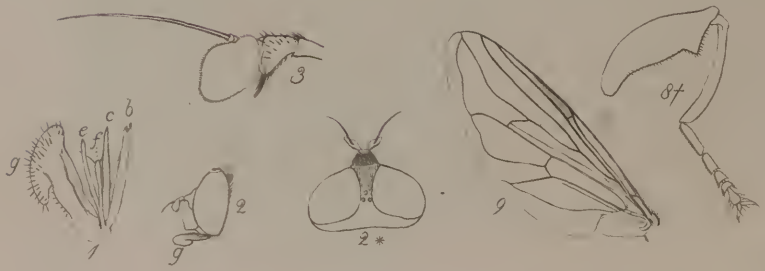
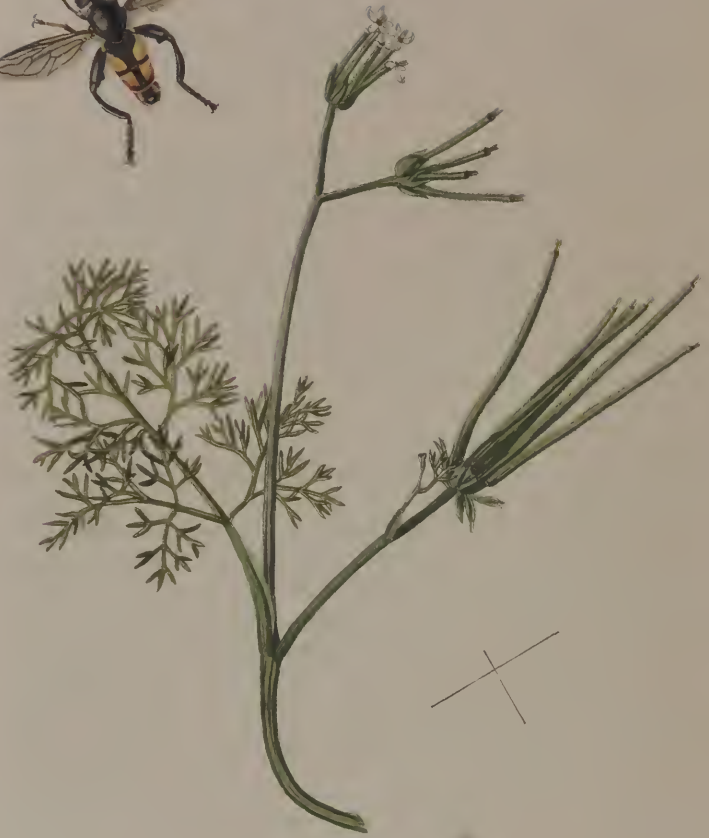
Restricted as the Genus now is, it contains 28 species inhabiting this country, for a list of which I must refer to the Guide.

The rare Insect figured may be only a singular variety of *S. selenitica* wanting the yellow spots on the abdomen: it was taken, I think, in the neighbourhood of London.

Two of the species (*S. Pyrastris* Linn., and *S. selenitica* Meig., which is probably only a variety of the former,) sometimes appear in myriads on the sea-coast, all flying in one direction, and not even avoiding objects that lie in their course. A Lady informed me that on Thursday the 30th of July 1818, which was a very hot day, they quite covered the fishermen's boats at sea off Broadstairs: the next day was cloudy with several slight showers, when scarcely any were to be seen. Saturday and Sunday were warm days, when a few were observed flying about, and on the Monday they had entirely disappeared. They were equally abundant at Ramsgate and at the Nore. The larvæ of these flies feed on Aphides, and are, I believe, of great value in clearing the Hop-grounds of that destructive insect: they are so admirably described by Rusticus in the Entomological Magazine that I cannot refrain from giving his account of them. "Besides the Lady-bird and its grub, there are two other terrible enemies to the poor Aphis; one of which is a green ungainly-looking grub, without legs, which lies flat on the surface of the leaf, and stretches out its neck, just like a leech, till it touches one of them; directly he feels one he seizes it in his teeth, and holds it up, wriggling in the air till he has sucked all the goodness out of it, and left it a mere empty skin." Equally interesting accounts will be found in the 1st vol. of Kirby and Spence's Introduction to Entomology, p. 257. and vol. 2. p. 275. I may add that I found the larvæ of *S. Pyrastris* in some abundance in the middle of July 1829, on the Sea-cabbages (pl. 352.) growing under Dover Cliffs. The flies appear from June to the middle of October, hovering over flowers in gardens and hedges. I have observed them on paling in the morning at the end of September, and the beginning of October I have found the females resting, and the males at the same time on the wing, but much less numerous than the other sex.

The Plant is *Fragaria sterilis* (Barren Strawberry).

✓ *Fragaria sterilis* Linn. p. 124





## TROPIDIA RUFOMACULATA.

ORDER Diptera. FAM. Syrphidæ.

*Type of the Genus, Eristalis milesiformis Fall.*

TROPIDIA Meig., Curt.—Eristalis Fall.—Musca Harr.

*Antennæ* inserted in a small cavity at the upper part of a protuberance, near the middle of the face, approximating, small, 6-jointed, basal joint short cylindric, 2nd stouter pilose, somewhat obconic, 3rd very large rhomboidal, rather fleshy and velvety, 4th and 5th very small, inserted near the base of the 3rd on the upper side, 6th a long naked bristle (3).

*Labrum* long and hollow, the apex emarginate (1 b).

*Tongue* as long as the labrum rather long horny and acute (c).

*Maxillæ* nearly as long as the tongue and sublanceolate (e).

*Palpi* shorter than the maxillæ, to the sides of which they are attached, slender, slightly clavate and pilose (f).

*Lip* rather large, sometimes prorected horizontally, terminated by 2 large pilose lobes (g).

Head *semiglobose*: face *projecting in a keel over the clypeus*. Eyes *large oval meeting before in the male, approximating in the female (2\*)*. Ocelli 3 *in triangle*. Thorax *subquadrate-globose*. Scutellum *semicircular*. Abdomen *incrassated at the apex beneath, and furnished with 2 short appendages and 2 fascicles of curved hair in the males*.

Wings *pubescent parallel and incumbent in repose*. Halteres *small and capitate*. Legs *small, excepting the hinder pair which are large with the thighs incrassated, producing a strong triangular tooth beneath towards the apex (8†)*: the tibiæ *are stout and curved*. Tarsi *5-jointed, basal joint the longest, 4th crescent-shaped, 5th obconic*.

Claws and Pulvilli *distinct*.

Obs. *The species figured was also the one dissected.*

RUFOMACULATA Curt. *Guide, Gen.* 1243. 1.—*milesiformis?* Meig. 3. 347. 2.

Black, shining and pubescent: antennæ and eyes castaneous; face clothed with white pubescence, as well as the underside of the thorax, a spot on each shoulder and one near the base of each wing: scutellum with the posterior margin ochreous: abdomen with the 2nd and 3rd segments orange ochre which colour extends over the tips of the basal joint; the posterior margins ferruginous-brown with a black stripe down the centre, 4th segment with a small ochreous spot on the centre and a large space on each side at the base covered with grey pubescence: wings iridescent, slightly tinged with yellowish fuscous, the nervures and stigma brown: halteres pale yellow: 4 anterior feet with the tips of the thighs, the base of the tibiæ and the tarsi (excepting the penultimate joint which is black) ferruginous-ochre, a very small space at the base of the posterior tibiæ of the same colour.

*In the Author's and other Cabinets.*



TROPIDIA so nearly resembles Xylota, that I do not think it is natural to place them so far apart as Meigen has done; indeed the *X. bifasciata* of that author has so much the appearance of a Tropidia, that I once included it in that genus. The best distinguishing character perhaps is the triangular tooth on the underside of the posterior thighs in Tropidia, which is wanting in Xylota.

In their habits also, the *T. rufomaculata* and *X. bifasciata* are very similar, for they are frequently taken together; such was the case at Whittlesea Mere, where on flowers in the ditches Mr. Dale and myself found both of them in abundance on the 18th of July; and in an excursion along the banks of the river at Wareham, the middle of last June, amongst other interesting insects, we found the *T. rufomaculata* on umbelliferous flowers.

I find that Meigen had only one specimen of *T. milesiformis* (a male) to draw his description from, it is therefore very possible that my insect may be synonymous with his; but as he does not notice the following characters, I feel justified in retaining the name I first used in the 'Guide.' The third joint of the antennæ is rhomboidal with the angles rounded; our insect has a whitish grey spot near the base of each wing; in the centre of the 4th abdominal segment the males have an ochreous spot; the legs are black, the basal portion of the 4 anterior tibiæ is ochreous, and their tarsi have the penultimate joint black. I may further observe, that none of my males are so small as Meigen's; the female is smaller than the male, and has the base only of the 3rd abdominal segment orange, the wings are nearly transparent, and the 4 anterior tibiæ have only black rings towards the apex.

*Scandix Pecten Veneris* (Shepherd's Needle or Venus's Comb) is represented in the Plate.



*In Herb. Caslin. London. Tab. 1. 10.*

## MERODON CLAVIPES.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach.*

*Type of the Genus Merodon spinipes Fab.*

MERODON *Fab., Lat., Meig. Syrphus Fab., Panz. Eristalis Fab., Lat. Milesia Fab., Lat.*

*Antennæ* short, nutant, contiguous, inserted near the top of the face, pubescent, 3-jointed, 1st joint somewhat cup-shaped, pilose at the extremity, 2nd very pilose dilated internally, truncated obliquely, 3rd large ovate, with a 3-jointed naked seta inserted above near the base, 2 first joints minute, 3rd long, slender, subulate (fig. 3).

*Labrum* short, horny, robust, divided at the apex into a spine, 2 lobes and 2 intermediate minute spines (1 b).

*Tongue* nearly as long as the labrum, hollow subulate, very acute (c).

*Mandibles* none.

*Maxillæ* short, broad, rounded (e). *Palpi* exarticulate, hairy towards their extremity (f).

*Lip* retractile, fleshy, dilated, short, pilose, terminated by 2 large lobes (g).

*Proboscis* short vertical. *Head* vertical (2), broad, short, obtuse.

*Hypostoma* not projecting, villose. *Eyes* converging above in the males, with a space behind on which are placed 3 *Ocelli*, distant in the females. *Thorax* somewhat globose. *Scutellum* broad, scarcely emarginate. *Abdomen* cylindric, somewhat attenuated in the males, ovate in the females. *Wings* rather short, incumbent, parallel, containing about 11 cells, 4 or 5 being costal, and 5 discoidal, the nerve dividing the external discoidal cell from the terminal costal one being very much sinuated (9). *Halteres* small, concealed. *Legs* rather short. *Posterior* thighs very much incrassated, truncated, with a serrated tooth at the inferior angle. *Posterior tibiæ* bent, slightly angulated towards their base. *Tarsi* 5-jointed, basal joint the longest, especially in the posterior pair, 2 following joints small, 4th bilobed, 5th trigonate. *Claws* small. *Pulvilli* distinct (8† a hind leg).

CLAVIPES *Fab. Ent. Syst. t. 4. p. 292. n. 50. Meig. Syst. Besch. t. 3. p. 351. n. 1.*

*Male*: Blueish black, shining, pubescent. *Eyes* dull cupreous, pubescent. *Hypostoma* covered with long aureous hairs, anterior half of the thorax and scutellum covered with ochraceous hairs leaving a transverse black band in the middle, base of abdomen and incisures blackish, 1st joint covered with yellowish hair, the terminal joints completely covered with aureous pubescence. *Halteres* minute, fuscous. *Wings* fuscous, ferruginous at the base. *Antennæ*, *tibiæ* and *tarsi* cinereous, pubescent. *Claws* and *pulvilli* orange, the former tipped with black. "*Female*: *Thorax* rufous, tomentose, abdomen black, base and incisures aureous tomentose." *Meig.*

*In the Cabinet of the British Museum.*

*MERODON* may be distinguished from the extensive genus *Syrphus* by the regular form of the profile and the sinuated nerve in the wings; from *Tropidia* Meig., which it most resembles, both in its dentated thighs and the lobed cell of the wings, it is separated principally by the form of the 3rd joint of the antennæ; the clypeus is more produced in that genus, and the species are not so woolly as in *Merodon*: the same differences, as well as the simple legs of the *Helophili*, at once separate it from that genus; and the plumose antennæ of *Eristalis* render it difficult to confound it with them.

The genus *Merodon* must be far from common in this country, since we have only discovered one species at present out of 27 described by Meigen; and only 2 specimens of that, both of which are males, taken by Dr. Leach in Spitchwick park, Devon. Never having seen the other sex, I have been compelled to transcribe Meigen's description of it. The few indigenous Liliaceous plants we have in this country may be the cause of our not having at present detected any more specimens, for it is well known that our genus is attached to the *Narcissi*, from which cause one has received its specific name; and Reaumur (v. 4. p. 572.) has given figures of the larvæ, &c. of a species that feeds upon the roots of those plants. It would therefore be worth while to examine meadows where the *Narcissi* grow spontaneously, when they are in flower; for if one of the flies were found in the neighbourhood, there would be good reason to suppose they were bred there: and in November the bulbs ought to be examined for the larvæ, which in all probability are easily reared; and additional information respecting the œconomy of a genus whose habits are so peculiar, would be highly interesting to the Entomologist, and probably beneficial to the Florist.

The specimen of *Narcissus*, *Pseudo narcissus* (Common daffodil), I received from Professor Henslow, who gathered it the beginning of April near Cambridge; Mr. Dale also showed me numerous specimens soon after, growing at Glanville's Wootton, that were evidently wild.



*Urtica dioica* L.

## HELOPHILUS RUDDII.

ORDER Diptera. FAM. Syrphidæ.

*Type of the Genus, Musca pendula Linn.*

HELOPHILUS Meig., Lat., Curt.—Eristalis, Syrphus and Rhingia Fab. and Panz.—Musca Linn.

*Antennæ* inserted on a protuberance at the top of the face, porrected, small, contiguous, and 5-jointed; basal joint subconic and pilose, 2nd broad pilose and cup-shaped, 3rd very large and ovate, and at the top towards the base is attached the 4th joint which is very minute, the 5th forming a long and slightly pubescent seta (3).

*Labrum* rather long stout and hollow, divided into 5 narrow lobes at the apex (1, b). *Tongue* nearly as long as the labrum, lanceolate and acute, with a rib down the centre (c). *Maxillæ* shorter than the tongue, sublanceolate and curved (e). *Palpi* attached to the maxillæ, rather shorter, linear, obtuse and slightly hairy (f). *Lip* long and large, horny at the base, terminated by 2 large, submembranous hairy lobes (g).

*Trophi* received into a cavity at the bottom of the face. Head transverse, hemispherical, lower part of the face gibbose (2), sometimes projecting in a beak (2\*). Eyes naked, remote in both sexes, but less so in the males. Ocelli 3 in triangle. Thorax subquadrate-globose: scutellum transverse semioval. Abdomen linear or broad and conical. Wings divaricating (9). Halteres small and capitate. Thighs; posterior large and thickly set with spiny bristles beneath, towards the apex. Tibiæ; anterior short, posterior curved. Tarsi 5-jointed, basal joint the longest, 4th somewhat crescent-shaped, 5th obconic. Claws and Pulvilli distinct (8 †, hind leg).

Larvæ with a long slender tail and living in the water.

RUDDII Curtis MSS.—Guide, Gen. 1245.

Black rather shining, clothed with ochreous pubescence. Head dull ochreous. Face silvery gray, dark in the centre, as well as round the antennæ, the crown piceous; eyes castaneous-black. Thorax ochreous above with 3 blueish black stripes down the back: scutellum black, ferruginous at the apex. Abdomen black with a chalybeous tinge above, the 2nd, 3rd and 4th segments with a kidney-shaped ochreous spot on each side the middle, and an interrupted line of the same colour down the sides; basal joint, margins of the segments and apex dark cinereous. Wings slightly tinged with fuscous. Legs with the tips of the thighs ferruginous, middle and posterior tibiæ slightly ferruginous at the base, with a ring of the same colour round the middle.

*In the Cabinets of Mr. Rudd and the Author.*

HELOPHILUS is one of several groups that are distinguished by the 4th longitudinal nervure having an open loop; from

Merodon it is separated by its simple posterior thighs, and from *Eristalis* by the eyes of the males not being contiguous.

The following are British species of this handsome genus.

1. *H. lineatus* *Fab.*—*Meig. pl. 32. f. 7 ♂*.—*muscaria* *Panz. 20. 24.*

*Fem.* Ochreous, antennæ ferruginous at the apex, face produced and conical (f. 2\*), thorax with 3 broad and 2 narrow black stripes, the centre one cuspidate behind: abdomen black, with a line under the scutellum and a spot on the margin of each segment, 3 lunulate spots on each side and the apex gray: legs ferruginous, black at the base, posterior thighs black at the middle and tips; tibiæ with a black ring near the base, most evident in the posterior pair, and another at the tip; tarsi fuscous, middle pair ochreous, except at the apex.

Taken near London.

2. *H. lunulatus* *Meig. 3. 370; 2. pl. 32. f. 9. abdomen.*

Thorax yellowish, with 3 black stripes; abdomen black with 3 ochreous lunules on each side; antennæ rufous.—*Meig.*

Said to have been taken in June on Flags (*Iris pseudacori*?) in ponds, Copenhagen Fields, Mr. Ingpen. Was it not the following?

3. *H. transfugus* *Linn.*—*Meig. pl. 32. f. 8 ♂*.

Thorax with 3 fuscous stripes; abdomen linear black, with 3 sulphur-coloured lunules on each side; antennæ ferruginous.—*Meig.*

May and beginning of June on Sedges in Clay-pits, New Forest, Mr. Dale and Mr. Rudd; Putney, Mr. W. Clifton.

4. *H. trivittatus* *Fab.*—*parallelus* *Harris, pl. 15. f. 8?*

Thorax straw-colour with 3 black stripes; abdomen black, with 3 unequal interrupted yellow bands, beneath whitish.—*Meig.*

Charmouth, Chedder Cliffs and Hum, Mr. Dale.

5. *H. pendulus* *Linn.*—*Panz. 22. 21.*—*Don. 1. pl. 31. f. 2.*

Thorax straw-colour with 3 black stripes; abdomen black, with 3 unequal interrupted yellow bands, belly pale before, black behind, incisures white.—*Meig.*

In April, Glanvill's Wootton; June, hedges, and New Forest.

6. *H. similis* *Curt. Guide, 1245. 6.*

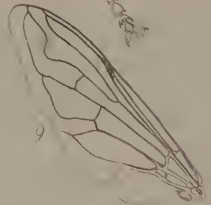
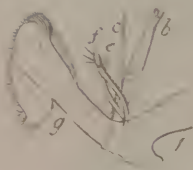
Ochreous, antennæ black, crown of the head and 3 broad stripes on the thorax black: abdomen above black, margins of segments ochreous, a large spot on each side the 2nd joint and a lunulate one on the 3rd bright ochre, a narrower lunulate one on each side the 4th, base of the 5th gray: legs ochreous, base black, apex of tibiæ and base of tarsi in fore pair and a spot only on the latter in the 2nd pair blackish, posterior legs black, apex of thighs and base of tibiæ ochreous.

The middle of July, Dover. J. C.

7. *H. Ruddii* *Curt. Brit. Ent. pl. 429 ♀*.

I have named this fine species in honour of the Rev. G. T. Rudd, and L. Rudd, Esq.; to the former gentleman I am indebted for the specimen figured, which with another was captured by his brother near Yarmouth, in Norfolk, last summer.

The Plant is *Silene nutans* (Nottingham Catchfly), which I gathered last June at the top of the Cliff near St. Lawrence, in the Isle of Wight.





## ERISTALIS NUBILIPENNIS.

ORDER Diptera. FAM. Syrphidæ.

*Type of the Genus, Musca tenax Linn.*ERISTALIS *Fab., Meig., Curt.*—Syrphus *Fab., Panz.*—Elophilus *Lat.*  
—MUSCA *Linn.*

*Antennæ* attached to a small tubercle on the forehead, approximating, nutant, 4-jointed, basal joint small oblong, 2nd short pilose, irregularly cup-shaped, 3rd large ovate-quadrate, 4th a seta, rather short and stout, either naked, or ciliated on each side with long hairs a little beyond the middle (3).

*Labrum* long and notched at the apex (1 b). *Tongue* nearly as long as the labrum, very acute (c). *Maxillæ* considerably shorter, curved and pointed (e). *Palpi* a little longer, slender, slightly pilose, apparently articulated towards the apex (f). *Lip* very long and large horny at the base, terminated by 2 large fleshy and hairy lobes (g).

*Trophi* received into a cavity at the bottom of the face. Head trigonate, face slightly concave, leaving a small tubercle at the top (2).

*Eyes* very pubescent, converging above in the males (2 \*), somewhat remote in the females. *Ocelli* 3 in triangle. *Thorax* globose-quadrate. *Scutellum* hemispherical. *Abdomen* subconical. *Wings* (9) divaricating. *Halteres* small and capitate, concealed under the large alulae. *Thighs*, posterior the longest. *Tibiæ*, posterior curved, sometimes considerably dilated. *Tarsi* 5-jointed, basal joint the longest, especially in the posterior pair, penultimate crescent-shaped, terminal one small and trigonate. *Claws* small. *Pulvilli* dilated, bilobed (8 †, hind leg).

*Larvæ* with a long slender tail, living in stagnant water, privies, &c.

NUBILIPENNIS *Curt. Guide, Gen. 1246. 9.*

*Female* shining chalybeous-black, pilose, margin of eyes and face silvery, excepting a black stripe down the middle of the latter: antennæ and the spot of their insertion entirely ferruginous; seta pubescent; the pile on the crown of the head, thorax, scutellum and base of abdomen bright ferruginous; scutellum of the same colour but duller; abdomen with 2 large subtrigonal rufous spots at the base, the margins of 3 segments yellow, the pile except at the base ochreous: wings with a broad space along the costa yellowish brown, terminating a little beyond the middle and forming a darker cloud: legs bright ferruginous, anterior thighs at the base and tips of tarsi black.

*In the Cabinets of Mr. Dale, Mr. Morris, and the Author.*

THESE insects are fond of flowers, especially the Thistle, Dandelion, and Sunflower, on which they are frequently seen, and so much resemble bees in form and colour, that at a little distance one may be easily mistaken for the other; indeed I have had some difficulty to convince persons totally ignorant of Entomology, that the Eristales were not bees: and it is further

worthy of observation that, when resting, the *E. tenax*, and probably the whole genus, heave their bodies up and down as bees do, as if they were panting.

The British species may be thus arranged.

I. Wings naked. A. Seta of the antennæ naked.  
a. Posterior tibiæ simple.

1. *E. sepulchralis* Linn.—*tristis* Panz. 82. 16 ♀.

On Flags at Hurne, Mr. Dale; m. June, near Wareham; m. July, on flowers, sides of ditches, near Hull; b. August, salt-water meadows near Poole, J. C.

2. *E. æneus* Fab.—Panz. 82. 15.—June and July, on flowers at Torquay and Portland Ferry, Mr. Dale; m. April and October, upon windows at Southchurch, Essex, J. C.

4. *E. cryptarum* Fab.—Meig. 3. 389. 9.

b. Posterior tibiæ dilated externally.

5. *E. apiformis* Fall.—Meig. 390. 10.—Near London.

6. *E. Hortorum* Meig. 387. 6.—Near London.

7. *E. vulpinus* Meg.—Meig. 388. 7.

July, near Barnstaple, Mr. Dale; August, Dover; m. October, Isle of Wight, and Lowestoft, Suffolk, J. C.

8. *E. tenax* Linn.—Don. 16. pl. 574.—Panz. 14. 23 & 24.

From the early part of Spring nearly to Christmas, everywhere. So tenacious of life is the larva, that Linnæus states, the pressure of a paper-makers' press will scarcely destroy it.

B. Seta of antennæ pubescent or plumose.

9. *E. nubilipennis*.—Curt. Brit. Ent. pl. 432.

This new and handsome species has been taken by Mr. Dale at St. Leonard's, and in fir plantations at Barnfield near Ringwood; end of July at Charmouth, by Mr. Morris; and on Parley Heath in August.

10. *E. similis* Fall.—Meig. 392. 13.—July, near London.

11. *E. Fossarum* Meg.—Meig. 393. 15.—Near London.

12. *E. Pratorum* Meg.—Meig. 393. 14.—Near London.

13. *E. Arbustorum* Linn.—Panz. 14. 22.—July, near London.

14. *E. Nemorum* Linn.—Lyra Harris's Exp. pl. 10. Order III. f. 5.—June, m. July, and August, Dover.

15. *E. Rupium* Fab.—*cryptarum* Panz. 90. 18.—m. May, Dorset.

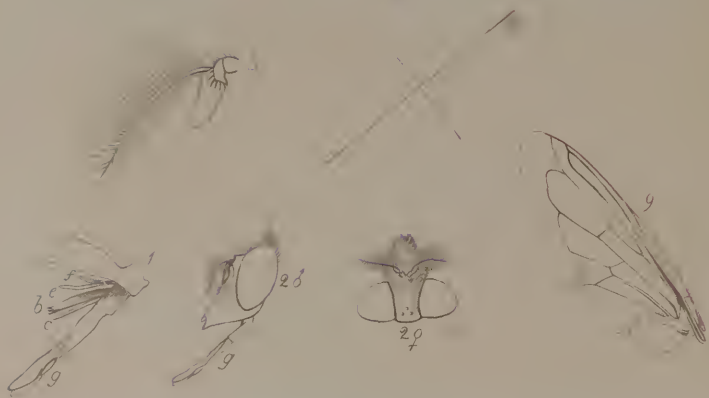
16. *E. Horticola* DeGeer.—*lineatus* Harr. pl. 10. f. 4.—*flaviccinctus* Fab.—June and July, on flowers of Ragwort.

17. *E. intricarius* Linn.—*bombylifformis* Fab.—Panz. 59. 11. & 12.—*aureus* Panz. 90. 20. var.?—m. April, Mr. Dale; June, on flowers, sides of banks, Carrington Moss; e. June, Coomb Wood, J. C. Clifton Hot-wells, Captain Blomer.

II. Wings pubescent when highly magnified.

3. *E. floreus* Linn.—Panz. 14. 21.—July, on flowers, common at Glanville's Wootton, Coomb Wood, &c.

The Plant is *Ænanthe pimpinelloides* (Parsley Water Dropwort).



*Phlox subulata*

## VOLUCELLA INFLATA.

ORDER Diptera. FAM. Syrphidæ.

*Type of the Genus, Musca pellucens, Linn.*

VOLUCELLA Geoff., Meig., Lat., Curt.—Syrphus Fab., Panz.—Pterocera Meig.—Musca Linn.

*Antennæ* nutant, inserted in a cavity on the forehead, contiguous at the base, plumose, 4-jointed, basal joint slightly cup-shaped, 2nd broader, but short, truncated somewhat obliquely, fringed with strong bristles, 3rd large fleshy, reniform, compressed, 4th a long seta, attached close to the base of the 3rd on the upper margin, ciliated on both sides with fine hairs, very long on the upper side (3).

*Labrum* hollow, externally convex and notched at the apex (1 b.)

*Tongue* nearly as long as the labrum, narrow, acute (c).

*Maxillæ* shorter than the tongue, slightly curved, narrowed and rounded at the apex (e).

*Palpi* short narrow and rounded, membranous at the apex, with a few hairs on the side (f).

*Labium* twice as long as the labrum, membranous at the base, horny at the middle, terminated by 2 elongated lobes, slightly hairy and striated transversely (g).

*Trophi* elongated and exerted. Head trigonate in front, the lower portion sometimes forming a conical beak notched at the apex (2, the head in profile). Eyes contiguous in the males and pubescent, sometimes naked in the females in which sex they are remote (2 ♀). Ocelli 3 in triangle. Thorax subquadrate: scutellum large transverse semi-ovate. Abdomen, broad, convex and subovate. Wings (9) divaricating, the 4th longitudinal nervure not lobed. Halteres small and capitate. Tibiæ, posterior slightly crooked at the middle. Tarsi 5-jointed, basal joint the longest and sometimes thickened in the posterior pair, 4th joint crescent-shaped, 5th small. Claws small. Pulvilli bilobed.

INFLATA Fab.—Meig.—Curt. Guide, Gen. 1247, 4.

Piceous shining and pubescent: head beaked and ochreous, antennæ pale ferruginous: sides of thorax and sometimes a spot behind, as well as the scutellum pale ferruginous: abdomen black, with the 2nd segment ochreous, excepting a narrow space at the base which is continued down the back, and very narrow in the female: wings transparent, yellow at the base and costa; nervures brown, a sinuated spot at the middle and the nervures of the apex suffused with the same colour: halteres ochreous: tips of thighs, base of tibiæ and tarsi ferruginous.

*In the Author's and other Cabinets.*

THIS beautiful genus is distinguished from a considerable portion of the Syrphidæ by the longitudinal nervure that extends

to the apex, not being lobed as in *Eristalis*, *Helophilus*, &c. Our British species are,

1. *V. bombylans* *Linn.*—*Panz.* 8. 21.—*Don.* 5. 151. 4.

June and July woods round London, Dover, Dorset, Devon, &c.

2. *V. plumata* *De G.*—*mystaceus* *Fab.*—*Panz.* 8. 22.—*Don.* 14. 471. 1.

June, m. July, woods round London, Dover, &c.

3. *V. pellucens* *Linn.*—*Panz.* 1. 17.

Beginning of June and July shady places in woods, New Forest, Glanville's Wootton.

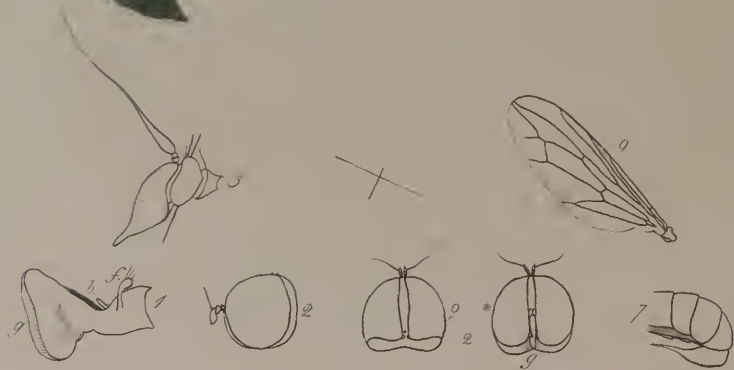
4. *V. inflata* *Fab.*—*Curt. Brit. Ent. pl.* 452 *mas.*—*dryophila* *Schr.*

June, e. July, Darent-wood, New Forest and Glanville's Wootton, Mr. Dale.

5. *V. inanis* *Linn.*—*Panz.* 2. 6.—*Don.* 14. 490. 1.—*Sam. pl.* 9. *f.* 3.—*Reaumur, v.* 4. *pl.* 33. *f.* 15—19.—*apivora* *De G.*—*trifasciata* *Schr.*

June to end of Aug. skirts of woods, New Forest, J. C. Dale, Esq. Bradley wood Devon, Capt. Blomer. The larvæ inhabit the nests of Humble-bees, devouring their larvæ and pupæ, and in the Introduction to Entomology we find the following interesting observations on the subject. "Some singular larvæ, with a radiated anus (Pl. xix. f. 11), live in the nests of humble-bees, and are the offspring of a particular genus of flies, many of the species of which strikingly resemble those bees in shape, clothing and colour. Thus has the Author of nature provided that they may enter these nests and deposit their eggs undiscovered. Did these intruders venture themselves amongst the humble-bees in a less kindred form, their lives would probably pay the forfeit of their presumption. Mr. Sheppard once found one of these larvæ in the nest of *Apis Raiella*, K. but we could not ascertain what the fly was. Perhaps it might be *V. bombylans* Meig. which resembles those humble-bees that have a red anus." I may add that Mr. J. Cocks of High Bickington Devon showed me a similar larva (wanting the anal rays) that he detected in the cells of a wasp's nest Sept. 25th, 1822. It assisted itself in walking with the head, and could turn itself with great facility when laid upon its back.

The Plant is *Anchusa sempervirens* (Evergreen Alkanet).



*Chalcid (C. intersept.)*

## PIPUNCULUS PRATORUM.

ORDER Diptera.

FAM. Pipunculidæ.

*Type of the Genus, Pipunculus campestris Lat.*PIPUNCULUS *Lat., Meig., Hal., Walk., Macq., Curt.*—Cephalops *Fall.*—Microcera *Meig.*

*Antennæ* inserted near the middle of the face, small, approximating, porrected, 6-jointed, basal joint obconic-truncate, 2nd broad, short, transverse-ovate, slightly bristly, 3rd the largest, drooping, pubescent, compressed, subovate, sometimes acuminate, 4th joint minute, cup-shaped, attached close to the base of the 3rd; 4th minute, subglobose, 5th a moderate naked seta, incrassated at the base (3).

*Trophi* concealed in a narrow cavity under the face.

*Labrum* short and small (1. b).

*Palpi* rather large, capitate, the club hairy (f).

*Lip* comparatively large, forming 2 lobes (g).

Head large, nearly spherical; hypostoma very narrow: eyes contiguous above in the males, separated only by a narrow space in the females: (2 the profile; 2 ♀ upper, \* underside :) ocelli 3 in triangle near the base. Thorax globose-quadrate: scutel transverse, semi-ovate. Abdomen short and linear, more or less cylindric, 6-jointed and terminating in a large hollow vesicle in the males; 7-jointed in the females, with a stout, acuminate, horny, incurved ovipositor (7). Wings incumbent, parallel, very long, 2nd longitudinal cell with an angle formed by the oblique nervure which nearly meets the 1st at the apex (9). Halteres small and capitate. Legs short: thighs generally simple: tibiæ a little sinuated, slightly narrowed at the base, intermediate as long as the hinder: tarsi moderate, 5-jointed, basal joint the longest and stoutest, especially the hinder, 3rd and 4th very short: claws long and slender: pulvilli large and bilobed.

PRATORUM *Fall.*—*Curt. Guide, Gen. 1250, 7.*

Cinereous; antennæ black, 3rd joint acuminate and hoary: hypostoma silvery: head slate colour, hoary behind the eyes, which are red-brown: basal joint of abdomen and subtrigonal spots on each side of the segments gray: wings hyaline, stigma fuscous, nervures ochreous at the base; halteres pale ochre, club reddish brown: legs ochreous, coxæ and thighs, excepting the extremities, cinereous black; tibiæ with a fuscous patch at the middle, apical joint of tarsi blackish.

*In the Author's and other Cabinets.*

By the structure of the mouth, the form of the antennæ, and the neuration of the wings, this remarkable genus is evidently allied to the Syrphidæ, but in what way it is related to the Dolichopidæ I cannot determine, for the incurved apex of the abdomen is indicative of the female sex in *Pipunculus*, whilst in the former family it characterizes the males. The mouth, like that of *Platypeza*, is very imperfect, and the 3rd joint of the antennæ varies considerably; the pulvilli are largest in the females, and the wings are longer and frequently obscure in the males, as remarked by Mr. Haliday. The following is Mr. Walker's arrangement of the genus.

\* 4th longitudinal nervure simple.

† Abdomen cylindric, base a little narrowed.

‡ Wings immaculate, or with the stigma not coloured.

1. maculatus *Walk. Ent. Mag.* 2. 264. 1.  
July, furze and heath near London.
2. sylvaticus *Meig. v. 4. p. 20. No. 3.*  
June, Lowestoft, New Forest; July, on grass beneath trees.
3. geniculatus *Meig.—Panz.* 108. 17?  
May, grass beneath trees; August, Lulworth.

‡‡ Stigmatic space coloured.

4. flavipes *Meig. tab. 33. f. 21.* October, grass beneath trees.
5. fulvipes *Macq. 2. 11. 9.* 6. varipes *Meig.*
7. pratorum *Fall.—Curt. Brit. Ent. pl. 751. ♂.*  
I took the male figured the 7th May in Coomb Wood.
8. campestris *Lat.* May, June, and July, Coomb Wood, Windsor, New Forest, and Clifton: 7th September, flying about laurels and young beech-trees at Durnford near Salisbury.
9. dentipes *Meig. 7. 146. 15.—ater Meig.?* June, Oxford and Glanville's Wootton.

‡‡ Abdomen flat. Wings immaculate.

10. modestus *Hal. Ent. Mag.* 1. 162.  
May and June, on grass beneath trees, Kent, and Coomb Wood.
11. ruralis *Meig.* May—July, Coomb Wood, Windsor, New Forest, and Horning, Norfolk.

\*\* 4th longitudinal nervure emitting a branch, fig. 9.

12. auctus *Fall.* May—July, Birchwood, Windsor and New Lanark.

*Asperugo procumbens*, Trailing Catchweed, was gathered between Purfleet and West Thurrock, and communicated by Mr. Branch and Mr. Kippist.





Drawn by C. G. Smith. 1854

## OPETIA LONCHOPTEROIDES.

ORDER Diptera. FAM. Dolichopidæ.

Type of the Genus, *Opetia nigra* Meig.

OPETIA Meig., Hal., Curt.

*Antennæ* inserted near the middle of the face, approximating, nearly as long as the head, subsetaceous, pubescent, 5-jointed, 3 basal joints furnished with a few bristles, 1st somewhat cup-shaped, 2nd a little larger, ovate, 3rd ovate conic or subfusiform, 4th minute, 5th a long seta hairy to the apex (3).

*Labrum, Tongue, Mandibles* and *Maxillæ* undiscovered.

*Palpi* shorter than the lip, simply clavate and naked (1 f).

*Lip* short bilobed and hairy (g).

*Trophi* small, situated at the lower part of the face (2 g). Head transverse, face orbicular, with a line of bristles on each side: eyes large, ovate and contiguous in front in the male (2); remote in the female, with a few bristles on each side: ocelli 3, elevated on the crown of the head. Thorax subglobose, oblique-ovate in profile, the fore part being very gibbose and projecting over the head: scutellum a little elevated. Abdomen 6-jointed. Wings incumbent and parallel when at rest, rather short and broad, with 7 longitudinal nervures, the 5th furcate (9). Halteres terminated by a rather large obovate club. Legs simple: thighs a little stouter than the tibiæ, which gradually thicken towards the apex: tarsi as long as the tibiæ, 5-jointed, basal joint very long, the remainder ovate, slightly decreasing in length: claws bent and acute: pulvilli small and hairy (8, a fore leg).

LONCHOPTEROIDES Hal.—Curt. Guide, Gen. 1248<sup>a</sup>. 2.

Piceous-black: antennæ with the 3rd joint subfusiform, and as long as the 1st and 2nd together; seta equal in length to all the other joints (fig. 3): eyes reddish: wings fuscous, costa of a deeper tint, the 3rd longitudinal and the furcate nervures the lightest; halteres pale fuscous, legs the same with an ochreous tinge.

*In the Cabinet of Mr. Haliday.*

AN opinion has long been entertained by Mr. Haliday and other Entomologists that there is a considerable affinity between the Empidæ or Tachydromidæ and Dolichopidæ, and the present genus seems to be one of the connecting links, making an approach to *Callomyia* as well as to *Cyrtoma* and *Drapetis* (pl. 397). I am at a loss to account for the intro-

duction by Meigen of the Stratyomidæ and Syrphidæ between the families alluded to, for the former appears to be nearly allied to Beris (pl. 337), and the latter to the Conopsidæ and Muscidæ, and my only reason for not attempting such an arrangement in my Guide, was a desire to render references to Meigen easy, and similar causes induced me to follow the arrangement of Latreille through a great portion of the Hymenoptera.

Mr. Haliday having detected a new species of *Opetia* in Ireland, which he very kindly communicated to me, there are now two found inhabiting our Islands.

1. *O. nigra* Meig. v. 6. p. 357. tab. 66. f. 17—20.

Length  $1\frac{1}{4}$  line, breadth  $2\frac{2}{3}$ .

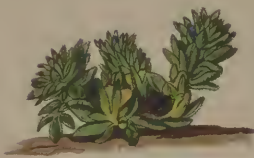
Piceous black, antennæ with the 3rd joint ovate-conic, shorter than the two basal joints united: eyes red: wings fuscous, darker at the costa, and very pale at the opposite margin: legs black.

Mr. Haliday informs me that the males are common in September, and the females are rare in the vicinity of Holywood in Downshire; Mr. Dale has also captured specimens in August, at Lulworth in Dorsetshire.

2. *O. lonchopteroides* Hal.—Curt. Brit. Ent. pl. 489. ♀.

Mr. Haliday observes, that this species is distinguished by its longer antennæ and the colour of the legs: it was taken by him in the same neighbourhood as the last.

The Plant is *Ruscus aculeatus* (Butcher's Broom).



del. by J. Curtis 1806

## RHAPHIUM MACROCERUM.

ORDER Diptera. FAM. Dolichopidæ.

*Type of the Genus, Rhapsium macrocerum Wied.*

RHAPHIUM Meig., Curt.

*Antennæ* inserted above the middle of the face, contiguous, long, porrected, stout, sublanceolate and 5-jointed in the males (3 ♂), basal joint obtrigonate, 2nd small transverse cup-shaped, producing a few bristles, 3rd very long, pubescent, sublanceolate, compressed, sometimes truncated obliquely at the apex, where the 4th joint is attached, which is pubescent, very short and slender, 5th twice as long; 3rd joint short and ovate in the female (♀), the 5th forming a long pubescent seta.

*Trophi* short.*Labrum* broad hollow, pointed and notched (1, b).*Tongue* shorter than the labrum, curved and pointed (c).*Mandibles* and *Maxillæ* none.*Palpi* thin, dilated and somewhat spoon-shaped (f).*Lip* short pilose, formed of 2 lobes (g).

Head *transverse ovate*; face *suborbicular* in the male (2 ♂), *more trigonate-ovate* in the female (♀): eyes *large lateral and ovate*, approaching more on the face in the ♂ than female: ocelli 3 in triangle, elevated on the crown of the head. Thorax *oblong*: scutellum *semiorbicular*. Abdomen *short, slightly attenuated, 6-jointed*, the apex *incurved* in the male and producing 2 long ciliated lobes, with 2 shorter ones in the centre, terminated by 2 brushes of long curved hairs (7). Wings *incumbent and parallel, iridescent, 4th longitudinal nervure slightly curved towards the apex, with a transverse nervure uniting it and the 5th*: halteres *short and capitate*. Legs rather long especially the hinder pair: thighs, *posterior thickened*: tibiæ *simple, with spiny bristles outside and at the apex*: tarsi *tapering, 5-jointed, basal joint the longest, except in the hinder pair, in which the 2nd is the longest* (8, a fore leg).

MACROCERUM Wied., Meig.—Curt. Guide, Gen. 1251. 2.

Aureous-green clothed with black bristles: forehead blue and violet; hypostoma silvery grey; antennæ velvety piceous, 3rd joint very long in the male (3 ♂), ovate in the female (♀); thorax dull green, sometimes with 2 or more stripes on the fore part, the shoulders silvery grey; abdomen pubescent: wings pale fuscous, the costa and nervures darker: halteres yellow: legs ochreous, bristles black, hinder thighs with the tips and a stripe down the back piceous; tarsi and hinder tibiæ, in the males, piceous.

*In the Author's and other Cabinets.*

THE typical Rhapsii are at once distinguished from Porphyrops (fol. 541.) by the great length of the masculine antennæ: Meigen, however, has expressed an opinion in his last volume

that they ought not to be separated; but as he seemed to be unacquainted with the females, and his illustration of the genus being consequently imperfect, I have thought it advisable to publish it.

The following are the British species, with their characters:

1. *R. longicorne* Meig. 4. 28. 1.

*Female.* Coppery-green, head thorax and scutellum more blue, forehead violet, clypeus silvery-grey; antennæ black, similar I believe in both sexes, but longest in the males, 5th joint half as long as the 3rd; wings fuscous, costa brown; halteres yellow; legs black. Length  $2\frac{3}{4}$  lines; antennæ 1 line.

Mr. Dale took two specimens near the decoy pond in the New Forest in June, where Mr. Rudd has also found it in abundance: on the 27th of August Mr. Haliday and myself observed it in a peat-bog going to Knoch in the Isle of Skye; and the beginning of last August two specimens alighted on our friend Dr. Farren as we were riding to Oughterard in Galway.

2. *macrocerum* Wied.—*Curt. Brit. Ent. pl.* 568 ♂.

I first met with the sexes in abundance on nut bushes and hedges in Mr. Dale's garden at Glanville's Wootton the 10th of May, when I was first led to believe that the antennæ were very different in the sexes. I have also captured it in the New Forest the beginning of June; and Mr. Haliday has taken this and *R. caliginosum* near Holywood in Downshire.

3. *brevicornis* Curt. *Guide.*

*Male* similar to No. 2, but the forehead is green, the antennæ are rather shorter, the 3rd joint is considerably shorter narrower and more tapering, and the 5th much longer and slenderer; the coxæ are slate-colour and the clypeus silvery-grey: length  $1\frac{1}{2}$  line.

I took a male the middle of October in the Isle of Wight.

5. *caliginosum* Meig.? 4. 29. 4.

“Olive green; legs rufous; apex of hinder thighs, tibiæ and tarsi fuscous; forehead cyaneous; wings fuscescent: length 1 line.” Meig.

4. *fasciatum* Meig. *tab.* 34. *f.* 5.

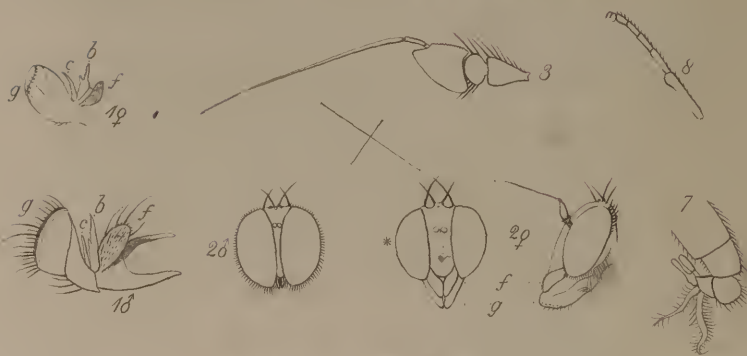
*Male.* Greenish, forehead purple, clypeus silvery-grey, antennæ stout, nearly as long as the head and thorax, black, seta elongated; wings pale fuscous; halteres yellow; 2nd and 3rd segments of abdomen dark ochre, edged with green; legs pale ochreous, tarsi fuscous towards the tips: length 1 line.

The only specimen I have seen I took in a hedge at Southgate.

The Plant is *Veronica verna* (Vernal Speedwell).



*Heliosiadon mundatum*  
(umbellifera)



Painted by J. G. Smith, Nov. 7, 1865



## PORPHYROPS WILSONI.

ORDER Diptera.

FAM. Dolichopidæ.

*Type of the Genus, Dolichopus diaphanus Fab.*

PORPHYROPS Meig., Hal., Curt.—Dolichopus Fab.—Musca Fab.

*Antennæ* inserted towards the upper part of the face, porrected, contiguous, 5-jointed, basal joint obtrigonal, bristly above, 2nd subglobose and clothed with bristles, 3rd the largest, subtrigonal-ovate and often elongated in the males, 4th a long slender joint sometimes attached to the apex and at others to the upper edge of the 3rd, generally near to the apex, 5th a very long bristle, drooping or forming a slight angle at the base and clothed with very short hairs, distinct only at the apex in some (3).

*Trophi* short in the male (2 ♂) inserted in a small cavity beneath the head, much larger exerted and forming a thick trigonal beak in the female (2 ♀).

*Labrum* shorter than the lip, very horny, hollow, dilated at the base, the apex pointed and pubescent, with a tooth on each side beneath (1 ♂ and ♀ b).

*Tongue* short and very rigid (c), incurved and acute in the ♀.

*Palpi* large ovate, composed of one very pubescent joint, furnished also with a few long bristles in the male (1 ♂ f), thin and pubescent only in the female (1 ♀ f).

*Lip* short but thick, formed of 2 large lobes, clothed with hairs and long bristles in the male (1 ♂ g), much larger, horny and cleft only in the female (1 ♀ g).

Head hemispherical: eyes very pubescent, large, lateral, nearly meeting in front in the male (2 ♂): with a considerably broader space between them in the female (2 \*): ocelli 3 in triangle, placed on a tubercle at the hinder part of the crown of the head. Thorax oblong: scutellum lunate. Abdomen more or less attenuated, 6-jointed, with 2 lobes and 2 filaments beneath the apex in the males (7); sometimes pointed in the female. Wings incumbent and parallel, broad, 4th longitudinal nervure bent towards the apex, with a transverse nervure uniting it and the 5th: halteres small and capitulate. Legs, generally slender, hinder pair long: thighs and tibiæ simple: tarsi 5-jointed, basal joint the longest, except in the posterior, in which the 2 first are nearly of equal length.

Obs. All the dissections are from *P. Wilsoni* excepting Nos. 1 ♂ and 3.

WILSONI Curt. MSS.—Guide, Gen. 1255. 12<sup>a</sup>.

Coppery-green, hypostoma white, very narrow and silvery in the male, palpi white with pubescence, eyes brown and covered with white hairs, with a frill of longer ones below; antennæ with the 3rd joint somewhat elongate-ovate, 4th short inserted at the apex of the 3rd, seta long and pubescent; thorax and scutellum very glossy, sometimes bluish or purplish-green; abdomen pubescent, 6th joint purple in the male, apex black, furnished with 2 strong horny lobes and 2 long hairy ochreous filaments (f 7); wings short broad and slightly fuscous, costa with a yellow tinge, nervures piceous; halteres and legs ochreous, the latter clothed with black bristles, basal joint of tarsi elongated capitulate and hairy above in the male (8); tarsi black, except at the base, posterior entirely black as well as the tips of the thighs and tibiæ.



POKPHYRUS is evidently allied to Rhabdium and Medeterus (pl. 162.), the masculine antennæ of the former very much resembling those of section B, and the tarsi in the same division being frequently irregular in their structure as they generally are in the male Medeteri. Mr. Haliday has given a list of the species found near Belfast, in the 5th Vol. of the Zool. Journal, and described some new ones. It is only 5 or 6 years since the Guide was published, yet I am now able nearly to treble the number of native species.

A. Seta of antennæ inserted *before* the apex of the 3rd joint.

1. diaphanus *Fab.*—semiargentata *Don.* 4. 142. *f.* 2 and 3.  
From the end of May to the beginning of September, in shrubberies, forests, and on banks and heaths.
9. versicolor *Meig.* v. 4. *p.* 50. Meigen says is the female of *P. diaphanus.*

1<sup>a</sup>. hirtipes *Curt.* Middle of May, Dorset; and Putney.

Length 3 lines: green; eyes reddish-brown and pubescent, head, hypostoma and antennæ black; thorax and scutellum sometimes chalybeous, abdomen silvery, 2nd and 3rd segments with an ochreous spot on each side, pubescence and apex black, with 2 ferruginous and 2 black hairy lobes; wings transparent; halteres and legs ochreous; thighs rather stout, very hairy and black as well as the tips of the hinder tibiæ and tarsi, the latter are merely brownish at the apex in the other feet. I only know the males, which are distinguished from No. 1. by their larger head and thorax, and all the thighs are entirely black and hairy.

2. argyrius *Meig.* 3. argentinus *M.* 4. auricollis? *M.*
5. vestitus *Wied.* End of July, Tollsbury, Essex.
6. aulicus *M.* 7. quadrifasciatus *Fab.*—*b.* July near Thetford.
8. leucocephalus *M.*—fulgens *Hal.* var. *b.* August, Isles of Bute and Arran.

B. PERITHINUS and PLECTROPUS *Hal.* Seta of Antennæ inserted *at* the apex, fig. 2 ♀.

10. crassipes *Meig.* 12<sup>a</sup>. *Wilsoni* *Curt. B. E. pl.* 541., female.

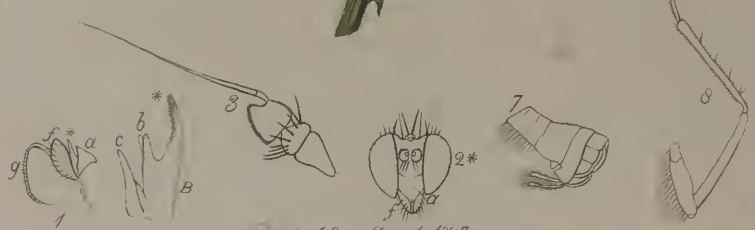
I took both sexes on plants growing in Loch Fad in the Isle of Bute, the beginning of last August, and have the pleasure of dedicating this fine species to my esteemed friend James Wilson, Esq., of Edinburgh.

13. communis *Meig.* v. 4. *tab.* 35. *f.* 6. 14. rufipes *M.*
15. nemoralis *M.*? 16. thoracicus *M.* 17. pumilus *M.*
- 17<sup>a</sup>. decoratus *Hal.*—latipes *Macq.*? Isle of Arran, m. Aug.
18. riparius *M.* 18<sup>a</sup>. insulsus *Hal.* 20. fascipes *M.*?
21. obscuratus *M.* 23. pallipes *Fab.* 24. flavicollis *M.*

C. Seta of Antennæ inserted near to the base of the 3rd joint.

25. annulipes *Meig.* 27. flavicoxa *Wied.*
28. flaviventris *Wied.*—molliculus *Fall.*

The Plant is *Hydrocotyle* (*Helosciadium Koch*) *inundata* (Floating White-rot).



Drawn by J. Curtis April 4 1827

## MEDETERUS NOTATUS.

ORDER Diptera. FAM. Dolichopodæ *Lat., Leach.**Type of the Genus Dolichopus regius Fab.*MEDETERUS *Fisch., Meig.*—*Dolichopus Lat., Fab., Fall.*—*Hydrophorus Fall.*—*Musca Fab., Panz.*

*Antennæ* inserted rather above the middle of the face, approximating, shorter than the head, 5-jointed, basal joint pyriform truncate, 2nd transverse, surrounded by strong bristles, 3rd compressed very pubescent, conical, emarginate near the apex, 4th joint inserted on the side of the 3rd, forming with the 5th a seta, which is very long and naked (fig. 3).

*Labrum* very horny, attenuated and pubescent at the apex (\*), furcate near the middle (B, b), dentated near the base.

*Tongue* very horny, flat, dilated at the base (B, c).

*Mandibles* and *maxillæ* none.

*Palpi* lying close to the clypeus (2\*, f), lamelliform, rigid, pilose (1 f).

*Lip* large short bilobed (1 g).

Head *subglobose*. *Lip projecting*. *Clypeus subtrigonal* (1 a & 2\* a).

*Eyes lateral very long*. *Hypostoma narrower in the males than females*. *Ocelli 3 in triangle*. *Thorax subquadrate*. *Scutellum small, semicircular*. *Abdomen linear, clavate, producing 2 incurved, hairy appendages beneath in the males (7): somewhat conical in the females*.

*Wings much longer than the body incumbent, parallel containing about 10 cells*. *Halteres small*. *Legs, middle and posterior pair very long, the latter being rather more robust*. *Cocææ, anterior very long*. *Tibiæ simple*. *Tarsi 5-jointed, basal joint long, 2nd the shortest, in the anterior pair of the males (in the type)*. *Claws very much bent*. *Pulvilli bilobed (8, a fore leg)*.

NOTATUS *Fab. Ent. Syst. v. 4. p. 341. n. 120.*—*Meig. Syst. Besch. 4. 62. 6.*

*Female* shining, naked. *Head dull green, hoary behind, with a few black bristles*. *Face slightly hoary*. *Eyes dull cupreous*. *Thorax and scutellum of the same colour, the former very long, hoary at the sides before the wings, with two blackish stripes and 2 rows of short bristles down the back and a sinuated line and a few long bristles on each side*. *Abdomen very short, burnished, æneous and cupreous*. *Wings fuscous, costal and a portion of 2 other cells pale ochre; the black nervures are margined with fuscous; a spot upon a nervure near the posterior margin and 2 others upon a transverse nervure blackish*. *Thighs cupreous, incassated at the base of the anterior pair*. *Tibiæ green*. *Tarsi bluish black*.

*In the Cabinets of Mr. Hatchett, Mr. Ingpen, and the Author.*

*MEDETERUS* has been separated from *Dolichopus*, and may be distinguished from it by its long thorax, naked seta of the antennæ, by the longer and more slender appendages to the abdomen of the males, by the transverse nervure of the wings, which is nearer the margin, by the great length of the legs, and the simple posterior tarsi.

From the want of male specimens of the other species, I am incapable of ascertaining whether the remarkable structure of the anterior tarsi of *M. regius* be a specific or generic character: the hairs on the 2nd joint are glandular at the apex, and the 3rd and 4th joints are terminated by a fleshy substance, which is well adapted to its habits of life, and lead us therefore rather to consider it as an organization peculiar to itself.

1. *M. notatus*.—The first specimens that I noticed of this handsome species, of which there is no figure recorded, were in the cabinet of Mr. Hatchett. Since that period Mr. Ingpen has found a specimen in Kentish-town fields, and another upon the plant represented in the plate, near Bromley, Kent, on the 1st of June.

2. *M. regius* *Fab., Meig.*—*virens* *Panz.* 54. 16.—I first observed this pretty insect resting upon the trunks of trees in the romantic neighbourhood of Lynmouth, North Devon, the middle of September: and the beginning of the same month last year I met with it in abundance near Black-gang Chine in the Isle of Wight. The face of the cliff in this neighbourhood is perpendicular and very wet, the water frequently descending in showers from the top: in these situations both sexes of this species delighted, flying when disturbed through the falling spray, and alighting upon the wet surface, from which they stood perfectly clear by placing their long legs not obliquely, but at right angles from the body.

3. *M. viridis* *Meig.?* *vol.* 4. *p.* 60. *n.* 2.—This is a smaller species; for a specimen of which I am indebted to Mr. Francis Walker, who took it in the vicinity of Southgate.

The plant is *Chrysanthemum Leucanthemum* (Ox-Eye).



Illustration of a fly-like insect and a plant stem with detailed anatomical drawings below.

## LONCHOPTERA FLAVICAUDA.

ORDER Diptera.

FAM. Lonchopteridæ.

*Type of the Genus, Lonchoptera lutea Panz.*

LONCHOPTERA Meig., Macq., Curt.—Dipsa Fall.

*Antennæ* inserted in a cavity in the middle of the face, rather remote, small and drooping; 6-jointed, basal joint stout, pyriform-truncate, 2nd saucer-shaped, with a few strong bristles at the apex, 3rd the largest, subtrigonal, hairy, bristly at the base, 4th a minute joint inserted just above the apex of the 3rd, 5th small, oblong, 6th a longish pubescent seta (3).

*Labrum* stout, sublinear and acuminate. Meig.

*Tongue* a short bristle. Meig.

*Maxillæ* short, sublanceolate (1 b). *Palpi* large, longer than the labrum, clavate and pilose (f).

*Lip* moderate, forming 2 oval hairy lobes (g).

Head *transverse, bristly, with a cavity beneath to receive the trophi: hypostoma nearly straight, the margins bristly (2 the profile, 2\* the face): eyes remote in both sexes, moderate, lateral and oval: ocelli 3, minute, a little raised on the crown. Thorax ovate, not broader than the head: scutellum semioval. Abdomen linear, appearing short and 6-jointed, the apex incurved in the male, the apical joint large and ovate, the apex hairy and bilobed (7). Wings incumbent, long, lanceolate, basal cells very short, discoidal none, submarginal nervure running close to the costa, nearly from the base to the apex; a ciliated nervure continued round the wing; 3rd longitudinal nervure furcate, the anal cell open in the male (9\*), closed and peduncled in the female (vide the coloured insect). Halteres large with an ovate club. Legs longish, clothed with short rigid hairs and a few long bristles: thighs, hinder the stoutest, with a few bristles towards the apex: tibiæ with a few slender bristles, hinder the longest: tarsi 5-jointed, basal joint the longest, 4th not shorter than the 5th: claws and pulvilli small.*

FLAVICAUDA Meig.—Curt. Guide, Gen. 1260. 1<sup>b</sup>.

Bright ochreous; bristles, eyes, antennæ and a spot on the crown, encompassing the ocelli, black; a greyish red streak down the thorax and the base of the scutellum, divided and brown next the head; abdomen greyish-black, margins of segments pale, sides and apex somewhat ochreous, 6th joint entirely ochreous in the male: wings pale yellowish, iridescent, nervures brown; halteres yellowish-white; hairs and bristles on legs black; tarsi blackish towards the extremity, anterior totally black, as well as the apex of the tibiæ.

*In the Author's Cabinet.*

THE genus *Lonchoptera* is one of those groups which do not seem to be immediately related to any other, although analogies may be traced to many; for instance, it has the habit of the *Muscidæ*, the wings are not unlike those of *Psychoda*, and the abdomen is furnished with appendages resembling the *Dolichopidæ*, to which it seems to be most nearly allied, being not far removed, I think, from *Opetia* (pl. 489).

I find that a nervure is continued round the wing, and the submarginal nervure appears to run close to the costa, almost from the base to the apex: the seta is placed a little above the apex of the 3rd joint, and there is a remarkable difference in the anal cells of the sexes, which I do not remember to have seen in any other dipterous insects; it is open in the male and closed in the female. I have not been able to detect either labrum or tongue, I have therefore described those organs from Meigen; I have, however, discovered the maxillæ, which seemed to have escaped his observation.

The following are recorded as British species. I have swept several of them off grass in marshes, and I occasionally meet with them on windows near the Regent's Park.

1. *lutea*. *Panz.* 108. 20 and 21.—*furcata* *Fall.*

2. *flavicauda* *Meig.*—*Curt. Brit. Ent. pl.* 761 ♀.

I met with this species at Lulworth in August, and I found several specimens in October on a Fungus near Heron-Court, Hants.

3. *lacustris* *Meig.* 4. 107. 3.

4. *riparia* *Meig.*

5. *rivalis* *Meig.*—May, Dorsetshire.

6. *palustris* *Meig.* I have frequently found amongst moss in the spring, when I have been searching for *Pselaphidæ*, but whether this insect hibernates or breeds there I cannot determine.

7. *Punctum* *Meig.*

8. *tristis* *Meig. pl.* 36. *f.* 11.

For *Cucubalus baccifer*, Berry-bearing Chickweed, I am indebted to Mr. G. Luxford, who informs me that this will be the first figure from a *wild* specimen gathered in England. Botanists owe the recent discovery of this curious plant to Mr. Luxford, who met with it in the Isle of Dogs in June and August 1837. For a further account I must refer to his paper, which was published the following year in the Magazine of Natural History.





SCENOPINUS RUGOSUS.

ORDER Diptera. FAM. Scenopinidæ.

Type of the Genus, *Musca fenestralis* Linn.

SCENOPINUS Lat., Fab., Meig., Curt.—*Atrichia* Schr.—*Nemotelus* DeG., Panz.—*Musca* Linn., Fab.

*Antennæ* short, nutant, inserted at the lower part of the face, close to the mouth, triarticulate, 2 basal joints somewhat cup-shaped, 2nd with a few short bristles round the margin, 3rd elongated, somewhat conic, compressed at the apex, not forming an angle with the others, seta none (3).

*Trophi* small, concealed in a cavity beneath the head.

*Labrum* short, broad and hollow (b), not more than half as long as the palpi. *Tongue* and *Maxillæ* none? *Palpi* large, as long as the lip, clavate, pubescent, with a few bristles on the inside (f). *Lip* short broad, cleft at the apex and forming 2 pubescent and pilose lobes (g).

Head hemispherical: eyes contiguous in the male, and divided by a line horizontally (2), remote in the female: ocelli 3 in triangle at the base. Thorax oblong: scutellum transverse, semioval. Abdomen sublinear, depressed, 8-jointed, with 2 oval punctured or hairy spots on the back of the 2nd segment, which is the longest, the apex trigonate. Wings incumbent, parallel, with a long marginal cell divided by an oblique nervure, 2nd longitudinal nervure approaching the 1st at the apex, one discoidal and 3 elongated basal cells (9). Halteres large and capitate. Legs short, especially the anterior, hinder the longest: tibiae simple: tarsi 5-jointed, basal joint elongated, 4th obtrigonal, 5th short: claws and pulvilli small.

Rugosus Fab.—Curt. Guide, Gen. 1261. 7.

Piceous, with a bluish gloss; eyes and antennæ brown; face with a fovea above the antennæ: abdomen transversely rugose: wings fuscous, darkest at the costa; halteres entirely piceous; tarsi, especially the hinder, ochreous at the base.

In the Author's Cabinet.

SIMILAR as this genus is in habit to *Beris* (pl. 337.) and some of the *Stratiomydæ*, neither the form of the antennæ nor the neuration of the wings will justify its being removed to that family: it certainly is not happily located by Meigen, for it is more allied to *Platypeza* and *Pipunculus* in its habits and form than to *Lonchoptera* and *Conops* (pl. 377.); it is, however, one of those osculant types which has no direct affinity with any other known group. The structure of the eyes also is remarkable, the upper portion in the males being more coarsely checkered than the lower half; the dotted line in fig. 2. ♂ shows this division: there are also 2 oval hairy spots, hitherto unnoticed, on the back of the 2nd segment, at least in 3 of the

species. The following are recorded as British, but I have seen the male only of one, and the females of three of the species.

1. fenestralis *Linn.*—*Schell. tab. 13. f. 1. 2.*

Black, costa fuscous, halteres white, legs pale ferruginous, tarsi fuscous: male with 3 or 4 white stripes across the abdomen:  $2\frac{1}{2}$  lines.

Beginning of June, Oxford.

2. sulcicollis *Meg.*—*Meig. v. 4. p. 114. n. 5.*

“Black, legs rufous, halteres white, thorax foveolated before: 2 lines.”

In the neighbourhood of London.

3. vitripennis *Meig.* 115. 6.

“Black, legs rufous, halteres fuscous, club white beneath, wings hyaline:  $1\frac{1}{2}$  line.”

4. senilis *Fab.*—*Meig.*

“Black, legs rufous, halteres fuscous, club white beneath, face black opaque, with 3 smooth lines:  $2\frac{1}{2}$  to 3 lines.”

End of June, Coombe Wood; July, Thetford.

5. domesticus *Meig.* 116. 8.

“Black, halteres fuscous, club white beneath, legs rufous, posterior thighs and tibiæ blackish, face opaque with 3 smooth lines: 2 to  $2\frac{1}{2}$  lines.”

6. niger *DeGeer.*—*tarsatus Panz.* 98. 20.

“Black, legs black, tarsi rufous, posterior tibiæ clavate, halteres fuscous, club white beneath: 2 lines.”

Found on *Mentha sylvestris*: June in houses near woods in the vicinity of London.

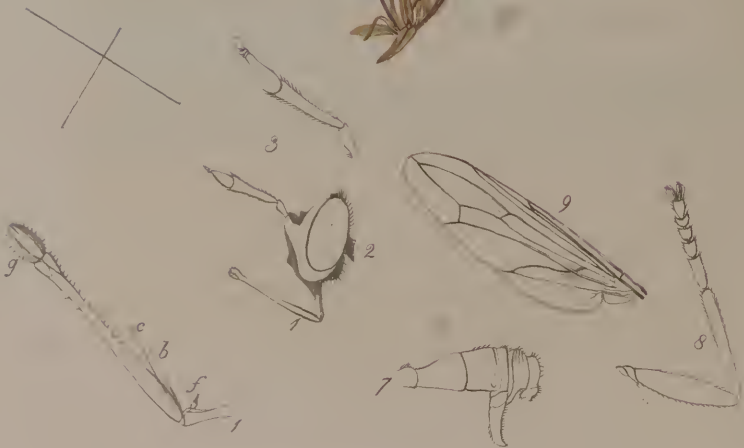
7. rugosus *Fab.*—*Curt. Brit. Ent. pl.* 609. ♀.

June on a window at Niton in the Isle of Wight, and end of same month on a Laurel leaf in a garden near Bristol.

8. nigripes *Meg.*—*Meig.* 117. 11.

“Black, halteres fuscous, club white beneath; legs black, tarsi fuscous:  $2\frac{1}{2}$  lines.”

For specimens of the *Crocus aureus* I am indebted to Lady Blake, who transmitted them from Barton in Suffolk.



## CONOPS MACROCEPHALA.

ORDER Diptera. FAM. Conopsidæ.

*Type of the Genus, Conops flavipes Linn.*

CONOPS Linn., Fab., Lat., Meig., Curt. Guide Gen. 1262 &amp;c.

*Antennæ* attached to a protuberance at the upper part of the face, approximating, as long as the head, clavate, composed of 6 or 7 joints, basal joint short, 2nd the longest pilose and subclavate, 3rd pyriform, much shorter and rather stouter, 4th very short, 5th larger, produced on one side, 6th subpyriform, terminated by a short obtuse spine (3).

*Labrum* slender and rigid (1, b).

*Tongue* longer, very slender and transparent (c).

*Mandibles* and *Maxillæ* none.

*Palpi* inserted near the apex of the mentum, short, unarticulate, producing a few bristles at the apex (f).

*Mentum*? rather long and vertical; *Labium* porrected obliquely, and forming an angle with it, twice as long as the tongue, robust, slenderest in the middle, slightly pilose and terminated by 2 lobes (g).

*Proboscis* long and geniculated (1). Head large broad and short, the face coriaceous and inflated, with a large cleft to receive the base of the proboscis. Eyes remote in both sexes, large and oblong. Ocelli none. Thorax globose. Scutellum small. Abdomen very convex above, incurved at the apex, clavate, the basal joint very short, generally with a tubercle on each side, the 2nd sometimes elongated and slender, the remainder more or less ovate, the antepenultimate with a large process attached beneath, in the male (7). Wings incumbent and parallel when at rest, with a large submarginal cell, pointed at the apex and terminated by a pedicle (9). Halteres short and capitate. Legs rather stout. Tibiæ slightly curved in profile, compressed and dilated at the apex, sometimes having a transverse suture, as if they had been broken. Tarsi rather broad and 5-jointed, basal joint the longest, 4th lunulate, 5th elongate-obtrigonal. Claws and Pulvilli large and distinct (8, a fore-leg).

MACROCEPHALA Linn. Faun. Suec. 467, 1902.

Black, slightly cinereous, clothed with very short hairs: head broader than the thorax, castaneous-black; face yellow, with a brown streak from the crown to the antennæ, and a triangular one below them: eyes and proboscis dull castaneous: antennæ ferruginous: thorax with a silvery spot on each shoulder: wings tinged yellow, the costal portion brown, nervures ferruginous: halteres ochreous, black at the base: abdomen transversely striated, with the margins of the segments silvery yellow, basal joint short and broader than the 2nd, which is long and rather slender, the remainder forming an incurved and ovate club: legs ferruginous ochre: coxæ and base of thighs dark brown.

*In the Cabinet of Mr. Dale.*

At first sight *Conops* appears to be closely allied to *Ceria*, already figured in our 186th plate, but a very slight comparison will show that the neuration of the wings is totally different, and that the trophi are very dissimilar. I must however confess that I should like our arrangement much better, if the Dolichopidæ were removed nearer to the Empidæ, which would bring the Syrphidæ in contact with the Conopsidæ, and the above two genera might then form the transition of the groups. In my "Guide" I have purposely followed Meigen's arrangement for the sake of easy reference, his being the only good book we have on the Diptera.

The following are British species of this pretty genus.

1. *C. vesicularis* Linn. F. S. 468. 1903.—*cylindrica* Meig. Klass. mas.

June 10th, New Forest. J. C. Dale, Esq.

2. *C. flavipes* Linn. F. S. 1904.—*Panz.* 73. 21 & 22.—*macrocephala* Sam. pl. 9. f. 8.

End of July, Birch-wood on umbellate flowers. J. C.—August, on the Golden-rod in the garden at Southgate. F. Walker, Esq.—September 5th, Cottrel-clough near Manchester. Mr. R. Cribbs.

3. *C. 4-fasciata* DeG. v. 6. tab. 15. f. 1.—*aculeata* Fab.—*vesicularis* Harris pl. 20. f. 1?

At Birch-wood and Southgate, with No. 2.

4. *C. aculeata* Linn. F. S. 1906.—*macrocephala* Harris pl. 20. f. 2 & 3.

June, hedges. Mr. Samouelle.

5. *C. rufipes* Fab. Ent. Syst. 4. 392. 5.—*petiolata* Don. 13. pl. 451.

August, Knowl Hill, Dorset. J. C. Dale, Esq. Southgate, with Nos. 2 and 3. In plenty on umbelliferous flowers by the side of a field, close to a plantation at Hethersett, Norfolk. Henry Browne, Esq.

Latreille says of this species, "a recent insect with the wings as yet soft was declared to have been twice observed coming out of the body of a *Bombus*"!

6. *C. macrocephala* Linn.—*Curtis Brit. Ent. pl.* 377.

A single specimen, in company with Nos. 2 and 5, was taken the 18th August, 1824, on the *Scabiosa succisa* (pl. 40.) in a meadow at West Hurn, Hants, by J. C. Dale, Esq.

7. *C. ceriæformis* Meg.—*Meig.* 4. 132. 16. tab. 36. f. 26.

Taken in the neighbourhood of London. J. C.

The Plant is *Mænchia* (*Sagina* Linn.) *erecta* (Upright Pearl-wort); communicated by the Rev. Professor Henslow.



*Lepidium campestris*  
 d. I. P. 67, VII P. 55



*Antennae of Lepidium campestris*

MYOPA FULVIPES.

ORDER Diptera. FAM. Conopsidæ.

Type of the Genus, *Conops buccata* Linn.

MYOPA Fab., Meig., Macq., Curt.—Stomoxys Fab.—Asilus Geoff.—Conops Linn.

Antennæ attached to a prominence at the upper part of the face, short, porrected, approximating at the base, 5-jointed, basal joint short, cup-shaped, and very bristly above, 2nd the largest, obovate and bristly, sometimes more elongated and clavate, 3rd much smaller, subovate or globose, 4th inserted on the back of the 3rd, somewhat elongate-ovate, 5th a short stout seta, indistinctly pubescent (3).

Trophi, excepting the Palpi, concealed in the labium.

Labrum half as long as the 1st joint of the labium, stout, hollow and horny (1 b).

Tongue much longer, very slender, and acute (c).

Maxilla? very short, subovate, attached nearer to the base of the labrum than of the palpi (e).

Palpi as long as the labrum, clavate, pubescent, with a few very long bristles (f).

Labium horny, filiform, geniculated near the base and middle, basal joint long stout and hollow above, 2nd as long and bent close under the 1st in repose, and terminated by 2 long ovate lobes, with a few hairs on the sides (g).

Head rather large, crown subtrigonal, the forehead narrow and declining, face orbicular, the cheeks prominent; clypeus concave (2 the profile): eyes oval, placed on each side of the crown, not large but naked: ocelli 3, minute, forming a compact triangle on the crown.

Thorax as broad as the head, subquadrate, the angles gibbose: scutellum transverse, semioval. Abdomen appearing more or less ovate above, but actually elongated and attenuated, a large portion of the apex being incurved, with a strong process on the underside of the 5th joint in the male (7 ♂ the profile). Wings ample, incumbent and parallel, the 1st posterior cell open at the apex: halteres capitate. Legs nearly equal, short and stout: thighs thick: tibiæ compressed, a little curved: tarsi depressed, 5-jointed, basal joint oblong, 3 following more or less bilobed, 5th short, pyriform: claws strong, curved: pulvilli large, bilobed.

FULVIPES Desvoidy.—Curt. Guide, Gen. 1264. 9.

In the Author's Cabinet.

MYOPA is a pretty genus allied to Conops (pl. 377), from which however it is very distinct: the 1st posterior cell being open in the former and pedicled at the apex in the latter group, the antennæ are much longer and very differently formed in Conops, and the labium is only geniculated near the base.

The Myopæ are fond of flowers, and the following species are natives of our islands.

\* 2nd joint of the antennæ stouter and a little longer than the 3rd.

1. *picta* Panz. 54. 22.

In Edinburgh botanic-garden, Mr. James Duncan; and in the vicinity of London.

2. *buccata* Linn.

May and June, hedges, Suffolk, J. C.

3. *testacea* Linn.—*buccata* Panz. 12. 24?

May, Coomb Wood, on umbelliferæ; Norfolk, Cambridge, Edinburgh, and Holywood near Belfast.

4. *dorsalis* Fab.—*ferruginea* Panz. 22. 24.

May, July and August, hedges, round London.

5. *ferruginea* Linn.—*Meig.* v. 4. pl. 37. f. 11. & 12.

End of June Darent, and July near Thetford, J. C.; the North and West of England, Edinburgh and Ireland.

6. *fasciata* Meig.—*ephippium* Fab.

I took one the end of August on the hills near Ramsdown, Hants, and Mr. Haliday found another near Kenmare.

6<sup>b</sup>. *occulata* Wied. I do not remember on whose authority this has been admitted as British.

\*\* 2nd joint of antennæ not stouter, but twice as long as the 3rd.

7. *atra* Fab.—Panz. 12. 23.—*annulata* Fab.—*femorata* Fab.—*cinerascens* Meig.—*maculata* Meig.—*micans* Meig. *Klass. vars.*

August, on flowers near Ventnor in the Isle of Wight; Bourne-mouth, Hants, and Dover, J. C.; sunny banks Ireland, Mr. Haliday, and near Edinburgh, Mr. Duncan.

8. *pusilla* Meg.

Found near London.

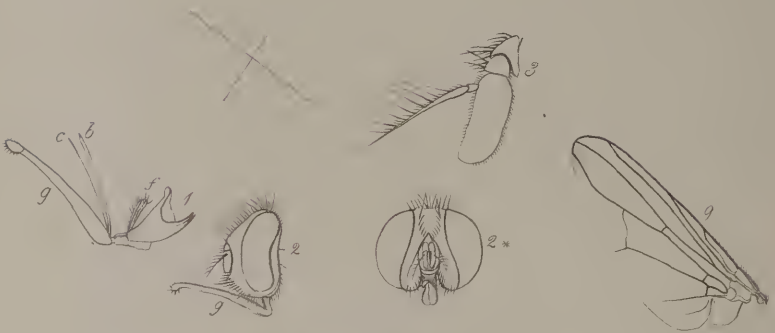
9. *fulvipes* Desv.—*Curt. Brit. Ent. pl.* 677. ♂.

Ash-colour, sericeous, 2nd joint of antennæ long clavate and ochreous beneath, 3rd ferruginous inside at the base, 4th joint minute; crown of head ferruginous, blackish at the base; face satiny-white with a narrow shining white margin to the eyes: thorax with a black central stripe and 2 lateral triangular ones: abdomen transversely rugose with reflected lights, the apex and scutel shining black: wings very pale fuscous with a yellow tint, brightest and deepest at the costa, nervures brown: halteres yellowish-white: legs dark ochreous, clothed with black hairs: thighs brownish outside: anterior coxæ and tibiæ satiny-white outside, hinder tibiæ brown near the base and at the apex; tarsi black; pulvilli ochreous.

The specimen figured I found the 9th of August in the Isle of Bute, not far from Loch Fad.

The Plant is *Lepidium campestræ*, var. *glabra*, Mithridate Mustard, communicated last July from Ryde by Dr. Bromfield.





*Sepsis*

## STOMOXYS SIBERITA.

ORDER Diptera.

FAM. Stomoxidæ.

*Type of the Genus, Conops calcitrans Linn.*

STOMOXYS Geof., Fab., Meig., Macq., Curt.—Musca DeG.—Conops Linn.—Siphona Meig.—Hæmatobia Macq.

*Antennæ* inserted at the edge of the forehead, drooping and reaching nearly to the margin of the clypeus, small, 5-jointed, 2 basal joints bristly above, 1st somewhat obconic, 2nd smaller and cup-shaped, 3rd large compressed, elliptical, pubescent, the apex rounded, 4th a small obovate joint, inserted on the back of the 3rd near the base, 5th a short stout seta, pubescent above with a single series of long hairs (3).

*Trophi* exerted horizontally considerably beyond the head (2, g).

*Labrum* long slender and acute (1 b).

*Tongue* as long and very fine (c).

*Mandibles* and *Maxillæ* wanting. *Palpi* rather short, slightly clavate and pilose (f).

*Lip* longer than the labrum, geniculated near the base, horny, attenuated, curved, with a small club at the apex bilobed and pilose (g).

Head short, transverse, somewhat trigonate; face suborbicular (2\*): eyes long vertical and slightly reniform, remote in both sexes, most so in the females: ocelli 3 in triangle. Thorax oblong: scutel triangular or semiovate. Abdomen short, depressed, with 4 large segments, Wings divaricating, with the mediastinal cell contracted towards the apex, but open (9): halteres capitate, concealed under large squamulæ. Legs long and spiny: tibiæ not longer than the thighs, with strong spines at the apex: tarsi rather longer, 5-jointed, basal joint long, 4th the shortest: claws slender, curved acute; pulvilli bilobed.

SIBERITA Fab.—Curt. Guide, Gen. 1266. 1.

Cinereous, bristles black; head satiny-white with an ochreous stripe down the crown, and a line of bristles on each side, as well as round the margin of the mouth; antennæ orange; eyes castaneous: thorax with 2 grey stripes at the base; and a broken one on each side, apex of scutel obscure ochreous: abdomen ochreous, with a broad black stripe down the back, with ochreous reflections, dilated toward the extremity of the 3rd segment, the 4th entirely black, and the 2nd with a black spot on each side: wings iridescent, slightly ochreous at the base, nervures brown: legs ferruginous, tarsi and proboscis black, base of the latter ochreous. In the female the abdomen is cinereous with paler reflections.

*In the Author's and other Cabinets.*

STOMOXYS is readily distinguished from similar Muscidæ by its elongated proboscis, and the type of the genus is the little fly that towards the end of summer sometimes interrupts our studies by piercing our legs with its exceedingly acute labrum and tongue, occasioning a very pungent sensation at the time. There is much diversity of form in the proboscis of the few species forming this genus, and also a considerable difference in the neuration of the wings, which with their dissimilar habits have led to the following division of the species :

\* PROSENA St. Farg. *Seta bipectinated: proboscis thrice as long as the head, recurved: mediastinal cell closed at the apex.*

1. siberita Fab.—Curt. Brit. Ent. pl. 665. ♂.—grisea Fab.—irritans Panz.

Inhabits flowers; beginning of August, Heron Court; both sexes on trunks of Fir-trees, Parley Heath; on flowers of Ragwort, sand-hills near Roundstone, Connemara, J. C.

\*\* STOMOXYS. *Seta pectinated above: proboscis twice as long as the head, incurved: palpi short: mediastinal cell open.*

2. calcitrans Linn.—Sam. pl. 9. f. 7.—pungens DeG. v. 6. tab. 4. f. 12—18.—tessellata Fab.

Cinereous, abdomen spotted black: 3 lines long.

Stewart says it “infests the feet of cattle and occasions their continual kicking; it bites severely at the approach of rain; it likewise attacks man, biting the legs and leaving a red spot, which is bright red in the middle and continues a considerable time.”

End of July, in houses in London, at Niton, &c., and the female on the side of the cliff near Black-gang-chine in the Isle of Wight in October; August Glengariff and Roundstone, Ireland; J. C. The larva lives in dung.

\*\*\* HÆMATOBIA Desv. *Palpi as long as the labrum.*

3. stimulans Meig. 4. 162. 4. tab. 38. f. 8—10.—irritans Fab.

Cinereous; abdomen spotted black: 3 lines long.

Inhabits meadows, attacking animals.

4. irritans Linn.—pungens Fab.

Obscure cinereous, wings hyaline: 2 lines long.

Stewart observes, it “sits upon the back of cattle, who endeavour to sweep it off with their tail, which for that purpose is continually in motion.”

Mr. J. Bolts of Lyndhurst tells me that it attacks the cows from July to September.

The Plant is *Thlaspi alpestre*, Alpine Shepherd’s Purse, from near Malham Cove, communicated by T. Howson, Esq.



*Phaenocarpa (Phaenocarpa) ...*

## ÆSTRUS PICTUS.

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ORDER Diptera.      FAM. Æstridæ *Leach*.    Muscides *Lat*.

*Type of the Genus Æstrus Ovis Linn.*

ÆSTRUS *Linn.*, *Geoff.*, *Fab.*, *De Geer*, *Clark*, *Meig.*, *Leach*.

*Antennæ* approximating, inserted in a cavity in the centre of the face, membranaceous, 5-jointed, basal joint nearly quadrate, 2nd transverse, 3rd somewhat globular and more coriaceous, 2 following forming an awl-shaped naked seta, the basal joint of which is very minute (fig. 3).

*Labrum*, *Tongue*, *Mandibles* and *Maxillæ* none.

*Palpi*? 2, minute, exarticulate, ovate, hairy, inserted below a small tubercle at the bottom of the head (2\* c and c, detached and more magnified).

*Lip* none.

*Mouth* none or concealed. *Head* vertical, short, and blunt (2\*, a front view showing the situation of the antennæ. *Eyes* lateral, not very large, oval, more distant in the females than males (a). *Ocelli* 3, large, placed close together in a triangle upon the crown of the head (b). *Scutellum* distinct. *Abdomen* with its apex deflexed, acuminate in the females. *Wings* divaricating, punctured, containing about 10 cells, the costal nerve not surrounding the wing, two of the exterior cells united by transverse nerves before reaching the posterior margin (9). *Squamula* large concealing the Halteres. *Legs* rather slender, hairy. *Tibiæ* simple. *Tarsi* 5-jointed, basal and terminal joints the longest, the remainder short with a few bristles. *Claws* simple. *Pulvilli* large (8, a fore leg).

*Larvæ* smooth, fleshy, living in the frontal sinuses or under the skin of herbivorous animals.

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PICTUS *Megerle*, *Wiedemann*, *Meigen Syst. Besch. v. 4. p. 172. n. 8.*  
*Leachii Samouelle's MSS.*

Cinereous, silvery, covered with black hairs. Face and antennæ pale ferruginous, hoary, upper part castaneous, changeable with gray; a triangular spot upon which the ocelli are placed and behind the eyes black tessellated with gray. *Eyes* ferruginous. *Thorax* gray, shoulders and region of the wings ferruginous, a quadrate spot narrowed before in the middle of the anterior portion blackish, upon which are 2 intense black lines, with 2 black spots on each side, behind are 2 other black spots and a slender line on each side. *Scutellum* castaneous, silvery at the margin with 2 obscure black spots. *Abdomen* silvery gray variegated with black. *Wings* transparent, yellowish towards their base with obscure spots, the little transverse nerve near the centre forming a spot; nerves brown. *Squamulæ* fuscous. *Legs* ferruginous, thighs variegated with black and gray beneath.

*In the Cabinet of Mr. Samouelle.*

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THERE is no genus of insects whose habits are more formidable, or whose economy is more extraordinary, than the *Æstridæ*.

It has been on a former occasion remarked, that our *Æstri* were unknown to the ancients, and that the "flying plague" mentioned by Virgil was a *Tabanus* (Plate 78), an insect as remarkable for the perfect organization of its *instrumenta cibaria*, as *Æstrus* is for the absence of those organs.

Although the seeds of inquiry were first sown by Malpighi, Vallisneri, Reaumur, and De Geer, Linnæus and cotemporary writers were but imperfectly acquainted with this family; and it was to the ingenious and masterly investigations of our own countryman Mr. Bracy Clark that we are put in complete possession of the habits and economy of the different species, and enabled to examine them scientifically. The European *Æstridæ* have been separated by Dr. Leach into 2 genera, in which he has been followed by the most learned Dipterist of the day. The genus *Æstrus* is distinguished from *Gasterophilus* by the economy of its larvæ and the nerves of the wings, and comprises 4 British insects.

1. *Æstrus Ovis* Linn.—Clark's *Essay*, tab. 2. f. 16. to 20.  
—Don. *Brit. Ins.* v. 16. pl. 550.
2. *Bovis* Linn.—Clark, tab. 2. f. 1. to 10.
3. *Ericetorum* Leach.
4. *pictus* Meig.—Nob.

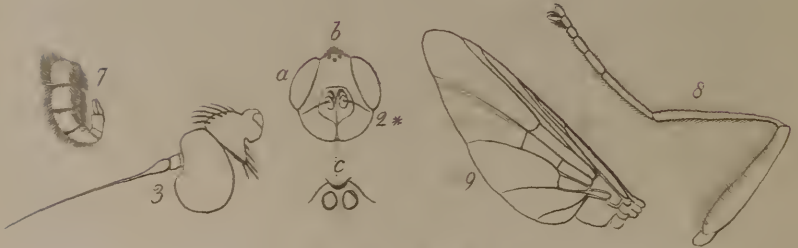
The larvæ of *Æ. Ovis* live in the frontal cavities of the sheep, change to chrysalides about June, and in August the male flies are found not unfrequently sticking to pales and walls in the neighbourhood of sheep pastures.

The larvæ of *Æ. Bovis*, called Warbles, Wormals, &c., live under the hides of oxen and cows, change to chrysalides about the end of June or later, and the fly appears the middle of August.

*Æ. Ericetorum* is considered as a variety only of *Æ. Bovis* upon the Continent.

We cannot but congratulate our readers on being able to present them with another species of this singular family, especially as it is a fine and handsome insect of great rarity and has never before been figured: as a British insect it is unique, a single specimen having been taken by Mr. Samouelle in the New Forest at Burley Heath, 12th of June, 1823. Of its habits we know nothing; but it is not improbable that it is attached to the deer, and lives in the larva state probably in the frontal cavities of the head of that animal.

The plant is *Valeriana dentata* (Oval-fruited Corn Salad).



*Scaptomyza leucosticta* Loew, 1848

## GASTEROPHILUS SALUTIFERUS.

ORDER Diptera. FAM. Cæstridæ Leach. Muscides Lat.

*Type of the Genus Cæstrus Equi Clark.*

GASTEROPHILUS Leach. Gastrus Meig. Cæstrus Linn., Fab., Clark.

*Antennæ* approximating, inserted in a cavity in the centre of the face, membranous, 5-jointed, basal joint somewhat cup-shaped, pilose, 2nd very large kidney-shaped, 3 following forming a long awl-shaped naked seta, the basal joint of which is nearly obsolete, the 2nd quadrate (fig. 3).

*Labrum, Tongue, Mandibles and Maxillæ* none.

*Palpi*? 2, minute, exarticulate, globose, naked, inserted below a small tubercle at the bottom of the head (2 \* c, detached and very highly magnified)

*Lip* none.

*Mouth none or concealed.* Head vertical, short and blunt (2 \*, a front view showing the situation of the antennæ). Eyes lateral, oval, alike in both sexes (a). Ocelli 3, placed close together in a triangle upon the crown of the head (b). Scutellum large. Abdomen with its apex inflexed, very much elongated and attenuated in the female, being terminated by a horny tube (7, abdomen of a female in profile).

Wings divaricating, punctured, containing 12 or 13 cells, the costal nerve not surrounding the wing, the posterior margin without transverse nervures (9). Squamulæ small, not concealing the Halteres.

Legs very slender long and hairy. Tibiæ simple, very long and slender. Tarsi as long as the tibiæ, 5-jointed, basal joint the longest.

Claws long, simple. Pulvilli large, bilobed, with a strong bristle between them (8, a fore leg).

Larvæ cylindrical, mouth armed with 2 hooks, the segments of the body furnished with a double row of short spines; living in the stomachs of herbivorous animals.

SALUTIFERUS Clark's Supp. to an Essay on the Bots.

*Female.* Black, very pubescent, shining, punctured. Head covered with short ochraceous hair. Eyes dull castaneous. Thorax and scutellum covered with bright ochraceous pubescence, rather black at the base of the wings. Abdomen clothed with long straw-coloured pubescence (especially at the base) excepting the 2nd segment on which it is black. Wings slightly fuscous, yellowish brown at the costa and base, costal nervure brown, the others paler. Squamulæ opaque-white. Legs reddish brown, clothed with paler pubescence.

*Male* brighter and more robust, the thorax orange, the black spot on the thorax at the base of the wings generally more distinct. Abdomen towards the apex orange, legs clothed with brown hairs.

*In the Cabinets of Mr. Clark and the Author.*



THE insects that form the genus *Gasterophilus* are very remarkable for their economy: the eggs, or young caterpillars, are swallowed by the horse, and remain in the stomach of that valuable animal, exposed to a temperature of 102 degrees of Fahrenheit, until full grown, when they pass through, and falling upon the ground become pupæ, and afterwards flies, the females exhibiting an instinct in selecting the peculiar places upon the animal to deposit her eggs, which is truly astonishing. Their habits are not only widely different from those of the group we have given at folio 106, but the perfect insects may be without difficulty separated by the nervures of their wings. I suspect that portion of the antennæ which I have called the 2nd joint in the characters of *Æstrus* is only the narrowed base of the large joint, and the basal joint of the seta in our present genus may be nothing more than the scape.

Five species have been recorded as British.

1. *G. Equi* *Clark, pl. 1. f. 1-16.*—*Bovis* *Linn.*

It is found in August and September flying about horses and in heathy districts, which I was not aware of until this autumn, when in the Isle of Wight I saw 8 or 10 flying round a small space where no cattle were, they looked like bees, and made a considerable humming with their wings.

2. *G. salutiferus et salutaris* *Clark, pl. 1. f. 33-36.*

For specimens of this rare insect I am indebted to Mr. Bra-cey Clark, who found the larvæ in the stomach of a horse at the entrance of the pylorus, and taking them from their situation, they were forced down the throat of his own horse, and received again on their exit after some months; and from the pupæ the identical male here figured, as well as females, were produced.

3. *G. hæmorrhoidalis* *Linn. Clark, pl. 1. f. 17-23.*

Seen flying about the mouths of cattle upon commons in the month of August.

4. *G. nasalis* *Linn.*—*veterinus* *Fab., Clark, pl. 1. f. 24-27. Panz. 107-21.*

5. *G. Clarkii* *Leach's Arrangement, pl. 2.*

Was taken by Dr. Leach at Kingsbridge, Devon, and named after the gentleman whose Essay upon the subject we strongly recommend to the perusal of the student.

The plant is *Arabis thaliana* (Common Wall Cress).



## PHASIA SPECIOSA.

ORDER Diptera.

FAM. Muscidae.

*Type of the Genus, Syrphus hemipterus Fab.*PHASIA *Lat., Meig., Macq., Curt.*—*Hyalomyia Desv.*—*Syrphus, Thereva Fab.*—*Conops Linn.**Antennae* inserted under a slight protuberance of the forehead, short, drooping, approximating and 5-jointed, basal joint short stout and a little bristly above, 2nd twice as large, somewhat obovate-truncate and bristly above, 3rd the longest and broadest, ovate, 4th a small joint attached near the base of the 3rd; 5th setiform, not very long, pubescent, incrassated at the base (3).*Labrum* rather long, horny lanceolate and acuminate (1 b).*Tongue* shorter and slenderer (c).*Mandibles* and *Maxilla* none.*Palpi* exserted, attached far behind the labrum, nearly as long as the tongue, slender, clavate, and hairy (f).*Labium* exserted, long, geniculated and hairy, terminating in 2 large lobes (g).

Males smaller than the females. Head short, subtrigonal, crown very deflexed in the female, face nearly vertical, a little concave, with a line of bristles on each side, and pubescent in the male (2 the profile, 2\* the full face): eyes very large, ovate-trigonal, nearly contiguous in both sexes: ocelli 3, forming a triangle at the base of the head. Thorax narrower than the head, suborbicular: scutell transverse-trigonal. Abdomen depressed, suborbicular and broader than the thorax, pubescent and 5-jointed, the apex armed beneath with a strong claw in the male, inclosed in a sheath. Wings divaricating, very broad in the female (9): Squamulae moderately large, concealing the Halteres, which are slender and capitate. Legs stout: tibiae, hinder curved and rather stout: tarsi 5-jointed, basal joint the longest, 4th obtrigonal: claws long slender and curved: pulvilli bilobed, long and dilated at the apex.

SPECIOSA *Curt. Guide, Gen. 1269.*

Blackish, pubescent; face silvery or silky-white, yellowish above, bluish below: palpi ochreous, antennae brownish, with a whitish tinge; eyes castaneous: thorax shining-white, with 4 deep black stripes at the base, all united before, two short ones on the disc and a long one on each side; scutell bluish-black: abdomen bluish-grey, with a rosy tinge on the back, 1st segment black at the base, the others with a narrow black margin and a blackish dorsal line in some lights: wings very broad, bright ochreous at the base, variegated with fuscous on the costa, a spot on the 2nd longitudinal nervure, a short space on the 3rd, and the transverse nervure margined with fuscous, forming an angular mark.

*In the Cabinet of Mr. Rudd.*

THERE seems to be great difficulty in ascertaining the sexes of this group, which are very dissimilar, and there is a great diversity of opinion upon the subject: never having seen the insects alive, and possessing only old specimens, I am unable

Robert G. Hall (Catal.) *Pandellii* (Catal.) p. 3. *Macquiae* Hall, *Proc. Acad. Nat. Sci. Phila.* 1876

to investigate the subject, and therefore it is possible I may have reversed the sexual distinctions in my generic characters: if it be so, the males are larger than the females, and such is Meigen's opinion.

The Phasiæ are remarkable-looking flies, especially the females, which have the wings very broad towards the base. Robineau Desvoidy has divided Meigen's genus into several others, of which 3 are inhabitants of this country, and are thus characterised :

I. ELOMYIA Desv. 1st posterior cell closed but not petiolated.

1. cana Hgg.—Meig. v. 4. p. 201. no. 30.

“Cinereous; thorax striped with black; wings hyaline. 3 lines.”

Taken, I believe, by Mr. Haliday in Ireland.

II. ALOPHORA Desv. 1st posterior cell uniting obliquely with the 2nd longitudinal, leaving a short petiole (fig. 9.).

2. subcoleoptrata Linn.—Meig. 190. 7. pl. 39. f. 13.

“Thorax cinereous, with black stripes; abdomen fuscous-cinereous; wings with a broad fuscous stripe (♂?) or hyaline (♀?): 4 and 3 lines.”

Taken, I believe, near Darent, in Kent

3. hemiptera F.—Don. 12. 429.—Panz. 74. 13. and 14. and 16. affinis.

“Abdomen ferruginous with a black stripe; wings dilated, variegated with fuscous and yellow ♂?, 5 to 6 lines; or with the abdomen black, the sides testaceous, wings subhyaline ♀? 4 to 5 lines.”

June, Devon, Dr. Leach; and Mr. Simmons took one off flowers of the cow parsnep last September in Melton Wood, near Doncaster.

III. HYALOMYIA Desv. 1st posterior cell forming nearly a right angle with the 2nd longitudinal, leaving a long petiole (vide the coloured figure).

4. speciosa Curt. Brit. Ent. pl. 697. ♂?

This is the *P. obesa* Meig.: but as Fabricius says, “thorax black, immaculate; wings obscure,” I cannot think that it is his *T. obesa*.

For the loan of the specimen figured I am indebted to the Rev. G. T. Rudd, who took it last August in a clover-field in the Isle of Wight.

5. semicinerea Meig. 199. 24. pl. 39. f. 14.

“Thorax and 2 basal segments of abdomen black, the following hoary; wings hyaline. 1 line.”

Taken near London.

6. pusilla Hgg.—Meig. 198. 23.

“Thorax black; abdomen hoary, base black; wings hyaline. 2 lines.”

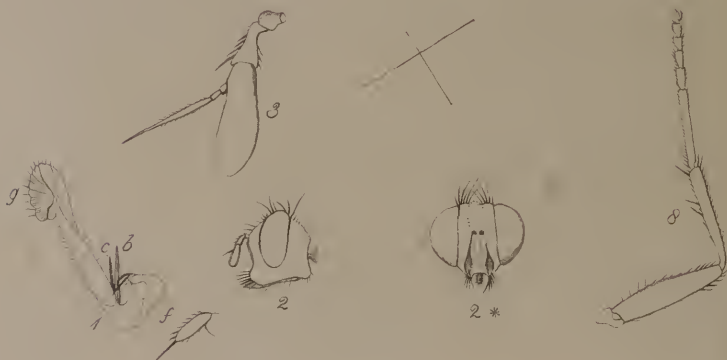
I have taken specimens, and Mr. Clifton has also found it. Large swarms sometimes unite, flying in the air.

7. hyalipennis Fall.—Meig. 199. 25. ?

“Black, shining; wings hyaline; scales blackish. 1½ line.”

Mr. Rudd took a specimen last August in the Isle of Wight.

*Allium arenarium*, Sand Garlic, was found near St. Vincent's Rocks, and communicated by Mr. G. H. K. Thwaites.



OCYPTERA BRASSICARIA.

ORDER Diptera. FAM. Muscidae.

Type of the Genus, Musca brassicaria Fab.

OCYPTERA Lat., Fab., Meig., Desv., Macq., Curt.—Musca Fab.

Antennae inserted under an angle towards the top of the face, long and drooping, 6-jointed, basal joint somewhat pear-shaped, 2nd twice as long, pear-shaped, curved at the base, truncated at the apex, with spiny bristles on the sides, 3rd very long and large, compressed, subelliptic, a little narrowed at the base, 4th a small quadrate joint, inserted towards the base on the back of the 3rd, 5th somewhat obovate, 6th a long robust seta, slightly pubescent, slender at the apex (3).

Labrum short and lanceolate (1 b).

Tongue shorter and slenderer (c).

Palpi remote from the labrum, forming a minute ovate hairy lobe terminated by a long bristle (f with the Palpus detached and greatly magnified).

Lip very long, exerted horizontally, subcylindric and horny, bilobed at the apex (g).

Head subglobose or rhomboidal; face concave, the clypeus projecting and bristly (2): eyes vertical, ovate and remote in both sexes: ocelli 3 in triangle on a tubercle at the base of the crown (2\* front view of face). Thorax oblong: scutellum semiorbicular. Abdomen long, cylindrical, nearly linear, bristly, thick and rounded at the apex. Wings divaricating, rather short and broad; 3rd longitudinal nerve rounded at the extremity and not reaching the apex of the wing, 4th and 5th united by oblique waved nervures towards the posterior margin: squamulae large, orbicular and concealing the halteres. Legs long and rather stout: thighs clothed with long bristles inside: tibiae spiny, especially the 4 hinder: tarsi long and 5-jointed, basal joint very long and ciliated with rather long bristles inside at the base, 2nd joint oblong, the remainder shorter subtruncate: claws and pulvilli sometimes elongated (8, a fore leg).

BRASSICARIA Fab.—Curt. Guide, Gen. 1271. 1.

Black, head silvery-white, with a broad black stripe down the crown: thorax bright hoary grey, with 2 black bands down the back, and 2 abbreviated lines between them: abdomen deep orange, the hairs black as well as a subtrigonal patch at the base, a dot at the extremity of the 2nd joint, the following segments glossy black, with a pearly reflection at the base: wings pale fuscous, costa deep ochreous, especially towards the base; scales dead-white.

In the Cabinets of Mr. Dale and the Author.

Gober G. 18435 Candell's Catalogue p. 1. Marquart 1855

MEIGEN has described eight European species of this genus, but two only have been discovered in England, and they are of rare occurrence. This group has been formed into several genera by Desvoidy, and divided by Macquart, but to which section the second species belongs I cannot say. The larva of one species, the *O. coccinea*, Meig., lives in *Pentatoma grisea*, and another, *O. radicum*, Fab., has been bred from pupæ found in the roots of cabbages, which the following species also inhabits.

1. *brassicaria* Fab.—*Curt. Brit. Ent. pl.* 629.—*cylindrica* De Geer.—*segnis* Panz.

On the 24th of June I saw two or three of these flies amongst bushes and alighting on footpaths in the Isle of Portland, where Mr. Dalton Serrell also took a specimen last July. Mr. Samouelle says it is found on the trunks of trees in June.

I ought to remark that the legs of the specimen dissected varied from the one figured in the number and length of the spines, and the claws and pulvilli were much shorter, yet they seemed to be both males; and one of my specimens wants the black dot on the 2nd segment of the abdomen.

2. *interrupta* Meig. *v.* 4. *p.* 213. 5.

“Thorax white before with 2 black stripes; abdomen attenuated at the base, black, sides of the 1st and 2nd segments rufous; wings blackish: 4 lines long.”

Said to have been found near London.

*Corrigiola littoralis*, Sand Strapwort, was gathered the end of last August on Slapton Sands, near Dartmouth, and transmitted to me by Dr. W. A. Bromfield.



Pub by J. Currier 1864



529.

## MILTOGRAMMA PUNCTATA.

ORDER Diptera.

FAM. Muscidae.

*Type of the Genus, Miltogramma punctata Meig.*

MILTOGRAMMA Meig., Desv., Curt.—Tachina Fall.

*Antennae* inserted in a cavity at the upper part of the face, short, drooping, 6-jointed, basal joint short, 2nd obtrigonal, with one or two very strong bristles above, 3rd joint very large, subelliptic and velvety, 4th inserted near the base of the 3rd outside, small cup-shaped, 5th ovate, 6th forming a short stout pubescent seta (3).

*Trophi* received into an elongated cavity at the lower part of the face (2\*).

*Marillae* and *Mandibles* none.

*Palpi* long, clavate and pilose, attached to a membrane that incloses the base of the trophi (1 f).

*Labrum* short stout and hollow (b).

*Tongue* undiscovered.

*Lip* rather long and slender, terminated by two rather small membranous and striated lobes (g).

Head somewhat trigonate, obtuse in front, face orbicular and silky, profile nearly straight and vertical, crown bristly: eyes remote in both sexes, lateral and ovate: ocelli 3 in triangle at the back of the head (2 the head in profile, 2\* underside). Thorax not broader than the head, cylindrical quadrate: scutellum semioval and bristly. Abdomen narrower and not longer than the thorax, cylindrical ovate-conic, with 4 segments only visible above. Wings divaricating, rather short and narrow, with an oblique waved nervure towards the apex: halteres small, capitate, concealed beneath the scales, which are large and ovate. Legs slightly bristly: tibiae simple: tarsi 5-jointed, anterior in the male with the 4th joint furnished with 2 or more long curved hairs on the outside, and ciliated with fine long hairs on the inner side (8 ♂ the fore leg, side view; and the underside of the tarsus is shown at \*): claws distinct; pulvilli bilobed.

PUNCTATA Meig., v. 4, p. 228. No. 3.—Curt. Guide, Gen. 1274. 3.

Satiny glossy, pale ash-colour with a fulvous tint, clothed with blackish hairs and bristles: head silvery white, a broad stripe down the crown ferruginous; antennae blackish, tips of the 2nd joint ferruginous; palpi ochreous; eyes dark brown. Thorax with 2 black stripes before and a long spot on each side, with 2 behind them, and a broader stripe down the hinder part of the back; scutellum ferruginous brown. Abdomen with the hinder portion of the segments appearing brown in certain lights, each having 3 black polished spots, smallest on the 4th segment: Wings perfectly clear, slightly iridescent, nervures piceous, ochreous at the base, scales opaque-white: halteres ochreous. Legs black, thighs and tibiae hoary outside; terminal joint of anterior tarsi in the male ciliated on the inside, with a bunch of hairs on the outside, 2 or 3 of them long and incurved (fig. 8\*).

*In the Author's and other Cabinets.*

✓ Gobert G. 4013 14. (see descr. Cat. p. 4)

MILTOGRAMMA is a genus established by Meigen to embrace those Muscidæ with divaricating wings and an oblique apical nervure, having a hairy mouth and the 3rd joint of the antennæ elongated, linear and compressed, with a naked seta at the base.

This genus extends considerably to the South, two species having been found in Egypt and Mogador. Like many of the tribe to which it belongs, it appears to be parasitic, and in all probability the larva of our species feeds upon, either the maggot or pupa of *Colletes fodiens* (pl. 85).

When we were in the Isle of Arran the middle of last August, I was desirous of showing my friend Mr. Haliday the habitations of the *Colletes fodiens*, which swarmed there nine years before, when Mr. Dale and myself visited that interesting Island; we therefore visited several spots by Brodick Bay, and by searching a declivity perforated by these Bees we soon had the satisfaction to capture several females and 2 or 3 males; but my attention was soon attracted by some of the *Miltogrammæ* pursuing the Bees as they flew to their holes, as an *Æstrus* hovers about a Horse, and they reminded me of the male *Anthophora* (folio 357), for as that Bee attends his bride, so does the *Miltogramma* follow the *Colletes* like its shadow, although for a very different purpose; the *Anthophora* waits upon his mistress, inspired by love, but the Fly watches the Bee, I suspect, for the purpose of depositing its egg that it may be nourished in the cells of the Bee; but whether, like an *Æstrus*, she drops her ova upon the Bee as she is entering her burrow, or in the cell itself, I have not yet ascertained. As it might be expected, every specimen of the *Miltogramma* was a female, and out of many more at different times taken in Hampshire, I met with only one male.

I have taken the *Miltogramma punctata* at Black-gang Chine in the Isle of Wight in June, at Ramsdown near Heron Court on sandy heaths, and on sandy banks on Parley heath with *Colletes fodiens*, in August, and Mr. F. Walker observed it in September at the Lizard Point, Cornwall.

The Plant figured, *Brassica monensis* (the Isle of Man Cabbage), I gathered close to the spot where the flies were captured.



*Chrysomelid*

Tachinae  
IV

GONIA RUFICEPS?

ORDER Diptera.

FAM. Muscidae.

Type of the Genus, *Musca capitata* De Geer.

GONIA Meig., Curt.—Tachina Fall.—Musca De G.

*Antennae* received into a cavity in front of the face, contiguous, long, nutant and 6-jointed; 1st and 2nd joints short, somewhat cup-shaped, and very bristly outside, the latter longer in the females, 3rd very long, velvety, subelliptic and compressed, the remainder forming a velvety seta, densely clothed with short hairs, 4th inserted near the base of the 3rd, minute, 5th long, linear, curved at the base, 6th forming an obtuse angle, shorter than the 5th and acuminated (3).

*Labrum* slender and lanceolate, considerably shorter than the lip (1, b).

*Tongue* only half the length of the labrum, linear and rounded at the apex (c).

*Maxillæ* very minute, placed far behind the labrum. *Palpi* longer than the labrum, curved and pilose at the apex (f).

*Labium* long, terminated by 2 pilose lips (g).

*Trophi* received into an elongated cavity at the bottom of the face, with bristles on each side. Head large and often dilated, the crown clothed with bristles, (2 profile, 2\* front view): Eyes not large, lateral, very remote and ovate: ocelli 3 on the crown in triangle. Thorax globose, quadrate, bristly: scutellum semi-orbicular. Abdomen ovate, convex, composed of 4 segments, clothed with fine hairs and bristles. Wings divaricating in repose, not long but broad, with the 2 posterior cells closed by oblique nervures (9): squamulæ large and concealing the halteres which are small and capitate. Legs bristly: tibiæ with the middle and hinder pairs bristly: tarsi spiny, 5-jointed, basal joint the longest, 5th the shortest: claws distinct: pulvilli bilobed.

RUFICEPS Meig.?—Curt. Guide, Gen. 1282. 8.

In the Cabinets of Mr. W. Clifton and the Author.

GONIA is closely allied to Tachina, from which it is distinguished by the geniculated seta to the antennæ. The œconomy of the Gonix being unknown, the following observations, transmitted to me by my friend Mr. Clifton, may be acceptable to the entomologist. "In April last I saw hundreds of specimens of *G. capitata* flying about the extensive sand-hills between Boulogne and Etaples, and at the same time I observed numerous hairy caterpillars of a dark colour, many of which were to be seen lying on the sand almost dead; and although at the time I concluded they were victims to the large sand wasps, which were occasionally to be seen dragging the lifeless corps to its charnel house as food for its future young, yet it has since occurred to me that it is possible some of them might have been pierced by the Gonix, as my brother and myself re-

Robert Catal, G. 117. Pan diller Catal p. 11

marked how much the dead ones obtained wherever there were many of these flies: this however is only conjecture.”

“They fly slowly and keep close to the ground, making a buzzing noise very much like bees, for which they are often mistaken: they seldom remain long in the air, keep much to one situation, rather congregating, and settle with their wings half open on the burning sand.”

1. *G. capitata* De Geer, VI. tab. 1. f. 3.?

Black, head inflated ochreous, palpi of the same colour, 2 basal joints of antennæ castaneous; face silvery; thorax griseous, with 4 black lines down the back, sides castaneous; scutellum ochreous, underside of abdomen and a large spot on each side subpellucid ferruginous, leaving the apical joint and a stripe down the back black; base of the segments silvery.

I have some doubt about the species from which this description is taken: all the specimens are smaller than Meigen's, those taken by Capt. Blomer at Teignmouth, Devonshire, being  $4\frac{3}{4}$  lines long, and some of the French specimens are about 1 line longer.

2. *nervosa* Wint.—Meig. v. 5. p. 4. n. 6.

“Thorax griseous-fuscous, striped black; abdomen ferruginous with a black dorsal stripe; transverse apical nervure black at the base.”—Meig.

This and the following have been recorded as natives of the neighbourhood of London, but I have never seen specimens.

3. *auriceps* Meig. 5. p. 5. n. 7.

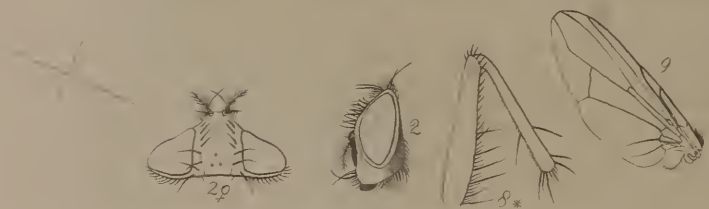
“Thorax blackish; abdomen rufous, dorsal stripe and apex black, with white spots; head fulvous.”—Meig.

8. *ruficeps* Meig.?—Curt. Brit. Ent. pl. 533 ♀.

Black, shining, clothed with strong black bristles; palpi and 2 basal joints of antennæ ferruginous, 3rd cinereous: head castaneous, face silvery-white, a spot on the crown and the hinder part black and gray, producing fine whitish hairs behind; thorax and scutellum with a bluish gray bloom, the former hoary before, with 4 black lines and several black dots between them and on the hinder portion: abdomen with the base of the segments (excepting the 1st) glittering bluish gray, varying in different lights, sometimes forming 3 spots down each side: wings slightly fuscous, ochreous at the base, and most of the nervures tinted with the same colour; squamulae dull white: middle of tibiæ subcastaneous. *Male* much smaller, and there is no black frontal stripe in either sex in our specimens.

For the loan of this fine insect I am indebted to Waller Clifton, Esq., who took it the middle of June 1831 under the cliff near Dover, towards Folkestone; the male I captured the 20th of last June at Caistor Marrams near Yarmouth, Norfolk.

The Plant is *Carex Pseudo-cyperus* (Bastard Cyperus *Carex*).



Del. by J. Carter May 1855

MUSCA CHLORIS.

ORDER Diptera. FAM. Muscidæ.

Type of the Genus, Musca Cæsar Linn.

MUSCA Linn., Fab., Meig., Curt.—Chrysomya, Lucilia, Pyrellia and Phormia Desv.

Antennæ rather long and received into a cavity in the face, approximating at the base, nutant, and 5-jointed, basal joint cup-shaped, 2nd a little longer and obtrigonal, with several short and one long stout erect bristle at the apex, 3rd long linear-prismatic, compressed and pubescent, 4th minute, inserted at the base of the 3rd, 5th a little larger, 6th forming a long seta stout at the base, producing long bristles on both sides (3).

Labrum shorter than the lip, stout rigid and hollow (1 b).

Tongue short broad and thin (c).

Maxilla and Mandibles none. Palpi long pilose and clavate (f).

Lip rather elongated and terminated by 2 pilose lobes (g).

Males smaller and sometimes more bristly than the females. Head short trigonal above, face somewhat orbicular and slightly concave: eyes ovate, sometimes partially contiguous in the males, always remote in the females (2 ♀): ocelli minute, 3 in triangle on the crown. Thorax orbicular-quadrangle, with a transverse suture; scutellum semi-orbicular. Abdomen orbicular-ovate in the male, more trigonal in the female, 4-jointed, basal joint very short. Wings divaricating, with 2 marginal transverse nervures, the apical one oblique; costa spiny at the base; squamulæ rather large and concealing the halteres which are small and capitate. Legs, anterior the shortest: thighs, middle pair a little the longest: tibiæ bristly, intermediate with several long bristles at the apex and 2 below the middle (8\* the thigh and tibia): tarsi 5-jointed, basal joint the longest: claws distinct: pulvilli bilobed.

Eggs elongate ovate. Larvæ attenuated to the head, truncated behind.

Pupæ coriaceous and oval. Roesel v. II. tab. X.

CHLORIS Hal., Ent. Mag. 1. 165.—Curt. Guide, Gen. 1286.

Bright shining green, either inclining to blue or tinged with gold: a black stripe down the crown of the head to the antennæ which are black, the 3rd joint gray; trophi black; face hairy, silky white, cheeks green; eyes brown, divided by a narrow space in the male, by a broad one in the female; legs black, thighs slightly cupreous: wings with the angle of the 4th nervure rounded.

In the Cabinets of Mr. Haliday, Mr. Clifton, and the Author.

THE genus Musca comprises amongst others those insects which deposit their eggs on meat, and are commonly known by the name of Blue-bottle flies, long and interesting accounts of which will be found in "Kirby and Spence's Introduction" and other works. They vary considerably in structure, for whilst the eyes of some of the males meet in the middle, they



are nearly as remote in others (*M. domestica*) as in the female: in most of the species the 4th longitudinal nervure is bent, and takes an oblique direction, uniting with the marginal one at the apex; but in *M. Lanio* and *atramentaria* it is united (Meigen says) to the 3rd longitudinal one, and in *M. mediatubunda* it is scarcely angulated (fig. 9).

Many of the following British species, arranged according to Meigen, I have only seen in the cabinet of Mr. W. Clifton, to whom I am greatly indebted for much valuable information respecting the Muscidæ.

A. Golden-green colour. *Muscæ nobiles*.

a. Apical transverse nervure sharply angulated.

1\*. *Chloris Hal.*—*Curt. Brit. Ent. pl. 549* ♀. The green shining cheeks distinguish this species from the following.

- |                         |                          |                          |
|-------------------------|--------------------------|--------------------------|
| 1. <i>Cæsar Linn.</i>   | 2. <i>cornicina Fab.</i> | 3. <i>sericata Meg.</i>  |
| 6. <i>regalis Meig.</i> | 7. <i>illustris M.</i>   | 8. <i>ruficeps M.?</i>   |
| 9. <i>parvula M.</i>    | 11. <i>splendida M.?</i> | 14. <i>Cæsarion Hgg.</i> |
| 15. <i>puella M.</i>    | 16. <i>regina M.</i>     | 17. <i>albigennis M.</i> |

b. Apical transverse nervure with the angle rounded.

18. *serena Meig. v. 5. p. 59.* Mr. Clifton has discovered a yellow spot on the pleuræ of this and of *M. azurea*.

19. *cadaverina Linn.*

B. Common coloured; thorax striped. *Muscæ familiares*.

a. Apical transverse nervure acutely angulated.

- |                                   |                              |  |
|-----------------------------------|------------------------------|--|
| 21. <i>vomitaria L.</i>           | 22. <i>erythrocephala M.</i> |  |
| 23. <i>cognata M.; cærulea M.</i> | 13. <i>equestris M.</i>      |  |
| 24. <i>azurea Fall.</i>           | 25. <i>Lanio Fab.</i>        | 26. <i>atramentaria M.</i>               |
| 27. <i>Vespillo Fab.</i>          | 28. <i>rudis Fab.</i>        | 28 <sup>b</sup> . <i>degener Hal.</i>    |
| 29. <i>varia M.</i>               | 31. <i>domestica Linn.</i>   | 32. <i>corvina Fab.</i>                  |
| 33. <i>agilis M.</i>              | 34. <i>sepulcralis M.?</i>   | 34 <sup>b</sup> . <i>macellaria Hal.</i> |
| 38. <i>vitripennis M.</i>         |                              |  |

34<sup>c</sup>. *consobrinus Curt.*—Male 5 lines; green with shining gray reflections, clothed with black hairs and bristles: legs and head black, margins of eyes and face dirty shining white: palpi ferruginous: thorax with 4 black stripes: abdomen depressed. Taken by W. Clifton, Esq. at Putney.

b. Wing with the angle rounded.

\* Eyes naked.

- |                            |                         |                             |
|----------------------------|-------------------------|-----------------------------|
| 39. <i>hortorum Fall.</i>  | 40. <i>pascuorum M.</i> | 41. <i>pabulorum Fall.</i>  |
| 42. <i>stabulans Fall.</i> | 43. <i>cæsia M.</i>     | 44. <i>tempestiva Fall.</i> |

\*\* Eyes hairy.

- |                             |                          |                          |
|-----------------------------|--------------------------|--------------------------|
| 45. <i>cyanella M.</i>      | 46. <i>versicolor M.</i> | 48. <i>maculata Fab.</i> |
| 49. <i>meditabunda Fab.</i> |                          |                          |

The Plant is *Peucedanum Silaus*, or *Silaus pratensis* (Meadow Sulphur-wort).





*Musca Anthomyiidae*

HYDROTÆA CILIATA.

ORDER Diptera. FAM. Muscidae. Anthomyzidae Lat.

Type of the Genus, *Musca meteorica* Linn.

HYDROTÆA Desv., Macq., Meig., Curt.—*Anthomyia* Meig.—*Musca* Linn., Fall.

*Antennæ* inserted in a cavity in the middle of the face, approximating, short, drooping and 5-jointed, basal joint short, 2nd stout, obtrigonal, with strong bristles above, 3rd large, elliptic, compressed, velvety, 4th small, oblong, inserted at the base of the 3rd; 5th a moderate pubescent seta, thickened at base (3).

*Labrum* longish, attenuated, pointed (1 b).

*Tongue* undiscovered. *Mandibles* and *Maxillæ* none. *Palpi* very long, clavate and bristly (f).

*Lip* large, stout, terminated by 2 very large pilose lobes (g).

Head transverse; face orbicular; hypostoma concave, bristly and hairy beneath (2): eyes large and oval, approximating and pubescent in the male, remote and sometimes naked in the female (2 ♀): ocelli 3, forming a triangle on the crown, which is bristly. Thorax subquadrato-ovate, with long bristles: scutellum subtrigonal, with 2 long bristles at the apex. Abdomen not broader or larger than the thorax, bristly, with 4 distinct joints, oval in the male, apex conical in the female. Wings longer than the body, divaricating or incumbent, 4th and 5th longitudinal nervures slightly conniving at the apex, approximating at the centre, where they are united by a transverse nervure, 5th and 6th united by a long oblique nervure; costa bristly at the base; squamulae moderate and semioval: halteres small and capitate. Legs long, intermediate the longest: thighs, anterior with 1 or 2 strong teeth beneath in the males, intermediate long and linear, with 2 or 3 long bristles at the apex; hinder stouter, with a strong spine beneath: tibiae, anterior sinuated internally above, with a bristle near the apex, the others with a few bristles outside and at the apex, hinder ciliated internally, except at the base: tarsi long, very pubescent beneath, basal joint long: claws hooked; pulvilli large and bilobed. Obs. The dissections were from *H. ciliata* ♀.

CILIATA Fab.—Curt. Guide, Gen. 1287. 134.

Blue-black, hairy and bristly: eyes brown or reddish; hypostoma and cavity between the antennae silvery white; a silvery stripe on each shoulder, and a narrow obscure one at the centre of the anterior margin of the thorax; base of 2nd, 3rd and 4th abdominal segments in the male, with glittering silvery-gray fasciae, interrupted down the back; apical segment alone of that hue in the female; nervures brown, ochreous at the base; halteres subochreous; anterior thighs of male with a large tubercle beneath, and a hook nearer the apex, with a pencil of short bristles; intermediate with a pencil of erect long bristles at the apex; hinder with a long erect slender spine at the centre beneath; anterior tibiae sinuated internally towards the base; hinder ciliated internally, except at the base, the hairs shortest at the apex; legs simple in the female.

In the Cabinets of Mr. W. Clifton, the Author, &c.

\* *Gobul* & 342, 17 up. *Pandelli Catal.* 745 p. 21.

Not having illustrated Meigen's extensive subfamily Anthomyia, I have selected a group, the males of which are more remarkable for the conformation of their legs than any others I remember, excepting the Medeteri, pl. 162: this curious structure is supposed to afford them the means of catching the females, as well as of adhering to aquatic plants, which they inhabit. By these characters *Hydrotæa* is separated from neighbouring groups; and the pubescent antennæ will assist in distinguishing the females, as they are more plumose in the allied genera, into which the Anthomyzidæ are now divided.

I have not succeeded in finding the tongue, but I have to remark that the eyes are pubescent only in the male of the species figured. Macquart has proposed the following sections: the numbers 105, &c. refer to the Guide and to Meigen.

1. *Anterior thighs spined in the males; with their tibiæ crenated or notched.*

\* *Anterior thighs with only 1 spine in the males.*

105. *dentipes* Fab.—Meig. 5. 144.—*domitor* Harr. *Expo. pl.* 43. f. 71.

94. *militaris* Meig. 136. July, Turk Mountain, Ireland.

98. *armipes* Fall.—Meig. 138. June, Darent.

90. *occulta* Wied.—Meig. 133. Taken by Mr. Haliday: it forms a portion of Meigen's genus *Lasiops*, a name alluding to the hairy eyes, distinguished from *Aricia* by the fine pubescent seta of the antennæ and longish abdomen, and from *Hylomyia* by the hairy eyes.

126. *glabricula* Fall.—Meig. 155.—*structus* Harr. *Expo. pl.* 43. f. 68?

93. *palæstrica* Meig. 135.

\*\* *Anterior thighs with 2 spines.*

96. *meteorica* Linn.—Panz. 1. 19.—*Vaccarum* De G. 6. *pl.* 5. f. 1.

This insect flies in troops in July, tormenting horses, cows, and even man, by flying round their heads, and endeavouring to alight on the eyes, nose, and mouth, to obtain the secretions from those parts.

91. *irritans* Fall.—Meig. 134. July, Killarney.

92. *bidens* Wied.—Meig. 135.

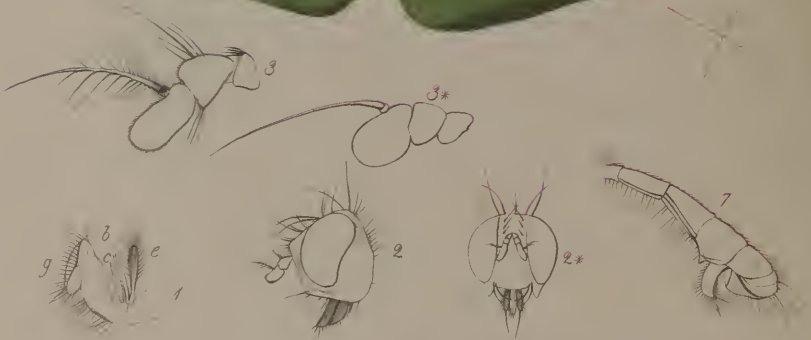
134. *ciliata* Fab.—Curt. B. E. *pl.* 768. ♂.—*spinipes* Fall. The females I have taken in May in Coomb-wood.

2. *BLAINVILLIA* Desv. *Thighs unarmed in the males, anterior tibiæ crenated. Antennæ plumose in the male, almost naked in the female.*

10. *palpata* Desv.—Macq. 2. 307.—Meig. 7. 326.

This species is added to illustrate the section, but I believe it has not been found in England.

*Centunculus minimus*, Bastard Pimpernel, was communicated by Dr. Bromfield and Mr. Luxford.



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Muscidae (Sciomyzinae)

485.

Hydromyza

CORDYLURA LIVENS. Fall

ORDER Diptera. FAM. Muscidae.

Type of the Genus, Musca pubera Linn.

CORDYLURA Fall., Meig., Curt.—Ocyptera Fab.—Hydromyza Fall.—Musca Linn., Fab.

Antennae inserted in a cavity under a slight protuberance in front of the face, contiguous, drooping, velvety, 5-jointed, basal joint rather small and subtrigonate, having a few strong bristles at the apex, 2nd large and similar in form, furnished with some long and stout bristles above and a few beneath at the apex, 3rd joint the longest, oblong, on the back of which near the base is inserted the 4th, which is small, 5th a stout seta very hairy at the base and plumose to a little beyond the middle (3). Labrum shorter than the lip, horny hollow and notched at the apex (1 b). Tongue shorter than the labrum, horny and attenuated, rounded at the apex (c). Palpi longer than the labrum, large, clavate and very pilose (e). Lip stout and short, very hairy and divided at the apex (g).

Head subglobose (2, the profile; 2\* front view): face sloping inward, with 1 or 2 bristles at the angles of the clypeus, which is membranous with a large cavity beneath to receive the trophi; crown of head with 2 series of bristles. Eyes large lateral and ovate, not very remote, but nearly equally so in both sexes: ocelli 3 in triangle slightly elevated on the crown of the head. Thorax ovate, truncated before: scutellum prominent semi-ovate. Abdomen 7-jointed, linear and clavate in male (7), elliptical and conical at the apex in the female. Wings incumbent and parallel when at rest, rather short and broad, the 4th and 5th longitudinal nervures united by a transverse one at the middle, and the 5th and 6th towards the margin. Halteres rather small and capitate. Legs more or less armed with spiny bristles: thighs rather long and robust: tibiae, anterior the shortest: tarsi 5-jointed, basal joint the longest, the others oblong, the apical one scarcely longer than the preceding. Pulvilli large: claws strong.

Obs. The trophi were drawn from C. pudica.

LIVENS Fab. Ent. Syst. 4. 345. 135.—Curt. Guide, Gen. 1292. 31.

Cinereous, pubescent, not shining: palpi slightly dilated and ferruginous: antennae small naked and black, 3rd joint subovate, the seta slightly pubescent at the base (3\*); a ferruginous spot above them, the hypostoma yellow, margin of eyes hoary: thorax with the shoulders hoary, 2 pale stripes before at the centre, with a black line down the middle of each. Abdomen depressed, elliptical, rounded at the apex. Wings longer than the body, slightly fuscous, the nervures brown: halteres ochreous. Legs ferruginous; thighs cinereous except at their tips; tibiae with a dusky cinereous band round the middle; tarsi fuscous at their tips.

In the Author's Cabinet.

\* Cabinet Cat. G. 32 p. 1 up, Randall (at. p. 47), Macquart II 516

THE *Cordyluræ* approach very near to *Scatophaga*, but the proboscis and wings are shorter and the form of the abdomen in the males very different. Meigen has formed them into two divisions: the typical species have the antennæ, head, legs, &c., very bristly, whilst those most remote from it are merely pubescent; there are also great differences in the intermediate species, *C. spinimana* has the anterior thighs and legs furnished with long spines, somewhat like a *Tachydromia* (pl. 477. f. 8.), others have the palpi dilated and varying in colour in the sexes as in *C. hydromyzina*.

The following have been found in England and Ireland:

A. Antennæ with the seta feathered.

1. *C. pubera* L.—*Meig. pl. 45. f. 22.*—E. May, Battersea-fields.
2. *ciliata* *Meig. 5. 231. 2.*—B. August, on bushes near London, and in meadows by the Moor's River, Hants.
3. *pubida* *M. 231. 3.*—B. June, Shotover near Oxford.
4. *rufipes* *M. 232. 5.*—British Museum, Dr. Leach.
5. *albipes* *Fall.—M. 233. 8.*—E. June, hedges, Glanville's Wootton Dorset.
6. *nervosa* *M. pl. 45. f. 21.*
7. *armipes* *M. 234. 10.*—Near London.
8. *striolata* *M. 235. 11.*
9. *spinimana* *Fall.—M. 235, 13.*—M. May, near London, and in Dorset.

B. With the seta naked or pubescent.

15. *apicalis* *Wied.—M. 236. 15.*—Taken by the Rev. L. Jenyns at Bottisham, and by A. H. Haliday, Esq., in Kent, and Nos. 3. 5. 20. 24. 28 & 29. near Belfast.
20. *punctipes* *M. 239. 20.*
24. *obscura* *Fall.—M. 240. 24.*—Near London.
28. *pallida* *Fall.—M. 242. 28.*
- 28<sup>b</sup>. *brevipennis* *Curt.—Length 2¼ lines.*

Male cinereous, pilose and hairy; antennæ and eyes blackish, palpi slender and whitish, face and margin of eyes white, clypeus ferruginous with a black subquadrate spot on the crown: abdomen subcylindric: wings short but ample as in div. A: halteres pale ochre: legs pale ferruginous, thighs cinereous, except at the base and apex, the middle pair having only a long cinereous spot on the inside, the anterior thickly set with long black spines on the inside and long hoary hairs outside.

June, near Niton, Isle of Wight.

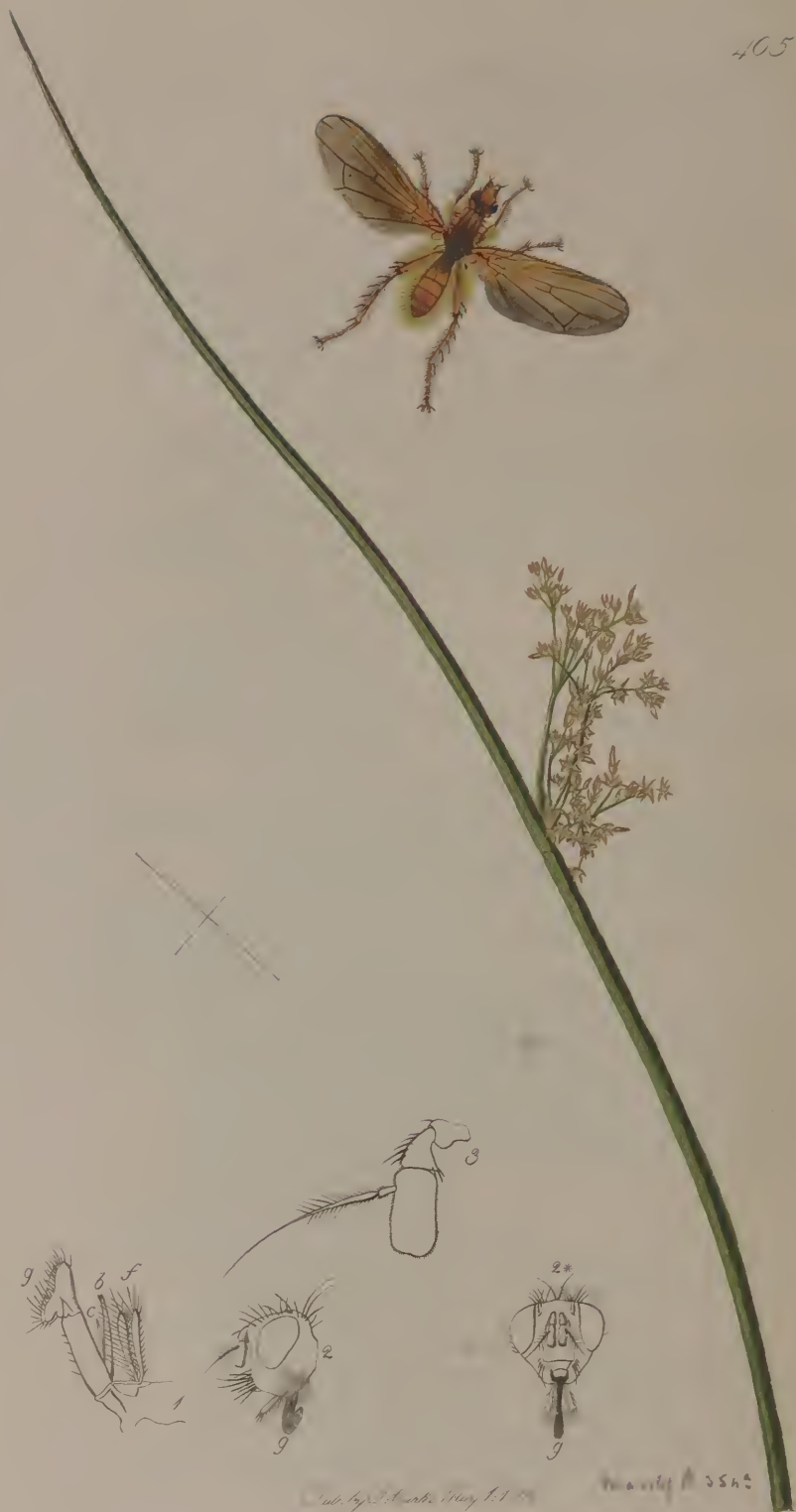
29. *hydromyzina* *Fall.—M. 242. 29.*

Resembles the following, but the head is bristly, and there are a few bristles on the hinder tibiæ. Norfolk, J. C.

31. *livens* *Fab.—Curt. B. E. pl. 485.*

This pretty species, which is new to Britain, has been observed on the leaves of the Water-lilies in the Stoure River, Hants, in July for several years, by the Hon. C. A. Harris, who found the greater number upon the yellow one (*Nuphar lutea*, pl. 495).

The Plant is *Nymphæa alba* (White Water-lily): the leaf is represented about one fourth the usual size.



Dist. Sept. 1840

W. H. B. 3545

*Juncus effusus*

4. III 27 VII 26, VIII 28



## SCATOPHAGA SCYBALARIA.

ORDER Diptera. FAM. Muscidæ.

*Type of the Genus, Musca stercoraria Linn.*

SCATOPHAGA Meig., Lat., Fab., Curt.—Pyropa Ill.—Musca Linn., Fab.

*Antennæ* inserted at the upper part of the face, approximating, drooping and pubescent, 5-jointed, basal joint pear-shaped, naked, 2nd a little broader, truncated and producing several very strong bristles, 3rd twice as long pubescent compressed and oblong, the angles rounded, 4th and 5th forming a seta attached near the base of the 3rd joint above, the former short and pubescent, the latter very long and pubescent, producing a few long hairs at the middle, beyond which it is naked (3); in the 2nd division it is entirely naked.

*Proboscis* exerted vertically. *Labrum* horny curved and attenuated, longer than the palpi, but shorter than the lip into which it is received (1 b). *Tongue* shorter, slender and nearly linear, membranous at the apex (c). *Mandibles* and *Maxillæ* none. *Palpi* attached considerably behind the base of the labrum, long slender, subclavate and clothed with very long hairs (f). *Lip* long horny and cylindric, the lobes fleshy and hairy, not very large (g).

Head alike in both sexes, subglobose-trigonal, bristly on the crown; face vertical, slightly concave in the middle and bristly at the lower part (2). Eyes lateral remote subovate. Ocelli very minute, placed on the crown of the head (2\* front view of the head). Thorax oblong. Scutellum subtrigonal rounded and bristly. Abdomen depressed, 6-jointed, linear in the male, elliptic-ovate in the female. Wings much longer than the body, ample incumbent and parallel in repose, pubescent and beautifully ciliated, with 2 subcostal and 5 longitudinal nervures, the 2nd and 3rd united by a transverse one near the middle, the 3rd and 4th towards the apex and also at the base, as well as the 4th and 5th. Halteres small and capitate. Legs robust, producing series of spiny bristles. Tibiæ surrounded with bristles at the apex. Tarsi 5-jointed, basal joint the longest, the others short. Claws large curved and acute. Pulvilli long and bilobed.

SCYBALARIA Linn. Faun. Suec. 458. 1860. Curt. Guide, Gen. 1293. 1.

Orange ochre, clothed with soft hair of the same colour, but the bristles are black, underside of head and palpi yellow; lip brown: eyes and back part of head ash brown which forms a peak over the ocelli and extends along the eyes. Thorax and scutellum brown and ochre, the latter with several obscure darker longitudinal lines. Abdomen with the 1st joint cinereous, darker at the base, 2nd joint of the same colour at the base and extending down the back in a pointed line; the edges of the other segments cinereous: wings very ample, slightly iridescent, stained brown, the costal portion and the nervures orange-ochre, excepting the 2 transverse nervures which are piceous: halteres ochreous: tips of the posterior thighs blackish.

*In the Cabinets of Mr. Haliday and the Author.*



THE Scatophagi are exceedingly abundant in meadows and on paling; they frequent the dung of animals early in the spring, and some of the species are found during the whole year. Since the Guide was published, eight species have been added to our Fauna, and amongst them several new ones by Mr. Haliday, who has very kindly presented them to me.

A. With the seta pubescent.

1. *S. scybalaria* Linn.—*Curt. Brit. Ent. pl.* 405.—Sea coast, Ireland; very rare. I have preferred this Linnean species for illustration, as there is no other figure of it.

2. *S. stercoraria* Linn. *F. S.* 1861.—*putris* Harris, *pl.* 21. *f.* 1. 2.—*scybalaria* Don. 10. *pl.* 346. 5.?

Found in March, April, May, August and September, in meadows, and wherever cow-dung is met with. I have observed this species feeding on Empidæ, a group which feeds on flies also.

3. *S. merdaria* Fab. *E. S.* 4. 344. 133.—A perennial species, and found with the 2nd.

4. *S. lutaria* Fab. *E. S.*—*Meig.* 5. *pl.* 45. *f.* 28.—*lucophæus* Harr. *pl.* 21. *f.* 3.—June Hants: in profusion in Ireland in the autumn.

5. *S. inquinata* Meig. 250. 5.—The *S. turpis*, Haliday's MSS., is probably a small variety of this species; it is found in England and Ireland.

5b. *S. eximia* Hal.—“Yellow, thorax subcinereous, 3rd and 4th nervures of the wings conniving at the apex. Like the larger variety of the last, but the wings distinguish it.”

6. *S. spurca* Meig. 250. 6.—Autumnal, found in England and Ireland.

7. *S. analis* Meig. 251. 7.—Vernal in Ireland; June Hants.

7a. *S. Ostiorum* Hal.—Cinereous black, face silvery, palpi and halteres ochreous. I took this insect in abundance, upon rocks washed by the sea, at Dover the middle of August; Mr. Haliday finds it inhabiting the estuary of the river at Belfast.

8. *S. cineraria* Meig. 251. 8.—I have taken a female.

B. With the seta naked.

8a. *S. squalida* Meig. 252. 10.—Found in England and Ireland.

8b. *S. arrogans* Hal.—Like the last, but the anterior thighs are black at the base.

9. *S. furcata* Fab. *E. S.*—*Coq. tab.* 24. *f.* 9.—Near Ely; the Rev. L. Jenyns.

10. *S. rufipes*? Meig. 253. 13.

10a. *S. calida* Hal.—Obscure cinereous, thorax lineated, anus, feet, and two first joints of antennæ ferruginous: abdomen of the male clothed with yellow hairs. Taken in Ireland.

10b. *S. rudis* Hal.—“Obscure cinereous, thorax lineated, hypostoma and tibiæ ferruginous: abdomen of the male clothed with yellow hairs.” Taken in Ireland.

11. *S. fucorum*? Fall. Meig. *pl.* 45. *f.* 29.—Recorded by Mr. Stephens as British.

12. *S. litorea* Fall.—Meig. 254. 15.—Abundant in Ireland and England.

13. *S. decipiens* Hal.—“Hoary, hypostoma pale, apex of thighs, tibiæ and tarsi testaceous, wings hyaline.” Size of the last, the head much broader: a single specimen taken in Ireland, and I believe I have one taken in England.

The Plant is *Juncus effusus* (Soft Rush).

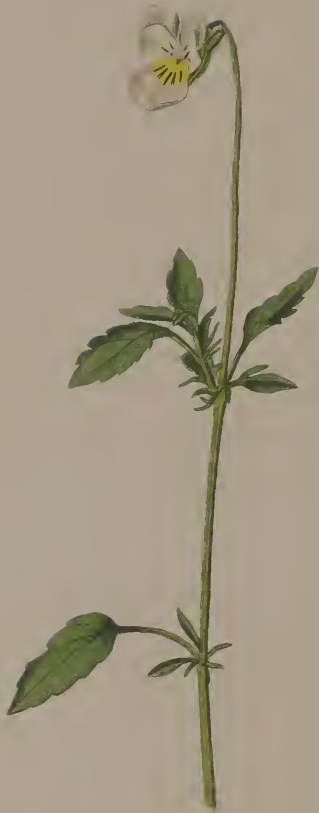


Fig. by ...

Musca S. Sapromyzae  
Sapromyzae

SAPROMYZA LITURA. *meig.*

ORDER Diptera. FAM. Muscidae.

Type of the Genus, *Musca flava* Linn.

SAPROMYZA Fall., Meig., Curt., Macq.—Palloptera Fall.—Phyllomyza Hal.—Terenidæ Desv.—Musca Linn., Fab.

Antennæ short, nutant and divaricating, inserted a little above the middle of the face, 5-jointed, basal joint small and cup-shaped, 3rd large and bowl-shaped, the margin ciliated with bristles, a few very long, 3rd joint large oval, compressed and pubescent, 4th minute, attached towards the base of the 3rd on the upper side, 5th a long pubescent or plumose seta (3).

Labrum short stout and pointed (1 *♂*).

Tongue considerably shorter, slender and acute (c).

Maxillæ very short, clavate and truncated obliquely (e). Palpi very long, clavate and bristly inside (f). Lip very short and thick, terminated by 2 dilated hairy lobes (g).

Head hemispherical: face inclining inward, flat and naked: eyes remote, suborbicular: ocelli minute, forming a compact triangle at the base of the crown (2\* front view, 2 the profile). Thorax oblong: scutellum trigonate-ovate. Abdomen short, ovate-conic, 6-jointed. Wings very long and ample, incumbent, deflexed or vibrating. Halteres small and capitate. Legs short and bristly: thighs the stoutest, anterior with a series of long rigid bristles outside (8): tibiæ slightly clavate, with a strong bristle outside a little above the apex, the intermediate pair having another inside at the apex: tarsi as long as the tibiæ, densely bristly beneath, especially the hinder pair, basal joint elongated, the remainder short: claws very much hooked: pulvilli small. Obs. the dissections are from *S. litura*.

LITURA Hoff.—Meig. v. 5. p. 266. No. 20.—Curt. Guide, Gen. 1295. 20.

Pale ochreous, bristles and hairs black; eyes castaneous: head yellow-ochre; seta of antennæ pubescent, palpi and 8 dots on the head black, viz. 2 on the clypeus, 3 intensely black ones across the face, and 3 on the crown. Thorax bristly, with 4 grey stripes on the back, and 2 narrow ones on each side; scutel with the sides of the same colour; abdomen piceous, ferruginous on the back: wings very pale yellow, nervures ochreous, black at their extremities and surrounded by pale black, forming a large lunate mark at the apex, and extending nearly the whole length of the 3rd and 4th longitudinal nervures, as well as the transverse one connecting them: hairs on the legs very short and black.

In the Cabinets of Mr. Dale, Mr. Haliday, and the Author.

THE Sapromyzæ are said to live on putrid substances and on Fungi: they are placed between Dryomyza and Ortalis by

\* Gohier G. 1841, 290p. Landelle Cal. p. 29/30

Meigen, but I think they are very nearly related to *Helomyza* (pl. 545.). Fallen has formed those whose wings have a vibrating action into the genus *Palloptera*, and Mr. Haliday's genus *Phyllomyza* is based on the species figured in consequence of its deflexed wings. The following are British and Irish species.

\* Wings unspotted.

1. *rorida* Fall.—*Harris Expo. pl. 34. f. 20.*? New Forest and Belfast.
2. *obsoleta* Fall.—*flava* Fab.
3. *pallida* Fall. Holywood, Mr. Haliday.
4. *flava* Linn. Hampton Court and Holywood.
6. *albiceps* Fall. Mr. F. Walker, Southgate.
7. *quadripunctata* Linn.
8. *sexpunctata* Meig.
12. *femorella* Fall. Galway, Mr. Haliday.
14. *præusta* Fall. Holywood.
16. *pallidiventris* Fall. Holywood.
17. *rivosa* Meig. Kent, and July Glengariff.

\*\* Wings with dark dots or streaks.

21. *inusta* Meig. Tullymore Park; July, Turk Mountain.
22. *trimacula* Meig.—*minutus* Harris, *pl. 21. f. 7.* Common.
24. *unicolor* Fab.—*marginella* Fall.
25. *ustulata* Fall. Holywood near Belfast.
26. *umbellatarum* Fab.—*gangrænosa* Panz. 59. 22.

Umbellate flowers, Isle of Wight, 15th of Aug.; and 13th of June, Suffolk.

27. *arcuata* Fab. Belfast.
29. *decempunctata* Fall.—*Meig. pl. 46. f. 12.* Belfast.
30. *notata* Fall.

20. *litura* Hoff.—*Curt. B. E. pl. 605. fig. N,* the natural size.

Oak-trees, Tullymore Park, Mr. Haliday; Niton, Isle of Wight, Mr. Vine; June and July, New Forest, Mr. Dale; and July common on oaks, under Turk Mountain, Killarney, J. C.

The Plant is *Viola tricolor*, a variety of the Pansy Violet.



Muscidae

Ortalis = Ortalis

649.

Ortalis

(ORTALIS) GUTTATA.

ORDER Diptera.

FAM. Muscidae.

Type of the Genus, *Musca crassipennis* Fab.

ORTALIS Fall., Meig., Macq., Curt.—*Hernia* and *Ceroxys* Macq.—*Scioptera* Kirb.—*Tephritis* Fab., Lat.

*Antennae* inserted below the forehead, small, remote, deflexed, divaricating, 5-jointed, basal joint rather small and obovate, 2nd large, obconic, bristly, 3rd the largest, compressed, ovate, the apex sometimes recurved and pointed, 4th minute, inserted upon the back of the 3rd near the base, 5th a long seta, sometimes pubescent (3).

*Trophi* concealed in a cavity at the bottom of the face (2\* g).

*Labrum* (1 b) and *Tongue* (c) very short, the latter acute.

*Mandibles* and *Maxillae* none. *Palpi* as long as the lobe of the lip, slender, slightly clavate and pilose (f).

*Lip* very short, terminating in a large cleft and hairy lobe (g).

Head large and globose (2, the profile, 2\* the face): clypeus convex, naked: eyes remote, lateral and ovate: ocelli minute, 3 in a triangle on the crown of the head. Thorax oblong: scutellum semiorbicular. Abdomen short, rather broad, depressed, ovate, 5-jointed: ovipositor slender, exerted. Wings ample, rounded, erect and vibrating: halteres small and capitate. Legs rather short: thighs, anterior the shortest, with long bristles towards the apex and on the inside (8): tibiae, anterior the shortest, intermediate the longest and slenderest, with a bristle outside near the apex, and 2 long spurs on the inside (\*); hinder pair nearly as long, stouter, but not spurred (†): tarsi 5-jointed, basal joint the longest, 4th the shortest, obtrigonal.

GUTTATA Meig. v. 6. p. 380. 25.—Curt. Guide, Gen. 1296. 4<sup>b</sup>.

Grey, face yellowish-white, a broad bright ferruginous stripe on the crown, extending from the ocelli to the antennae, which are of the same colour, the 3rd joint brown above, seta naked: thorax with 2 narrow brown stripes down the fore part, and a short one on each side towards the scapulae; abdomen pubescent with a yellowish-brown tinge, deepest towards the apex; wings reddish-brown, palest at the basal angle, with 6 transparent spots round the margins and one on the disc: tibiae and tarsi black.

In the Cabinets of Mr. Clifton, Mr. Dale, and the Author.

ORTALIS approaches *Tephritis* (fol. 241.), but is distinguished by its larger and rounder head, more remote antennae, and more ample wings, and the ovipositor is slender.

Macquart has formed 2 other genera out of *Ortalis*, and Mr. Kirby has separated the two last species.

1. CEROXYS Macq. 3rd joint of antennae terminating in a curved point.

1. crassipennis Fab.—Meig. pl. 46. f. 23.

End of June to 19th August, marshes, Horning, Norfolk;

v. G. 507 Sandell's 1112

Bottisham, Cambridge; upon Thistles, Whittlesea Mere; Langport and Uggmere, Mr. Dale.

2. *omissa* Meig. v. 5. p. 274. no. 2.

July, August, in plenty on reeds near the sea at Charmouth, Mr. Dale; I took males in a similar situation in June, under Wallpan Chine, Isle of Wight.

3. *marmorea* Fab.—Meig. f. 21—*hyalinata* Panz. 40. 24.

4. *Urticæ* Linn.—Meig. fig. 19.

Charmouth and Whittlesea Mere, June and July, Mr. Dale and J. C.

5. *picta* Meig. fig. 28.

August, upon grass on the banks of the Avon, by St. Vincent's Rocks, Mr. Walcott and J. C.

#### 2. ORTALIS. 3rd joint of antennæ rounded.

6. *guttata* Curt. Brit. Ent. pl. 649. ♀.—*maculipennis* Brit. Mus.

Taken by the lake in Wimbledon Park by Mr. Clifton, and in abundance at Bristol by Mr. Dale.

7. *ornata* Meig. fig. 25. 8. *nigrina* Wied. 9. *lugubris* Meig.

10. *Cerasi* Meig. fig. 26.—*frondescentiæ* L.?

June, on flowers, in meadows, Kent, and Glanville's Wootton: it infests the Cherry.

3. *HERNIA* Macq. 3rd joint of antennæ 4 times as long as the 2nd.

11. *oscillaris* Meig. June, on flowers, G. Wootton.

12. *paludium* Fall. June, New Forest.

13. *afflicta* Meig.—*lugens* Wied.—Meig. f. 27.

June, Shotover near Oxford; August, on umbellate flowers, Isle of Wight, and Bourne Mouth.

14. *luctuosa* Meig.—*mærens* Meig. 15. *lacustris* Meig.

16. *Syngenesiæ* Fab.—Meig. fig. 29.

June, marshes, North Cray; July, on rushes, in ditches, Whittlesea Mere, J. C.; G. Wootton, Wareham, Charmouth, Bourne Mouth, Mr. Dale; Shotover, Mr. A. Matthews.

#### 4. SEIOPTERA Kirb. Antennæ small: wings elongated.

17. *vibrans* L.—Don. 10. pl. 346. f. 3. & 13. pl. 467. f. 1.  
June, flowers in gardens.

18. *pulchella* Rossi.—Don. 11. pl. 366.—*muliebris* Harr. Expo.

This handsome species, which approaches *Sapromyza*, I once bred from the pupa in August, taken near Margate by Jas. Wadmore, Esq., in July; I found specimens upon rushes at Whittlesea Mere; near Faversham in June, Mr. Donovan.

The Plant is *Cnicus heterophyllus*, Melancholy Thistle.



by J. Curtis Jan. 1102.



SEPSIS ANNULIPES. *Meig.*

Muscidae &amp; Calobatinae

Sepsidae

of August P. 20/1

ORDER Diptera. FAM. Muscidae Lat., Leach., Meig.

*Type of the Genus Musca cynipsea Linn.*

SEPSIS Fall., Meig.—Micropeza Lat.—Tephritis Fab.—Musca Linn., Fab., Panz.

*Antennae* small, inserted at the upper part of the face, nutant, 4-jointed; basal joint small, 2nd much larger, both somewhat cup-shaped, 3rd very large oval compressed and pubescent, 4th forming a naked seta, inserted near the base of the 3rd on the upper side (3).

*Trophi* received into a cavity at the bottom of the face (2\*).

*Labrum* horny, short, broad and hollow (1, b); receiving the

*Tongue* which is shorter, obtuse and very broad at its base (c).

*Mandibles* and *Maxillae* none. *Palpi* as long as the labrum, slender, cylindric, fleshy and producing a few long rigid bristles (f).

*Lip* large, fleshy, pilose, the terminal lobes wrinkled (g).

*Head* large globose (2), slightly depressed in front. *Eyes* very large, round and remote. *Ocelli* forming a large triangle on the crown of the head. *Hypostoma* flat (2\* front view of the head). *Thorax* somewhat oval. *Scutellum* small. *Abdomen* rather long slender, subcylindric and clavate, more robust in the females, the apex incurved with 2 curved bristles under the 2nd joint in some males. *Wings* rather short and narrow, carried erect and vibrating. *Halteres* distinct, remote from the wings, globose at the apex. *Legs* long, anterior pair the shortest. *Tibiae* notched on the internal side in some males. *Tarsi* 5-jointed, basal joint long, terminal one short. *Claws* simple. *Pulvilli* distinct.

*Obs.* The dissections were drawn from *S. cylindrica* Fab.

ANNULIPES Meig. *Syst. Besch.* v. 5. p. 292. n. 16.

*Male* smooth, shining, black with a bluish cast. *Abdomen* with a spine beneath near the apex, very glossy, especially the 2 basal joints which are cupreous. *Wings* iridescent, aureous, fuscous towards the costa. *Halteres* white, black at the base. *Legs* pubescent. *Coxae* and base of thighs ochreous; *tibiae* fuscous; *tarsi* very black. *Anterior legs* with the thighs slightly produced beneath towards the middle, from whence arise an acute spine and a bristle, and a longer spiny bristle at the base; the *tibiae* notched on the inside and armed with 2 small teeth. *Intermediate legs* with the 1st and 2nd joints of the tarsus dilated, white at their base. *Posterior tibiae* with a long interrupted channel on the outside (fig. 8†).

*Female* less brilliant, and all the legs are simple.

*In the Cabinets of Mr. Haliday and the Author.*

✓ Gohard 6. 275, 1004 Ann. Ent. II 451/2 1801/2 17/19

SEPSIS is distinguished from *Ortalis*, to which Meigen considers it nearly related, by the naked seta of the antenna, and by the narrower and less ample wings; the head is also larger and globose, and the thorax and body more slender and elongated.

It is with pleasure that I lay before my readers the following account of the species composing the genus *Sepsis*, which has never been noticed by any English writer.

A. Wings with a black spot near the apex.

1. *S. cynipsea* *Linn.*, *Meig.*—This is apparently our commonest species, and may be found the whole of July and later in gardens, running over the leaves of plants. I have particularly observed it upon the scarlet beans. It sometimes swarms about Willows; and I once saw it in myriads in the garden of Edward Browne, Esq. at Norwich.

2. *S. hilaris* *Meig.*—29th July, and 7th August in abundance on umbelliferous flowers, and on the Burdock at the back of the Isle of Wight. Mr. Haliday took a specimen at Bexley with an additional nervure in each wing.

3. *S. nigripes?* *Meig.*

4. *S. punctum* *Fab.*—*Stigma* *Panz.* 60. 21.—Mr. Haliday took one specimen in July, in marshy ground near Belfast, and another the beginning of September, at Moresby near Whitehaven.

B. Wings unspotted.

5. *S. cylindrica* *Fab.*, *Meig.*—*nitidula* *Fall.* 7th August in abundance on the leaves of the Burdock, with *S. hilaris*. Shady places near Belfast.

6. *S. Leachi* *Meig.*—In the British Museum, I believe.

7. *S. putris* *Linn.*—From February to October on the seashore, and in groves near Belfast; it is found also on old bones and refuse from houses. Mr. Haliday has taken a smaller one in company with this, which appears to be different.

8. *S. annulipes* *Meig.*, *Curtis Brit. Ent. pl.* 245.—For specimens of this pretty and distinct species I am indebted to Mr. Haliday, who took two last June in marshy places at Bexley, near North Cray, Kent; and in July, several in Cornfields near Belfast, Ireland.

The plant is *Trifolium ochroleucum* (Brimstone Trefoil), communicated by Mr. G. Charlwood.

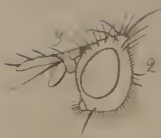


Fig. 14. *Phaenocarpa* 1. 1820

Muscidae of Agronomy 90  
Trypetinae

TEPHRITIS CORNUTA.

ORDER Diptera. FAM. Muscidae Lat., Leach, Meig.

Type of the Genus Musca Cardui Linn.

TEPHRITIS Lat., Fab., Ill., Leach.—Trypeta Meig.—Dacus Fab.—Musca Linn.

Antennae inserted in a cavity at the top of the face, decumbent approximating, 4-jointed, basal joint the smallest, 2nd larger cup-shaped, pilose; 3rd large, subovate pubescent, producing a setiform, sometimes slightly pubescent joint, seated near the base at the top (3).

Trophi nearly concealed in a cavity at the bottom of the face.

Labrum none?

Tongue shorter than the palpi, horny, strong and lanceolate (1 c).

Mandibles none.

Maxillae very minute or none. Palpi large membranous, elongate-ovate, pubescent and producing some very rigid bristles (f).

Lip large membranous bilobed striated and pilose (g).

Head as broad as the thorax, subglobose. Eyes remote, ovate. Ocelli 3, on the crown of the head. Hypostoma somewhat sloping, flat and naked (2\*, front view of face the antennae removed). Thorax subquadrate. Scutellum triangular rounded. Abdomen oval, 5-jointed; the females furnished with a long horny attenuated ovipositor. Wings pubescent frequently maculated, containing about 13 cells (9). Halteres capitate. Tarsi 5-jointed, the basal one equal in length to the remainder. Claws and Pulvilli distinct.

Obs. All the figures are from a female of T. cornuta, excepting f. 2, which is the head of the male in profile.

CORNUTA Fab. Ent. Syst. v. 4. p. 357. n. 186.—Meig. v. 5. p. 318. n. 12.

Male, glaucous, pubescent. Antennae as long as the head, 2nd joint armed with spines, and extending beyond the terminal joint which is pubescent and ochreous. Eyes æruginose. Head and thorax producing a few black bristles, the latter cinereous with 2 black spots at the base, the sides yellow with a ferruginous stripe. Abdomen with a double row of 4 black dots down the back and 3 on each side. Wings hyaline, a long brown spot at the apex of the costa, reaching to the 1st of 3 transverse abbreviated ochreous bands, margined with brown, a 4th being slightly indicated near the base. Halteres yellowish. Legs cinereous.

Female, with the antennae simple, the Ovipositor long and ferruginous.—Obs. The drawing and above descriptions were taken from living specimens.

In the Cabinets of the British Museum, Mr. Mathews, and the Author.

THE first specimen I saw of this insect was taken by Mr. Mathews early in June, upon Scabiosa succisa, in a chalk-pit near Sittingbourn, Kent. At the end of the same month I took two males and several females upon the plant figured, at the back of the Isle of Wight. The females were generally upon the calyx; which leads me to believe that the curious ovipositor

\*606ul 6 269 2207 Parvula III p. 15. Meig. II 160/9, 2109.

which so strongly marks that sex in *Tephritis*, is for depositing the eggs between the scales: their horny substance, depressed and wedge-shaped form, seem peculiarly adapted to such an operation. As they were very wild, I could never approach near enough to them in fine weather to ascertain the fact; the proof must therefore be left for some more fortunate observer.

Although only four species have been recorded as natives of Britain, the following list, arranged according to Meigen, will show how rich we are in this beautiful genus: the four with \* I do not possess.

A. With banded wings. a. Abdomen yellow or greenish.

1. *T. Abrotani* Meig. tab. 48. f. 21.—15th Aug. on umbellate flowers, Isle of Wight.

2. *Zoe* Wied. Meig. t. 48. f. 14. 15.

3. *Onopordinis* Fab. Meig. t. 48. f. 24.—June, flowers in gardens, Mr. J. Atkinson.

4. *Arctii* DeG.—*solstitialis* Panz. 103. 22.—Larva on *Arctium lappa* and *Leontodon taraxacum*.

5. *cornuta* Fab., Meig.—*Curtis Brit. Ent.* 241. fem.

6. *Wiedemanni* Meig. t. 49. f. 2.—June, gardens, Mr. J. Atkinson.

b. Abdomen grey.

7. *marginata* Fall. Meig. t. 49. f. 15.—On *Tanacetum*.

d. Abdomen entirely shining black.

\*8. *discoidea* Fab., Meig.—*Harris Expo. tab.* 21. f. 8.

9. *Cardui* Linn.—*Reaum. v. 3. tab.* 44. 45.—On *Serratula arvensis*, Mr. Henderson, Milton.

10. *stylata* Fab., Meig.—*Jacobæe* Panz. 97. 22.—e. June and m. Aug. upon Thistles, Stanmore, Middlesex.

11. *cuspidata* Meig. t. 49. f. 5.—Aug. Dover.

\*12. *Solstitialis* Linn.—*Meig. t.* 49. f. 10.—*Don.* 9. 294.—*Dauci* and *hastatus* Fab.—Jun. & Jul. on thistles, &c.

B. With wings like lace.

13. *biarcuata* MSS.

14. *Arnicae* Linn., Meig.—*arcuata* Panz. 98. 22.—Scotl.

15. *parietina* Linn.—*Meig. t.* 50. f. 7.—July and Aug.

16. *Leontodontis* DeG., Meig.—*parietina* and *Scabiosæ* Fab.—*stellata* Panz. 20. 23.—Spring and summer.

17. *confusa* Wied.—*Meig. t.* 50. f. 9.

\*18. *Hyoscyami* Linn.—*Meig. t.* 50. f. 2.

19. *Absinthii* Fab.—*Meig. t.* 50. f. 12.—15th Aug. umbellate flowers, Isle of Wight.

\*20. *guttularis* Meig., Leach.—June.

21. *radiata* Fab., Meig.—*Panz.* 103. 21.—On *Tragopogon pratense*, m. Aug. North Foreland Meadow, Dover.

C. With nearly or entirely immaculate wings.

22. *Colon* Meig. v. 5. p. 346.

23. *pallens* Wied.—*Meig. t.* 50. f. 5.—m. Aug. Dover.

The plant is a variety of *Centaurea nigra* (Black Knapweed), very abundant at the back of the Isle of Wight.



Drawn by J. Audouin, June 7, 1854

Muscidae Selomygus  
Orifines  
Platystominae

PLATYSTOMA SEMINATIONIS.

ORDER Diptera. FAM. Muscidae.

Type of the Genus, *Musca seminationis* Fab.

PLATYSTOMA Meig., Lat., Curt.—*Dictya* Fab.—*Musca* Fab.

*Antennae* inserted near the middle of the face, approximating, small, deflexed and 5-jointed, basal joint short and broad, 2nd larger somewhat cup-shaped, furnished with spiny bristles, 3rd larger subovate, velvety, 4th minute attached to the top of the 3rd near the base, 5th a long seta sparingly pubescent (3).

*Trophi* inserted in a large cavity beneath the head and porrected obliquely (2).

*Labrum* short broad, hollow and notched at the apex (1 b).

*Tongue* very minute (1 c).

*Palpi* exerted, large pilose, clavate and compressed (f).

*Lip* exerted, very large thick and bilobed, the lobes very hairy (g).

Head *suborbicular*; hypostoma *oblique, concave and naked*: eyes *remote, lateral, and elongated, reaching the back part of the head*: ocelli 3 *in triangle at the base of the head* (2 *the profile, 2\* front view*). Thorax *a little larger than the head, nearly globose*: scutellum *transverse-ovate*. Abdomen *small subcordate and 4-jointed*: oviduct *exserted and telescopiform*. Wings *ample, divaricating and vibrating, with 2 transverse nervures, one at and another beyond the middle* (9): alulae *small*: halteres *naked, small and capitate*. Legs *nearly alike, rather short and stout*: tibiae *compressed, dilated towards the apex*: tarsi *rather broad and 5-jointed, basal joint the longest, the others very short and lunulate in the anterior pair, the terminal joint obovate*: claws *short, pulvilli bilobed*.

SEMINATIONIS Fab.—Curt. Guide, Gen. 1311. 1.

Black with a few hairs of the same colour, long on the back part of the head, thorax and scutellum; eyes margined white with a ferruginous streak above; thorax, scutellum and abdomen cinereous ochre above, punctured with black, underside of the latter ochreous, excepting the apex, which is entirely black: wings black, with a yellowish tinge, the costa inclining to ferruginous at the base, covered with numerous white spots varying in size, leaving a black space across the middle nearly free from spots, and sometimes another towards the apex less distinct; halteres fuscous.

*In the Author's and other Cabinets.*

MEIGEN has erroneously referred Moses Harris's figure of our insect to the *P. umbrarum* Fab., a species hitherto not detected in this country. It is stated to be not uncommon in

\* Gabel G. 501, 304. Pandelli Let. p. 51



France, but I only observed it on the trunks of trees in the beautiful Gardens at Nismes.

The only species inhabiting Great Britain is the *P. seminativis*, which is generally found in hedges. I observed a considerable number of them last June, running over and skipping about the leaves of the plant figured, in a hedge near Oxford, and I could not discover a single specimen on the surrounding bushes and plants: they are, however, said to be found on the leaves of the Spinach.

I may not have a better opportunity than the present of stating that the conjecture respecting the œconomy of *Tephritis cornuta* (folio 241) has been lately corroborated by a Lady, who reared several examples of *T. Arctii* and obtained their pupæ, the middle of last October, from the calyx of a variegated Blue Bottle (*Centaurea Cyanus*,) growing in her garden; and as all the species of the genus seem to be attached to Syngenesious or Composite flowers, as Onopordum, Arctium, Centaurea, Carduus, &c., their œconomy is in all probability very similar.

The Plant represented in the Plate is *Cornus sanguinea* (Dog-berry or Cornel Tree).





London July 9. 1826

TYROPHAGA, CASEI. muscidæ  
Musca

ORDER Diptera. FAM. Muscidæ *Lat., Leach.*

*Type of the Genus Musca putris Linn.*

TYROPHAGA Kirby.—Tephritis *Fab., Lat.*—Musca *Linn., Fab., &c.*

*Antennæ* nutant, inserted at the top of a cavity in front of the face, 3-jointed, 1st joint small, 2nd cup-shaped, with a few strong bristles, 3rd large, pubescent, ovate, from the outside of which near the base arises a seta, the basal joint being small, the other setiform and very long (fig. 3).

*Labrum* short, horny, hollow, attenuated, bifid at the apex (1 b).

*Tongue* nearly as long as the labrum, obtuse, flat and membranous at the apex (c).

*Mandibles* and *Maxillæ* none.

*Palpi* 2, longer than the labrum, fleshy, clavate, pubescent and pilose (f).

*Lip* large, fleshy, membranous at the edges, bilobed, pilose (g).

*Proboscis* nearly vertical, exerted, arising from a large cavity at the bottom of the head (2, g). Head subglobose, not produced in front. Eyes remote in both sexes, rather small. Ocelli 3, minute, in triangle. Thorax subquadrate. Scutellum trigonate. Wings divaricating, transparent, containing about 12 perfect cells. Halteres large, clavate. Abdomen linear in the males, lanceolate in the females. Legs, middle pair the most slender, hinder the longest. Tibiæ simple, hairy. Tarsi 5-jointed, slender, attenuated, basal joint long. Claws small slender. Pulvilli small (8, a fore leg).

CASEI *Linn. Faun. Suec. p. 456. n. 1850 β.*

Smooth, shining, greenish black: anterior part of head ferruginous, beneath ochraceous. Wings iridescent, transparent, slightly ferruginous at the base, nervures ochraceous. Halteres ochrey. Coxæ and trochanters ochrey. Thighs ochrey at the base and apex, especially the middle pair. Tibiæ deep ochrey, the first and last pair black at their apex. Tarsi, anterior black, remainder ochrey, the 2 last joints and claws black.

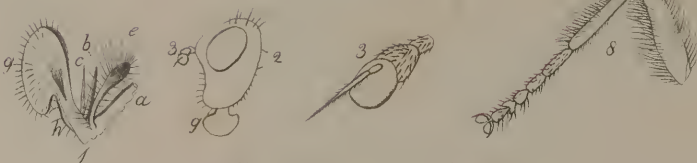
*In the Cabinet of the Author.*

EVERY one has observed the curious larvæ in cheese, called maggots or hoppers: it is, however, not generally known that

these larvæ turn to flies after having become chrysalides of a bright brown colour; and very few are acquainted with the species that they produce, which was considered by Linneus as a variety of his *Musca putris*, inhabiting dunghills; but as we have bred many hundreds of our insect from cheese, which have all perfectly agreed in having variegated legs, and in wanting the black costa to the wings, we can no longer doubt that *M. Casei* is a distinct species.

There are probably many species belonging to this genus which was proposed by Mr. Kirby in the *Introduction to Entomology*: in addition to the *T. putris* L. and *T. Casei* (a female of which is figured), we may safely add, *M. vibrans* Linn. Swammerdam found the larva would re-animate after being immersed in rain-water 6 or 7 days; and a lady sent me some specimens that had been bred from larvæ that had absolutely had no other food than powdered rhubarb!—We shall close this article with an amusing extract from the *Introduction* above alluded to. “These maggots” (says the author) “have long been celebrated for their saltatorious powers. They effect their tremendous leaps—laugh not at the term, for they are truly so when compared with what human force and agility can accomplish—in nearly the same manner as salmon are stated to do when they wish to pass over a cataract, by taking their tail in their mouth, and letting it go suddenly. When it prepares to leap, our larva first erects itself upon its anus, and then bending itself into a circle by bringing its head to its tail, it pushes forth its unguiform mandibles, and fixes them in 2 cavities in its anal tubercles. All being thus prepared, it next contracts its body into an oblong, so that the 2 halves are parallel to each other. This done, it lets go its hold with so violent a jerk, that the sound produced by its mandibles may be readily heard, and the leap takes place. Swammerdam saw one, whose length did not exceed the fourth part of an inch, jump in this manner out of a box 6 inches deep; which is as if a man 6 feet high should raise himself in the air by jumping 144 feet! He had seen others leap a great deal higher.”

The plant is *Anethum Fœniculum* (Common Fennel).



Del. by J. Curtis London Apr. 1 1825

HELCOMYZA USTULATA. *ing.*

Muscidae B. Geomysalis  
 a) Helomyzines

4. 11. 97

ORDER Diptera. FAM. Muscidae *Lat., Leach.*

*Type of the Genus Helcomyza ustulata Meig.*

HELCOMYZA *Meig.* Scatophaga *Fab., Lat.* Musca *Linn., Fab.*

*Antennae* inserted near the centre of the face, somewhat nodding, 3-jointed, 1st and 2nd joints pilose, the former small, cylindric, the latter cup-shaped, 3rd large pubescent, somewhat ovate, from the outside of which near the base arises the seta, the basal joint is small, cylindric, the terminal one subulated, hairy (3).

*Labrum* not so long as the lip, horny, hollow, dilated at the base, somewhat acute at the apex (1, b).

*Tongue* nearly as long as the labrum, subulated, acute (1, c).

*Mandibles and* } none.

*Maxillae*

*Palpi* 2 longer than the labrum, membranaceous, exarticulate, clavate, very hairy (1, e).

*Mentum?* long slender (1, h). Fig. a, is part of the head which receives the labrum &c.

*Lip* large, membranaceous, bilobed, hairy (1, g).

*Proboscis* vertical, partly exerted (2, g). Head somewhat triangular, slightly produced in front at the insertion of the antennae.

*Vertex* horizontal. Eyes rather small, not prominent, distant in both sexes. Ocelli 3, placed close together. Wings incumbent, transparent with about 13 cells in each. Halteres visible. Thighs robust, posterior the longest. Tibiæ simple hairy, without bristles. Tarsi 5-jointed, 1st joint the longest in the 4 anterior feet only, not longer than the 2nd in the posterior pair, in the males at least, 4th joint cordate, terminal joint truncated. Claws simple. Pulvilli large (8 a fore leg).

USTULATA *Meigen's MSS.*

Cinereous, hairy. Face silvery white. Crown of head brownish, with very minute black hairs. Eyes castaneous. Thorax brownish, pale on the sides, with 4 obscure longitudinal darker lines, closely covered with short black hairs, and a few black bristles towards the sides, and upon the scutellum, which is brownish also. Abdomen entirely cinereous, covered with long soft black hair. Wings transparent, pearly white, excepting the 3rd costal cell which is ferruginous, a black spot upon the transverse nerve near the centre of the wing, and a paler one at the junction of the nerves below, and nearer the base. Halteres ochraceous. Legs thickly covered with soft black hairs. Tibiæ, tarsi, and pulvilli, ferruginous, tinged with cinereous.

*In the Cabinets of the British Museum, Mr. Dale, and the Author.*

\* Goblet G 210, 211 sp. - *Pandele* (lat. p. 29)

MEIGEN having engaged to describe the European Diptera, and having already published three volumes of his excellent work, I have always been desirous rather to follow than to anticipate that celebrated entomologist in his arduous undertaking; I should not therefore have published this genus at present, had I not considered it an example of Latreille's genus *Scatophaga*, and had proceeded too far under that impression to stop its publication, when Mr. Samouelle pointed out to me a specimen sent to Meigen by Dr. Leach, which was returned to the British Museum with the names I have adopted. The specimen sent was the contrary sex to mine, and is exceedingly injured, as many of the insects in the Museum are, by the bottoms of the drawers having been unfortunately made of cedar, from which a resinous substance is constantly distilling, sometimes making its appearance inside, at others outside the drawers: this inconvenience I am happy to learn will soon be remedied, and I should not here have made this digression did I not hope it might guard others from the like misfortune. But to return: of the identity of the genus, which I believe is unpublished, there is no question; and there appear to be good reasons for dividing it from *Scatophaga*; for besides differences in the trophi and antennæ, the tibiæ being only woolly without any bristles, and the basal joint of the posterior tarsus, which is not longer than the 2nd, rather compressed, and a little bent, at once distinguish it from that genus. Of the species I cannot be so certain, the resin having destroyed the colour, and altered the appearance; but from a memorandum in Dr. Leach's hand-writing, stating that the specimens were taken at Swansea and Yarmouth, it is evident *H. ustulata* is a sea-coast insect; and my friend J. C. Dale, Esq. took his specimens at Christ Church, Hants: and about the end of August 1821, during some tremendous gales, I found several upon the extensive and exposed sand-hills stretching along the coast to the south of Calais. There appear to be three other species of *Helcomyza* inhabiting Britain, one only of which was named by Meigen at the same time as the species under consideration.

*Glaucium luteum* (Yellow-horned Poppy), which was in flower at the time, is figured with the insect.





## LUCINA FASCIATA.

ORDER Diptera.

FAM. Muscidae.

*Type of the Genus, Lucina fasciata Meig.*

LUCINA Meig., Curt.

*Antennae* inserted on a projecting part in front of the forehead, rather small, remote, divaricating and slightly drooping, 6-jointed, basal joint small, somewhat cup-shaped, 2nd much larger and very bristly, 3rd the largest subovate, compressed, pubescent, 4th a minute cup-shaped joint attached to the back of the 3rd near the base, 5th slender, oblong, 6th a long pubescent seta rather stout towards the base (3).

*Labrum* shorter than the lip, hollow, broad at the base, acuminate (1 b).

*Tongue* nearly as long as the lip, slender and acute (c).

*Maxillae* imperfect (e). *Palpi* large, nearly as long as the lip, clavate and pilose, the base membranous and compressed (f).

*Lip* large bilobed hairy and striated (g).

Head *transverse, triangular-ovate, the crown depressed, bristly towards the base; face naked, concave, the forehead projecting considerably: eyes rather small, lateral, orbicular, remote: ocelli 3 in triangle on a small tubercle at the base of the crown. Thorax ovate-truncate: scutel semi-ovate bristly and elevated. Abdomen short, depressed, and 6-jointed, with tufts of hair on each side the basal segment; the apex incurved horny and globose in the males, acuminate and tubular in the females (7). Wings incumbent in repose, and much longer than the body, the 3rd and 4th longitudinal nervures approximating at the apex: halteres capitate. Thighs thickest in the males, especially the hinder pair, which are inflated and armed with spiny bristles beneath: tibiae pubescent only, intermediate with a few strong bristles at the apex, hinder pair curved: tarsi of equal length, slightly dilated, 5-jointed, basal joint shorter in the hinder than in the other feet, the remainder obtrigonal, excepting the penultimate which is lunate: claws acute: pulvilli bilobed.*

FASCIATA Meig. v. 6. p. 2.—Curt. Guide, Gen. 1316. 1.

Ferruginous; face, margins of eyes, and underside of thorax silky-white: eyes and a lanceolate stripe on the crown blackish: thorax with 2 gray and 3 cinereous stripes of equal breadth with 6 or 8 black dots on the anterior portion, the sides as well as the margin of the scutel silky white: abdomen, excepting the apex, slate-colour, the sides of each segment clothed with pale pubescence bearing subtrigonal spaces down the back: costa of wings yellowish fuscous, the transverse nervures with 3 black spots on the disc: legs a little hoary, an incomplete brownish ring near the apex of the hinder thighs, and another at the centre of their tibiae; the apex and tips of tarsi fuscous.

*In the Cabinets of Mr. Haliday, the Author, &c.*



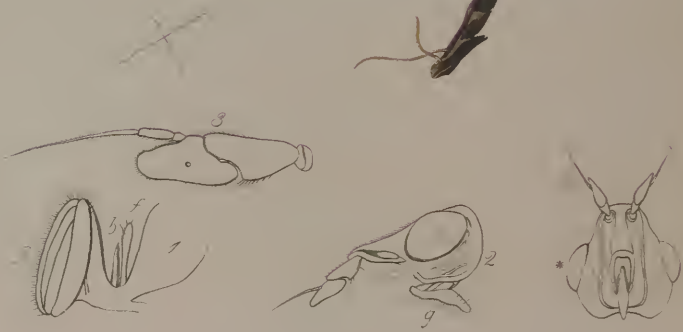
I AM induced to illustrate this genus and give a figure of the male of this rare insect, in consequence of Meigen having seen the female only, which sex is represented in his plate; and Macquart's figures are so bad that they are utterly useless.

In some respects *Lucina* resembles *Cordylura* (pl. 485), the abdomen of the male being incurved and horny; nevertheless I have little doubt that it is more nearly allied to the *Tetanoceræ* and to *Actora* (*Helcomyza*, pl. 66), close to which Meigen has placed it.

*Lucina fasciata* is the only species known of the genus, and had only been found at Marseille until it was discovered by my friend Mr. Haliday on the sands at Portmarnock near Dublin, where he took both sexes in June and transmitted me a very fine series.

It may be observed that the seta of the antennæ is not naked as stated by Meigen and Macquart, and the abdomen appears to be 7-jointed in consequence of a transverse suture near the base. The shortness of the basal joint in the hinder tibiæ, the inclination of the third and fourth longitudinal nervures at the apex of the wing, the remarkable horny ball terminating the male abdomen and the truncated tube of the female, are characters that distinguish *Lucina* from neighbouring groups.

The Plant is *Stellaria nemorum* (Broad-leaved Stitchwort), communicated by J. Walton, Esq., from Knaresborough.



*Andrena flavipes* (Linn.)

## PLATYCEPHALA PLANIFRONS.

ORDER Diptera.

FAM. Muscidæ.

*Type of the Genus, Musca planifrons Fab.*PLATYCEPHALA *Fall., Meig., Macq., Curt.*—Tetanocera *Lat.*—*Oscinis* and *Musca Fab.*

*Antennæ* inserted in cavities under the edge of the forehead, remote, porrected obliquely, compressed, shorter than the head, 6-jointed, basal joint concealed, very short, somewhat cup-shaped, 2nd large, elongate-obovate, truncated obliquely beneath, pubescent above and below, 3rd rather broader, irregularly ovate, the base truncated obliquely and sinuated, pubescent, with a semitransparent puncture on the side, 4th joint small, inserted on the back of the 3rd towards the base, 5th as stout and thrice as long, 6th a shortish pubescent seta, stoutish at the base (3).

*Labrum* rather short and lanceolate (1 b).

*Palpi* considerably longer, clavate, slightly pubescent and bristly at the apex (f).

*Lip* very large, forming 2 lobes, hairy at the margins (g).

Head broader than the thorax, somewhat ovate, wedge-shaped, the anterior margin being thin and rounded, crown concave and channeled: face nearly horizontal, naked, with an oval cavity between the eyes to receive the trophi: eyes remote in both sexes, lateral and oval: ocelli 3, forming a small triangle at the base of the head (2 the profile, \* underside of head). Thorax oblong: scutellum semi-orbicular. Abdomen narrower than the thorax, depressed, lanceolate and 6-jointed. Wings longer than the body, decumbent in repose, with 4 longitudinal nervures, the transverse ones on the disc approximating: halteres capitate. Legs, hinder the longest: thighs, posterior incrassated, with a keel beneath, terminating abruptly near the apex: tibiæ simple, hinder very much curved at the base: tarsi 5-jointed, basal joint elongated, 4th short, semiovate, 5th the broadest ovate-truncate: claws very small: pulvilli bilobed.

PLANIFRONS *Fab.*—*Curt. Guide, Gen.* 1323. 1.

*In the Author's and other Cabinets.*

THERE are so many striking characters which separate this group from all others, notwithstanding a general similarity of appearance, that it may be as well to enumerate them. The head is broader than the rest of the body, the crown is hollow, and the forehead projects, forming a shield-like margin; the abdomen is narrow and shining; the legs are not at

\* Gohart G. 251, sup. Sandelli III 16

all bristly; the hinder thighs are thickened and their tibiæ very much bowed at the base to receive the keel of the thighs; the second joint of the antennæ is large, the upper portion lapping over the third joint which has a somewhat transparent dot on the side, which does not seem to have been noticed by Meigen, and the seta is triarticulate. I could not discover either maxillary appendages or a tongue. Some of the above characters will distinguish *Platycephala* from *Trigonometopus* (Pl. 689) and *Tetanocera*, as well as from *Eurina*, which is confounded with it in many collections.

Two species of *Platycephala* have been found in England.

1. *planifrons*, *Fab.*—*Curt. Brit. Ent. pl. 725.*—*culmorum Fall.*

Deep ochreous: head and thorax thickly covered with black punctures, the former concave on the crown with a black channel down the fore part, and a curved space behind free from punctures: 3d joint of antennæ black, except at the base, seta white: thorax with two yellowish stripes down the back, as well as one on each side, margin of scutel pale: abdomen slightly and sparingly punctured, sericeous, with a few short hairs also, the back greyish-brown, excepting an ochreous line down the middle, the sides of the same colour: wings stained with fuscous, darkest towards the costa, excepting the basal cell: nervures ochreous and brown.

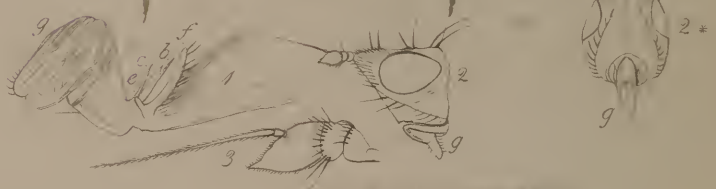
I have taken this species on sedges and rushes at Whittlesea mere the middle of July; and at the end of the same month and in September, I have several times found specimens at Blackgang chine, which had the anterior tarsi fuscous, and the line down the body obscure.

2. *umbraculata Fab.*—*Meig. v. 6. p. 26. pl. 56. f. 16.*—*agrorum Fall.*

Ferruginous: 2d joint of antennæ subulated: a very deep hollow on the crown of the head, black in the centre: thorax thickly and minutely punctured, with 2 ochreous lines on each side, united anteriorly: abdomen fuscous: wings similar to the last species. Length  $2\frac{1}{3}$  lines: expanse 5.

Taken by Mr. Dale in the New Forest and at Charmouth.

*Blysmus compressus*, Compressed Rush-grass, from Boldington-green, Oxfordshire, was communicated by W. W. Saunders, Esq.



Muscidae Sidney Smith  
Louches

*Deltophila* (TRIGONOMETOPUS) FRONTALIS.

ORDER Diptera. FAM. Muscidae.

Type of the Genus, *Tetanocera frontalis* Meig.

TRIGONOMETOPUS Macq., Curt.—*Tetanocera* Meig.

*Antennae* attached to the apex of the forehead, approximating, porrected, short, 5-jointed, basal joint obconic, 2nd a little larger and cup-shaped, both margined with very strong bristles, 3rd the largest, pubescent, compressed, ovate-conic, the apex acute, 4th a small oval joint, attached near the back, a little before the middle, 5th a long pubescent seta (3).

*Labrum* broad, the centre produced, forming an elongated spine (1 b).

*Tongue* shorter, slender and acute (c).

*Maxilla* very short obtuse (e). *Palpi* longer than the labrum, stout, linear, curved, bristly outside (f).

*Lip* large in proportion, exserted, inserted in a cavity at the bottom of the face, forming 2 large fleshy lobes closely united and slightly bristly outside (g).

Head elongate-trigonal, truncated before, concave behind; crown flat but grooved; face inclining inward very obliquely (2 the profile), straight with a few long bristles on the sides: eyes very remote, lateral ovate and not prominent: ocelli very minute, 3 in triangle at the base of the head (2\* underside of head). Thorax oblong: scutellum trigonal-ovate. Abdomen depressed, short, ovate and 6-jointed. Wings very ample, costa convex, slightly pubescent with short marginal and 4 longitudinal nervures, 2nd and 3rd united by transverse nervure before, and the 3rd and 4th by one beyond the middle; halteres short and capitate. Legs moderate: thighs, anterior with a series of long bristles beneath: tibiae, intermediate with a few spiny bristles at the apex, hinder with 1 outside: tarsi as long as the tibiae, and 5-jointed, basal joint elongated, 3 terminal short: claws and pulvilli small.

FRONTALIS Meig. 6. 44. 20.—Curt. Gen. 1326<sup>b</sup>.

Ochreous with scattered black bristles and hairs; antennae ferruginous, seta fuscous; eyes blackish; head with a broad depressed stripe down the middle: thorax with 4 ferruginous stripes, lateral the broadest; margin of scutellum whitish: abdomen with 2 large livid spots at the base of each segment: wings pale yellow, darkest at the costa, nervures light brown, partially darker, with fuscous spots on the 2 transverse nervures, and 1 or 2 others towards the apex of the 3rd longitudinal nervure, where there are as many rudimentary nervures.

In the Cabinets of Mr. Dale and the Author.

THIS species, which at first sight might be taken for a *Dorycera*, is readily distinguished on a closer examination, by the

\* G. Robert G. 510, Van derlei Cat. p. 51

different form of the antennæ. Mons. Macquart has separated *Trigonometopus* from *Tetanocera* in consequence of considerable difference in the relative proportions of the joints of the antennæ, the 2nd joint being equal to, or greater in length than the 3rd in the latter genus, and shorter than the 3rd in the former.

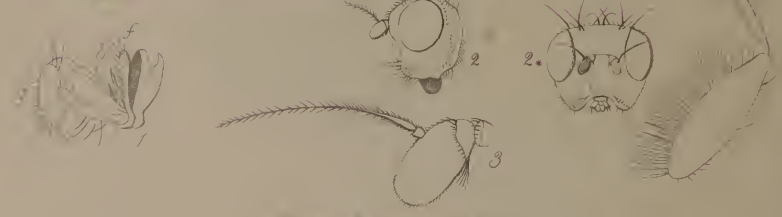
There is still so great a variety of character in the genus *Tetanocera*, that most probably Desvoidy's groups will be eventually adopted. Some species have the 2nd joint of the antennæ much shorter than others, sometimes the seta is plumose, at others naked, and the transverse nervure is straight or waved in different species: such characters might certainly be well employed in the formation of sections, which are of great value in the study of Natural History, as they lead to a close examination and philosophical inquiry into the structure and affinities of allied species; but all the advantages thus obtained are too frequently more than counterbalanced by the anxiety to give names to trifling groups, which were never destined by Nature to hold the rank of Genera.

The interesting insect before us was not known to be a native of this country until Mr. Dale met with three specimens in the neighbourhood of Glanville's Wootton; they were taken off some rushes growing in a gravel pit the end of May, and from them he has liberally supplied my cabinet.

The Plant is *Aira* (*Deschampsia Beauv.*) *cæspitosa*, Turfy Hair-grass.



*Androsace officinale*



Red by Thomas of Philadelphia



4. 11. 93

HELOMYZA RUFA.

ORDER Diptera.

FAM. Muscidæ.

Type of the Genus, *Helomyza tigrina* Meig.

HELOMYZA Fall., Meig., Curt.—Musca Linn., Fab., De Geer.

Antennæ inserted in a cavity near the middle of the face (2\*), rather remote, 5-jointed, basal joint the smallest and concealed, somewhat cup-shaped and a little bristly, 2nd broad, fringed with spiny bristles, forming a cup to receive the 3rd, which is large, subovate and pubescent, 4th inserted on the back of the 3rd towards its base, small, subquadrate, 5th forming a long seta, generally more or less feathered on both sides to the apex (3).

Labrum short and hollow (1 b).

Tongue not half the length of the labrum, and a little recurved at the apex (c).

Palpi longer than the labrum, stout, clavate, pubescent and pilose on the inside (f).

Lip short, stout and terminated by fleshy lobes, slightly hairy (g).

Head globose-ovate, with a few long bristles on the crown: hypostoma broad and hollow, with the centre convex, the clypeus whiskered, and the gills pubescent: eyes very remote in both sexes, lateral, globose and rather small but prominent. Ocelli 3, forming a compact triangle, and elevated on the crown. Thorax oblong and bristly, as well as the scutellum, which is semiovate. Abdomen narrow, incurved and clavate at the apex in the male, shorter and conical in the female. Wings incumbent, long, ample and rounded, with 2 transverse nervures, the costa setose: halteres small, dilated and trigonate at the apex. Legs sometimes tolerably stout and hairy: thighs generally bristly above and stoutest in the males: tibiæ with a bristle outside towards the apex (8), and the intermediate with 3 or 4 others at the apex: tarsi 5-jointed, basal joint the longest, 4th sublunate: claws strong, pulvilli large, bilobed, with a pubescent process between them (\*, 8, a fore leg).

RUFA Fall., Meig.—Curt. Guide, Gen. 1328. 2.

Ochreous, clothed with black pubescence and bristles, head and thorax rather darker, excepting the hypostoma: eyes rufous; antennæ ferruginous, seta black and feathered; thorax with 3 brown lines down the centre and 4 or 5 dots in a line on each side producing as many bristles; abdomen with a black spot under the postscutellum, the margins of all the segments black, excepting the last, broadest in the middle and forming a somewhat interrupted line down the back: wings sometimes brownish or clouded with pale fuscous, 2 blackish spots on the transverse nervures, and the apical portion tinted with the same colour, leaving 2 transparent semicircular spots at the tip, and a roundish one behind them: halteres ochreous-white: thighs stout in the male, 4 posterior sometimes tipped with black and the tarsi, excepting the 2 basal joints of the same colour.

In the Author's and other Cabinets.

THE names of some specimens transmitted to M. Meigen by Dr. Leach having been transposed and illegibly written, led to

v. q. vata claf. 93

an error when *Actora* was published in this Work, which was then given as *Helomyza ustulata* (fol. 66), and Meigen's vols. containing those genera not having been at that time published, I had no means of detecting the mistake.

*Helomyza* is characterized by the bristly costa to the wings; and the peculiar manner in which the intermediate tibiæ are armed with bristles will be found valuable in distinguishing them. They are partial to damp situations, but not uncommonly enter houses. The following British species may be thus arranged.

A. With a feathered or distinctly hairy seta to the antennæ.

2. *rufa* Fall.—*Curt. Brit. Ent. pl.* 545 ♀.

Taken by Mr. Haliday near Holywood as well as Nos. 5, 10, 11, 14? 15 and 26, by Mr. F. Walker near Southgate, and Mr. W. Clifton at Putney.

3. *flava* Meig.? *vol. 6. p.* 50.—5. *pallida* Fall. *Meig. tab.* 57. *f.* 31.

6. *affinis* Meig. 10. *præusta* Meig.

11. *tigrina* Meig. Length 3 lines, breadth  $7\frac{1}{4}$ . Ferruginous, antennæ orange, the seta clothed with short hairs (fig. 3): thorax and scutellum freckled: abdomen more or less dusky on the back, edges of the segments black in the male and producing long bristles, wings very pale fuscous, the costa yellowish, transverse nervures brown, the tip fuscous, forming 3 spots: halteres whitish: thighs very pubescent; tarsi pale ochreous, tips blackish, pulvilli orange.

I found several on oaks at Cartland Craigs the 3rd Sept.

11<sup>b</sup>. *trifasciata* Curt. Female 2 lines long, 6 broad; pale ochreous, antennæ bright, seta clothed with short hairs, crown of head, thorax and base of scutellum slate-colour, thorax clothed with exceedingly minute ochreous hairs, with the shoulders entirely pale with them: abdomen with the margins of the 3 basal joints piceous; wings yellowish; very iridescent; tarsi, especially the posterior, densely clothed with short black bristles.

I took a female with the last species.

12. *griseola* Meig.

B. With a naked seta to the antennæ.

14. *ustulata* Meig. *t.* 57. *f.* 30? Birchanger, Essex, Mr. Clifton.

15. *serrata* Linn. *De Geer, v.* 6. *tab.* 1. *f.* 15—18. Found on windows all the year, especially in the autumn.

16. *villosa* Meig. Taken at Yarmouth by Mr. C. J. Paget.

18. *fenestralis* Fall.—24. *rufiventris* Meig. End of July on a window at Dolbadam Lake in Wales. Mr. Clifton.

26. *inscripta* Meig.—27. *humilis* Meig.

20. *ruficornis* Meig. June; Mr. Clifton took 2 at Dover on the stalks of nettles, one of which he kindly added to my cabinet, and Nos. 3? 5, 6, 12, 15, 26 and 27 have been taken near Putney by the same gentleman.

34. *arenarum* Hal. MSS.

The Plant is *Hypericum Androsæmum*\* (Tutsan).  
= *Androsæmum officinale*\*



*Chamaecrista*

## DROSOPHILA CAMERARIA.

ORDER Diptera. FAM. Muscidae.

*Type of the Genus, Musca cellaris Linn.*

DROSOPHILA Fall., Meig., Curt.—Mosillus Lat., Sam.—Musca Linn.

*Antennæ* attached to small scapes, inserted in two cavities near the centre of the face, nutant, plumose and 4-jointed, basal joint somewhat cup-shaped, bristly, 2nd large subovate and pubescent, 3rd small oblong, inserted on the upper side of the 2nd towards the base, 4th a stoutish seta with two rows of long, and one of short bristles (3).

*Trophi* received into a cavity at the bottom of the face.

*Labium* short, hollow subelongate-trigonate (1 b).

*Maxillæ* short and slender (e). *Palpi* as long as the lip, robust, clavate pubescent and bristly (f). *Lip* short and stout, terminated by 2 somewhat fleshy and pilose lobes (1 g and 2\* g).

Head *hemispherical*; face *keeled down the middle at the lower part, and whiskered on each side*: eyes *large ovate*: ocelli 3 *on the crown of the head* (2 and 2\*). Thorax *globose*: scutellum *trigonate-ovate with a bristle on each side and 2 at the apex*. Abdomen *short depressed 6-jointed and ovate, pointed at the apex in the females*. Wings *incumbent, long and ample, iridescent, with a very short marginal cell, and 4 longitudinal nervures, the 2nd and 3rd united towards the base, and the 3rd and 4th towards the margin*. Legs *nearly of equal length and size, clothed with short hairs*. Tibiæ, *intermediate with 2 or 3 short bristles at the apex, the posterior a little curved*. Tarsi *as long as the tibiæ, 5-jointed and serrated with short bristles beneath, especially the basal joint, which is the longest, 4th and 5th small*. Claws *small also*.

CAMERARIA Hal. MSS.—Curt. Guide, Gen. 1334. 2<sup>b</sup>.

Ochreous and pubescent, with a few long black bristles, 2nd joint of antennæ fuscous, seta black, head and thorax dark ochre, with a fuscous stripe down the back, terminating in a spot at the scutellum, and an obscure ferruginous stripe on each side: abdomen brown, the segments edged with ochre, broadest on the sides, with an obscure pale line down the back: wings stained pale fuscous, the nervures piceous: tips of tarsi fuscous.

*In the Cabinets of Mr. Haliday and the Author.*

As the type of Latreille's genus *Mosillus* seems to be different to our group, I have retained Fallen's name.

For several of my species I am indebted to Mr. Haliday and Mr. Walker, who have detected 10 unrecorded as natives since the Guide was published; those taken at Clifden, near Belfast, are from the former gentleman, as well as the observations on some of them, and those from Southgate are from Mr. Walker.

1<sup>a</sup>. *D. nigrita* Hal. The size of *D. cellaris*, shining ochreous fuscous; head, thorax and scutellum piceous; eyes castaneous: segments of abdomen with the margins

\* Robert Co., 229, 12 of (Londelli III 16, 553)

whitish : halteres whitish-ochre : tarsi tipped with black, anterior with the 2 basal joints in the first pair a little dilated, with a black spot on the back of each.

- On Larches, e. Sept. & Oct., sometimes in windows, Clifden.
2. *cellaris* *Linn.*? Taken with the former one at Clifden. Mr. Walker has frequently observed it struggling in ale, but not drowned; and Mr. R. Brown showed me vast quantities of the pupæ in the tubs of vinegar that contained the buds and flowers of the *Rafflesia Arnoldi*. It is found all the year round in cellars and on windows.
  - 2<sup>a</sup>. *funeraria* *Fab.*—*erythrophthalma* *Panz.* 17. 24. Mr. Haliday bred the fly from Boleti, the middle of October; and one of the pupæ is figured in the plate (*vide* fig. P, the upper extremity being the head).
  - 2<sup>b</sup>. *cameraria* *Hal.*—*Curt. Brit. Ent. pl.* 473. Clifden. Mr. Haliday says this differs from *D. fenestrarum* in having longer antennæ: the thorax is opaque and unusually hairy: it is also larger: the dusky blotch of the thorax is constant in this. I found great numbers in windows early in October, probably out of the same Boleti from which *D. funeraria* came.
  3. *phalerata* *Meig. tab.* 59. *f.* 3. In Boleti, Clifden.
  4. *fenestrarum* *Fall.*—*Meig. v.* 6. *p.* 83. 4.
  5. *transversa*? *Fall.*—*Meig.* 84. 5. Clifden and Southgate. Mr. Haliday says, "It agrees with the characters except in size, being smaller than *D. phalerata*."
  6. *virginica* *Meig.* 84. 6. Southgate and Clifden.
  9. *melanogaster* *Meig.* 85. 9. "Belly pale with an interrupted black band down the middle." Clifden and Southgate.
  12. *tristis* *Fall.*—*Meig.* 86. 12. Southgate.
  13. *graminum* *Fall.*—*Meig.* 86. 13. Clifden, in meadows throughout the summer, and Southgate; Isle of Wight, beginning of October, J. C.
  16. *littoralis*? *Meig.* 87. 16. Southgate.
  20. *flava* *Fall.*—*Meig.* 88. 20. Rare, near Belfast, in meadows, in the summer; the thorax has faint ferruginous lines placed as in *D. graminum*. These two are rather dissimilar from the rest.

The Plant is *Drosera anglica* (Great Sundew or English Fly-trap). Insects settling upon the inside of the leaves are caught and retained as shown on the leaf under the insect represented flying. I have always imagined that the glands at the apex of the hairs emitted a glutinous secretion which first held the insect, and as it struggled, more hairs were attached, until the end of the leaf was bent down. Withering gives a long account of this peculiar power in the *Drosera*, and there are many observations upon it in Loudon's Magazine of Nat. Hist. Those who wish to see the flower *expanded* should gather plants with buds that promise to open the following day, and by putting the roots in water and placing the plant in the sun they will accomplish their object.



*Chrysomelidae, July 7, 1851*

## EPHYDRA SPILOTA.

ORDER Diptera. FAM. Muscidae.

*Type of the Genus, Ephydra riparia Fall.*

EPHYDRA Fall., Meig., Curt.

*Antennæ* inserted at the upper part of the face between the eyes, rather remote, deflexed, 4-jointed; basal joint somewhat cup-shaped, 2nd larger, wedge-shaped, producing a few strong bristles, 3rd twice as large, elongate-trigonate, very pubescent, 4th forming a long seta attached to the top of the 3rd near the base, sometimes very pilose at the base, naked at the apex and producing long hairs at the middle (3).

*Trophi* arising from a large cavity beneath the head.

*Labrum* very short, broad and subovate-quadrated, acuminate in the centre (1b.), attached to the anterior margin of the labium? which is large and hollow; on the inside of its lateral margins the *Palpi* are attached, they are small clavate and pilose (f).

*Lip* large pilose and horny, with the edges of the lobes, which are not long, membranous (g).

Head producing long bristles subtrigonate, truncated beneath and hollow (2): hypostoma convex and villose. Eyes alike in both sexes, subglobose lateral and prominent: Ocelli 3 in triangle at the back part of the head (2\*). Thorax subglobose bristly: Scutellum somewhat trigonate-conical producing a few long bristles. Abdomen depressed, elliptical, 5-jointed. Wings longer than the body, incumbent, ovate, costa bristly, costal cell short, the others long, 2nd and 3rd united near the base, 3rd and 4th before the middle, and the 4th and 5th near the margin, by transverse nervures (9). Halteres curved and clavate at the apex. Legs rather slender, intermediate pair the longest. Tarsi 5-jointed, basal joint the longest. Claws slender and acute.

SPILOTA Haliday's MSS.—Curt. Guide, Gen. 1339.

Dull black somewhat shining; hypostoma black; clypeus clothed with short ochreous pubescence, antennæ with the 3rd joint subovate, the seta ciliated with bristles above nearly to the apex: thorax brassy: abdomen pilose: wings iridescent transparent, bearing about 15 rather large fuscous spots mostly between the nervures: halteres, tips of the thighs, and base of the tarsi ochreous.

*In the Cabinets of Mr. Haliday and the Author.*

THE following are British species of this pretty genus, and on a reference to Meigen's Plate, it will be seen that the wings

\* Robert G. 24617 esp. Meig. D 530. (Hendell's III 16)

and antennæ of different species vary sufficiently to form several divisions.

B. Seta of antennæ pectinated above only.

2. *E. palustris* Fall.—Meig. 6. 115. 2.—July, marshy places, Southgate.
3. *E. obscura* Meig.—May, moist grass, Southgate.
- 5<sup>a</sup>. *E. spilota* Hal.—Curt. Brit. Ent. pl. 413.—Taken in Ireland by Mr. Haliday.
- 5<sup>b</sup>. *E. defecta* Hal.—A single specimen on grass.—Ditto ditto.

C. Seta of antennæ pubescent or entirely naked.

6. *E. littoralis* Meig.—End of May, Southampton, J. C.—May and June, moist grass, Southgate and Ireland.
7. *E. coarctata* Fall.—Ireland, not rare; Mr. Haliday has a specimen in which the nervures vary.
8. *E. 4-punctata* Meig.—May and June, moist grass, Southgate.
- 8<sup>a</sup>. *E. compta* Hal.—Taken in Ireland.
9. *E. riparia* Fall.—I first found specimens the middle of October, flying over salt-water ponds in an island called New England, on the coast of Essex, and afterwards on the shore near Wareham, in June. Mr. Haliday finds it in similar situations, and Mr. Walker takes it on aquatic plants at Southgate, as well as Nos. 11. 12. 14. 15. 16. and 19.
- 9<sup>a</sup>. *E. micans* Hal.—Found with the former.
10. *E. aquila* Fall.—Mr. Haliday, Ireland?
- 10<sup>a</sup>. *E. cesta* Hal.—On grass, Ireland.
11. *E. lacustris* Meig.
12. *E. stagnalis* Fall.—Abundant in Ireland on sea-coast marshes; beginning of May, Wrentham, Suffolk.
- 12<sup>a</sup>. *E. lutosa* Hal.—With the last, common.
- 12<sup>b</sup>. *E. æstuans* Hal.
13. *E. paludum* Meig.—Not common, on sea-coast marshes, Ireland.
14. *E. noctula* Meig.—Beginning of May, in abundance in a ditch, Coomb-wood, J. C.; on grass, Ireland.
- 14<sup>a</sup>. *E. Graminum* Hal.
15. *E. quadrata* Fall.—On grass, Ireland.
- 15<sup>a</sup>. *E. despecta* Hal. 16. *E. 4-guttata* Meig.
19. *E. glabricula* Meig.—Not common in Ireland.
20. *E. leucostoma* Meig.?
21. *E. stictica* Meig.
23. *E. interstincta* Fall. 25. *E. flavipes* Fall.
27. *E. posticata* Meig. 30. *E. picta* Fall.

The last 5 species were taken by Mr. Haliday in Ireland, who says they seem to be in some degree related to *Sciomyza*, and that *E. picta*, according to the antennæ, belongs to division B.

31. *E. guttata* Fall.—June, moist grass, Southgate.
34. *E. Fossaram* Hal.—On moist banks, Ireland.

The value of giving an entire list of Meigen's species belonging to those genera that were contained in his last volume is well exemplified in this genus, for at the time my Guide was published, only 3 of his species had been ascertained to be British, but by the exertions of two friends, our Fauna is now augmented to upwards of thirty.

The Plant is *Lycopsis arvensis* (Wild Bugloss).





*by C. Curtis Dec. 1. 1848*

Muscidæ II Heteroneurinae  
Heteroneurinae

# HETERONEURA ALBIMANA.

ORDER Diptera.

FAM. Muscidæ.

Type of the Genus, *Heteroneura albimana* Meig.

HETERONEURA Fall., Meig., Macq., Curt.

*Antenna* inserted in a cavity in the middle of the face, porrected, short, 5-jointed, basal joint small subglobose, 2nd very much longer, cup-shaped, with numerous strong bristles in front, 2 of them very long, 3rd joint the largest, suborbicular, compressed, densely pubescent, 4th a minute joint seated on the back of the 3rd, but remote from the base, 5th a moderate pubescent seta, thickened at the base (3).

*Trophi* small. *Labrum* very short, elongate-trigonal (1 b).

*Tongue* not longer, linear, the apex rounded (c).

*Maxillæ* none. *Palpi* exerted, very large, as long as the lip, clavate, pubescent and bristly (f). *Lip* short and stout, the apex bilobed and hairy (g).

*Head* rather small, transverse, crown broad and bristly; face transverse-ovate, slightly concave, rather narrow, inclining, hypostoma flat, with 2 long bristles at the extremity: eyes moderate, subovate, remote in both sexes: ocelli 3 in a compact triangle on the crown. (2. the profile, \* the face). *Thorax* elongate-ovate, without any transverse suture, bristly: scutellum semioval, the apex elevated and armed with 2 bristles. *Abdomen* slender and linear, 6-jointed, the apex obtuse in the male, acute in the female, with the oviduct often exerted. *Wings* long and decumbent, 1 very short subcostal nervure not extending a fourth of the wing; 3 longitudinal and one oblique marginal nervures, 2 short transverse ones approaching each other, before the middle, forming a short narrow discoidal cell: halteres small, capitata and uncovered. *Legs* moderate, anterior a little the shortest: thighs not stout, 4 anterior with long bristles beneath: tibiæ slender and simple, pubescent with 2 short bristles at the apex: tarsi as long, slender and 5-jointed, basal joint elongated, compressed and the stoutest in the anterior, 5th and 6th short: claws and pulvilli small.

ALBIMANA Meig.—Curt. Guide, Gen. 1340. 2.

Ferruginous-ochre, clothed with very short pubescence and a few black bristles. Eyes brassy green when alive: seta of the antennæ and a spot at its insertion piceous, back of head and 3 short united stripes at the fore part of the thorax piceous, a whitish streak on each side before the wings, and 2 pale brown stripes down the back: abdomen shining piceous: wings iridescent and slightly tinged with fuscous, a large portion of the apex brown, dark at the costa and vanishing below, a spot of the same colour on the transverse nervures; halteres whitish: legs ochreous, tips of anterior thighs piceous outside, their tibiæ, excepting the base and the 1st joint of the tarsi black, the 4 following joints whitish, hinder tibiæ with a fuscous spot near the base.

*In the Author's and other Cabinets.*

THERE are several characters which distinguish *Heteroneura* from *Agromyza* and congenerous groups, as the slender linear abdomen, the large second joint of the antennæ, the situation of the seta and the neuration of the wings. They are said to affect grassy situations: the species are rare in Germany, and one only has been detected in France. The only one which is known to inhabit this country is the species figured; and having taken the first specimen in Scotland in July 1825, I named it at that time *Scotica*; but Meigen having since described it, my name must fall. On the 5th of July, 1836, after a most awful thunder-storm at Ingleton in Yorkshire, I took a female *Heteroneura* on the inside of the window of the inn. Mr. Haliday has sent it to me from Belfast, and he informs me that his *H. spurca* seems to be the *Heteromyza flava* of Meigen.

The plant is *Phalaris arundinacea*, Reed Canary-grass, communicated by W. W. Saunders, Esq.



*Pipturus inodorus*



Handwritten text at the bottom of the page, possibly a signature or date.

Muscidae IV Agromyzinae  
Agromyzinae

393.

## PHYTOMYZA LATERALIS.<sup>x</sup>

ORDER Diptera. FAM. Muscidae.

*Type of the Genus, Phytomyza lateralis Fall.*

PHYTOMYZA Fall., Meig., Curt.

*Antennæ* porrected, drooping, inserted in a cavity in front of the face, rather small and short; 5-jointed, basal joint small, 2nd somewhat bowl-shaped, producing a few bristles, 3rd large compressed, pubescent, suborbicular, slightly emarginate above, where the 4th joint is attached, which is very minute, 5th long, setiform and pubescent (3).

*Proboscis* inserted at the lower part of the face. *Labrum* short and broad, attenuated towards the apex. *Mandibles*, *Tongue* and *Maxillæ* undiscovered. *Palpi* rather large clavate and pilose (*f*).

*Lip* large and clavate (*g*).

Head somewhat vertical, broad and rather short, pilose. Eyes lateral, remote, oval. Ocelli 3, minute, (2, the head in profile; 2\* front view of same). Thorax somewhat globose. Scutellum subtrigonal, rounded. Abdomen 7-jointed in the female, ovate-conic, tapering to the apex which is furnished with a retractile tubular ovipositor. Wings incumbent, longer than the body, rather broad and ovate, iridescent, ciliated, subcostal nervure very short, 2nd and 3rd not reaching the apex, united near the base, 4th passing along the centre, 5th remote, the three last united near the base by a transverse nervure (9). Halteres clavate. Legs nearly of equal length, slender. Tarsi 5-jointed, basal joint the longest. Claws minute.

LATERALIS Meig. v. 6. p. 190. n. 3.—Curt. Guide, Gen. 1348. n. 3.

Silky cinereous. Head and antennæ black; lip and face yellow: eyes with a reddish tinge when alive, entirely black when dead; several black bristles on the crown of the head and a row down each side of the face. Thorax with the pleuræ yellow, 6 longitudinal rows of strong black bristles and several of smaller ones between them. Abdomen black shining and pilose, a broad margin on each side beneath and the anterior edges of the segments yellow, that of the 6th being the broadest. Wings yellow at the base, nervures brown, the central one very faint. Halteres yellow. Legs black, tips of the thighs yellow.

*In the Cabinet of the Author.*

\* Jobert G. 311, 22 cop. (Sandell's III p. 16) Macquart II 615, 23 cop.

I BELIEVE that hitherto nothing has been recorded of the œconomy of these insects; it is therefore with great pleasure that I can give a short account of the species figured : for this information as well as for specimens of the fly I am indebted to my friend the Honourable C. A. Harris, who informed me that in examining the receptacles of the *Pyrethrum inodorum* he discovered small maggots and pupæ in the centre of a considerable number of them, and that eventually one little fly was produced from them. I afterwards had the pleasure of investigating the subject with him, and a great portion of the flowers we gathered in a field near Heron Court contained larvæ or pupæ, seldom more than one in each ; they produced flies from the beginning to the end of October.

Another minute species, which I think is the *P. nigra* of Meigen (v. 6. p. 191. n. 7.), was sent to me by a lady, who found the pupæ on the underside of the leaves of the Columbine (pl. 392.) the 7th of November, and they hatched the following May.

The Plant represented is *Pyrethrum inodorum* (Corn Feverfew).



*Tab. by J. Curtis Sept. 17. 1768.*

## BORBORUS HAMATUS.

ORDER Diptera. FAM. Muscidae.

*Type of the Genus, Musca subsultans Linn.*

BORBORUS Meig., Curt.—Sphaerocera Lat.—Copromyza Fall.—Calobata Fab.—Musca Linn., Fab.

*Antennae* porrected, rather remote and attached to a small protuberance in front of the face, arising from a cavity, with a sharp margin covering the upper portion (2 and 2\*); 4-jointed, basal joint cup-shaped very pilose, 2nd large ovate and velvety, 3rd minute, inserted towards the upper part of the 2nd, 4th a long seta sometimes sparingly pubescent (3).

*Trophi* received into a large cavity beneath the face (2 and 2\*). *Labrum* broad hollow and attenuated to the apex (1 b). *Maxilla* very small and linear (e): *Palpi* as long or longer than the labrum, clavate and bristly on the under side (f). *Lip* short and robust, terminated by 2 fleshy lobes, pubescent and bristly (g).

Head subglobose slightly depressed; face concave: eyes remote in both sexes, orbicular and rather small: ocelli 3 in triangle. Thorax subquadrate-orbicular: scutellum semiorbicular or subtrigonal. Abdomen rather short and depressed, obtuse in the males, pointed in the females; 5-jointed, the 2nd frequently very large. Wings incumbent, generally longer than the body, nervures varying (9), sometimes short or none. Legs stout, posterior often long. Thighs stout, the middle pair sometimes excepted, posterior in some large and long: tibiae simple, posterior long stout and a little curved: tarsi long and 5-jointed, the basal joint in the posterior always, and sometimes the 2nd also, short and dilated: claws and pulvilli distinct.

Obs. The wing represented is from *B. silvaticus* ♂.

HAMATUS Hal. MSS.—Curt. Guide, Gen. 1350. 8<sup>a</sup>.

Black, shining, sparingly clothed with hairy bristles: antennae with the seta slightly feathered; lip ochreous; eyes reddish brown; scutellum subtrigonal; abdomen with the basal joint not much larger than the following: wings ample, yellowish fuscous, darkest at the costa, iridescent; the 5th longitudinal nervure not reaching the margin, nervures brown: halteres ferruginous-ochre: all the thighs thick in the male, the anterior only in the female; tibiae sometimes slightly ochreous at their base; tarsi with the basal joint ovate and truncated obliquely in the hinder pair, and dilated, especially in the male, in which sex the 2nd also is stouter than the following: pulvilli ochreous.

*In the Cabinets of Mr. Haliday and the Author.*

THIS genus is distinguished from neighbouring groups by the short and dilated basal joints of the posterior tarsi, and several divisions are formed by differences in the neuration of the wings, and one species is apterous. These little flies are found

1606 and 5-200, 200. Meig. II Sublig (Linn. Musc. II p. 19)



on windows in houses, in marshy places, and on putrid substances, as dunghoops, &c. Mr. F. Walker informs me that he has 50 species, many of which he captured by sweeping grass, and others were flying about cucumber-frames. I am indebted to Mr. Haliday for the species figured, as well as for two very distinct ones which I shall describe. The following I am able to record as native species :

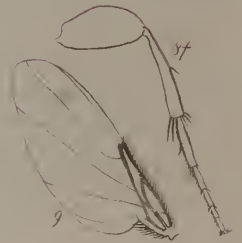
- A. Winged. a. Wings as in *Meig. t. 62. f. 16.*
1. *B. grossipes* *L.* ?
    - b. Wings as in *Meig. t. 62. f. 17.*
  2. *B. subsultans* *L.*—*curvipes* *Lat.* Belfast Mr. Haliday, and Southgate Mr. Walker.
  3. *B. denticulatus* *Meig.* May, meadows, Southgate, Manchester, Scotland and Belfast.
    - c. Wings similar to the species figured.
  4. *B. nitidus* *M.*—5. *equinus* *Fall.*—6. *niger* *M.* Southgate, and 5th at Belfast.—8. *finetarius* *M.*
  - 8<sup>a</sup>. *B. hamatus* *Hal.*—*Curt. B. E. pl. 469* ♂.
  11. *B. ater* *M.* Southgate, and middle of October, Lowestoft Denes.
  17. *B. rufipes* ? *M.* April, paling near a dunghill; middle of October, Isle of Wight.
    - e. Wings as in *Meig. t. 62. f. 20.*
  23. *B. limosus* *Fall.* Belfast and Southgate.
  24. *B. silvaticus* *M.* The male of this insect has very curious intermediate legs; there is a brush of hair on the thighs beneath, a pencil of bristles inside the tibiæ, and others at the apex; the 2 first joints of the tarsi are elongated, and the basal one is emarginate beneath; the penultimate joint of the abdomen is furnished with a curved process at each angle. Beginning of May, Suffolk, Belfast and Southgate.
  25. *B. fenestralis* *Fall.* Southgate.—26. *clunipes* *M.* May, Suffolk, Dorset and Southgate.
  27. *B. pumilio* *M.* Southgate.—29. *ochripes* *M.* Southgate and Belfast.
    - f. Wings shorter than the body; 4th and 5th nervures not united.
  - 29<sup>a</sup>. *B. nivalis* *Hal.* Scarcely 1 line long: rather dull piceous; hypostoma ochreous: wings brownish; legs ochreous brown; intermediate tibiæ with 2 pairs of bristles on the outside.
 

Common about roots of trees in the winter, Belfast.
  - g. Wings with the 2nd longitudinal nervure not reaching the apex, and forming a large oval cell, the transverse nervures close together at the centre.
  - 29<sup>b</sup>. *B. nigerrimus* *Hal.* Length one third of a line. Velvety black; seta of antennæ pubescent; wings transparent; anterior tarsi a little dilated. Taken near Belfast.
    - B. Apterous. *Meig. t. 62. f. 21.*
  30. *B. pedestris* *M.* Banks of the Wandle above Wandsworth, Mr. Haliday; and end of March, amongst moss, Glanville's Wootton, Mr. Dale.

The Plant figured had a scent somewhat like violets at a distance, when growing, but was very offensive when dried: it seems to differ materially from the *Phallus foetidus* *Lam.* (*P. impudicus* *Linn.*); I found it in some abundance on the sand-hills near Lowestoft, Suffolk, in the middle of October. Flies of all descriptions were much attached to this Fungus, and, as well as bees and beetles, seemed very fond of the shining matter which dropped from the pileus.



*Myosurus minimus*  
(*quercus diacutis*)



Phoridae

PHORA ABDOMINALIS.

ORDER Diptera. FAM. Phoridae Curt., Trineuræ Meig.  
Type of the Genus, Phora incrassata Meig.

PHORA Lat., Meig., Curt.—Trineura Meig.—Noda Schel.—Tephritis Fab.—Musca Geof.

Antennæ inserted in cavities close to the margin of the clypeus, rather remote and recurved, 6-jointed, basal joint short stout and cylindrical, 2nd large pubescent, more or less hemispherical, 3rd inserted near the apex, minute as well as the 4th and 5th, the 6th forming a long seta, clothed with very short pubescence (3).

Trophi concealed in a cavity beneath the head.

Labrum very short and broad. Tongue shorter and stout. Palpi exerted, each forming a very large lobe, producing a few very strong spines (f). Lip short pilose, and slightly divided (g. fig. 1, front view of trophi).

Head small transverse, hemispherical, producing a few strong bristles.

Eyes subovate, with a fringe of bristles at the hinder margin. Ocelli 3, sometimes only 2 placed on each side a saddle-shaped elevation on the crown of the head (2, the head in profile; 2\*, front view of the same). Thorax subglobose. Scutellum semicircular. Abdomen short, subconical, 7-jointed, terminated in the females by a biarticulate oviduct. Wings incumbent, the costa ciliated as far as it is thickened at the base, with 2 strong oblique subcostal nervures and 4 or 5 very delicate longitudinal ones (9). Halteres rather large and capitate. Legs, first pair very short, hinder pair very long. Thighs broad and compressed, hinder pair very large and ovate. Tibiæ sometimes grooved outside, with a bristle near the middle, 4 posterior subclavate, slightly curved and furnished with several strong spines at the apex. Tarsi 5-jointed, basal joint the largest, especially in the hind pair (8 †). Claws and Pulvilli rather small.

ABDOMINALIS Fall.—Meig. 6. 225. 40.—Curt. Guide, Gen. 1351, 40.

Black, slightly glossy: head very coarsely and irregularly punctured; palpi orange, 2nd joint of antennæ subferruginous: thorax minutely punctured and pubescent: abdomen rufous excepting the basal segment which is greyish-black; sides and apex striated: wings yellowish, especially towards the costa, nervures brown: anterior tibiæ, the posterior slightly at the base and all the tarsi subochreous, dusky with short black hairs.

In the Cabinets of Mr. Waller Clifton and the Author.

I HAVE not adopted Meigen's name of Trineuræ for the family, which at present contains only two genera, because I consider

\* Gahan's 5. 197, 25 cop.

the title of a tribe should be taken from the typical genus, or that most generally known; and moreover, the term *Trineuræ* is inapplicable to insects having five or six nervures in each wing.

Besides the following British species, Mr. F. Walker has about sixteen undescribed.

Div. a. Wings like fig. 9.

1. *P. incrassata* Meig. tab. 63. f. 5.—In the spring under dead crows, &c., Mr. Clifton.

b. Wings similar to fig. 9, with the 2nd subcostal nervure furcate at the apex.

- |  |  |
|--|--|
| 7. <i>P. maculata</i> Meig.  | 8. <i>P. thoracica</i> Lat. Gen. Crust. tab. 15. f. 12.  |
| 9. <i>P. dimidiata</i> Meig.   | 10. <i>P. fuliginosa</i> M.      11. <i>P. urbana</i> M. |
| 13. <i>P. gracilipes</i> Meig.   | 14. <i>P. annulata</i> Meig.                             |
| 15. <i>P. rufipes</i> F.—Meig. Klas. tab. 15. f. 23.— <i>pallipes</i> Lat. |  |
| 17. <i>P. lugubris</i> Meig.   | 18. <i>P. nigra</i> Meig.                                |
| 20. <i>P. pumila</i> Meig.   | 25. <i>P. lutea</i> Meig.                                |
- 25<sup>a</sup>. *P. atricapilla* Curt.—Ochreous, head and eyes black; abdomen with the 3rd and 4th segments in the male, and the 4th only in the female fuscous.

The late Mr. T. Carpenter found some pale-coloured maggots hanging to the pupæ of *Coccinellæ*, which soon became brown pupæ themselves; they remained attached by one end, and in about a fortnight produced some of these flies. I have taken them on windows in May and September, in Dorset and the Isle of Wight.

c. Submarginal nervure straight at the base.

26. *P. crassicornis* M.—Windows in November.

d. Submarginal nervure curved at the apex.

30. *P. funebris* M.      31. *P. florea* Fab.      32. *P. hyalinata* M.

e. Submarginal nervure semiovate.

33. *P. arcuata* M.—*rufipes* Fall.

g. Three marginal nervures only.

37. *P. aterrima* Fab. Cog. tab. 24. f. 3.—*atra* Meig. Klas. tab. 15. f. 22.

38. *P. velutina* Meig. vol. 6. tab. 63. f. 11.

39. *P. stictica* Meig.      39<sup>a</sup>. *P. anthracina* Curt.

h. Submarginal nervure nearly straight.

40. *P. abdominalis* Fall.—Curt. Brit. Ent. pl. 437.

This species has never before been figured, and the neuration of the wings was unknown to Meigen. It was taken the 7th of May, off a hedge outside Coomb Wood, by Waller Clifton, Esq., and my specimen I purchased from Mr. Lee's collection.


i. Head and thorax very narrow and elongated.

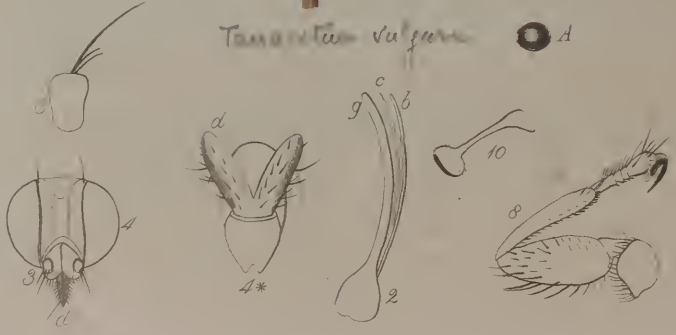
42. *P. galeata* Hal. MSS.—“In the spring, and not later than the summer, at Belfast, on the wild Carrot. It is more agile than the other *Phoræ*.”

The Plant is *Myosurus minimus* (Little Mouse-tail).

6. 2. 17



*Tanacetum vulgare*  A



— by J. S. ...

## HIPPOBOSCA EQUINA.

## The Forest-fly.

ORDER Omaloptera. FAM. Hippoboscidæ.

*Type of the Genus, Hippobosca equina Linn.*

HIPPOBOSCA Linn., Fab., Lat., Meig., Curt., &amp;c.

*Antennæ* remote, short, naked, inserted in cavities between the eyes at the fore part of the face (fig. 4, 3), formed of a large ovate fleshy joint, from the apex of which arise one long and 2 short bristles (3).

*Labrum* horny, hollow, slender, dilated at the base and slightly curved (2 b).

*Tongue* nearly as long as the labrum, very slender and transparent, lanceolate at the extremity, apparently with a nerve or canal down the middle (c).

*Maxillæ?* inclosing the trophi, projecting beyond the head like a beak, bilobed and pilose (4\* d).

*Labium* a horny hollow curved sheath, inclosing the tongue and labrum (g).

Head small, orbicular, strongly and closely united to the thorax: eyes large long and oval (4): ocelli none. Thorax large and orbicular, with a transverse suture: scutellum transverse semi-oval. Abdomen coriaceous, globose, and larger than the thorax before the exclusion of the pupa, shrivelled and semiorbicular afterwards, the anterior angles produced and obtuse. Wings ample, parallel and incumbent, rounded at the apex and furnished with many strong nervures at the base and costa. Halteres concealed in the females, minute and capitate (10). Legs rather short and stout, anterior pair placed close to the head, middle pair very remote at their insertion. Thighs, anterior the shortest and stoutest. Tibiæ simple. Tarsi 5-jointed, basal joint longer than the 3 following which are transverse, 5th large ovate. Claws large sharp, hooked and recurved at the base. Pulvilli small and bilobed (8, a fore leg).

Larva nourished in the abdomen of the mother and excluded after becoming a pupa.

Pupa inclosed in the indurated skin of the larva, suborbicularly impressed at one end. (fig. A).

EQUINA Linn. Faun. Suec. 471. 1921.—Reaum. v. 6. tab. 48.—Curt. Guide, Gen. 1353. 1.

Ochraceous, shining pilose; rostrum, eyes and an oblong spot on the crown of the head piceous; disc of thorax black, elongated to the anterior margin, with a pale yellow curved stripe on each side: metathorax variegated with black and ferruginous, a large spot on the postscutellum and a smaller one above it pale yellow: abdomen dull, the sides rough with short hairs. Wings yellowish fuscous, nervures reddish brown: tips of hinder thighs and tibiæ and the base of the latter brown. Claws black.

*In the Author's and other Cabinets.*

It always appears to me that the Anopluræ (*Parasita Lat.*) would much more naturally terminate, than commence the Class Insecta; for it is evident that there is at least some analogy between the Hippoboscidæ and the Pediculi, and in their habits they are extremely alike. But I can never see the slightest similarity between these last and the Cicindelidæ, which have a greater resemblance to Spiders, especially in the larva state, when they have 8 eyes, and are equally sanguinary; and if we look at the perfect insects, Manticora for example is much more like the Araneidæ than the Pediculi; and *Cicindela germanica* when running can scarcely be distinguished from a Spider, inhabiting the same damp situations.

It is well known that the Insects of this Order instead of laying eggs deposit the chrysalis, which is at first milk-white but soon becomes black, as represented at fig. A. Three of these pupæ were transmitted to me by Mr. John Bolt of Lyndhurst, who informed me they were laid in the evening and night of September 13th and 17th. I have them still, but they have not hatched.

These flies run swiftly, and like a crab, sideways or backwards; they are very tenacious of life, and live principally upon Horses, attaching themselves to the belly, between the hind thighs and under the tail, where they are less protected by hair. It is remarked by Latreille that the ass fears them the most; and that horses suffer very little from them, probably when they have overcome the irritation which they must at first occasion: they cannot cause much pain, otherwise horses could not live in forests in the summer. Mr. Samouelle in his Useful Compendium, gives the following interesting remarks on the *H. Equina*: "In the New Forest of Hampshire they abound in a most astonishing degree. I have obtained from the flanks of one horse six handfulls, (*each of*) which consisted of upwards of a hundred specimens. Mr. Bentley informs me, from observations he made in the summer of 1818, while in Hampshire, that the *Hippoboscæ* are found in considerably greater abundance on white and light coloured horses than those of a black and dark colour; and this observation was confirmed by the stable-keepers in the vicinity of the Forest."

The Plant is *Tanacetum vulgare* (Common Tansy).



Publ. by J. Curwen, London, Mar. 1815.



## HÆMOBORA PALLIPES.

ORDER Omaloptera *Leach.* FAM. Hippoboscidae *Leach.*

*Type of the Genus H. pallipes nob.*

HÆMOBORA *nob.*

*Antennæ* inserted close to the anterior angles of the clypeus, globular, hairy, and sunk into the head. (2. a.)

*Labrum* horny, elongate, hollow, slightly arcuated, inclosing the tongue.

*Tongue* nearly as long as labrum, slender.

*Lip* horny, arched, hollow, inclosing the labrum and tongue. (1. g.)

*Maxillæ*? rigid, obtuse, ciliated with strong hairs, united at their internal edges, bent downwards, inclosing the proboscis, and extending beyond the head like a beak. (1. and 2. e.)

*Mentum* large, coriaceous, membranaceous, covering and concealing the base of proboscis. (1. h.)

*Ocelli* 3, in a triangle, sunk in foveolæ.

*Wings* very long, rounded, first marginal or mediastinal cell extending one-third the length of the wing; second marginal cell very long, rounded at the end, discoidal cells united, 6 obscure, imperfect nerves extending to posterior margin.

*Tarsi* 5-jointed, last the longest; *Claws*, lengthened at their base on each side the pulvillus. (8.)

Head broader than long, somewhat triangular, divided from the thorax.

Eyes very remote, small. Thorax a little broader than head, nearly quadrate, dilated near the base of wings, notched anteriorly. Scutellum broad and short. Halteres very distinct. Abdomen small, nearly conical, peduncled, coriaceous towards its base, the remainder spongy. Feet extended, thick, first pair remote from the wings, inserted almost under the head.

Larva nourished in the abdomen of the mother, and excluded before transformation. Lat.

Pupa inclosed in the indurated skin of the larva, sub-orbitally impressed at one end. Lat.

H. *pallipes nob.*

Shining, with strong hairs scattered over the limbs and body; pale and dull; greenish-yellow clouded with brown. Eyes and claws black. Thorax beneath punctured and covered with short, strong erect hairs. Wings nearly transparent, nerves yellow, the costa slightly ciliated.

*In the Cabinet of Mr. Samouelle.*

THE curious tribe to which this Insect belongs forms a 2nd division of Latreille's Diptera, and is called *Eproboscidea*.

Dr. Leach, who investigated the species with great attention in the 2nd vol. of the "Wernerian Transactions," subsequently constituted them as an Order, the propriety of which cannot be doubted, when we consider that these Insects are very different to the Diptera both in structure and economy.

The genus that I have proposed appears to connect *Ornithomyia* and *Melophagus*: to the former it is allied by its wings, the nerves of which however are very different; and to the latter by its head and antennæ. It will be seen that my ideas regarding the mouth differ from those of other authors; but as an universal harmony reigns through Nature, I have little doubt but analogous parts to those of the Diptera, varying in their modifications, will be found to bear me out in my observations. The proboscis contains a labrum, tongue, and a corneous instead of a fleshy lip; the mentum is very large (protecting and concealing two-thirds of the proboscis), with 2 valves projecting behind, which I imagine to be maxillæ: Latreille suspects they may be palpi, and they have been considered by some authors as mandibles; but I know of no instance in which palpi are rigid and solid; and where mandibles are developed in the Diptera, they are lancet-shaped, to enable the Insect more effectually to inflict a wound to obtain nourishment; whereas in the Omoptera they are not only obtuse, but furnished with strong bristles, which would render them very unfit for such purposes.

Quadrupeds and birds are the habitations of these Insects, upon whose blood they subsist, and amongst whose wool and feathers many of them secrete themselves so effectually, that it is almost impossible to detect them until some time after the death of the animal; when the blood becomes cold, they may be seen running in every direction. The unique and nondescript species figured, was taken from off the clothes of Mr. J. Chant, in the New Forest, about the middle of September 1822, by Mr. Samouelle, whose "Introduction to the Knowledge of British Insects" has contributed so much towards the advancement of Entomology in this country, it having been rendered more generally useful by being written in our own language.

*Caucalis Anthriscus* (Hedge Hen's-foot, or Red Hedgeparsley,) accompanies the Insect in the plate.



## ORNITHOMYIA FRINGILLINA.

ORDER Omaloptera. FAM. Hippoboscidæ.

*Type of the Genus, Hippobosca avicularia Linn.*ORNITHOMYIA *Lat., Lea., Meig., Curt.*—*Hippobosca Linn.*

*Antennæ* porrected beyond the head, inserted in front of the face between the eyes, incrassated at the base, terminating in a somewhat conical concave hood, pubescent and furnished externally with very long rigid bristles, and covering a coriaceous transparent lobe on the inside (3, the profile).

*Labrum* long slender hollow and curved (2 b).

*Tongue* long attenuated and very acute (c).

*Labium* as long, stouter curved and hollow, receiving the tongue and labrum (g).

*Maxillæ* exerted, forming 2 large coriaceous lobes, slightly curved, pilose, rounded at the apex, which is furnished with a very long bristle (4 d).

*Mentum* large and oblong, with 2 large rounded bristly lobes at the anterior angles (4).

Head depressed, nearly orbicular : eyes large, lateral, horizontal and ovate : ocelli minute and sunk, 3 in triangle at the base of the head.

Thorax suborbicular, anterior margin slightly concave, the angles mucronated or produced : scutellum transverse-lentiform. Abdomen short, leathery, semiorbicular or trigonate, and narrowed at the base.

Wings ample, parallel and incumbent, elongated and rounded, with strong costal and basal nervures and 3 fine ones extending to the posterior margin. Halteres minute capitate and concealed. Legs strong : thighs broad, especially the anterior : tibiæ narrowed at the base, posterior the longest : tarsi 5-jointed, basal joint the longest in the hinder feet, 3 following very short, the 4th cordate, 5th stout and clavate : claws strong, curved and cleft nearly to the base, so as to form 2 long and 2 short claws : pulvilli large, with a feathered bristle beneath (8†, hind leg).

FRINGILLINA *Matt. MSS.*—*Curt. Guide, Gen. 1356. 4.*

Ochreous, inclining to bright green ; hairs black : maxillæ, eyes, a spot on the base of each antenna and another where the ocelli are placed, piceous : head and thorax shining ochreous, faintly variegated with brown, leaving a pale line down the back : abdomen dull green, pilose : wings iridescent, slightly smoky, with a darker large oval spot at the apex ; nervures black : legs verdigris-green ; tibiæ with a black streak outside : claws and upper side of terminal joint of hinder tarsi black.

*In the Cabinets of Mr. A. Matthews and the Author.*

ORNITHOMYIA is one of the groups formed from Linnæus's genus *Hippobosca*, but from that and *Hæmobora* our genus is distinguished by the claws, the more developed antennæ,

v 6 ocell in 506

and the nervures extending to the inferior margin of the wings, and from the other genera by its ample and rounded organs of flight.

The *Ornithomyiæ* inhabit birds, living amongst the feathers. I have only found them on the Rook, but the Honourable C. Harris observed a very small species on a Buzzard, I think, which was shot near Heron Court; Mr. Cocks detected a species (*O. viridis?*) on the Moor Buzzard, and Mr. Frankum showed me some specimens of *O. viridula?* which were found on a Hawk; I suspect, however, that birds of prey are not the natural resort of the *Ornithomyiæ*, but that when a quarry is killed by a Hawk, these parasites probably leave the dead bird to prey upon the living one.

The following are British species; they all incline more or less to green when alive, and it is probable the eyes and nervures of the wings fade also in old specimens.

1. *avicularia* Linn.—*Leach in Wern. N. H. S. Mem. vol. 2. pl. 25. f. 4. 5.*

Greenish; eyes piceous: antennæ ferruginous; wings distinctly smoky. Length 2 to  $2\frac{1}{2}$  lines. *Meig.*

August, on Black-Grouse and Tit-Pippit. *Leach.*

2. *viridis* Lat.—*avicularia?* Don. 8. pl. 261. 2.

Greenish; eyes piceous; antennæ ferruginous; wings subhyaline, foveolated before the apex. 2 lines. *Meig.*

Found on Crows in July and August. If I am right in the species, the only example I have seen, I caught upon my ear whilst I was sitting on the summit of the Puy du Dome; and as there were no birds to be seen except the Swifts that were flying just over my head, I concluded it fell from them. It has *piceous* maxillæ.

3. *viridula* *Meig.*

Ochreous variegated with brown: maxillæ *ochreous*: eyes, a spot at the base of the antennæ, and round the ocelli, piceous: wings yellowish-fuscous, darkest at the apex, nervures ferruginous-brown; tips of terminal joint in hinder tarsi and the claws black: expansion 8 lines. Meigen says the antennæ are black.

Off Rooks; end of July on a window in Devon, Mr. Dale.

4. *Fringillina* *Matt.*—*Curt. Brit. Ent. pl. 585.*—and, I expect, *DeGeer's fig. 21–27. pl. 16. v. 6.*

For my specimen of this, the smallest species I have seen, I am indebted to Mr. A. Matthews, who has found it on the Yellow Hammer, Greater Titmouse, and Robin, in the autumn, at Weston on the Green, near Oxford.

The Plant is *Angelica sylvestris* (Wild Angelica).



By J. Curtis. London June 7. 1778.

Oxypteryx  
Stenopteryx

(CRATERINA) HIRUNDINIS.

ORDER Omaloptera Leach. FAM. Hippoboscidae Leach.

Type of the Genus Hippobosca Hirundinis Linn.

CRATERINA Olfers.—Stenopteryx Leach.—Ornithomyia Lat.—Hippobosca Linn., Fab., &c.

Antennae rigid, porrected, inserted before the eyes, close to the sides of the clypeus, globose at the base, terminated by a concave lobe, clothed externally with long bristles and inclosing a styli-form process (3, antenna in profile: 3\*, underside of the same).

Labrum horny, hollow, slender, dilated at the base, slightly arcuated, inclosing the tongue (1 b and 2 b).

Tongue nearly as long as the labrum, very slender, dilated at the base (1 c and 2 c).

Lip a horny hollow sheath inclosing the labrum and tongue (1 g and 2 g).

Maxilla? rigid obtuse pilose, united by a membrane at their internal margin, bent downwards, and extending beyond the head like a beak, and inclosing the proboscis when exerted (4 d).

Mentum large, submembranous, covering and concealing the proboscis (4).

Head orbicular, divided from the thorax by a suture. Ocelli very obscure, 3 in triangle, sunk in foveolae. Eyes lateral, very remote, oval. Thorax broader than the head, subquadrate, emarginate before, with two spiracles on each side. Wings inserted at the posterior angles of the thorax, longer than the body, narrow acuminate (9). Scutellum short broad. Abdomen submembranous subglobose, emarginate at the apex. Legs extended, large robust, 1st pair attached close to the head. Tibiae simple. Tarsi 5-jointed, 4 first joints short. Claws large strong, each tridentate. Pulvilli small (8, a fore leg).

Larva nourished in the abdomen of the mother, and excluded after transformation. Lat.

Pupa inclosed in the indurated skin of the larva, suborbicularly impressed at one end. Lat.

HIRUNDINIS Linn. Faun. Suec. n. 1923.—Fab. Ent. Syst. 4. 415. 3.

Dull and pale ochraceous, tinged with olive. Head with a few hairs down the sides, and a brown spot surrounding the ocelli. Thorax surrounded with bristly hairs, and having 2 brownish spots near the middle. Abdomen fuscous towards the apex and very pilose. Wings narrow, curved, pale fuscous, yellowish at the costa, where they are ciliated. Claws black.

In the Author's and other Cabinets.

\* Gobert G. 508

HAVING upon a former occasion made some remarks upon the Order Omaloptera and taken a view of the structure, which at that time could not be fully illustrated in consequence of the rarity of the species then investigated, we shall here avail ourselves of the opportunity of explaining the figures that we have now the pleasure of laying before our readers, by giving a detailed explanation of them.

The antennæ (fig. 3 & 3\*) are very singular in their conformation, and may be called auriculate; the process or style inserted in the globose base has not been before noticed; and in the genus *Melophagus* it is still more extraordinary, being 4-cleft and arising out of an aperture in the globose portion of the antenna, which is hollow.

Fig. 4. shows a great portion of the underside of the head, forming what I have called the mentum; it conceals and protects the trophi when at rest, at which time the ovate base, fig. 2 h, rests within the spot with a row of bristles immediately above the figure 4; the bristles at the anterior angles are peculiar; the maxillæ (d) are similar to those of the neighbouring genera.

Fig. 2. exhibits the trophi, taken out, with the part attached to the head, which from its elasticity and length enable the insect to exert them the whole length of the lip beyond the mentum; at the base arise 2 curved bristles, probably to regulate the direction of the tongue, &c. when in action.

Fig. 1. g, c, b. are the trophi detached, better to show their form.

The wings from their disproportionate width cannot, we conceive, enable the insect to fly, but may be useful in assisting it, when accident has thrown it upon its back, to recover its natural position.

It must be confessed, that the poor House-Swallow, whose nest and feathers are infested with this parasite, which (by comparison) is a monster in size as well as in form, is by no means to be envied; and the exhaustion occasioned by supplying nutrition must be very considerable where these insects abound in an individual, as is often the case.

*C. Hirundinis* is I believe the only species that has yet been discovered of the genus; that inhabiting the Swift (*Hirundo Apus* Linn.) being an *Oxypterum*.

The plant is *Draba verna* (Common Whitlow-grass).





*Hydrocotyle vulgaris*  
(Lamb's ears)



Del. by J. C. Arthur London No. 1820

## MELOPHAGUS OVINUS.

## The Sheep-louse.

ORDER Omaloptera *Leach.* FAM. Hippoboscidae *Leach.*

*Type of the Genus Hippobosca Ovina Linn.*

MELOPHAGUS *Lat., Leach, Olfers.*—*Melophila Nitzsch.*—*Hippobosca Linn., Fab., &c.*

*Antennæ* coriaceous, remote, nearly concealed in a cavity before the eyes, subglobose, pubescent, with a few bristles on the internal side, near the margin of the orifice in front, from which arises a membranous flat style divided into four teeth (fig. 3. the antenna; a, the style; a\*, the same taken out to show its whole length).

*Labrum* horny long slender incurved hollow, receiving the tongue (2 b).

*Tongue* as long as the labrum, very slender (2 c).

*Lip* hollow as long as the labrum, receiving it and the tongue, dilated at the base (2 g, and 4 g).

*Maxillæ?* rigid pilose, as long as the head, united above at their base, somewhat hollow and incurved (4 d).

Head corneous above, coriaceous beneath, with a large cavity on each side to receive the anterior coxæ (4, underside of head). Eyes narrow lateral. Ocelli none. Thorax undivided, with all the legs attached, having 2 spiraculæ on each side and being slightly produced where the wings arise in the other genera. Wings none. Scutellum nearly obsolete. Abdomen large, inflated, coriaceous, semitransparent, with 6 spiracles down each side. Legs of equal size, short robust pilose. Tibiæ spurred. Tarsi 5-jointed, 4 first joints transverse, 5th long. Claws recurved at the base. Pulvilli slender (8, a fore-leg).

Larva nourished in the abdomen of the mother, and excluded after transformation. *Lat.*

Pupa inclosed in the indurated skin of the larva, suborbicularly impressed at one end. *Lat.*

OVINUS *Linn. Faun. Suec. 1924.*

Covered with rigid hairs. Head proboscis and thorax ferruginous. Abdomen dull yellowish with a heart-shaped spot on each side and a less perfect one forming a triangle near the base ferruginous. Legs subochraceous. Tarsi ferruginous. Claws black.

*In the Author's and other Cabinets.*

THE curious antennæ of *Melophagus Ovinus* have been already alluded to in folio 122, and we wish now further to call the attention of the student to their remarkable structure, as they appear hitherto to have escaped observation, and they are scarcely analogous to any other antennæ unless it be to those of the *Libellulidæ*. The antennæ are of a leathery substance, somewhat globose covered with short hair, being hollow part of the way down, at the bottom of the cavity is attached a thin process, cleft at the apex and probably moveable; but from its minuteness it is difficult to ascertain whether it can be exerted and withdrawn at the will of the animal. The trophi exhibited at fig. 2. are particularly long and very much bent; although this insect is one of the few that is apterous in both sexes, the thorax is slightly produced where those organs are attached in the neighbouring genera.

Our insect is one of the many that attack sheep, and is found I believe all the year round, our friend Mr. Carpenter having sent us some as early as March. In the 1st volume of the *Introduction to Entomology* we find the following passage relating to our subject. "But of all our cattle, none are more valuable and important to us than our *flocks*; to them we look not only for a principal part of our food, but also for clothing and even light. Thick as is their coat of wool, it does not shield them from the attack of all-subduing insects: on the contrary it affords a comfortable shelter to one of their enemies of this class, regarded by Linné as a species of *Hippobosca*, but properly separated from that genus by Latreille under the name of *Melophagus*. This is commonly called the sheep-louse, and is so tenacious of life that we are told by Ray it will exist in a fleece twelve months after it is shorn, and its excrements are said to give a green tinge to the wool very difficult to be discharged."

The plant figured, *Hydrocotyle vulgaris*\* (called Pennyrot, Sheep-killing Pennygrass, Water Pennywort, White-rot, &c.) is supposed by some to cause the rot in sheep.

\* G. & H. p. 176

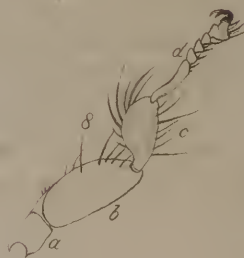
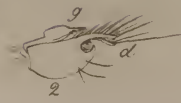
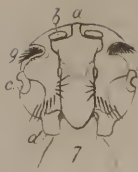


Fig. by J. Curtis 1840

## NYCTERIBIA LATREILLII.

ORDER Omaloptera. FAM. Nycteribidæ Leach.  
Phthiromyæ Lat.

Type of the Genus, *Pediculus Vespertilionis* Linn.

NYCTERIBIA Lat., Fab., Mont., Leach, Sam.—*Celeripes* Mont.—*Hippobosca* Voigt.—*Phthiridium* Her., Olf.—*Pediculus* & *Acarus* Linn.

Antennæ none.

Labrum } arising from the base of the head, horny slender  
Tongue and } and acute, the *Mentum*? convex and rather large  
Lip } (2 g).

Maxillæ? porrected, rigid and pilose (2 d).

Head resting upon the back of the thorax, to the anterior margin of which it is attached at the point, a, fig. 7, it is very small convex and subovate (2). Eyes and Ocelli none? Thorax undivided, suborbicular, with a groove down the middle to receive the head. Wings none, but there is a narrow appendage ciliated with short strong bristles, on each side at the base of the middle pair of legs (9). Abdomen conic-depressed, composed of 6 ciliated joints in the male, the last joint hollow beneath, producing a style in the centre and terminated by 2 incurved pilose laminae. Legs compressed, attached to the sides of the thorax, the anterior pair inserted rather above. Coxæ short (8 a). Thighs broad ovate (b). Tibiæ short, obovate, and pilose, with robust bristles on the inside (c). Tarsi long, 5-jointed, basal joint curved, as long as the tibiæ, 3 following obtrigonal, 5th very much dilated at the apex (d). Claws bent recurved or dilated at the base. Pulvilli slender (8, a fore leg).

Fig. 2 represents the head, in profile, the underside resting upon the back, in repose; the processes called maxillæ and the trophi are in their natural position.

Fig. 7 is the thorax, with a small portion of the abdomen, the spot at, a, being the point of attachment of the head, and the insertions of the coxæ are marked by b, c and d, and at 9 are the ciliated appendages, which may cover spiracles for breathing, organs for hearing, or they may be the analogue of rudimentary wings.

LATREILLII Leach Zool. Mis. vol. 3. 56.

Ochraceous, shining. Thorax suborbicular above, producing a few hairs, the hinder part emarginate, punctured beneath, with a channel down the centre; the postpectus produced and finely pectinated at the margin. Abdomen inclining to castaneous sometimes to brown. Legs not longer than the body, producing long brown hairs. Tibiæ very much dilated. Tarsi with the basal joint not longer than the tibiæ. Claws black.

In the Cabinets of the British Museum, Mr. Jenyns, and the Author.

I HAVE been unable to ascertain so much as I could wish concerning these extraordinary insects, from the minuteness of the specimens which my friend Mr. Jenyns kindly submitted to my inspection. Having been led to draw conclusions rather at variance with the ideas of Colonel Montague and Dr. Leach, I shall proceed to state them. The former gentleman, whose interesting Paper in the Linnean Transactions well deserves to be perused, supposed that the Nycteribia must turn on its back to apply the mouth to the skin of the bat; but the head appears to me to be so articulated that it can, I suspect, porrect it, or even bend it down, and the rostrum can most likely be raised to a considerable angle from the head. I will not however insist further upon this point, never having seen the animal alive, and especially as there is an analogous instance in the true Cimex, and probably in all the others with long labiums. I have observed that the *C. lectularius* does not (and I believe cannot) insert its rostrum *into the object it stands upon*, for it erects its trophi above the head so as to form a right angle with the back.

Dr. Leach was no doubt mistaken in considering the coxa to be the first joint of the femora, as well as in taking the basal joint of the tarsi for a second joint of the tibiæ; these errors however I do not notice because I take any pleasure in lessening the merit of others, but only to guard the student against misconstruction.

The only two species of Nycteribiæ known in Britain are

1. *N. Hermanni* Leach, *Enc. Brit. Supp.*—*biarticulatum* Herm.  
—Leach, *Zool. Mis.* 3. 55. *tab.* 144. *mas. fem. and foot.*  
—*Vespertilionis* Mont. *Linn. Trans.* v. 11. *p.* 11.

It inhabits the greater and lesser Horse-shoe Bats. It is larger than the following species; and I am inclined to think, from the size of Latreille's *N. Vespertilionis*, and the form of the thorax in the Linnæan *P. Vespertilionis*, that they belong to this species.

2. *N. Latreillii* Leach.—*Curtis Brit. Ent.* *pl.* 277.

Inhabits *Vespertilio murinus* (the Common Bat). The following memorandum was transmitted with the insects by the Rev. L. Jenyns: "I cannot speak with certainty as to the species of Bat to which these parasites were attached, since they were found in a vessel of spirits containing several different kinds of Vespertilionidæ; I can only say that the Bats were all received from Northamptonshire."

The plant is *Conyza squarrosa* (Great Flea-bane).

# ALPHABETICAL INDEX OF INSECTS.

The 1st Column contains the number of the Plate and Folio, the 2nd the Vol. it will be found in if bound up as published in 16 Vols., and the 3rd Column shows the Volume when arranged systematically in 8 Vols.

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<i>Abraxas ulmata</i> . . . . .	515	11	6	<i>Apathites</i> . . . . .	468	10	4
<i>Acalles roboris</i> . . . . .	550	12	2	<i>Apatura Iris</i> . . . . .	338	8	5
<i>Acanthia pulchella</i> . . . . .	548	12	7	<i>Aphanisticus pusillus</i> . . . . .	262	6	2
<i>Acanthosoma hæmorrhoidalis.</i>	28	1	7	<i>Aphidius cirsi.</i> . . . . .	383	8	3
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<i>Achætea spreta</i> . . . . .	117	3	5	<i>Aphodius villosus.</i> . . . . .	27	1	1
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<i>Acherontia Atropos</i> . . . . .	147	4	5	<i>Apion difforme</i> . . . . .	211	5	2
<i>Acheta sylvestris</i> . . . . .	293	7	3	<i>Apis mellifica</i> . . . . .	769	16	4
<i>Acidalia degeneraria.</i> . . . . .	384	8	6	<i>Aplota Robertsonella</i> . . . . .	655	14	6
<i>Acilius caliginosus</i> . . . . .	63	2	1	<i>Aradus corticalis.</i> . . . . .	230	5	7
<i>Actinia catena</i> . . . . .	276	6	5	<i>Arcopagus puncticollis</i> . . . . .	422	9	1
<i>Acosmetia fuscula</i> . . . . .	356	8	5	<i>Arctia cænosa.</i> . . . . .	68	2	5
<i>Acrida Bingleii</i> . . . . .	82	2	1	<i>Arcturus Sparshalli</i> . . . . .	336	7	5
<i>Acrolepia betulælla</i> . . . . .	679	15	6	<i>Argutor longicollis</i> . . . . .	666	14	1
<i>Acronycta salicis</i> . . . . .	136	3	5	<i>Argynnis Aglaia</i> . . . . .	290	7	5
<i>Acrydium subulatum</i> . . . . .	439	10	3	<i>Argyromiges autumnella</i> . . . . .	284	6	6
<i>Actora æstum</i> . . . . .	66	2	8	<i>Aromia moschata.</i> . . . . .	738	16	2
<i>Acucephalus tricinetus</i> . . . . .	620	13	7	<i>Asilus germanicus</i> . . . . .	46	1	8
<i>Adactylus Bennetii</i> . . . . .	471	10	6	<i>Asiraca pulchella.</i> . . . . .	445	10	7
<i>Adela Frischella</i> . . . . .	463	10	6	<i>Asopia pictalis.</i> . . . . .	503	11	6
<i>Adimonia 4-maculata</i> . . . . .	366	8	2	<i>Aspidiphorus orbiculatus</i> . . . . .	450	10	2
<i>Ægeria ichneumoniformis</i> . . . . .	53	2	5	<i>Aspilates gilvaria.</i> . . . . .	467	10	6
<i>Ælia acuminata</i> . . . . .	704	15	7	<i>Astata victor</i> . . . . .	261	6	4
<i>Æpæus fulvescens</i> . . . . .	203	5	1	<i>Athalia spinarum.</i> . . . . .	617	13	3
<i>Aglossa Streatfieldii</i> . . . . .	455	10	6	<i>Atherix ibis</i> . . . . .	26	1	8
<i>Agonum austriacum.</i> . . . . .	183	4	1	<i>Atopa cervina.</i> . . . . .	216	5	2
<i>Agrilus chryseis</i> . . . . .	67	2	2	<i>Atractus literatus.</i> . . . . .	500	11	7
<i>Agrion rubellum</i> . . . . .	732	16	4	<i>Attagenus trifasciatus</i> . . . . .	247	6	2
<i>Agriotypus armatus</i> . . . . .	389	9	3	<i>Attelabus curculionoides</i> . . . . .	710	15	2
<i>Agrotis cinerea</i> . . . . .	165	4	5	<i>Baccha elongata</i> . . . . .	737	16	8
<i>Agrypnia Pagetana</i> . . . . .	540	12	4	<i>Bactra pauperana.</i> . . . . .	599	13	6
<i>Alcis sericearia</i> . . . . .	113	3	6	<i>Badister cephalotes</i> . . . . .	139	3	1
<i>Allantus flavipes</i> . . . . .	764	16	3	<i>Baëtis dispar</i> . . . . .	484	11	4
<i>Alomya victor</i> . . . . .	120	3	3	<i>Bauchus Farrani</i> . . . . .	588	13	3
<i>Altica ochripes</i> . . . . .	630	14	2	<i>Baris analis.</i> . . . . .	766	16	2
<i>Alucita hexadactyla</i> . . . . .	695	15	6	<i>Bassus calculator.</i> . . . . .	73	2	3
<i>Alydus calcaratus.</i> . . . . .	369	8	7	<i>Batia lunaris</i> . . . . .	543	12	6
<i>Alysia apii</i> . . . . .	141	3	3	<i>Beris geniculata</i> . . . . .	337	7	8
<i>Alyson Kennedii</i> . . . . .	584	13	4	<i>Berosus æriceps</i> . . . . .	240	5	1
<i>Amblycephalus Germari</i> . . . . .	572	12	7	<i>Bethylus fulvicornis.</i> . . . . .	720	15	3
<i>Ammophila campestris</i> . . . . .	604	13	4	<i>Bibio venosus</i> . . . . .	138	3	8
<i>Amphisa Walkerana.</i> . . . . .	209	5	6	<i>Bitoma crenata</i> . . . . .	283	6	2
<i>Anacamptis longicornis.</i> . . . . .	189	4	6	<i>Blaps obtusa</i> . . . . .	148	4	2
<i>Anarta myrtilli</i> . . . . .	145	3	5	<i>Blatta lapponica</i> . . . . .	556	12	3
<i>Anchylopera ustomaculana.</i>	376	8	6	<i>Bledius Skrimshirii</i> . . . . .	143	3	1
<i>Andrena Kirbii</i> . . . . .	129	3	4	<i>Blemus micros</i> . . . . .	310	7	1
<i>Aneurus lævis</i> . . . . .	86	2	7	<i>Blethisa multipunctata</i> . . . . .	326	7	1
<i>Anisoplia suturalis</i> . . . . .	526	11	1	<i>Boarmia tetragonaria</i> . . . . .	280	6	6
<i>Anobium pertinax</i> . . . . .	387	9	2	<i>Bolboceras mobilicornis</i> . . . . .	259	6	1
<i>Anomalon vesparum.</i> . . . . .	198	5	3	<i>Boletophagus agricola</i> . . . . .	586	13	2
<i>Anomalon Grav.</i> . . . . .	736	16	3	<i>Bombus ericetorum</i> . . . . .	564	12	4
<i>Anopheles bifurcatus</i> . . . . .	210	5	8	<i>Bombylius major</i> . . . . .	613	13	8
<i>Antherophagus similis</i> . . . . .	546	12	1	<i>Borborus hamatus</i> . . . . .	469	10	8
<i>Anthicus tibialis</i> . . . . .	714	15	2	<i>Boreus hyemalis</i> . . . . .	118	3	4
<i>Anthidium manicatum</i> . . . . .	61	2	4	<i>Brachinus sclopetæ</i> . . . . .	554	12	1
<i>Anthonomus pomorum</i> . . . . .	562	12	2	<i>Bracon denigrator</i> . . . . .	69	2	3
<i>Anthophora Haworthana</i> . . . . .	357	8	4	<i>Brepha notha</i> . . . . .	121	3	5
<i>Anthrax ornata</i> . . . . .	9	1	8	<i>Bruchus ater</i> . . . . .	754	16	2
<i>Anthribus albinus</i> . . . . .	726	16	2	<i>Bryaxis sulcicollis</i> . . . . .	315	7	1
<i>Apamea Haworthii</i> . . . . .	260	6	5	<i>Bupalus favillacearius</i> . . . . .	33	1	6

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
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<i>Byrrhus Dennii</i> . . . . .	135	3	2	<i>Cleora cinctaria</i> . . . . .	88	2	6
<i>Byturus tomentosus</i> . . . . .	618	13	1	<i>Cleptes nitidula</i> . . . . .	724	16	4
<i>Cacicula scutellata</i> . . . . .	144	3	2	<i>Clerus alvearius</i> . . . . .	44	1	2
<i>Cacidula</i> . . . . .	<i>ib.</i>			<i>Clisiocampa castrensis</i> . . . . .	229	5	5
<i>Cafius fucicola</i> . . . . .	322	7	1	<i>Clivina collaris</i> . . . . .	175	4	1
<i>Calathus latus</i> . . . . .	184	4	1	<i>Clostera anachoreta</i> . . . . .	715	15	5
<i>Callicerus Spencii</i> . . . . .	443	10	1	<i>Clythra tridentata</i> . . . . .	582	13	2
<i>Callidium striatum</i> . . . . .	295	7	2	<i>Clytus 4-punctatus</i> . . . . .	199	5	2
<i>Callimome subterraneus</i> . . . . .	552	12	3	<i>Cnephasia bellana</i> . . . . .	100	3	6
<i>Callimorpha jacobææ</i> . . . . .	499	11	5	<i>Coccinella ocellata</i> . . . . .	208	5	2
<i>Callistus lunatus</i> . . . . .	180	4	1	<i>Coccus aceris</i> . . . . .	717	15	7
<i>Calosoma sycophanta</i> . . . . .	330	7	1	<i>Cochleophasia tessellæa</i> . . . . .	487	11	6
<i>Cantharis vesicatoria</i> . . . . .	658	14	2	<i>Cochylis rupicola</i> . . . . .	491	11	6
<i>Capsus hirtus</i> . . . . .	693	15	7	<i>Cœlioxys vectis</i> . . . . .	349	8	4
<i>Carabus exasperatus</i> . . . . .	446	10	1	<i>Colax dispar</i> . . . . .	166	4	3
<i>Caradrina bilinea</i> . . . . .	651	14	5	<i>Colias hyale</i> . . . . .	242	6	5
<i>Cardiapus Mathewsii</i> . . . . .	435	10	2	<i>Colletes fodiens</i> . . . . .	85	2	4
<i>Carpocapsa Lepaestriana</i> . . . . .	352	8	6	<i>Colymbetes consobrinus</i> . . . . .	207	5	1
<i>Cassida salicorniæ</i> . . . . .	127	3	2	<i>Coniopteryx psociformis</i> . . . . .	528	11	4
<i>Catocala elocata</i> . . . . .	217	5	5	<i>Conopalpus testaceus</i> . . . . .	112	3	2
<i>Catops dissimulator</i> . . . . .	566	12	1	<i>Conops macrocephala</i> . . . . .	377	8	8
<i>Cecidomyia verna</i> . . . . .	178	4	8	<i>Copris lunaris</i> . . . . .	414	9	1
<i>Cœlinius anceps</i> . . . . .	289	6	3	<i>Coranus subapterus</i> . . . . .	453	10	7
<i>Centrotus genistæ</i> . . . . .	313	7	7	<i>Cordulia Curtisi</i> . . . . .	616	13	4
<i>Cephus femoratus</i> . . . . .	301	7	3	<i>Cordylura livens</i> . . . . .	485	11	8
<i>Cerambyx moschatus</i> . . . . .	738	16	2	<i>Coreus scapha</i> . . . . .	174	4	7
<i>Ceraphron Halidayi</i> . . . . .	249	6	3	<i>Corizus hyoscyami</i> . . . . .	481	10	7
<i>Cerapteryx hibernicus</i> . . . . .	451	10	5	<i>Corynetes violaceus</i> . . . . .	351	8	2
<i>Ceratopsyllus elongatus</i> . . . . .	417	9	7	<i>Corynopus St. Farg.</i> . . . . .	656	14	4
<i>Cerceris læta</i> . . . . .	269	6	4	<i>Cossonus Tardii</i> . . . . .	59	2	2
<i>Cercopis vulnerata</i> . . . . .	461	10	7	<i>Cossus ligniperda</i> . . . . .	60	2	5
<i>Ceria conopsoidea</i> . . . . .	186	4	8	<i>Crabro subpunctatus</i> . . . . .	680	15	4
<i>Ceropales variegatus</i> . . . . .	756	16	4	<i>Crambus radiellus</i> . . . . .	109	3	6
<i>Cerostoma annulatella</i> . . . . .	420	9	6	<i>Craterina hirundinis</i> . . . . .	112	3	8
<i>Cerura latifascia</i> . . . . .	193	4	5	<i>Crioceris puncticollis</i> . . . . .	323	7	2
<i>Cetonia stictica</i> . . . . .	374	8	1	<i>Cræsus septentrionalis</i> . . . . .	17	1	3
<i>Ceutorrhynchus geranii</i> . . . . .	670	14	2	<i>Cryptocephalus bipustulatus</i> . . . . .	35	1	2
<i>Chænon anceps</i> . . . . .	289	6	3	<i>Cryptophagus populi</i> . . . . .	160	4	1
<i>Chariclea delphinii</i> . . . . .	76	2	5	<i>Cryptus bellousus</i> . . . . .	668	14	3
<i>Charissa operaria</i> . . . . .	105	3	6	<i>Cryptus pallipes</i> . . . . .	58	2	3
<i>Chelaria rhomboidella</i> . . . . .	368	8	6	<i>Ctenophora ornata</i> . . . . .	5	1	8
<i>Chelonus Wesmaelii</i> . . . . .	672	14	3	<i>Cucujus spartii</i> . . . . .	510	11	2
<i>Chelostoma florissomnis</i> . . . . .	628	14	4	<i>Cucullia asteris</i> . . . . .	45	1	5
<i>Chilo lanceolellus</i> . . . . .	727	16	6	<i>Culex guttatus</i> . . . . .	537	12	8
<i>Chimarra marginata</i> . . . . .	561	12	4	<i>Cybister Roeselii</i> . . . . .	151	4	1
<i>Chironomus æstivus</i> . . . . .	90	2	8	<i>Cychnus rostratus</i> . . . . .	426	9	1
<i>Chlænium sulcicollis</i> . . . . .	83	2	1	<i>Cydnus dubius</i> . . . . .	74	2	7
<i>Chorosoma arundinis</i> . . . . .	297	7	7	<i>Cynips nervosa</i> . . . . .	688	15	3
<i>Chrysis fulgida</i> . . . . .	8	1	4	<i>Cyphon pini</i> . . . . .	602	13	2
<i>Chrysocorys scissella</i> . . . . .	663	14	6	<i>Damophila trifolii</i> . . . . .	391	9	6
<i>Chrysomela adonidis</i> . . . . .	111	3	2	<i>Daphnis nerii</i> . . . . .	626	14	5
<i>Chrysopa abbreviata</i> . . . . .	520	11	4	<i>Dascillus cervinus</i> . . . . .	216	5	2
<i>Chrysotoxum octomaculatum</i> . . . . .	653	14	8	<i>Dasyпода Swammerdamella</i> . . . . .	367	8	4
<i>Cicada anglica</i> . . . . .	392	9	7	<i>Dasygogon brevisrostris</i> . . . . .	153	4	8
<i>Cicindela sylvicola</i> . . . . .	1	1	1	<i>Decatoma Cooperi</i> . . . . .	345	8	3
<i>Cicones carpini</i> . . . . .	149	4	2	<i>Deilephila euphorbiæ</i> . . . . .	3	1	5
<i>Cillenum laterale</i> . . . . .	200	5	1	<i>Deiopeia pulchra</i> . . . . .	169	4	5
<i>Cimbex 10-maculatus</i> . . . . .	41	1	3	<i>Delphax longipennis</i> . . . . .	657	14	7
<i>Cimex lectularius</i> . . . . .	569	12	7	<i>Demetrias monostigma</i> . . . . .	119	3	1
<i>Cinara roboris</i> . . . . .	576	12	7	<i>Dendrolimus pini</i> . . . . .	7	1	5
<i>Cinetus dorsiger</i> . . . . .	380	8	3	<i>Dendrophilus Sheppardi</i> . . . . .	131	3	1
<i>Cis bidentatus</i> . . . . .	402	9	2	<i>Depressaria Bluntii</i> . . . . .	221	5	6
<i>Cistela ceramboidea</i> . . . . .	594	13	2	<i>Dermestes lardarius</i> . . . . .	682	15	2
<i>Cixius Dionysii</i> . . . . .	673	14	7	<i>Dianous cærulescens</i> . . . . .	107	3	1
<i>Cladius pilicornis</i> . . . . .	457	10	3	<i>Diaperis boleti</i> . . . . .	358	8	1
<i>Clavellaria marginata</i> . . . . .	93	2	3	<i>Dictyonota crassicornis</i> . . . . .	154	4	7
<i>Cleodora cytisella</i> . . . . .	671	14	6	<i>Dimorpha Hib.</i> . . . . .	755	16	5



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Diodontus gracilis . . . . .	496	11	4	Gonia ruficeps . . . . .	533	12	8
Diphthera Orion . . . . .	404	9	5	Gortyna micacea . . . . .	252	6	5
Diurnea novembris . . . . .	743	16	6	Gorytes bicinctus . . . . .	524	11	4
Dixa nebulosa . . . . .	409	9	8	Gracillaria anastomosis . . . . .	479	10	6
Dolichocheza sylvicola . . . . .	62	2	8	Gryllotalpa vulgaris . . . . .	456	10	3
Donacia typhæ . . . . .	494	11	2	Gymnætron graminis . . . . .	627	14	2
Drapetis aterrima . . . . .	397	9	8	Gyrinus bicolor . . . . .	79	2	1
Dromius spilotus . . . . .	231	5	1	Hadena Cucubali . . . . .	308	7	5
Drosophila cameraria . . . . .	473	10	8	Hæmatopota italica . . . . .	525	11	8
Dryinus cursor . . . . .	206	5	3	Hæmobora pallipes . . . . .	14	1	8
Drymonia dodonæa . . . . .	755	16	5	Haliass quercana . . . . .	575	12	6
Drypta emarginata . . . . .	454	10	1	Halictophagus Curtisi . . . . .	433	9	3
Dyschirius inermis . . . . .	354	8	1	Halictus . . . . .	448	10	4
Dytiscus dimidiatus . . . . .	99	3	1	Haliphys ferrugineus . . . . .	730	16	1
Ederesa semitestacella . . . . .	719	15	6	Hallomenus flexuosus . . . . .	474	10	2
Elaphrus uliginosus . . . . .	179	4	1	Hamearis Lucina . . . . .	316	7	5
Elater aterrimus . . . . .	694	15	2	Hapalia præcox . . . . .	539	12	5
Electra albocrenata . . . . .	603	13	6	Harpalus ruficeps . . . . .	458	10	1
Elenchus Walkerii . . . . .	385	8	3	Harpipteryx scabrella . . . . .	535	12	6
Elmis Volckmari . . . . .	294	7	1	Harpocera Burmeisteri . . . . .	709	15	7
Elodes pini . . . . .	602	13	2	Hecabolus sulcatus . . . . .	507	11	3
Elophorus fennicus . . . . .	466	10	1	Hedychrum ardens . . . . .	38	1	4
Emphytus fasciatus . . . . .	436	10	3	Helomyza ustulata . . . . .	66	2	8
Empis borealis . . . . .	18	1	8	Heleodromia bistigma . . . . .	513	11	8
Emus hirtus . . . . .	534	12	1	Heliopsis scutosa . . . . .	595	13	5
Encyrtus vitis . . . . .	395	9	3	Helobia Gyllenhalii . . . . .	103	3	1
Endomychus coccineus . . . . .	570	12	2	Helodes beccabungæ . . . . .	506	11	2
Endromis versicolor . . . . .	434	10	5	Helomyza rufa . . . . .	545	12	8
Enicocerus Gibsoni . . . . .	291	7	1	Helophilus Ruddii . . . . .	429	9	8
Ennomos angularia . . . . .	667	14	6	Helops pallidus . . . . .	298	7	2
Epeolus variegatus . . . . .	516	11	4	Helorus anomalipes . . . . .	403	9	3
Ephemera cognata . . . . .	708	15	4	Hemerobius fimbriatus . . . . .	202	5	4
Ephydra spilota . . . . .	413	9	8	Henops marginatus . . . . .	110	3	8
Ephyra pictaria . . . . .	447	10	6	Hepialus sylvinus . . . . .	185	4	5
Erastria ostrina . . . . .	140	3	5	Heriades truncorum . . . . .	504	11	4
Eriocephala calthella . . . . .	751	16	6	Hesperia Actæon . . . . .	442	10	5
Erioptera crassipes . . . . .	557	12	8	Heteroceris obsoletus . . . . .	224	5	1
Eirrhinus æthiops . . . . .	634	14	2	Heterogaster laticeps . . . . .	597	13	7
Eristalis nubilipennis . . . . .	432	9	8	Heteroneura albimana . . . . .	721	15	8
Eubolia cervinaria . . . . .	707	15	6	Hilara cilipes . . . . .	130	3	8
Euceros albitarsus . . . . .	660	14	3	Hipparchia Hero . . . . .	205	5	5
Euclidia glyphica . . . . .	659	14	5	———— Arcanius . . . . .	205*	5	5
Eudorea murana . . . . .	170	4	6	Hipparchus smaragdarius . . . . .	300	7	6
Eulepia cribrum . . . . .	56	2	5	Hippobosca equina . . . . .	421	9	8
Eulophus damicornis . . . . .	133	3	3	Hister 4-maculatus . . . . .	470	10	1
Eumenes atricornis . . . . .	13	1	4	Holoparamesus depressus . . . . .	614	13	2
Eumerus litoralis . . . . .	749	16	8	Homalota dimidiata . . . . .	514	11	1
Eupithecia linariata . . . . .	64	2	6	Hybernia defoliaria . . . . .	703	15	6
Euplocamus mediellus . . . . .	591	13	6	Hybos pilipes . . . . .	661	14	8
Eupteryx ornatipennis . . . . .	640	14	7	Hydaticus cinereus . . . . .	95	2	1
Evania fulvipes . . . . .	257	6	3	Hydræna testacea . . . . .	307	7	1
Eyprepia russula . . . . .	21	1	5	Hydrobius chalconotus . . . . .	243	6	1
Falagria thoracica . . . . .	462	10	1	Hydrocampa stratiotata . . . . .	495	11	6
Fœnus assectator . . . . .	423	9	3	Hydrochus elongatus . . . . .	359	8	1
Forficula borealis . . . . .	560	12	3	Hydrassa pygmæa . . . . .	681	15	7
Formica rufa . . . . .	752	16	4	Hydrometra stagnorum . . . . .	32	1	7
Galeruca viburni . . . . .	371	8	2	Hydrophilus caraboides . . . . .	159	4	1
Galesus fuscipennis . . . . .	341	8	3	Hydroporus Davisii . . . . .	343	8	1
Galleria mellonella . . . . .	587	13	6	Hydropsiche fulvipes . . . . .	601	13	4
Gasterophilus salutiferus . . . . .	146	3	8	Hydrotæa ciliata . . . . .	768	16	8
Gastropacha quercifolia . . . . .	24	1	5	Hydröus piceus . . . . .	239	5	1
Geotrupes lævis . . . . .	266	6	1	Hygrotus decoratus . . . . .	531	12	1
Geranomyia unicolor . . . . .	573	12	8	Hylæus dilatatus . . . . .	373	8	4
Gerris apicalis . . . . .	553	12	7	Hylecætus dermestoides . . . . .	654	14	2
Gibbium scotias . . . . .	342	8	2	Hylesinus scaber . . . . .	522	11	2
Glæa subnigra . . . . .	268	6	5	Hylotoma Stephensii . . . . .	65	2	3
Glyphipteryx Linneella . . . . .	152	4	6	Hylurgus piniperda . . . . .	104	3	2
Gonepteryx rhamni . . . . .	173	4	5	Hypena crassalis . . . . .	288	6	6

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<i>Hypera fasciculosa</i> . . . . .	116	3	2	<i>Macaria liturata</i> . . . . .	132	3	6
<i>Hypogymna monacha</i> . . . . .	767	16	5	<i>Macrocera stigma</i> . . . . .	637	14	8
<i>Hypophlæus bicolor</i> . . . . .	430	9	2	<i>Macrocnema unimaculata</i> . . . . .	486	11	2
<i>Hypulus biflexuosus</i> . . . . .	255	6	2	<i>Macroglossa stellatarum</i> . . . . .	747	16	5
<i>Hyria auroraria</i> . . . . .	523	11	6	<i>Macroplea equiseti</i> . . . . .	318	7	2
<i>Jassus reticulatus</i> . . . . .	636	14	7	<i>Magdalis carbonarius</i> . . . . .	212	5	2
<i>Ibalia cultellator</i> . . . . .	22	1	3	<i>Malachius bispinosus</i> . . . . .	167	4	2
<i>Ichneumon amatorius</i> . . . . .	728	16	3	<i>Masoreus luxatus</i> . . . . .	287	6	1
<i>Ichneumon atropos</i> . . . . .	234	5	3	<i>Medeterus notatus</i> . . . . .	162	4	8
<i>Idiocerus maculipennis</i> . . . . .	733	16	7	<i>Megachile Willughbiella</i> . . . . .	218	5	4
<i>Incurvaria masculella</i> . . . . .	607	13	6	<i>Megatoma serra</i> . . . . .	244	6	2
<i>Ino statices</i> . . . . .	396	9	5	<i>Melandrya canaliculata</i> . . . . .	155	4	2
<i>Ips 4-punctata</i> . . . . .	306	7	1	<i>Melanippe Blomeri</i> . . . . .	416	9	6
<i>Issus coleopratus</i> . . . . .	449	10	7	<i>Melasis buprestoides</i> . . . . .	55	2	2
<i>Lagriä hirta</i> . . . . .	598	13	2	<i>Melecta punctata</i> . . . . .	125	3	4
<i>Lamia nubila</i> . . . . .	172	4	2	<i>Meliana flammea</i> . . . . .	201	5	6
<i>Lamprias cyanocephalus</i> . . . . .	282	6	1	<i>Melitæa Selene</i> . . . . .	386	9	4
<i>Lampronia luzella</i> . . . . .	639	14	6	<i>Mellinus sabulosus</i> . . . . .	580	13	4
<i>Lampronota crenicornis</i> . . . . .	407	9	3	<i>Meloë brevicollis</i> . . . . .	279	6	2
<i>Lampyris noctiluca</i> . . . . .	698	15	2	<i>Melolontha fullo</i> . . . . .	406	9	1
<i>Laphria nigra</i> . . . . .	94	2	8	<i>Melophagus ovinus</i> . . . . .	142	3	8
<i>Larissa imbutata</i> . . . . .	324	7	6	<i>Merodon clavipes</i> . . . . .	98	2	8
<i>Lasiocampa medicaginis</i> . . . . .	181	4	5	<i>Mesochorus sericans</i> . . . . .	464	10	3
<i>Lasioglossum tricingulum</i> . . . . .	448	10	4	<i>Mesoleptus Waltoni</i> . . . . .	644	14	3
<i>Lathrobium terminatum</i> . . . . .	650	14	1	<i>Messala Saundersii</i> . . . . .	581	13	8
<i>Latridius elongatus</i> . . . . .	311	7	2	<i>Methoca ichneumonides</i> . . . . .	329	7	4
<i>Laverna ochraceella</i> . . . . .	735	16	6	<i>Mezium sulcatum</i> . . . . .	232	5	2
<i>Lebia turcica</i> . . . . .	87	2	1	<i>Microdon apiformis</i> . . . . .	70	2	8
<i>Ledra arita</i> . . . . .	676	15	7	<i>Microdus calculator</i> . . . . .	73	2	3
<i>Leia pulchella</i> . . . . .	645	14	8	<i>Microgaster alvearius</i> . . . . .	321	7	3
<i>Leiochiton Readii</i> . . . . .	346	8	1	<i>Micropheplus tesserula</i> . . . . .	204	5	1
<i>Leiodes cinnamomea</i> . . . . .	251	6	1	<i>Milesia speciosa</i> . . . . .	34	1	8
<i>Leiophron apicalis</i> . . . . .	476	10	3	<i>Miltogramma punctata</i> . . . . .	529	11	8
<i>Leistus fulvibarbis</i> . . . . .	176	4	1	<i>Mimesa Shuck.</i> . . . .	25	1	4
<i>Lepidocera Birdella</i> . . . . .	344	8	6	<i>Miris tritici</i> . . . . .	701	15	7
<i>Leptis diadema</i> . . . . .	713	15	8	<i>Miscodera Readii</i> . . . . .	346	8	1
<i>Leptocerus ochraceus</i> . . . . .	57	2	4	<i>Miselia bimaculosa</i> . . . . .	177	4	5
<i>Leptogramma irrorana</i> . . . . .	440	10	6	<i>Molanna angustata</i> . . . . .	716	15	4
<i>Leptomorphus Walkeri</i> . . . . .	365	8	8	<i>Molophilus brevipennis</i> . . . . .	444	10	8
<i>Leptura apicalis</i> . . . . .	362	8	2	<i>Molorchus minor</i> . . . . .	11	1	2
<i>Lesteva Leachii</i> . . . . .	303	7	1	<i>Monochamus sartor</i> . . . . .	219	5	2
<i>dichröus</i> . . . . .	<i>ib.</i>			<i>Mononychus pseudacori</i> . . . . .	292	7	2
<i>Leucania litoralis</i> . . . . .	157	4	5	<i>Mordella abdominalis</i> . . . . .	483	11	2
<i>Libellula rubicunda</i> . . . . .	712	15	4	<i>Musea chloris</i> . . . . .	549	12	8
<i>Licinus depressus</i> . . . . .	75	2	1	<i>Mutilla ephippium</i> . . . . .	77	2	4
<i>Limenitis Camilla</i> . . . . .	124	3	5	<i>Mycetæa hirta</i> . . . . .	502	11	1
<i>Limnophilus elegans</i> . . . . .	488	11	4	<i>Mycetophagus piceus</i> . . . . .	156	4	1
<i>Limnobia ocellaris</i> . . . . .	50	1	8	<i>Mymar pulchellus</i> . . . . .	411	9	3
<i>Lissonota Grav.</i> . . . . .	407	9	3	<i>Myopa fulvipes</i> . . . . .	677	15	8
<i>Lithomia solidaginis</i> . . . . .	683	15	5	<i>Myrmecina Latreillii</i> . . . . .	265	6	4
<i>Lithosia muscerda</i> . . . . .	36	1	5	<i>Nascia ciliaris</i> . . . . .	559	12	6
<i>Livia juncorum</i> . . . . .	492	11	7	<i>Nebria livida</i> . . . . .	6	1	1
<i>Livilla ulicis</i> . . . . .	625	13	7	<i>Necrobia ruficollis</i> . . . . .	350	8	2
<i>Lixus angustatus</i> . . . . .	542	12	2	<i>Necrodes littoralis</i> . . . . .	334	7	1
<i>Lobophora polycommata</i> . . . . .	81	2	6	<i>Necrophorus germanicus</i> . . . . .	71	2	1
<i>Locusta Christi</i> . . . . .	608	13	3	<i>Necydalis minor</i> . . . . .	11	1	2
<i>Lomechusa dentata</i> . . . . .	410	9	1	<i>Neides elegans</i> . . . . .	150	4	7
<i>Lonchoptera flavicauda</i> . . . . .	761	16	8	<i>Nemosoma elongata</i> . . . . .	327	7	2
<i>Lophyrus pini</i> . . . . .	54	2	3	<i>Nemotela nigrinus</i> . . . . .	729	16	8
<i>Lucanus cervus</i> . . . . .	490	11	1	<i>Nepa cinerea</i> . . . . .	700	15	7
<i>Lucina fasciata</i> . . . . .	621	13	8	<i>Nitidula colon</i> . . . . .	675	15	1
<i>Luperus brassicæ</i> . . . . .	370	8	2	<i>Nola monachalis</i> . . . . .	428	9	6
<i>Lycæna dispar</i> . . . . .	12	1	5	<i>Nomada Dalii</i> . . . . .	419	9	4
<i>Lycoperdina bovistæ</i> . . . . .	355	8	2	<i>Nonagria vectis</i> . . . . .	459	10	5
<i>Lycus minutus</i> . . . . .	263	6	2	<i>Nosodendron fasciculare</i> . . . . .	246	6	2
<i>Lyda fasciata</i> . . . . .	381	8	3	<i>Noterus sparsus</i> . . . . .	236	5	1
<i>Lygæus equestris</i> . . . . .	481	10	7	<i>Nothus bipunctatus</i> . . . . .	538	12	2
<i>Lymexylon navale</i> . . . . .	382	8	2	<i>Notiophilus rufipes</i> . . . . .	254	6	1

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Notodonta dromedarius . . .	739	16	5	Philalcea Juliana . . . . .	583	13	6
Notonecta maculata . . . . .	10	1	7	Philanthus androgynus . . .	273	6	4
Nudaria mundana . . . . .	400	9	5	Philonthus marginatus . . .	610	13	1
Nycteribia Latreillii . . . . .	277	6	8	Phlogophora lucipara . . . .	619	13	5
Nyssia zonaria . . . . .	615	13	6	Phora abdominalis . . . . .	437	10	8
Obrium cantharinum . . . . .	91	2	2	Phryganea minor . . . . .	592	13	4
Ochthebius hibernicus . . . .	250	6	1	Phthiria pulicaria . . . . .	521	11	8
Ocyptera brassicaria . . . . .	629	14	8	Phycita pinguis . . . . .	233	5	6
Odacantha melanura . . . . .	227	5	1	Physoscelus <i>St. Farg.</i> . . . .	656	14	4
Odonestis pini . . . . .	7	1	5	Phytomyza lateralis . . . . .	393	9	8
Odontia dentalis . . . . .	563	12	6	Phytosus spinifer . . . . .	718	15	1
Odynerus parietinus . . . . .	137	3	4	Pieris cratægi . . . . .	360	8	5
Ecophora sulphurella . . . . .	408	9	6	Pimpla æthiops . . . . .	214	5	3
Edemera sanguinicollis . . . .	390	9	2	Pipiza biguttata . . . . .	669	14	8
Estrus pictus . . . . .	106	3	8	Pipunculus pratorum . . . . .	757	16	8
Omaseus aterrimus . . . . .	15	1	1	Platycephala planifrons . . . .	725	16	8
Omophlus armeriæ . . . . .	622	13	2	Platycerus caraboides . . . . .	274	6	1
Onthophagus taurus . . . . .	52	2	1	Platygaster Boscii . . . . .	309	7	3
Onthophilus sulcatus . . . . .	220	5	1	Platyptera <i>Meig.</i> . . . .	18	1	8
Oomorplus concolor . . . . .	347	8	2	Platypteryx falcataria . . . .	555	12	6
Opatrum tibiale . . . . .	319	7	2	Platypus cylindrus . . . . .	51	2	2
Opetia lonchopterooides . . . .	489	11	8	Platyrhinus latirostris . . . .	723	16	2
Ophion ventricosus . . . . .	600	13	3	Platystoma seminatiois . . . .	505	11	8
Ophiura lusoria . . . . .	475	10	5	Platyrura flavipes . . . . .	134	3	8
Ophonus germanus . . . . .	191	4	1	Plusia illustris . . . . .	731	16	5
Opilus fasciatus . . . . .	270	6	2	Pœcilus lepidus . . . . .	187	4	1
Orchesia fasciata . . . . .	197	5	2	Pogonus Burrelli . . . . .	47	1	1
Orchestes Waltoni . . . . .	678	15	2	Polia occulta . . . . .	248	6	5
Orygia gonostigma . . . . .	378	8	5	Polistichus fasciolatus . . . .	223	5	1
Ornithomyia fringillina . . . .	585	13	8	Polycentropus irroratus . . . .	544	12	4
Ortalis guttata . . . . .	649	14	8	Polydrusus speciosus . . . . .	278	6	2
Orthosia lunosa . . . . .	237	5	5	Polyommatus <i>Lat.</i> . . . .	12	1	5
Orthotania turionella . . . . .	364	8	6	Pompilus rufipes . . . . .	238	5	4
Oryssus coronatus . . . . .	460	10	3	Pontia Daplidice . . . . .	48	1	5
Osmia parietina . . . . .	222	5	4	Porphyrops Wilsoni . . . . .	541	12	8
Otiorhynchus maurus . . . . .	690	15	2	Porrectaria albicosta . . . . .	687	15	6
Ourapteryx sambucaria . . . . .	508	11	6	Prionus coriarius . . . . .	746	16	2
Oxybelus argentatus . . . . .	480	10	4	Pristomerus vulnerator . . . .	624	13	3
Oxycera Morrisii . . . . .	441	10	8	Proctotrupes areolator . . . .	744	16	3
Oxyporus maxilloso . . . . .	418	9	1	Prostemna guttula . . . . .	684	15	7
Pachygnemina hippocastanaria .	611	13	6	Psammодиус sulcicollis . . . .	258	6	1
Pachygaster Leachii . . . . .	42	1	8	Psen equestris . . . . .	25	1	4
Pachymerus <i>Grav.</i> . . . .	624	13	3	Psithyrus rupestris . . . . .	468	10	4
Pachyrhinus comari . . . . .	558	12	2	Psocus fenestratus . . . . .	648	14	4
Pæderus fuscipes . . . . .	108	3	1	Psodos equestrata . . . . .	424	9	6
Pædisca semifasciana . . . . .	571	12	6	Psyche radiella . . . . .	332	7	5
Pancalia Woodiella . . . . .	304	7	6	Psychoda 6-punctata . . . . .	745	16	8
Panorpa germanica . . . . .	696	15	4	Psylla fraxini . . . . .	565	12	7
Panurgus ursinus . . . . .	101	3	4	Pteromalus <i>Dalm.</i> . . . .	166	4	3
Papilio Podalirius . . . . .	578	13	5	Pterophorus spilodactylus . . .	161	4	6
Paragus sigillatus . . . . .	593	13	8	Pterostichus elongatus . . . . .	196	5	1
Paramecosoma bicolor . . . . .	606	13	2	Ptilophora plumigera . . . . .	328	7	5
Parnus impressus . . . . .	80	2	1	Ptinus 6-punctatus . . . . .	646	14	2
Patrobis alpinus . . . . .	192	4	1	Pulex talpæ . . . . .	114	3	7
Pelophila borealis . . . . .	302	7	1	Pygæra Bucephala . . . . .	530	12	5
Peltastes pini . . . . .	4	1	3	Pyralis cribralis . . . . .	527	11	6
Pemphredon unicolor . . . . .	632	14	4	Pyrausta cingulalis . . . . .	128	3	6
Pentatoma cœrulea . . . . .	20	1	7	Pyrochroa coccinea . . . . .	590	13	2
Penthina Grevillana . . . . .	567	12	6	Pyrrhocoris apterus . . . . .	465	10	7
Penthophera nigricans . . . . .	213	5	5	Quedius lateralis . . . . .	638	14	1
Perilampus pallipes . . . . .	158	4	3	Ranatra linearis . . . . .	281	6	7
Perla cephalotes . . . . .	190	4	4	Raphidia ophiopsis . . . . .	37	1	4
Peronea ruficostana . . . . .	16	1	6	Reduvius . . . . .	453	10	7
Peronecera fuscipennis . . . . .	589	13	8	Rhagio Heyshami . . . . .	705	15	8
Rezomachus Hopei . . . . .	536	12	3	Rhagium inquisitor . . . . .	750	16	2
Phagonia smaragdina . . . . .	427	9	3	Rhamphomyia pennata . . . . .	517	11	8
Phasia speciosa . . . . .	697	15	8	Rhaphium macrocerum . . . . .	568	12	8
Phibalapteryx virgata . . . . .	623	13	6	Rhingia campestris . . . . .	182	4	8

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Rhynchites similis . . . . .	642	14	2	Tasgius rufipes . . . . .	438	10	1
Rhyparochromus maculipennis	612	13	7	Teleas elatior . . . . .	333	7	3
Rhyphus fenestralis . . . . .	102	3	8	Telephorus cyaneus . . . . .	215	5	2
Rhizophagus bipustulatus . . . . .	579	13	2	Tenebrio obscurus . . . . .	331	7	2
Ripiphorus paradoxus . . . . .	19	1	2	Tenthredo cingulata . . . . .	692	15	3
Rogas balteatus . . . . .	512	11	3	Tephritis cornuta . . . . .	241	5	8
Rugilus fragilis . . . . .	168	4	1	Teras excavana . . . . .	699	15	6
Saperda Atkinsoni . . . . .	275	6	2	Tethea octogena . . . . .	272	6	5
Sapromyza litura . . . . .	605	13	8	Tetrotoma ancora . . . . .	123	3	1
Sapyga clavicornis . . . . .	532	12	4	Tetyra fuliginosa . . . . .	685	15	7
Sargus Reaumurii . . . . .	305	7	8	Thanasimus formicarius . . . . .	393	9	2
Saropoda bimaculata . . . . .	361	8	4	Thecla pruni . . . . .	264	6	5
Sarrothrips ramosanus . . . . .	29	1	6	Thera coniferata . . . . .	519	11	6
Sarrotrium muticum . . . . .	314	7	2	Therion amictum . . . . .	736	16	3
Scæva unicolor . . . . .	509	11	8	Thrips dispar . . . . .	748	16	7
Scaphidium 4-maculatum . . . . .	379	8	1	Throsacus obtusus . . . . .	163	4	2
Scatophaga scybalaria . . . . .	405	9	8	Thyatira batis . . . . .	72	2	5
Scelio rugosulus . . . . .	325	7	3	Thymalus limbatus . . . . .	39	1	1
Scenopinus rugosus . . . . .	609	13	8	Tillus unifasciatus . . . . .	267	6	2
Schizocerus pallipes . . . . .	58	2	3	Tinea corticella . . . . .	511	11	6
Sciophila sylvatica . . . . .	641	14	8	Tingis oxyacanthæ . . . . .	741	16	7
Scolobates vesparum . . . . .	198	5	3	Tiphia minuta . . . . .	664	14	4
Scolytus destructor . . . . .	43	1	2	Tipula longicornis . . . . .	493	11	8
Scopelosoma satellitia . . . . .	635	14	5	Tortrix galiana . . . . .	763	16	6
Scopula longipedalis . . . . .	312	7	6	Trachea atriplicis . . . . .	431	9	5
Sepsis annulipes . . . . .	245	6	8	Trachys minuta . . . . .	686	15	2
Serrocera pectinatus . . . . .	375	8	2	Trichiosoma laterale . . . . .	49	1	3
Sesia bombyliiformis . . . . .	40	1	5	Trichius variabilis . . . . .	286	6	1
Siagonium quadricorne . . . . .	23	1	1	Trigonometopus frontalis . . . . .	689	15	8
Silpha opaca . . . . .	742	16	1	Triphæna consequa . . . . .	348	8	5
Simaëthis Myllerana . . . . .	320	7	6	Triplax ænea . . . . .	706	15	1
Simplocaria semistriata . . . . .	335	7	2	Tritoma bipustulatum . . . . .	498	11	1
Simulium trifasciatum . . . . .	765	16	8	Trochilium bembeciforme . . . . .	372	8	5
Sinodendron cylindricum . . . . .	478	10	1	apiforme . . . . .	<i>ib.</i>		
Siona dealbata . . . . .	691	15	6	Trogosita mauritanica . . . . .	734	16	2
Sirex juveneus . . . . .	253	6	3	Trogus atropos . . . . .	234	5	3
Sitaris humeralis . . . . .	340	8	2	Tropidia rufomaculata . . . . .	401	9	8
Smerinthus ocellatus . . . . .	482	11	5	Trox sabulosus . . . . .	574	12	1
Smiera Macleanii . . . . .	472	10	3	Tryphon varitarsus . . . . .	399	9	3
Spalangia nigra . . . . .	740	16	3	Trypoxylon clavicerum . . . . .	652	14	4
Sparasion frontale . . . . .	317	7	3	Typhcea fumata . . . . .	702	15	1
Speranza sylvaria . . . . .	225	5	6	Tyrophaga casei . . . . .	126	3	8
Spercheus emarginatus . . . . .	394	9	1	Uloma fagi . . . . .	363	8	2
Sphæridium 4-maculatum . . . . .	518	11	1	Vanessa Antiope . . . . .	96	2	5
Sphæriestes foveolatus . . . . .	662	14	2	Velia rivulorum . . . . .	2	1	7
Sphæromias albomarginatus . . . . .	285	6	8	Venilia 4-maculata . . . . .	647	14	6
Sphinx carolina . . . . .	195	5	5	Venusia cambrica . . . . .	759	16	6
Spilosoma Walkerii . . . . .	92	2	5	Vespa rufa . . . . .	760	16	4
Spilonota marmorana . . . . .	551	12	6	Volucella infata . . . . .	452	10	8
Staphylinus pubescens . . . . .	758	16	1	Xanthia centrago . . . . .	84	2	5
Stauropus fagi . . . . .	674	15	5	Xyela pusilla . . . . .	30	1	3
Stenocera Walkeri . . . . .	596	13	3	Xylina exoleta . . . . .	256	6	5
Stenus Kirbii . . . . .	164	4	1	Xylonomus pilicornis . . . . .	353	8	3
Steropus concinnus . . . . .	171	4	1	Xylophilus ocellatus . . . . .	299	7	2
æthiops <i>Panz.</i> . . . .	<i>ib.</i>			Xylota bifasciata . . . . .	425	9	8
Stilbia anomalata . . . . .	631	14	5	Yponomeuta echiella . . . . .	412	9	6
Stilpnus dryadum . . . . .	388	9	3	pusiella . . . . .	<i>ib.</i>		
Stomoxys siberita . . . . .	665	14	8	Zabrus obesus . . . . .	183	4	1
Strongylus imperialis . . . . .	339	8	1	Zaræa fasciata . . . . .	97	2	3
Stylops Dalii . . . . .	226	5	2	Zeiraphera hastiana . . . . .	711	15	6
Syntomium nigroæneum . . . . .	228	5	1	Zelee albiditarsus . . . . .	415	9	3
Syrphus lucorum . . . . .	753	16	8	Zerene plumbata . . . . .	643	14	6
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Tachydromia arrogans . . . . .	477	10	8	Zeuzera æsculi . . . . .	722	16	5
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3. Carabus exasperatus . . . . .	446	10	55. Heterocerus obsoletus . . . . .	224	5
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8. Leistus fulvibarbis . . . . .	176	4	58. Elophorus fennicus . . . . .	466	10
9. Brachinus sclopeta . . . . .	554	12	59. Enicocerus Gibsoni . . . . .	291	7
10. Drypta emarginata . . . . .	454	10	60. Ochthebius hibernicus . . . . .	250	6
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15. Lamprias cyanocephalus . . . . .	282	6	64. Hydrophilus caraboides . . . . .	159	4
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18. Clivina collaris . . . . .	175	4	Fam. SPHÆRIDIIDÆ.		
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21. Steropus concinnus . . . . .	171	4	68. Onthophagus taurus . . . . .	52	2
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34. Callistus lunatus . . . . .	180	4	77. Trichius variabilis . . . . .	286	6
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39. Aëpus fulvescens . . . . .	203	5	81. Platycerus caraboides . . . . .	274	6
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90. <i>Mycetæa hirta</i> . . . . .	502	11	107. <i>Staphylinus pubescens</i> . . . . .	758	16
91. <i>Antherophagus similis</i> . . . . .	546	12	108. <i>Tasgius rufipes</i> . . . . .	438	10
92. <i>Cryptophagus populi</i> . . . . .	160	4	109. <i>Quedius lateralis</i> . . . . .	638	14
93. <i>Byturus tomentosus</i> . . . . .	618	13	110. <i>Philonthus marginatus</i> . . . . .	610	13
94. <i>Typhcea fumata</i> . . . . .	702	15	111. <i>Cafius fucicola</i> . . . . .	322	7
Fam. MYCETOPHAGIDÆ.			112. <i>Achenium depressum</i> . . . . .	115	3
95. <i>Mycetophagus piceus</i> . . . . .	156	4	113. <i>Lathrobium terminatum</i> . . . . .	650	14
96. <i>Tetratoma ancora</i> . . . . .	123	3	114. <i>Tachyporus littoreus</i> . . . . .	762	16
Fam. TRITOMIDÆ.			115. <i>Syntomium nigroæneum</i> . . . . .	228	5
97. <i>Triplax ænea</i> . . . . .	706	15	116. <i>Lesteva Leachi</i> . . . . .	303	7
98. <i>Tritoma bipustulatum</i> . . . . .	498	11	117. <i>Siagonium quadricorne</i> . . . . .	23	1
Fam. DIAPERIDÆ.			118. <i>Bledius Skrimshirii</i> . . . . .	143	3
99. <i>Diaperis boleti</i> . . . . .	358	8	119. <i>Oxyporus maxillosus</i> . . . . .	418	9
Fam. ANISOTOMIDÆ.			120. <i>Phytosus spinifer</i> . . . . .	718	15
100. <i>Leiodes cinnamomea</i> . . . . .	251	6	121. <i>Callicerus Spencii</i> . . . . .	443	10
Fam. SCAPHIDIDÆ.			122. <i>Homalota dimidiata</i> . . . . .	514	11
101. <i>Scaphidium 4-maculatum</i> . . . . .	379	8	123. <i>Lomechusa dentata</i> . . . . .	410	9
Fam. CHOLEVIDÆ.			124. <i>Dianõs cœrulescens</i> . . . . .	107	3
102. <i>Catops dissimulator</i> . . . . .	566	12	125. <i>Stenus Kirbii</i> . . . . .	164	4
			126. <i>Pæderus fuscipes</i> . . . . .	108	3
			127. <i>Rugilus fragilis</i> . . . . .	168	4
			128. <i>Falagria thoracica</i> . . . . .	462	10
			Fam. PSELAPHIDÆ.		
			129. <i>Arcopagus puncticollis</i> . . . . .	422	9
			130. <i>Bryaxis sulcicollis</i> . . . . .	315	7

## ORDER I. COLEOPTERA. VOL. II.

Fam. CORTICARIDÆ.			Fam. DIRCÆIDÆ.		
131. <i>Holoparamesus depressus</i> . . . . .	614	13	148. <i>Hypulus biflexuosus</i> . . . . .	255	6
132. <i>Paramecosoma bicolor</i> . . . . .	606	13	149. <i>Hallomenus flexuosus</i> . . . . .	474	10
133. <i>Latridius elongatus</i> . . . . .	311	7	150. <i>Orchesia fasciata</i> . . . . .	197	5
134. <i>Bitoma crenata</i> . . . . .	283	6	Fam. MORDELLIDÆ.		
Fam. CERYLONIDÆ.			151. <i>Mordella abdominalis</i> . . . . .	483	11
135. <i>Rhizophagus bipustulatus</i> . . . . .	579	13	152. <i>Ripiphorus paradoxus</i> . . . . .	19	1
Fam. TENEBRIONIDÆ.			Fam. CANTHARIDÆ.		
136. <i>Hypophlæus bicolor</i> . . . . .	430	9	153. <i>Sitaris humeralis</i> . . . . .	340	8
137. <i>Tenebrio obscurus</i> . . . . .	331	7	154. <i>Edemera sanguinicollis</i> . . . . .	390	9
138. <i>Uloma fagi</i> . . . . .	363	8	155. <i>Nothus bipunctatus</i> . . . . .	538	12
139. <i>Opatrum tibiale</i> . . . . .	319	7	<i>clavipes</i> . . . . .	<i>ib.</i>	
140. <i>Sarrotrium muticum</i> . . . . .	314	7	156. <i>Conopalpus (Zonitis) testaceus</i> . . . . .	112	3
141. <i>Bolitophagus agricola</i> . . . . .	586	13	157. <i>Pyrochroa coccinea</i> . . . . .	590	13
Fam. HELOPIDÆ.			158. <i>Meloe brevicollis</i> . . . . .	279	6
142. <i>Helops pallidus</i> . . . . .	298	7	159. <i>Cantharis vesicatoria</i> . . . . .	658	14
Fam. BLAPSIDÆ.			160. <i>Lymexylon navale</i> . . . . .	382	8
143. <i>Blaps obtusa</i> . . . . .	148	4	161. <i>Hylecœtus dermestoides</i> . . . . .	654	14
Fam. MELANDRYIDÆ.			162. <i>Anthicus tibialis</i> . . . . .	714	15
144. <i>Melandrya canaliculata</i> . . . . .	155	4	163. <i>Xylophilus oculatus</i> . . . . .	299	7
Fam. CISTELIDÆ.			Fam. PTINIDÆ.		
145. <i>Omophlus armeriæ</i> . . . . .	622	13	164. <i>Ptinus 6-punctatus</i> . . . . .	646	14
146. <i>Cistela ceramboides</i> . . . . .	594	13	165. <i>Mezium sulcatum</i> . . . . .	232	5
Fam. LAGRIDÆ.			166. <i>Gibbium scotias</i> . . . . .	342	8
147. <i>Lagria hirta</i> . . . . .	598	13	167. <i>Serrocercus pectinatus</i> . . . . .	375	8
			168. <i>Anobium pertinax</i> . . . . .	387	9

	Plate.	Vol.		Plate.	Vol.
Fam. DERMESTIDÆ.			214. <i>Hypera fasciculosa</i> . . . . .	116	3
169. <i>Dermestes lardarius</i> . . . . .	682	15	215. <i>Otiorhynchus maurus</i> . . . . .	690	15
170. <i>Megatoma serra</i> . . . . .	244	6	216. <i>Polydrusus speciosus</i> . . . . .	278	6
171. <i>Attagenus trifasciatus</i> . . . . .	247	6	217. <i>Lixus angustatus</i> . . . . .	542	12
172. <i>Aspidiphorus orbiculatus</i> . . . . .	450	10	218. <i>Magdalis carbonarius</i> . . . . .	212	5
Fam. BYRRHIDÆ.			219. <i>Apion difforme</i> . . . . .	211	5
173. <i>Nosodendron fasciculare</i> . . . . .	246	6	220. <i>Rhynchites similis</i> . . . . .	642	14
174. <i>Oomorplus concolor</i> . . . . .	347	8	221. <i>Attelabus curculionoides</i> . . . . .	710	15
175. <i>Simplocaria semistriata</i> . . . . .	335	7	Fam. BRUCHIDÆ.		
176. <i>Byrrhus Dennii</i> . . . . .	135	3	222. <i>Bruchus ater</i> . . . . .	754	16
177. <i>Throscus obtusus</i> . . . . .	163	4	Fam. ANTHRIBIDÆ.		
Fam. BUPRESTIDÆ.			223. <i>Platyrhinus latirostris</i> . . . . .	723	16
178. <i>Trachys minuta</i> . . . . .	686	15	224. <i>Anthrribus albinus</i> . . . . .	726	16
179. <i>Aphanisticus pusillus</i> . . . . .	262	6	Fam. SALPINGIDÆ.		
180. <i>Agrilus chryseis</i> . . . . .	67	2	225. <i>Sphæriestes foveolatus</i> . . . . .	662	14
181. <i>Buprestis nitidula</i> . . . . .	31	1	Fam. TROGOSITIDÆ.		
182. <i>Melasis buprestoides</i> . . . . .	55	2	226. <i>Trogosita mauritanica</i> . . . . .	734	16
Fam. ELATERIDÆ.			Fam. CUCUJIDÆ.		
183. <i>Elater aterrimus</i> . . . . .	694	15	227. <i>Cucujus spartii</i> . . . . .	510	11
Fam. CYPHONIDÆ.			Fam. PRIONIDÆ.		
184. <i>Dascillus cervinus</i> . . . . .	216	5	228. <i>Prionus coriarius</i> . . . . .	746	16
185. <i>Elodes pini</i> . . . . .	602	13	Fam. CERAMBYCIDÆ.		
Fam. LAMPYRIDÆ.			229. <i>Aromia moschata</i> . . . . .	738	16
186. <i>Lycus minutus</i> . . . . .	263	6	230. <i>Monochamus sartor</i> . . . . .	219	5
187. <i>Lampyrïs noctiluca</i> . . . . .	698	15	231. <i>Lamia nubila</i> . . . . .	172	4
Fam. TELEPHORIDÆ.			232. <i>Saperda Atkinsoni</i> . . . . .	275	6
188. <i>Telephorus cyaneus</i> . . . . .	215	5	233. <i>Callidium striatum</i> . . . . .	295	7
Fam. MELYRIDÆ.			234. <i>Clytus 4-punctatus</i> . . . . .	199	5
189. <i>Malachius bispinosus</i> . . . . .	167	4	235. <i>Obrium cantharinum</i> . . . . .	91	2
Fam. CLERIDÆ.			236. <i>Necydalis minor</i> . . . . .	11	1
190. <i>Tillus unifasciatus</i> . . . . .	267	6	<i>Molorchus</i> . . . . .	<i>ib.</i>	
191. <i>Opilus fasciatus</i> . . . . .	270	6	Fam. LEPTURIDÆ.		
192. <i>Thanasimus formicarius</i> . . . . .	398	9	237. <i>Rhagium inquisitor</i> . . . . .	750	16
193. <i>Clerus alvearius</i> . . . . .	44	1	238. <i>Leptura apicalis</i> . . . . .	362	8
194. <i>Necrobia ruficollis</i> . . . . .	350	8	Fam. CRIOCERIDÆ.		
195. <i>Corynetes violaceus</i> . . . . .	351	8	239. <i>Donacia typhæ</i> . . . . .	494	11
Fam. CISIDÆ.			240. <i>Macroplea equiseti</i> . . . . .	318	7
196. <i>Cis bidentatus</i> . . . . .	402	9	241. <i>Crioceris puncticolis</i> . . . . .	323	7
197. <i>Cicones carpini</i> . . . . .	149	4	Fam. CASSIDIDÆ.		
198. <i>Nemosoma elongatum</i> . . . . .	327	7	242. <i>Cassida salicorniæ</i> . . . . .	127	3
199. <i>Apate capucinus</i> . . . . .	271	6	Fam. GALERUCIDÆ.		
Fam. BOSTRICIDÆ.			243. <i>Galeruca viburni</i> . . . . .	371	8
200. <i>Platypus cylindrus</i> . . . . .	51	2	244. <i>Adimonia 4-maculata</i> . . . . .	366	8
201. <i>Scolytus destructor</i> . . . . .	43	1	245. <i>Luperus brassicæ</i> . . . . .	370	8
202. <i>Hylesinus scaber</i> . . . . .	522	11	246. <i>Altica ochripes</i> . . . . .	630	14
203. <i>Hylurgus piniperda</i> . . . . .	104	3	247. <i>Macrocnema unimaculata</i> . . . . .	486	11
Fam. CURCULIONIDÆ.			248. <i>Cardiapus Mathewsii</i> . . . . .	435	10
204. <i>Baris analis</i> . . . . .	766	16	Fam. CHRYSOMELIDÆ.		
205. <i>Cossonus Tardii</i> . . . . .	59	2	249. <i>Clythra tridentata</i> . . . . .	582	13
206. <i>Gymnætron graminis</i> . . . . .	627	14	250. <i>Cryptocephalus bipustulatus</i> . . . . .	35	1
207. <i>Mononychus pseudacori</i> . . . . .	292	7	251. <i>Helodes beceabungæ</i> . . . . .	506	11
208. <i>Centorhynchus geranii</i> . . . . .	670	14	252. <i>Chrysomela adonidis</i> . . . . .	111	3
209. <i>Pachyrhinus comari</i> . . . . .	558	12	253. <i>Cacicula scutellata</i> . . . . .	144	3
210. <i>Acalles roboris</i> . . . . .	550	12	254. <i>Coccinella ocellata</i> . . . . .	208	5
211. <i>Orchestes Waltoni</i> . . . . .	678	15	255. <i>Endomychus coccineus</i> . . . . .	570	12
212. <i>Anthonomus pomorum</i> . . . . .	562	12	256. <i>Lycoperdina bovistæ</i> . . . . .	355	8
213. <i>Eirrhinus æthiops</i> . . . . .	634	14			

## ORDER 2. DERMAPTERA. VOL. III.

	Plate.	Vol.		Plate.	Vol.
Fam. FORFICULIDÆ.					
257. Forficula borealis . . . . .	560	12	295. Cryptus bellosus . . . . .	668	14
ORDER 3. DICTYOPTERA.			296. Agriotypus armatus. . . . .	389	9
Fam. BLATTIDÆ.			297. Pezomachus Hopei . . . . .	536	12
258. Blatta lapponica. . . . .	556	12	298. Mesochorus sericans . . . . .	464	10
ORDER 4. ORTHOPTERA.			299. Lampronota crenicornis . . . . .	407	9
Fam. ACHETIDÆ.			Lissonota Grav. . . . .	<i>ib.</i>	
259. Gryllotalpa vulgaris . . . . .	456	10	300. Pimpla æthiops . . . . .	214	5
260. Acheta sylvestris . . . . .	293	7	301. Peltastes (pini) dentatus . . . . .	4	1
Fam. LOCUSTIDÆ.			302. Euceros albitarsus . . . . .	660	14
261. Acrida Bingleii . . . . .	82	2	303. Banchus Farrani. . . . .	588	13
262. Locusta Christii. . . . .	608	13	304. Therion amictum . . . . .	736	16
263. Acrydium subulatum . . . . .	439	10	Anomalon Grav. . . . .	<i>ib.</i>	
ORDER 5. STREPSIPTERA.			305. Ophion ventricosus. . . . .	600	13
264. Stylops Dalii. . . . .	226	5	306. Pristomerus vulnerator . . . . .	624	13
265. Elenchus Walkerii . . . . .	385	8	Pachymerus Grav. . . . .	<i>ib.</i>	
266. Halictophagus Curtisii. . . . .	433	9	307. Xylonomus pilicornis . . . . .	353	8
ORDER 6. HYMENOPTERA.			Fam. ADSCITIDÆ.		
Fam. TENTHREDINIDÆ.			308. Bracon denigrator . . . . .	69	2
267. Cimbex 10-maculata . . . . .	41	1	309. Bassus calculator . . . . .	73	2
268. Trichiosoma laterale . . . . .	49	1	Microdus Nees. <i>ab</i> <i>Essen.</i> . . . .	<i>ib.</i>	
269. Clavellaria marginata . . . . .	93	2	310. Microgaster alvearius . . . . .	321	7
270. Zarea fasciata . . . . .	97	2	311. Leiophron apicalis . . . . .	476	10
271. Abia nigricornis . . . . .	89	2	312. Zele albiditarsus. . . . .	415	9
272. Lophytus pini . . . . .	54	2	313. Chelonus Wesmaëllii . . . . .	672	14
273. Schizocerus pallipes . . . . .	58	2	314. Rogas balteatus . . . . .	512	11
Cryptus pallipes. . . . .	<i>ib.</i>		315. Hecabolus sulcatus. . . . .	507	11
274. Hylotoma Stephensii . . . . .	65	2	316. Alysia Apii . . . . .	141	3
275. Athalia spinarum . . . . .	617	14	317. Chænon anceps . . . . .	289	6
276. Allantus flavipes. . . . .	764	16	Cælinius Nees. <i>ab</i> <i>Essen.</i> . . . .	<i>ib.</i>	
277. Tenthredo cingulata . . . . .	692	15	318. Aphidius cirsii . . . . .	383	8
278. Emphytus fasciatus. . . . .	436	10	Fam. DIPLOLEPIDÆ or CYNIPIDÆ.		
279. Cæsus septentrionalis. . . . .	17	1	319. Ibalia cultellator . . . . .	22	1
280. Cladius pilicornis . . . . .	457	10	320. Cynips nervosa . . . . .	688	15
281. Lyda fasciata. . . . .	381	8	Fam. PROCTOTRUPIDÆ.		
282. Cephus femoratus . . . . .	301	7	321. Galesus fuscipennis. . . . .	341	8
Fam. XIPHYRIDÆ.			322. Cinetus dorsiger. . . . .	380	8
283. Xyela pusilla. . . . .	30	1	323. Helorus anomalipes . . . . .	403	9
Fam. SIRICIDÆ.			324. Proctotrups areolator. . . . .	744	16
284. Oryssus coronatus . . . . .	460	10	325. Dryinus cursor . . . . .	206	5
285. Sirex juvenecus . . . . .	253	6	326. Bethylus fulvicornis . . . . .	720	15
Fam. EVANIDÆ.			327. Sparasion frontale . . . . .	317	7
286. Evania fulvipes . . . . .	257	6	328. Ceraphron Halidayi . . . . .	249	6
287. Fœnus assectator . . . . .	423	9	329. Teleas elatior. . . . .	333	7
Fam. ICHNEUMONIDÆ.			330. Scelio rugosulus. . . . .	325	7
288. Ichneumon amatorius. . . . .	728	16	331. Platygaster Boscii . . . . .	309	7
289. Stilpnus dryadum . . . . .	388	9	332. Mymar pulchellus . . . . .	411	9
290. Mesoleptus Waltoni . . . . .	644	14	Fam. SPALANGIDÆ.		
291. Tryphon varitarsus . . . . .	399	9	333. Spalangia nigra . . . . .	740	16
292. Anomalon vesparum . . . . .	198	5	Fam. CYNIPIDÆ or CHALCIDIDÆ.		
Scolobates vesparum . . . . .	<i>ib.</i>		334. Eulophus damicornis . . . . .	133	3
293. Trogus atropos . . . . .	234	5	335. Encyrtus vitis . . . . .	395	9
Ichneumon atropos. . . . .	<i>ib.</i>		336. Stenocera Walkeri . . . . .	596	13
294. Alomya victor . . . . .	120	3	337. Cleonymus maculipennis . . . . .	194	4
			338. Colas dispar . . . . .	166	4
			339. Phagonia smaragdina . . . . .	427	9
			340. Smiera Macleanii . . . . .	472	10
			341. Perilampus pallipes. . . . .	158	4
			342. Callimome subterraneus . . . . .	552	12
			343. Decatoma Cooperi . . . . .	345	8



## ORDER 6. HYMENOPTERA. VOL. IV.

	Plate.	Vol.		Plate.	Vol.
Fam. CHRYSIDIDÆ.			380. Anthidium manicatum . . . . .	61	2
344. Cleptes nitidula . . . . .	724	16	381. Osmia parietina . . . . .	222	5
345. Hedychrum ardens . . . . .	38	1	382. Megachile Willughbiella . . . . .	218	5
346. Chrysis fulgida . . . . .	8	1	383. Cœlixys vectis . . . . .	349	8
Fam. FORMICIDÆ.			384. Epeolus variegatus . . . . .	516	11
347. Formica rufa . . . . .	752	16	385. Nomada Dali . . . . .	419	9
348. Myrmecina Latreillii . . . . .	265	6	386. Melecta punctata . . . . .	125	3
Fam. MUTILLIDÆ.			387. Anthophora Haworthana . . . . .	357	8
349. Mutilla ephippium . . . . .	77	2	388. Saropoda bimaculata . . . . .	361	8
350. Methoca ichneumonides . . . . .	329	7	389. Psithyrus rupestris . . . . .	468	10
Fam. SCOLIIDÆ.			390. Bombus ericetorum . . . . .	564	12
351. Tiphia minuta . . . . .	664	14	391. Apis mellifica . . . . .	769	16
Fam. SAPYRIDÆ.			ORDER 7. NEUROPTERA.		
352. Sapyga clavicornis . . . . .	532	12	Fam. LIBELLULIDÆ.		
Fam. POMPILIDÆ.			392. Libellula rubicunda . . . . .	712	15
353. Pompilus rufipes . . . . .	238	5	393. Cordulia Curtisi . . . . .	616	13
354. Ceropales variegatus . . . . .	756	16	394. Agrion rubellum . . . . .	732	16
Fam. SPHEGIDÆ.			Fam. EPHEMERIDÆ.		
355. Ammophila campestris . . . . .	604	13	395. Ephemera cognata . . . . .	708	15
Fam. LARRIDÆ.			396. Baetis dispar . . . . .	484	11
356. Astarta victor . . . . .	261	6	Fam. PANORPIDÆ.		
357. Oxybelus argentatus . . . . .	480	10	397. Panorpa germanica . . . . .	696	15
Fam. CRABRONIDÆ.			398. Boreus hyemalis . . . . .	118	3
358. Trypoxolon clavicerum . . . . .	652	14	Fam. HEMEROBIDÆ.		
359. Crabro subpunctatus . . . . .	680	15	399. Chrysopa abbreviata . . . . .	520	11
360. Rhopalum tibiale . . . . .	656	14	400. Hemerobius fimbriatus . . . . .	202	5
361. Diodontus gracilis . . . . .	496	11	Fam. PSOCIDÆ.		
362. Pemphredon unicolor . . . . .	632	14	401. Coniopteryx psociformis . . . . .	528	11
363. Mellinus sabulosus . . . . .	580	13	402. Psocus fenestratus . . . . .	648	14
364. Alyson Kennedii . . . . .	584	13	Fam. RAPHDIDÆ.		
365. Gorytes bicinctus . . . . .	524	11	403. Raphidia ophiopsis . . . . .	37	1
366. Psen equestris . . . . .	25	1	Fam. PERLIDÆ.		
Fam. CERCERIDÆ.			404. Perla cephalotes . . . . .	190	4
367. Cerceris læta . . . . .	269	6	ORDER 8. TRICHOPTERA.		
368. Philanthus androgynus . . . . .	273	6	Fam. PHRYGANIDÆ.		
Fam. VESPIDÆ.			405. Agrypnia Pagetana . . . . .	540	12
369. Odynerus parietinus . . . . .	137	3	406. Limnephilus elegans . . . . .	488	11
370. Eumenes atricornis . . . . .	13	1	407. Phryganea minor . . . . .	592	13
371. Vespa rufa . . . . .	760	16	Fam. HYDROPSYCHIDÆ.		
Fam. ANDRENIDÆ.			408. Polycentropus irroratus . . . . .	544	12
372. Hylæus dilatatus . . . . .	373	8	409. Hydropsyche fulvipes . . . . .	601	13
373. Colletes fodiens . . . . .	85	2	Fam. LEPTOCERIDÆ.		
374. Dasygaster Swammerdamella . . . . .	367	8	410. Leptocerus ochraceus . . . . .	57	2
375. Andrena Kirbii . . . . .	129	3	411. Molanna angustata . . . . .	716	15
376. Lasioglossum tricingulum . . . . .	448	10	Fam. PSYCHOMIDÆ.		
Halictus . . . . .	ib.		412. Chimarra marginata . . . . .	561	12
Fam. APIDÆ.			Fam. ACENTROPIDÆ.		
377. Panurgus ursinus . . . . .	101	3	413. Acentropus Garnonsii . . . . .	497	11
378. Chelostoma florissomnis . . . . .	628	14			
379. Heriades truncorum . . . . .	504	11			

## ORDER 9. LEPIDOPTERA. VOL. V.

	Plate.	Vol.		Plate.	Vol.
Fam. PAPHILIONIDÆ.			Fam. ARCTIIDÆ.		
414. Papilio Podalirius . . . . .	578	13	457. Orgyia gonostigma . . . . .	378	8
415. Pieris Cratægi . . . . .	360	8	458. Arctia cænosa . . . . .	68	2
416. Gonepteryx Rhamni . . . . .	173	4	459. Arcturus Sparshalli . . . . .	336	7
417. Colias Hyale . . . . .	242	6	460. Spilosoma Walkeri . . . . .	92	2
418. Pontia Daplidice . . . . .	48	1	461. Penthophera nigricans . . . . .	213	5
419. Hipparchia Hero . . . . .	205	5	462. Eyprepia russula . . . . .	21	1
420. ——— Arcanius . . . . .	205*	5	Fam. LITHOSIDÆ.		
421. Vanessa Antiope . . . . .	96	2	463. Eulepia cribrum . . . . .	56	2
422. Apatura Iris . . . . .	338	8	464. Callimorpha jacobææ . . . . .	499	11
423. Limenitis Camilla . . . . .	124	3	465. Deiopeia pulchra . . . . .	169	4
424. Argynnis Aglaia . . . . .	290	7	466. Lithosia muscerda . . . . .	36	1
425. Melitæa Selene . . . . .	386	9	467. Nudaria mundana . . . . .	400	9
426. Hamearis Lucina . . . . .	316	7	468. Psyche radiella . . . . .	332	7
427. Thecla Pruni . . . . .	264	6	Fam. NOCTUIDÆ.		
428. Lycæna dispar . . . . .	12	1	469. Cerapteryx hibernicus . . . . .	451	10
Polyommatus <i>Lat.</i> . . . . .	<i>ib.</i>		470. Agrotis cinerea . . . . .	165	4
Fam. HESPERIDÆ.			471. Caradrina bilinea . . . . .	651	14
429. Hesperia Actæon . . . . .	442	10	472. Orthosia lunosa . . . . .	237	5
Fam. ZYGÆNIDÆ.			473. Glæa subnigra . . . . .	268	6
430. Ino statices . . . . .	396	9	474. Scopelosoma satellitia . . . . .	635	14
431. Zygæna filipendulæ . . . . .	547	12	475. Triphæna conseqna . . . . .	348	8
Fam. SPHINGIDÆ.			476. Xylina exoleta . . . . .	256	6
432. Sesia bombyliiformis . . . . .	40	1	477. Lithomia solidaginis . . . . .	683	15
433. Macroglossa stellatarum . . . . .	747	16	478. Apamea Haworthii . . . . .	260	6
434. Deilephila euphorbiæ . . . . .	3	1	479. Hadena cucubali . . . . .	308	7
435. Daphnis Neri . . . . .	626	14	480. Achætea spreta . . . . .	117	3
436. Sphinx carolina . . . . .	195	5	481. Miselia bimaculosa . . . . .	177	4
437. Acherontia Atropos . . . . .	147	4	482. Trachea atriplicis . . . . .	431	9
438. Smerinthus ocellatus . . . . .	482	11	483. Acronycta salicis . . . . .	136	3
Fam. HEPIALIDÆ.			484. Polia occulta . . . . .	248	6
439. Trochilium bembeciforme . . . . .	372	8	485. Hapalia præcox . . . . .	539	12
——— apiforme . . . . .	<i>ib.</i>		486. Diphthera Orion . . . . .	404	9
440. Ægeria ichneumoniformis . . . . .	53	2	487. Phlogophora lucipara . . . . .	619	13
441. Hepialus sylvinus . . . . .	185	4	488. Thyatira batis . . . . .	72	2
442. Cossus ligniperda . . . . .	60	2	489. Tethea octogena . . . . .	272	6
443. Zenzera Æsculi . . . . .	722	16	490. Xanthia centrago . . . . .	84	2
Fam. BOMBYCIDÆ.			491. Gortyna micæca . . . . .	252	6
444. Stauropus fagi . . . . .	674	15	492. Nonagria vectis . . . . .	459	10
445. Pygæra Bucephala . . . . .	530	12	493. Leucania litoralis . . . . .	157	4
446. Clostera anachoreta . . . . .	715	15	494. Cucullia asteris . . . . .	45	1
447. Notodonta dromedarius . . . . .	739	16	495. Chariclea delphinii . . . . .	76	2
448. Drymonia dodonæa . . . . .	755	16	Fam. PHYTOMETRIDÆ.		
Dimorpha <i>Hüb.</i> . . . . .	<i>ib.</i>		496. Plusia illustris . . . . .	731	16
449. Cerura latifascia . . . . .	193	4	Fam. HEMIGEOMETRIDÆ.		
450. Ptilophora plumigera . . . . .	328	7	497. Heliothis scutosa . . . . .	595	13
451. Endromis versicolor . . . . .	434	10	498. Anarta myrtili . . . . .	145	3
452. Clisiocampa castrensis . . . . .	229	5	499. Acontia catena . . . . .	276	6
453. Lasiocampa medicaginis . . . . .	181	4	500. Erastria ostrina . . . . .	140	3
454. Dendrolimus pini . . . . .	7	1	501. Acosmetia fuscata . . . . .	356	8
Odonestis potatoria . . . . .	<i>ib.</i>		502. Stilbia anomalata . . . . .	631	14
455. Gastropacha quercifolia . . . . .	24	1	503. Ophiura lusoria . . . . .	475	10
456. Hypogymna monacha . . . . .	767	16	504. Catocala elocata . . . . .	217	5
			505. Euclidia glyphica . . . . .	659	14
			506. Brepha notha . . . . .	121	3

## ORDER 9. LEPIDOPTERA. VOL. VI.

Fam. GEOMETRIDÆ.					
507. Psodos equestrata . . . . .	424	9	512. Bupalus favillacearius . . . . .	33	1
508. Nyssia zonaria . . . . .	615	13	513. Aspilates gilvaria . . . . .	467	10
509. Alcis sericearia . . . . .	113	3	514. Hipparchus smaragdarius . . . . .	300	7
510. Cleora cinctaria . . . . .	82	2	515. Ennomos angularia . . . . .	667	14
511. Speranza sylvaria . . . . .	225	5	516. Eubolia cervinaria . . . . .	707	15
			517. Zerynthia latentaria . . . . .	296	7

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518. <i>Venusia cambrica</i> . . . . .	759	16			
519. <i>Ephyra pictaria</i> . . . . .	447	10			
Fam. PHALÆNIDÆ.					
520. <i>Charissa operaria</i> . . . . .	105	3			
521. <i>Boarmia tetragonaria</i> . . . . .	280	6			
522. <i>Hybernaria defoliaria</i> . . . . .	703	15			
523. <i>Pachycnemis hippocastanaria</i>	611	13			
524. <i>Thera coniferata</i> . . . . .	519	11			
525. <i>Lobophora polycommata</i> . . . . .	81	2			
526. <i>Eupithecia linariata</i> . . . . .	64	2			
527. <i>Hyria auroraria</i> . . . . .	523	11			
528. <i>Venilia 4-maculata</i> . . . . .	647	14			
529. <i>Siona dealbata</i> . . . . .	691	15			
530. <i>Abraxas ulmata</i> . . . . .	515	11			
531. <i>Zerene plumbata</i> . . . . .	643	14			
532. <i>Electra albocrenata</i> . . . . .	603	13			
533. <i>Larissa imbutata</i> . . . . .	324	7			
534. <i>Phibalapteryx virgata</i> . . . . .	623	13			
535. <i>Melanippe Blomeri</i> . . . . .	416	9			
536. <i>Acidalia degeneraria</i> . . . . .	384	8			
537. <i>Macaria liturata</i> . . . . .	132	3			
538. <i>Ourapteryx sambucaria</i> . . . . .	508	11			
Fam. FALCARIDÆ.					
539. <i>Platypteryx falcataria</i> . . . . .	555	12			
Fam. TORTRICIDÆ.					
540. <i>Halias Quercana</i> . . . . .	575	12			
541. <i>Tortrix galiana</i> . . . . .	763	16			
542. <i>Amphisa Walkerana</i> . . . . .	209	5			
543. <i>Pædisca semifasciana</i> . . . . .	571	12			
544. <i>Penthina Grevillana</i> . . . . .	567	12			
545. <i>Spilonota marmorana</i> . . . . .	551	12			
546. <i>Zeiraphera hastiana</i> . . . . .	711	15			
547. <i>Anchylopera ustomaculana</i>	376	8			
548. <i>Philalcea Juliana</i> . . . . .	583	13			
549. <i>Carpocapsa Leplastriana</i> . . . . .	352	8			
550. <i>Bactra pauperana</i> . . . . .	599	13			
551. <i>Cnephasia bellana</i> . . . . .	100	3			
552. <i>Orthotænia turionella</i> . . . . .	364	8			
553. <i>Cochylis rupicola</i> . . . . .	491	11			
554. <i>Teras excavana</i> . . . . .	699	15			
555. <i>Leptogramma irrorana</i> . . . . .	440	10			
556. <i>Peronea ruficostana</i> . . . . .	16	1			
557. <i>Sarothrips ramosanus</i> . . . . .	29	1			
558. <i>Nola monachalis</i> . . . . .	428	9			
559. <i>Simæthis Myllerana</i> . . . . .	320	7			
Fam. CRAMBIDÆ.					
560. <i>Pyrausta cingulalis</i> . . . . .	128	3			
561. <i>Hydrocampa stratiotata</i> . . . . .	495	11			
562. <i>Scopula longipedalis</i> . . . . .	312	7			
563. <i>Odontia dentalis</i> . . . . .	563	12			
Fam. PYRALIDÆ.					
564. <i>Pyralis cribralis</i> . . . . .	527	11			
565. <i>Hypena crassalis</i> . . . . .	288	6			
Fam. CRAMBIDÆ.					
566. <i>Asopia pictalis</i> . . . . .	503	11			
567. <i>Aglossa Streatfieldii</i> . . . . .	455	10			
568. <i>Galleria mellonella</i> . . . . .	587	13			
569. <i>Meliana flammea</i> . . . . .	201	5			
570. <i>Chilo lanceolellus</i> . . . . .	727	16			
571. <i>Harpipterix scabrella</i> . . . . .	535	12			
572. <i>Nascia ciliaris</i> . . . . .	559	12			
573. <i>Crambus radiellus</i> . . . . .	109	3			
574. <i>Phycita pinguis</i> . . . . .	233	5			
575. <i>Eudorea murana</i> . . . . .	170	4			
Fam. TINEIDÆ.					
576. <i>Diurna novembris</i> . . . . .	743	16			
577. <i>Cochleophasia tessellea</i> . . . . .	487	11			
578. <i>Adela Frischella</i> . . . . .	463	10			
579. <i>Cecophora sulphurella</i> . . . . .	408	9			
580. <i>Aplota Robertsonella</i> . . . . .	655	14			
581. <i>Depressaria Bluntii</i> . . . . .	221	5			
582. <i>Anacampsis longicornis</i>	189	4			
583. <i>Laverna ochraceella</i> . . . . .	735	16			
584. <i>Chelaria rhomboidella</i> . . . . .	368	8			
585. <i>Cleodora cytisella</i> . . . . .	671	14			
586. <i>Batia lunaris</i> . . . . .	543	12			
587. <i>Porrectaria albicosta</i> . . . . .	687	15			
588. <i>Damophila trifolii</i> . . . . .	391	9			
589. <i>Pancalia Woodiella</i> . . . . .	304	7			
590. <i>Glyphipteryx Linneella</i> . . . . .	152	4			
591. <i>Argyromiges autumnella</i> . . . . .	284	6			
592. <i>Ederesa semitestacella</i> . . . . .	719	5			
593. <i>Yponomeuta echiella</i> . . . . .	412	9			
	<i>pusiella</i>	<i>ib.</i>			
594. <i>Cerostoma annulata</i> . . . . .	420	9			
595. <i>Acrolepia betulella</i> . . . . .	679	15			
596. <i>Euplocamus mediellus</i> . . . . .	591	13			
597. <i>Tinea corticella</i> . . . . .	511	11			
598. <i>Lepidocera Birdella</i> . . . . .	344	8			
599. <i>Incurvaria mascullella</i> . . . . .	607	13			
600. <i>Lampronia luzella</i> . . . . .	639	14			
601. <i>Eriocephala calthella</i> . . . . .	751	16			
602. <i>Gracillaria anastomosis</i> . . . . .	479	10			
603. <i>Chrysocorys scissella</i> . . . . .	663	14			
Fam. PTEROPHORIDÆ.					
604. <i>Adactylus Bennetii</i> . . . . .	471	10			
605. <i>Pterophorus spilodactylus</i> . . . . .	161	4			
Fam. ALUCITIDÆ.					
606. <i>Alucita hexadactyla</i> . . . . .	695	15			

ORDER 10. HOMOPTERA. VOL. VII.

Fam. COCCIDÆ.					
607. <i>Coccus aceris</i> . . . . .	717	15			
Fam. APHIDÆ.					
608. <i>Aphis tilia</i> . . . . .	577	12			
609. <i>Cinara roboris</i> . . . . .	576	12			
ORD. THYSANOPTERA, Hal.					
610. <i>Thrips dispar</i> . . . . .	748	16			
Fam. PSYLLIDÆ.					
611. <i>Livia juncorum</i> . . . . .	492	11			
612. <i>Livilla ulicis</i> . . . . .	625	13			
613. <i>Psylla fraxini</i> . . . . .	565	12			
Fam. TETTIGONIDÆ.					
614. <i>Iassus reticulatus</i> . . . . .	636	44			
615. <i>Idiocerus maculipennis</i> . . . . .	733	16			
616. <i>Eupteryx ornatipennis</i> . . . . .	640	14			

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617. <i>Amblycephalus Germari</i> . . . . .	572	12			
618. <i>Aphrodes sabulicola</i> . . . . .	633	14			
619. <i>Acucephalus tricinctus</i> . . . . .	620	13			
Fam. CERCOPIIDÆ.			Fam. ACANTHIIDÆ.		
620. <i>Cercopis vulnerata</i> . . . . .	461	10			
621. <i>Ledra aurita</i> . . . . .	676	15			
Fam. MEMBRACIDÆ.			Fam. CIMICIDÆ.		
622. <i>Centrotus genistæ</i> . . . . .	313	7	640. <i>Cimex lectularius</i> . . . . .	569	12
Fam. FULGORIDÆ.			Fam. REDUVIIDÆ.		
623. <i>Delphax longipennis</i> . . . . .	657	14	641. <i>Prostemma guttula</i> . . . . .	684	15
624. <i>Asiraca pulchella</i> . . . . .	445	10	642. <i>Coranus subapterus</i> . . . . .	453	10
625. <i>Cixius Dionysii</i> . . . . .	673	14	Fam. CORISIDÆ.		
626. <i>Issus coleoptratus</i> . . . . .	449	10	643. <i>Neides elegans</i> . . . . .	150	4
Fam. CICADIIDÆ.			644. <i>Miris tritici</i> . . . . .	701	15
627. <i>Cicada anglica</i> . . . . .	392	9	645. <i>Harporera Burmeisteri</i> . . . . .	709	15
ORDER 11. HEMIPTERA.			646. <i>Capsus hirtus</i> . . . . .	693	15
Fam. NOTONECTIDÆ.			Fam. COREIDÆ.		
628. <i>Notonecta maculata</i> . . . . .	10	1	647. <i>Rhyarochromus maculipennis</i> . . . . .	612	13
Fam. NEPIDÆ.			648. <i>Pyrrhocoris apterus</i> . . . . .	465	10
629. <i>Nepa cinerea</i> . . . . .	700	15	649. <i>Heterogaster laticeps</i> . . . . .	597	13
630. <i>Ranatra linearis</i> . . . . .	281	6	650. <i>Lygæus equestris</i> . . . . .	481	10
Fam. HYDROMETIDÆ.			651. <i>Corizus hyoscyami</i> . . . . .	481	10
631. <i>Gerris apicalis</i> . . . . .	553	12	651. <i>Alydus calcaratus</i> . . . . .	369	8
632. <i>Velia rivulorum</i> . . . . .	2	1	652. <i>Chorosoma arundinis</i> . . . . .	297	7
633. <i>Hydræssa pygmæa</i> . . . . .	681	15	653. <i>Atractus literatus</i> . . . . .	500	11
634. <i>Hydrometra stagnorum</i> . . . . .	32	1	654. <i>Coreus scapha</i> . . . . .	174	4
Fam. TINGIDÆ.			Fam. PENTATOMIDÆ.		
635. <i>Dictyonota crassicornis</i> . . . . .	154	4	655. <i>Ælia acuminata</i> . . . . .	704	15
636. <i>Tingis oxyacanthæ</i> . . . . .	741	16	656. <i>Acanthosoma hæmorrhoidalis</i> . . . . .	28	1
637. <i>Aradus corticalis</i> . . . . .	230	5	657. <i>Pentatoma cœrulea</i> . . . . .	20	1
638. <i>Aneurus lævis</i> . . . . .	86	2	658. <i>Cydnus dubius</i> . . . . .	74	2
			659. <i>Tetyra fuliginosa</i> . . . . .	685	15
			ORDER 12. APHANIPTERA.		
			660. <i>Pulex talpæ</i> . . . . .	114	3
			661. <i>Ceratopsyllus elongatus</i> . . . . .	417	9
ORDER 13. DIPTERA. VOL. VIII.					
Fam. CULICIDÆ.			684. <i>Simulium trifasciatum</i> . . . . .	765	16
662. <i>Culex guttatus</i> . . . . .	537	12	685. <i>Bibio venosus</i> . . . . .	138	3
663. <i>Anopheles bifurcatus</i> . . . . .	210	5	686. <i>Rhyphus fenestralis</i> . . . . .	102	3
Fam. TIPULIDÆ.			Fam. XYLOPHAGIDÆ.		
664. <i>Chironomus æstivus</i> . . . . .	90	2	687. <i>Beris geniculata</i> . . . . .	337	7
665. <i>Tanytus nebulosus</i> . . . . .	501	11	Fam. TABANIDÆ.		
666. <i>Spheromyia albomarginatus</i> . . . . .	285	6	688. <i>Tabanus alpinus</i> . . . . .	78	2
667. <i>Cecidomyia verna</i> . . . . .	178	4	689. <i>Hæmatopota italica</i> . . . . .	525	11
668. <i>Psychoda 6-punctata</i> . . . . .	745	16	Fam. RHAGIONIDÆ.		
669. <i>Molophilus brevipennis</i> . . . . .	444	10	690. <i>Rhagio Heyshami</i> . . . . .	705	15
670. <i>Erioptera crassipes</i> . . . . .	557	12	691. <i>Leptis diadema</i> . . . . .	713	15
671. <i>Geranomyia unicolor</i> . . . . .	573	12	692. <i>Atherix Ibis</i> . . . . .	26	1
672. <i>Limnobia ocellaris</i> . . . . .	50	1	Fam. ANTHRACIDÆ.		
673. <i>Ctenophora ornata</i> . . . . .	5	1	693. <i>Anthrax ornata</i> . . . . .	9	1
674. <i>Tipula longicornis</i> . . . . .	493	11	Fam. BOMBYLIDÆ.		
675. <i>Dolichocheza sylvicola</i> . . . . .	62	2	694. <i>Bombylius major</i> . . . . .	613	13
676. <i>Peronecera fuscipennis</i> . . . . .	589	13	695. <i>Phthiria pulicaria</i> . . . . .	521	11
677. <i>Dixa nebulosa</i> . . . . .	409	9	Fam. ASILIDÆ.		
678. <i>Messala Saundersii</i> . . . . .	581	13	696. <i>Dasypogon brevirrostris</i> . . . . .	153	4
679. <i>Macrocera stigma</i> . . . . .	637	14	697. <i>Laphria nigra</i> . . . . .	94	2
680. <i>Platyura flavipes</i> . . . . .	134	3			
681. <i>Sciophilha sylvatica</i> . . . . .	641	14			
682. <i>Leia pulchella</i> . . . . .	645	14			
683. <i>Leptomorphus Walkerii</i> . . . . .	365	8			

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698. <i>Asilus germanicus</i> . . . . .	46	1			
Fam. HYBOTIDÆ.			Fam. SCENOPINIDÆ.		
699. <i>Hybos pilipes</i> . . . . .	661	14	734. <i>Scenopinus rugosus</i> . . . . .	609	13
Fam. EMPIDÆ.			Fam. CONOPSIDÆ.		
700. <i>Hilara cilipes</i> . . . . .	130	3	735. <i>Conops macrocephala</i> . . . . .	377	8
701. <i>Empis borealis</i> . . . . .	18	1	736. <i>Myopa fulvipes</i> . . . . .	677	15
<i>Platyptera Meig.</i> . . . . .	<i>ib.</i>		Fam. STOMOXIDÆ.		
<i>Pachymeria Step.</i> . . . . .	<i>ib.</i>		737. <i>Stomoxys siberita</i> . . . . .	665	14
702. <i>Rhamphomyia pennata</i> . . . . .	517	11	Fam. CESTRIDÆ.		
Fam. TACHYDROMIDÆ.			738. <i>Cestrus pictus</i> . . . . .	106	3
703. <i>Heleodromia bistigma</i> . . . . .	513	11	739. <i>Gasterophilus salutiferus</i> . . . . .	146	3
704. <i>Tachydromia arrogans</i> . . . . .	477	10	Fam. MUSCIDÆ.		
705. <i>Drapetis aterrima</i> . . . . .	397	9	740. <i>Phasia speciosa</i> . . . . .	697	15
Fam. ACROCERIDÆ.			741. <i>Ocyptera brassicaria</i> . . . . .	629	14
706. <i>Henops marginatus</i> . . . . .	110	3	742. <i>Miltogramma punctata</i> . . . . .	529	11
Fam. STRATIOMYDÆ.			743. <i>Gonia ruficeps</i> . . . . .	533	12
707. <i>Pachygaster Leachii</i> . . . . .	42	1	744. <i>Musca chloris</i> . . . . .	549	12
708. <i>Sargus Reaumuri</i> . . . . .	305	7	745. <i>Hydrotæa ciliata</i> . . . . .	768	16
709. <i>Nemotelus nigrinus</i> . . . . .	729	16	746. <i>Cordylura livens</i> . . . . .	485	11
710. <i>Oxycera Morrisii</i> . . . . .	441	10	747. <i>Scatophaga scybalaria</i> . . . . .	405	9
Fam. SYRPHIDÆ.			748. <i>Sapromyza litura</i> . . . . .	605	13
711. <i>Ceria conopsoides</i> . . . . .	186	4	749. <i>Ortalis guttata</i> . . . . .	649	14
712. <i>Microdon apiformis</i> . . . . .	70	2	750. <i>Sepsis annulipes</i> . . . . .	245	6
713. <i>Chrysotoxum 8-maculatum</i> . . . . .	653	14	751. <i>Tephritis cornuta</i> . . . . .	241	5
714. <i>Paragus sigillatus</i> . . . . .	593	13	752. <i>Platystoma seminationis</i> . . . . .	505	11
715. <i>Baccha elongata</i> . . . . .	737	16	753. <i>Tyrophaga casei</i> . . . . .	126	3
716. <i>Eumerus litoralis</i> . . . . .	749	16	754. <i>Actora æstum</i> . . . . .	66	2
717. <i>Xylota bifasciata</i> . . . . .	425	9	<i>Helcomyza ustulata</i> . . . . .	<i>ib.</i>	
718. <i>Milesia speciosa</i> . . . . .	34	1	755. <i>Lucina fasciata</i> . . . . .	621	13
719. <i>Pipiza biguttata</i> . . . . .	669	14	756. <i>Platycephala planifrons</i> . . . . .	725	16
720. <i>Rhingia campestris</i> . . . . .	182	4	757. <i>Trigonometopus frontalis</i> . . . . .	689	15
721. <i>Syrphus lucorum</i> . . . . .	753	16	758. <i>Helomyza rufa</i> . . . . .	545	12
722. <i>Scæva unicolor</i> . . . . .	509	11	759. <i>Drosophila cameraria</i> . . . . .	473	10
723. <i>Tropidia rufomaculata</i> . . . . .	401	9	760. <i>Ephydra spilota</i> . . . . .	413	9
724. <i>Merodon clavipes</i> . . . . .	98	2	761. <i>Heteroneura albimana</i> . . . . .	721	15
725. <i>Helophilus Ruddii</i> . . . . .	429	9	762. <i>Phytomyza lateralis</i> . . . . .	393	9
726. <i>Eristalis cryptarum</i> . . . . .	432	9	763. <i>Borborus hamatus</i> . . . . .	469	10
<i>nubilipennis</i> . . . . .	<i>ib.</i>		Fam. PHORIDÆ.		
727. <i>Volucella inflata</i> . . . . .	452	10	764. <i>Phora abdominalis</i> . . . . .	437	10
Fam. PIPUNCULIDÆ.			ORDER 14. OMALOPTERA.		
729. <i>Pipunculus pratorum</i> . . . . .	757	16	Fam. HIPPOBOSCIDÆ.		
Fam. DOLICHOPIDÆ.			765. <i>Hippobosca equina</i> . . . . .	421	9
728. <i>Opetia lonchopteroides</i> . . . . .	489	11	766. <i>Hæmobora pallipes</i> . . . . .	14	1
730. <i>Rhaphium macrocerum</i> . . . . .	568	12	767. <i>Ornithomyia fringillina</i> . . . . .	585	13
731. <i>Porphyrops Wilsoni</i> . . . . .	541	12	768. <i>Craterina hirundinis</i> . . . . .	112	3
732. <i>Medeterus notatus</i> . . . . .	162	4	769. <i>Melophagus ovinus</i> . . . . .	142	3
Fam. LONCHOPTERIDÆ.			Fam. NYCTERIBIDÆ.		
733. <i>Lonchoptera flavicauda</i> . . . . .	761	16	770. <i>Nycteribia Latreillii</i> . . . . .	277	6

ENGLISH NAMES OF INSECTS.

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
Ant, red . . . . .	752	16	4	Bacon beetle . . . . .	682	15	2
—, Latreille's . . . . .	265	6	4	Bakehouse beetle . . . . .	368	8	2
—, like beetle . . . . .	398	9	2	Bat louse . . . . .	277	6	8
Aphis, Lime-tree . . . . .	577	12	7	Bee, Dale's . . . . .	419	9	4
—, Oak . . . . .	576	12	7	Feather-footed . . . . .	357	8	4

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
Bee. Flower-sleeping . . . . .	628	14	4	Forest-fly . . . . .	421	9	8
Hiver or honey . . . . .	769	16	4	Froth-fly, beautiful . . . . .	640	14	7
Humble, black-winged . . . . .	468	10	4	———, Burdock . . . . .	572	12	7
Humble heath . . . . .	564	12	4	———, triple-banded . . . . .	620	13	7
leaf-cutting . . . . .	218	5	4	Gall-nut fly . . . . .	688	15	3
Swammerdam's . . . . .	367	8	4	Glow-worm . . . . .	698	15	2
variegated . . . . .	516	11	4	Gnat, long-horned . . . . .	637	14	8
Bee-destroying wasp . . . . .	273	6	4	Golden-eye . . . . .	520	11	4
Bee-hive beetle . . . . .	44	1	2	Grannom, elegant . . . . .	488	11	4
Bees' nest beetle . . . . .	340	8	2	———, fulvous-legged . . . . .	601	13	4
Boat-fly, spotted . . . . .	10	1	7	———, little . . . . .	592	13	4
Bombardier beetle . . . . .	554	12	1	———, many-spotted . . . . .	544	12	4
Bot of the deer . . . . .	106	3	8	———, margined . . . . .	561	12	4
—— Horse . . . . .	146	3	8	———, narrow-winged . . . . .	716	15	4
Breeze-fly . . . . .	78	2	8	———, spurless . . . . .	497	11	4
Bug-destroying Wasp . . . . .	261	6	4	———, Paget's . . . . .	540	12	4
—— Bug . . . . .	453	10	7	Grave-digger beetle . . . . .	71	2	1
Bug, house or bed . . . . .	569	12	7	——— bent-legged . . . . .	334	7	1
——, sickle-horned . . . . .	709	15	7	House-fly, green-checked . . . . .	549	12	8
——, wheat-field . . . . .	701	15	7	Humble-bee Rove-beetle . . . . .	534	12	1
Butterfly . . . . .				Ichneumon, Death's-head . . . . .	234	5	3
Black hair-streak . . . . .	264	6	5	———, Knot-horned . . . . .	660	14	3
Black-veined white . . . . .	360	8	5	———, Pine . . . . .	4	1	3
Brimstone . . . . .	173	4	5	———, short-winged . . . . .	536	12	3
Camberwell beauty . . . . .	96	2	5	———, tooth-thighed . . . . .	624	13	3
Copper, large . . . . .	12	1	5	———, Wasps' . . . . .	198	5	3
Fritillary, dark green . . . . .	290	7	5	Lady-bird . . . . .	208	5	2
——, Duke of Burgundy . . . . .	316	7	5	Locust, Christy's . . . . .	608	13	3
——, Small pearl bor- dered . . . . .	386	9	5	Long-legs, long-horned . . . . .	493	11	8
Green chequered-white . . . . .	48	1	5	Mason-wasp . . . . .	137	3	4
Pale clouded-yellow . . . . .	242	6	5	May-bug, Sutherland . . . . .	526	11	1
Plastead's brown Ringlet . . . . .	205	5	5	May-fly, dissimilar . . . . .	484	11	4
—— tawny do . . . . .	205*	5	5	——, large . . . . .	708	15	4
Purple Emperor . . . . .	338	8	5	Melitta, long-tongued . . . . .	448	10	4
Skipper, Lulworth . . . . .	442	10	5	Mimic-beetle . . . . .	470	10	1
Swallow-tail, scarce . . . . .	578	13	5	Mole-cricket . . . . .	456	10	3
White Admiral . . . . .	124	3	5	Monstrosity, leg of . . . . .	111	3	2
Cardinal beetle . . . . .	590	13	2	Mosquito, white-spotted . . . . .	537	12	8
Celery fly . . . . .	141	3	3	Moth . . . . .			
Cellar-beetle . . . . .	502	11	1	Agrotis-likeness . . . . .	683	15	5
—— fly . . . . .	473	10	8	Angleshades, small . . . . .	619	13	5
Cheese-fly . . . . .	126	3	8	Antler, Irish . . . . .	451	10	5
Chermes of Ash . . . . .	565	12	7	Bark clothes-moth . . . . .	511	11	6
Cicada, New-forest . . . . .	392	9	7	Beautiful Erastria . . . . .	140	3	5
Clegg . . . . .	525	11	8	Belted beauty . . . . .	615	13	6
Cockchaffer of Kent . . . . .	406	9	1	Bentley's marble . . . . .	583	13	6
Cockroach, Lapland . . . . .	556	12	3	Black Arches . . . . .	767	16	5
Comb of Bees . . . . .	769	16	4	—— small . . . . .	428	9	6
Corn-beetle . . . . .	734	16	2	Black-neck . . . . .	475	10	5
Cricket, pigtailed . . . . .	439	10	3	Black-veined . . . . .	691	15	6
—— sylvan . . . . .	293	7	3	Blomer's Phalæna . . . . .	416	9	6
Death-watch, obstinate . . . . .	387	9	2	Boletus Tinea . . . . .	591	13	6
——, saw-horned . . . . .	375	8	2	Bombyx, long-tailed . . . . .	336	7	5
——, Scotch . . . . .	342	8	2	——, Parley . . . . .	213	5	5
——, shining . . . . .	232	5	2	Brixton Beauty . . . . .	276	6	5
——, 6-spotted . . . . .	646	14	2	Brocade, great . . . . .	248	6	5
Demoiselle . . . . .	732	16	4	Broom Tinea . . . . .	671	14	6
Dor-beetle . . . . .	266	6	1	Brush-legged Tortrix . . . . .	29	1	6
—— lunar-headed . . . . .	414	9	1	Buff-tip . . . . .	530	12	5
Dragon-fly, Curtis's . . . . .	616	13	4	Burnet Noctua . . . . .	659	14	5
——, white-faced . . . . .	712	15	4	Bute Charissa . . . . .	105	3	6
Dung-fly, largest . . . . .	405	9	8	Button Tortrix . . . . .	16	1	6
Earwig . . . . .	560	12	3	Campion noctua . . . . .	308	7	5
Elm-destroying beetle . . . . .	43	1	2	Carpet cinereous . . . . .	296	7	6
Flea, Bat's . . . . .	417	9	7	—— Durham . . . . .	603	13	6
——, Mole's . . . . .	114	3	7	—— Kinnordy . . . . .	643	14	6
Flour-beetle . . . . .	331	7	2	Case-bearing Psyche . . . . .	332	7	5
				Chestnut black . . . . .	268	6	5

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
China-marked . . . . .	495	11	6	Peach-blossom . . . . .	72	2	5
Chocolate-tip, scarce . . . . .	715	15	5	Pearl, long-legged . . . . .	312	7	6
Cinnabar . . . . .	499	11	5	Pease blossom . . . . .	76	2	5
Clouded-buff . . . . .	21	1	5	Pine-destroying Tortrix . . . . .	117	3	5
Dagger, November . . . . .	743	16	6	Pine Lappet . . . . .	7	1	5
Dark treble-lines . . . . .	651	14	5	Pinion-spotted yellow . . . . .	647	14	6
Dog's tooth, marbled . . . . .	551	12	5	Plume, Bennet's . . . . .	471	10	6
Dover Belle . . . . .	469	10	6	Wormwood . . . . .	161	4	6
Tortrix . . . . .	352	8	6	twenty-four . . . . .	695	15	6
Durham Phalæna . . . . .	519	11	6	Portland Noctua . . . . .	539	12	5
Tinea . . . . .	679	15	6	Prominent, feathered . . . . .	328	7	5
Eggar, Medick, Bombyx . . . . .	181	4	5	Iron . . . . .	739	16	5
Emerald, Essex . . . . .	300	7	6	Pug, beautiful . . . . .	64	2	6
Ermine, Gromwcll . . . . .	412	9	6	Purple-and-gold . . . . .	523	11	6
Bugloss . . . . .	<i>ib.</i>		6	Purple-shades . . . . .	731	16	5
Fan-foot, marsh . . . . .	527	11	6	Pyralis poplar . . . . .	503	11	6
Feathered diamond-back . . . . .	607	13	6	Ribbon wave . . . . .	384	8	6
Figure of 80 . . . . .	272	6	5	Ringed diamond-back . . . . .	420	9	6
Flame-striped Pyralis . . . . .	201	5	6	Rustic, light-feathered . . . . .	165	4	5
Flat-back, Essex . . . . .	221	5	6	rosy . . . . .	252	6	5
long-horned . . . . .	189	4	6	Rough-wing, sprinkled . . . . .	440	10	6
Footman, red-speckled . . . . .	169	4	5	Satellites . . . . .	635	14	5
false . . . . .	631	14	5	Satin beauty . . . . .	113	3	6
gray-spotted . . . . .	56	2	5	Scollop, gray . . . . .	33	1	6
ten-spotted . . . . .	36	1	5	Scotch dagger . . . . .	136	3	6
Four-spotted Tinea . . . . .	639	14	6	Scotch-gray Eudorea . . . . .	170	4	6
Girdled Cleora . . . . .	88	2	6	Seraphim, Brown . . . . .	81	2	6
Glory of Kent . . . . .	434	10	5	Short-barred-gray . . . . .	571	12	6
Goat . . . . .	60	2	5	Silver-barred-sable . . . . .	128	3	6
Gold 4-spot . . . . .	424	9	6	Snout, beautiful . . . . .	288	6	6
Green silver-lines . . . . .	575	12	6	Spotted drab . . . . .	599	13	6
Haworthian Noctua . . . . .	260	6	5	Square-spot, brindled . . . . .	280	6	5
Honey-comb . . . . .	587	13	6	Starry-brindle . . . . .	563	12	6
Hooktip-pebble . . . . .	555	12	6	Starwort Shark . . . . .	45	1	5
wainscot . . . . .	535	12	6	Swallow-tail . . . . .	508	11	6
Hornet, Sesia . . . . .	372	8	5	Sweet-gale Tortrix . . . . .	763	16	6
lunar . . . . .	<i>ib.</i>		5	Swift, tawny-and-brown . . . . .	185	4	5
Horsechestnut . . . . .	611	13	6	Sword-grass . . . . .	256	6	5
Japan, Frisch's . . . . .	463	10	6	Tabby, Mendip . . . . .	455	10	6
Kitten, broad-barred . . . . .	193	4	5	Tawny-barred-angle . . . . .	132	3	6
Kitten-likeness . . . . .	755	16	5	Testaceous white-back . . . . .	719	15	6
Knot-horn Tabby . . . . .	233	5	6	Thick-horn trefoil . . . . .	391	9	6
Lackey, ground . . . . .	229	5	5	yellow-underwing . . . . .	408	9	6
Lappet . . . . .	24	1	5	Thorn, clouded August . . . . .	667	14	6
Lesser tawny crescent . . . . .	543	12	6	Tinea, autumnal . . . . .	284	6	6
Lilac Tinea . . . . .	479	10	6	pale checkered . . . . .	487	11	6
Linnæus's spangled do . . . . .	152	4	6	Tortrix, chalk-cliff . . . . .	491	11	6
Liverpool feather-horn . . . . .	344	8	6	Lanark . . . . .	209	5	6
Lobster . . . . .	674	15	5	Arthur's Seat . . . . .	100	3	6
Lobster-clawed . . . . .	368	8	6	Treble-bar, dyed . . . . .	324	7	6
Loch Rannoch Geom . . . . .	225	5	6	Vapourer, scarce . . . . .	378	8	5
Tortrix . . . . .	376	8	6	Veneer, Cambridge . . . . .	559	12	6
Long-cloak, Scotch . . . . .	567	12	6	lance-winged . . . . .	727	16	6
Magpie, Yorkshire . . . . .	515	11	6	Underwing, beautiful . . . . .	145	3	5
Mallow . . . . .	707	15	6	Bute yellow . . . . .	348	8	5
Manchester Tinea . . . . .	304	7	6	large red . . . . .	217	5	5
Many-oblique-line . . . . .	623	13	6	light-orange . . . . .	121	3	5
Marbled white-spot . . . . .	356	8	6	lunar . . . . .	237	5	5
Marsh marigold Tinea . . . . .	751	16	6	twin-spotted . . . . .	177	4	5
Marvel du jour, scarce . . . . .	404	9	5	Unicorn, white-edged . . . . .	687	15	6
Mocha, Kent . . . . .	447	10	6	Wainscot, Isle of Wight . . . . .	459	10	5
Mottled-umber . . . . .	703	15	6	Sea-shore . . . . .	157	4	5
Muslin . . . . .	400	9	5	Wanstead-gray . . . . .	655	14	6
Nettletap, Myller's . . . . .	320	7	6	Welch Phalæna . . . . .	759	16	6
Notchwing Tortrix . . . . .	699	15	6	White-barred Tortrix . . . . .	711	15	6
Oblong gold-headed Tinea . . . . .	663	14	6	Whittlesea Arctia . . . . .	68	2	5
Ochreous Laverna . . . . .	735	16	6	Wild Arrach . . . . .	431	9	5
Orange-and-silver ribbon . . . . .	364	8	6	Wood-Leopard . . . . .	722	16	5

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
Wormwood, marbled . . . . .	595	13	5				
Musk beetle . . . . .	738	16	2				
Nigger Caterpillar . . . . .	617	13	3				
Oak-beetle, 8-spotted . . . . .	286	6	1				
Oil-beetle . . . . .	279	6	2				
Pine-feeding beetle . . . . .	104	3	2				
Puff-ball beetle . . . . .	355	8	2				
Raspberry beetle . . . . .	618	13	1				
Sand-wasp, 5-spotted . . . . .	680	15	4				
— stalk-celled . . . . .	604	13	4				
Saw-fly, fir-destroying . . . . .	253	6	3				
— hermaphrodite . . . . .	692	15	3				
— ten-spotted . . . . .	41	1	3				
— Turnip . . . . .	617	13	3				
Scale insect . . . . .	717	15	7				
Scorpion-fly . . . . .	696	15	4				
— water . . . . .	700	15	7				
— linear . . . . .	281	6	7				
Sheep-louse . . . . .	142	3	8				
Shield-beetle . . . . .	127	3	2				
Ship-destroying beetle . . . . .	382	8	2				
Snake's-head-fly . . . . .	37	1	4				
Spanish fly . . . . .	658	14	2				
Sparkler, Epping . . . . .	1	1	1				
Sphinx . . . . .							
Death's head . . . . .	147	4	5				
Eyed hawk-moth . . . . .	482	11	5				
Forester, green . . . . .	396	9	5				
Humming-bird . . . . .	747	16	5				
narrow-bordered bee . . . . .	40	1	5				
Rose-bay . . . . .	626	14	5				
6-belted clear-wing . . . . .	53	2	5				
6-spotted Burnet . . . . .	547	12	5				
spotted Elephant . . . . .	3	1	5				
Tobacco . . . . .	195	5	5				
Springing beetle . . . . .	694	15	2				
Stag-beetle . . . . .	490	11	1				
Stylops Dale's . . . . .	226	5	3				
— Walker's . . . . .	385	8	3				
— Curtis's . . . . .	433	9	3				
Tick-fly, Swallows' . . . . .	122	3	8				
— Yellow-hammer's . . . . .	585	13	8				
Truffle-beetle . . . . .	251	6	1				
Turnip-fly, yellow-legged . . . . .	630	14	2				
Wasp, anchor-faced . . . . .	760	16	4				
Wasps'-nest-beetle . . . . .	19	1	2				
Water-flea-beetle . . . . .	79	2	1				
Weevil Geranium . . . . .	670	14	2				
— Marsh cinquefoil . . . . .	558	12	2				
— Pear and apple . . . . .	562	12	2				
— single-clawed . . . . .	292	7	2				
LARVÆ &c., FIGURED.							
COLEOPTERA.							
Tenebrio obscurus . . . . .	331	7	2				
Clythra . . . . .	582	13	2				
Endomychus coccineus . . . . .	570	12	2				
STREPSIPTERA.							
Stylops, larva and pupa . . . . .	226	5	3				
HYMENOPTERA.							
Athalia spinarum . . . . .	617	13	3				
Croesus septentrionalis . . . . .	17	1	3				
Cladius . . . . .	457	10	3				
Tryphon Parasite? . . . . .	399	9	3				
Zelee ephippium . . . . .	415	9	3				
NEUROPTERA.							
Chrysopa, eggs . . . . .	520	11	4				
Coniopteryx tineiformis . . . . .	528	11	4				
LEPIDOPTERA.							
Papilio Podalirius . . . . .	578	13	5				
Pieris Crataegi . . . . .	360	8	5				
Colias Hyale . . . . .	242	6	5				
Hipparchia Arcanius . . . . .	205*	5	5				
Vanessa Antiopæ . . . . .	96	2	5				
Apatura Iris . . . . .	338	8	5				
Limenitis . . . . .	124	3	5				
Argynnis Aglaia . . . . .	290	7	5				
Melitæa Selene . . . . .	386	9	5				
Hamearis Lucina . . . . .	316	7	5				
Thecla Pruni . . . . .	264	6	5				
Lycaena dispar . . . . .	12	1	5				
Ino Statives . . . . .	396	9	5				
Zygena Filipendulæ . . . . .	547	12	5				
Sesia bombylifformis . . . . .	40	1	5				
Macroglossa Stellatarum . . . . .	747	16	5				
Deilephila Euphorbiæ . . . . .	3	1	5				
Daphne Nerii . . . . .	626	14	5				
Sphinx Carolina . . . . .	195	5	5				
Acherontia Atropos . . . . .	147	4	5				
Smerinthus ocellatus . . . . .	482	11	5				
Cossus ligniperda . . . . .	60	2	5				
Zeuzera Æsculi . . . . .	722	16	5				
Stauropus Fagi . . . . .	674	15	5				
Pygæra Bucephala . . . . .	530	12	5				
Clostera anachoreta . . . . .	715	15	5				
Notodonta dromedarius . . . . .	739	16	5				
Drymonia dodonæa . . . . .	755	16	5				
Ptilophora plumigera . . . . .	328	7	5				
Endromis versicolor . . . . .	434	10	5				
Clisiocampa castrensis . . . . .	229	5	5				
Lasiocampa Medicaginis . . . . .	181	4	5				
Dendrolimus (Odonestis) . . . . .	7	1	5				
Gastropacha quercifolia . . . . .	24	1	5				
Orgyia gonostigma . . . . .	378	8	5				
Arctia cenosa . . . . .	68	2	5				
Callimorpha Jacobææ . . . . .	499	11	5				
Deiopeia pulchra . . . . .	169	4	5				
Nudaria mundana . . . . .	400	9	5				
Psyche radiella . . . . .	332	7	5				
Scopolesoma Satellitia . . . . .	635	14	5				
Xylina exoleta . . . . .	256	6	5				
Lithomia Solidaginis . . . . .	683	15	5				
Hadena Cucubali . . . . .	308	7	5				
Achatea spreta . . . . .	117	3	5				
Miselia bimaculosa . . . . .	177	4	5				
Trachea Atriplicis . . . . .	431	9	5				
Acronycta Salicis . . . . .	136	3	5				
Polia occulta . . . . .	248	6	5				
Hapalia præcox . . . . .	539	12	5				
Diphthera Orion . . . . .	404	9	5				
Phlogophora lucipara . . . . .	619	13	5				
Thyatira Batis . . . . .	72	2	5				
Gortyna micæcea . . . . .	252	6	5				
Cucullia Asteris . . . . .	45	1	5				
Chariclea Delphinii . . . . .	76	2	5				
Plusia illustris . . . . .	731	16	5				
Heliothis scutosa . . . . .	595	13	5				
Anarta Myrtilli . . . . .	145	3	5				
Acosmetia fuscula . . . . .	356	8	5				
Ophiusa lusoria . . . . .	475	10	5				
Euclidia glyphica . . . . .	659	14	5				



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Nyssia zonaria . . . . .	615	13	6	Argyromiges autumnella . . . . .	284	6	6
Aspilates gilvaria . . . . .	467	10	6	Yponomeuta pusiella . . . . .	412	9	6
Ennomos angularia . . . . .	667	14	6	Euplocamus mediellus . . . . .	591	13	6
Eubolia cervinaria . . . . .	707	15	6	Gracillaria anastomosis . . . . .	479	10	6
Hybernia defoliaria . . . . .	703	15	6	Chrysocorys scissella . . . . .	663	14	6
Abraxas Ulmata . . . . .	515	11	6	HOMOPTERA.			
Ourapteryx Sambucaria . . . . .	508	11	6	Coccus Cacti . . . . .	717	15	7
Platypteryx . . . . .	555	12	6	DIPTERA.			
Halias Quercana . . . . .	575	12	6	Drosophila cellaris . . . . .	473	10	8
Orthotænia Turionella . . . . .	364	8	6	OMALOPTERA.			
Hydrocampa Stratiotata . . . . .	495	11	6	Hippobosca Equina . . . . .	421	9	8
Odontia dentalis . . . . .	563	12	6				
Galleria mellonella . . . . .	587	13	6				
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— Pseudo-platanus . . . . .	577	12	7.2	Anthyllis vulneraria . . . . .	330	7	1.4.
Achillea Millefolium . . . . .	19	1	2.22	Antirrhinum Cymbalaria . . . . .	38	1	4.2.
— Ptarmica . . . . .	52	2	1.65	— Elatine . . . . .	543	12	6.80
Acinos vulgaris . . . . .	723	16	2.92	— Linaria . . . . .	64	2	6.20
Aconitum Napellus . . . . .	731	16	5.65	— orontium . . . . .	337	7	8.26
Acorus Calamus . . . . .	716	15	4.65	— spurium . . . . .	158	4	3.85
Actæa spicata . . . . .	654	14	2.23	Apargia hispida . . . . .	480	10	4.14
Actinocarpus Damasonium . . . . .	727	16	6.62	Apium graveolens . . . . .	141	3	3.60
Adonis autumnalis . . . . .	167	4	2.59	Aquilegia vulgaris . . . . .	392	9	7.21
Adoxa Moschatellina . . . . .	97	2	3.14	Arabis hirsuta . . . . .	635	14	5.61 1790
Egopodium Podagraria . . . . .	669	14	8.57	— stricta . . . . .	701	15	7.35
Ethusa Cynapium . . . . .	11	1	2.106	— thaliana . . . . .	146	3	8.77
Agaricus coccineus . . . . .	71	2	1.105	— turrita . . . . .	74	2	7.52
— flavipes? . . . . .	123	3	1.6	Arbutus Uredo . . . . .	597	13	7.43
— plicatilis . . . . .	210	5	8.4	— Uva-ursi . . . . .	555	12	6.32
Agrimonia Eupatoria . . . . .	595	13	5.84	Arctium Lappa <sup>Arct. sp. m. 44</sup> . . . . .	572	12	7.11
Agrostemma Githago . . . . .	61	2	4.37	Arenaria media . . . . .	349	8	4.4.
Agrostis panicea . . . . .	767	16	5	— peplodes . . . . .	223	5	1.14
— vulgaris . . . . .	737	16	8.53	— serpyllifolia . . . . .	333	7	3.70
Aira cespitosa . . . . .	689	15	8.95	— trinervis . . . . .	149	4	2.67
— cristata . . . . .	357	8	4.44	Aristolochia Clematidis . . . . .	501	11	8.4.
— præcox . . . . .	620	13	7.3	Arrhenatherum avenaceum . . . . .	742	16	1.103
Ajuga Chamæpitys . . . . .	537	12	8.1	Artemisia Absinthium . . . . .	161	4	6.99
— reptans . . . . .	139	3	1.37	— maritima . . . . .	229	5	5.36
Alchemilla alpina . . . . .	204	5	1.85	— vulgaris . . . . .	671	14	6.74
— vulgaris . . . . .	185	4	5.46	Arum maculatum . . . . .	607	13	6.43
Alisma Plantago <sup>Alisma officinale vli 34</sup> . . . . .	36	1	5.52	Arundo arenaria . . . . .	297	7	7.87
Allium arenarium . . . . .	697	15	8.78	— Phragmites . . . . .	606	13	2.51 715
— ursinum . . . . .	366	8	2.18	Asparagus officinalis . . . . .	740	16	3.77
Alnus glutinosa . . . . .	703	15	6.14	Asperugo procumbens . . . . .	757	16	8.66
Alopecurus agrestis . . . . .	56	2	5.57	Asperula cynanchica . . . . .	150	4	7.37
— bulbosus . . . . .	534	12	1.106	— odorata . . . . .	184	4	1.37
— pratensis . . . . .	709	15	7.35	Aster Tripolium . . . . .	80	2	1.52
Althæa officinalis . . . . .	707	15	6.16	— Tripolium var. $\beta$ . . . . .	114	3	7.55
Anagallis arvensis . . . . .	75	2	1.36	Astragalus glycyphyllos . . . . .	208	5	2.124
— tenella . . . . .	440	10	6.47	— hypoglottis . . . . .	698	15	2.57
Anchusa sempervirens . . . . .	452	10	8.65	Athamanta Libanotis . . . . .	44	1	2.62
Andromeda polifolia . . . . .	655	14	6.72	Atriplex patula . . . . .	407	9	3.42
Anemone apennina . . . . .	383	8	3.62	— portulacoides . . . . .	453	10	7.36
— nemorosa . . . . .	87	2	1.42	Atropa Belladonna . . . . .	446	10	1.3
— Pulsatilla . . . . .	27	1	1.70	Avena pubescens . . . . .	625	13	7.6
Anethum Foeniculum . . . . .	126	3	8.93	— Ballota nigra . . . . .	487	11	6.71
Angelica sylvestris . . . . .	585	13	8.10	Bartsia Odontites . . . . .	270	6	2.61
Anthemis Cotula . . . . .	26	1	8.21	— viscosa . . . . .	354	8	1.19
— nobilis . . . . .	9	1	8.32	Bellis perennis . . . . .	517	11	8.40
Anthoxanthum odoratum . . . . .	514	11	1.123	Berberis vulgaris . . . . .	378	8	5.44

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Bidens tripartita . . . . .	439	10	3. 7	Chenopodium acutifolium . . . . .	402	9	2. 26
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Boletus subtomentosus . . . . .	156	4	1. 82	— olidum . . . . .	414	9	1. 20
— versicolor . . . . .	39	1	1. 82	Chironia Centaurium . . . . .	238	5	4. 20
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Brassica campestris . . . . .	211	5	2. 1	Chrysanthemum <sup>Chrysanthemum subcreatum III 2</sup> <del>Leucanthemum</del> . . . . .			
— campestris . . . . .	336	7	5. 40	— mum . . . . .	162	4	8. 20
— monensis . . . . .	529	11	8. 50	— segetum . . . . .	335	7	2. 20
— oleracea . . . . .	352	8	6. 43	Chrysocoma Linosyris . . . . .	766	16	2. 14
— Rapa . . . . .	617	13	3. 10	Chrysosplenium oppositifolium . . . . .	110	3	8. 40
Briza media . . . . .	186	4	8. 42	Cichorium Intybus . . . . .	69	2	3. 20
— minor . . . . .	353	8	3. 52	Cineraria integrifolia . . . . .	101	3	4. 34
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— mollis . . . . .	128	3	6. 57	Cistus Helianthum . . . . .	279	6	2. 28
— sylvaticus . . . . .	256	6	5. 66	Cladium mariscus . . . . .	524	11	4. 22
Bryonia dioica . . . . .	686	15	2. 48	Clematis Vitalba . . . . .	342	8	2. 36
Bryum subulatum . . . . .	77	2	4. 6	Clinopodium vulgare . . . . .	304	7	6. 80
Bunias Cakile . . . . .	83	2	1. 35	Cnicus heterophyllus . . . . .	649	14	8. 87
Bunium flexuosum . . . . .	425	9	8. 55	— palustris . . . . .	312	7	6. 56
Bupleurum rotundifolium . . . . .	475	10	5. 90	— pratensis . . . . .	380	8	3. 66
— tenuissimum . . . . .	633	14	7. 12	Cochlearia anglica . . . . .	240	5	1. 66
Butomus umbellatus . . . . .	214	5	3. 43	— danica . . . . .	127	3	2. 12
Buxus sempervirens . . . . .	339	8	1. 56	Colchicum autumnale . . . . .	657	14	7. 20
Calamagrostis epigejos . . . . .	666	14	1. 33	Conferva fluviatilis . . . . .	291	7	1. 20
Callitriche aquatica . . . . .	708	15	4. 52	Comarum palustre . . . . .	558	12	2. 72
Calluna vulgaris . . . . .	145	3	5. 85	Conium maculatum . . . . .	688	15	3. 20
Caltha palustris . . . . .	224	5	1. 55	Convallaria majalis . . . . .	430	9	2. 20
Campanula glomerata . . . . .	85	2	4. 30	— multiflora . . . . .	278	6	2. 80
— hederacea . . . . .	257	6	3. 30	Convolvulus arvensis . . . . .	205	5	5. 20
— hybrida . . . . .	504	11	4. 30	— Soldanella . . . . .	521	11	8. 20
— latifolia . . . . .	699	15	6. 45	Conyza squarrosa . . . . .	277	6	8. 104
— patula . . . . .	351	8	2. 65	Coprinus? . . . . .	334	7	1. 104
— rotundifolia . . . . .	324	7	6. 25	Corallorhiza innata . . . . .	736	16	3. 48
— Trachelium . . . . .	627	14	2. 72	Coriandrum sativum . . . . .	729	16	8. 47
Cardamine hirsuta . . . . .	418	9	1. 116	Cornus sanguinea . . . . .	505	11	8. 90
— impatiens . . . . .	630	14	2. 116	Coronopus Ruellii . . . . .	200	5	1. 40
— pratensis . . . . .	179	4	1. 40	Corrigiola littoralis . . . . .	629	14	8. 72
Carduus acanthoides . . . . .	323	7	2. 10	Corylus Avellana . . . . .	345	8	3. 20
— acaulis . . . . .	206	5	3. 40	Cotyledon Umbilicus . . . . .	478	10	1. 20
— arvensis . . . . .	296	7	6. 10	Crataegus Oxyacantha . . . . .	31	1	2. 20
Carex digitata . . . . .	712	15	4. 40	Crepis Tectorum . . . . .	17	1	3. 20
— divisa . . . . .	706	15	1. 40	Crithmum maritimum . . . . .	174	4	7. 49
— dioica mas . . . . .	381	8	3. 25	Crocus aureus . . . . .	609	13	8. 72
— limosa . . . . .	471	10	6. 87	Cucubalus baccifer . . . . .	761	16	8. 72
— præcox . . . . .	82	2	3. 5	Cuscuta Epithymum . . . . .	464	10	3. 20
— Pseudo-cyperus . . . . .	533	12	8. 8	Cynodon Dactylon . . . . .	728	16	3. 20
— remota . . . . .	672	14	3. 57	Cynoglossum officinale . . . . .	450	10	2. 20
Carlina vulgaris . . . . .	642	14	2. 60	Cynosurus cristatus . . . . .	135	3	2. 46
Carpinus Betulus . . . . .	579	13	2. 85	Cyperus fuscus . . . . .	395	9	3. 74
Carum verticillatum . . . . .	680	15	4. 18	Cypripedium Calceolus . . . . .	416	9	6. 20
Caulis Anthriscus <sup>Carum verticillatum Tioa</sup> . . . . .	14	1	8. 104	Dactylis glomerata . . . . .	694	15	2. 53
— infesta . . . . .	656	14	4. 17	Daphne Laureola . . . . .	368	8	6. 28
— latifolia . . . . .	632	14	4. 16	— Mezereum . . . . .	507	11	3. 59
— nodosa . . . . .	422	9	1. 12	Datura Stramonium . . . . .	673	14	7. 19
Centaurea Calcitrapa . . . . .	676	15	7. 17	Daucus Carota . . . . .	491	11	6. 47
— nigra . . . . .	241	5	8. 85	Delphinium Consolida . . . . .	76	2	5. 82
— scabiosa . . . . .	361	8	4. 45	Dentaria bulbifera . . . . .	144	3	2. 123
Centunculus minimus . . . . .	768	16	8. 95	Dianthus Armeria . . . . .	163	4	2. 47
Cerastium aquaticum . . . . .	10	1	7. 22	— cæsius . . . . .	522	11	2. 72
— arvense . . . . .	254	6	1. 42	Digitalis purpurea . . . . .	468	10	4. 46
— latifolium . . . . .	209	5	6. 32	Digitaria humifusa . . . . .	739	16	5. 34
— viscosum . . . . .	372	8	5. 26	Dipsacus pilosus . . . . .	639	14	6. 94
Ceratophyllum demersum . . . . .	730	16	1. 40	— sylvestris . . . . .	711	15	6. 40
Chaerophyllum sylvestre . . . . .	30	1	3. 70	Doronicum Pardalianchus . . . . .	754	16	2. 92
Chara vulgaris . . . . .	601	13	4. 66	Draba verna . . . . .	122	3	8. 206
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<i>Dryas octopetala</i> . . . . .	644	14	3.34	<i>Glechoma hederacea</i> . . . . .	125	3	4.43
<i>Echium vulgare</i> . . . . .	563	12	6.57	<i>Gnaphalium dioicum</i> . . . . .	645	14	8.21
<i>Elymus arenarius</i> . . . . .	520	11	4.52	— <i>germanicum</i> . . . . .	490	11	1.80
<i>Empetrum nigrum</i> . . . . .	526	11	1.77	— <i>rectum</i> . . . . .	538	12	2.25
<i>Epilobium hirsutum</i> . . . . .	57	2	4.67	<i>Hedera Helix</i> . . . . .	557	12	8.91
— <i>tetragonum</i> . . . . .	113	3	6.51	<i>Hedypnois hirta</i> . . . . .	653	14	8.51
<i>Epipactis grandiflora</i> . . . . .	305	7	8.41	— <i>hispidula</i> . . . . .	480	10	4.14
— <i>Nidus-avis</i> . . . . .	498	11	1.68	<i>Hedysarum Onobrychis</i> . . . . .	88	2	6.4
— <i>palustris</i> . . . . .	527	11	6.58	<i>Helleborus foetidus</i> . . . . .	363	8	2.8
— <i>ovata</i> . . . . .	441	10	8.48	— <i>viridis</i> . . . . .	148	4	2.23
<i>Equisetum arvense</i> . . . . .	318	7	2.11	<i>Heracleum Sphondylium</i> . . . . .	600	13	3.49
<i>Erica cinerea</i> . . . . .	35	1	2.12	<i>Herniaria ciliata</i> . . . . .	745	16	8.7
— <i>Tetralix</i> . . . . .	13	1	4.21	<i>Hesperis inodora</i> . . . . .	435	10	2.115
<i>Erigeron acre</i> . . . . .	417	9	7.57	<i>Hieracium Pilosella</i> . . . . .	532	12	4.9
<i>Eriocaulon septangulare</i> . . . . .	561	12	4.60	— <i>sylvaticum</i> . . . . .	511	11	6.51
<i>Eriophorum angustifolium</i> . . . . .	428	9	6.57	<i>Hippocrepis comosa</i> . . . . .	658	14	2.49
<i>Erodium cicutarium</i> var. . . . .	231	5	1.77	<i>Hippophæe rhamnoides</i> . . . . .	454	10	1.16
<i>Erym hirsutum</i> . . . . .	266	6	1.77	<i>Hippuris vulgaris</i> . . . . .	506	11	2.121
<i>Eryngium maritimum</i> . . . . .	53	2	5.27	<i>Holcus mollis</i> . . . . .	41	1	3.11
<i>Erysimum Alliaria</i> . . . . .	569	12	7.31	<i>Hordeum murinum</i> . . . . .	187	4	1.30
— <i>Barbarea</i> . . . . .	86	2	7.27	<i>Hottonia palustris</i> . . . . .	151	4	1.51
— <i>cheiranthoides</i> . . . . .	20	1	7.57	<i>Humulus Lupulus</i> fem. . . . .	502	11	1.90
— <i>officinale</i> . . . . .	705	15	8.21	<i>Hutchinsia petræa</i> . . . . .	713	15	8.30
<i>Euonymus europæus</i> var. . . . .	194	4	3.87	<i>Hyacinthus non-scriptus</i> . . . . .	49	1	3
<i>Eupatorium cannabinum</i> . . . . .	400	9	5.57	<i>Hydrocharis Morsus-ranæ</i> . . . . .	307	7	1.61
<i>Euphorbia amygdaloides</i> . . . . .	34	1	8.56	<i>Hydrocotyle inundata</i> . . . . .	541	12	8.69
— <i>Paralias</i> . . . . .	3	1	5.21	— <i>vulgaris</i> . . . . .	142	3	8.107
— <i>helioscopia</i> . . . . .	589	13	8.15	<i>Hymenophyllum Tunbridgense</i> . . . . .	346	8	1.20
— <i>Portlandica</i> . . . . .	322	7	1.11	<i>Hyoscyamus niger</i> . . . . .	486	11	2.117
<i>Euphrasia officinalis</i> . . . . .	263	6	2.56	<i>Hypericum Androsæmum</i> . . . . .	545	12	8.96
<i>Exacum filiforme</i> . . . . .	628	14	4.25	— <i>perforatum</i> . . . . .	510	11	2.97
<i>Fagus sylvatica</i> . . . . .	674	15	5.31	— <i>pulchrum</i> . . . . .	496	11	4.18
<i>Fedia auricula</i> . . . . .	668	14	3.27	<i>Hypnum alopecurum</i> . . . . .	111	3	2.122
<i>Festuca rubra</i> var. ? . . . . .	157	4	5.87	— <i>velutinum</i> . . . . .	118	3	4.55
<i>Fragaria sterilis</i> . . . . .	509	11	8.67	<i>Hypochaeris radicata</i> . . . . .	385	8	3.9
<i>Fragaria vesca</i> . . . . .	690	15	2.77	<i>Iberis amara</i> . . . . .	274	6	1.81
<i>Frankænia lævis</i> . . . . .	540	12	4.67	— <i>nudicaulis</i> . . . . .	512	11	3.71
<i>Fraxinus excelsior</i> . . . . .	565	12	7.77	<i>Ilex Aquifolium</i> . . . . .	59	2	2.75
<i>Fritillaria Meleagris</i> . . . . .	326	7	1.37	<i>Illecebrum verticillatum</i> . . . . .	732	16	4.57
<i>Fumaria capreolata</i> . . . . .	427	9	3.67	<i>Impatiens fulva</i> . . . . .	747	16	5.20
— <i>claviculata</i> . . . . .	46	1	8.37	<i>Inula crithmoides</i> . . . . .	243	6	1.65
— <i>officinalis</i> . . . . .	404	9	5.73	— <i>dysenterica</i> . . . . .	682	15	2.38
<i>Funaria hygrometrica</i> . . . . .	143	3	1.17	— <i>Helenium</i> . . . . .	693	15	7.45
<i>Gagea lutea</i> . . . . .	751	16	6.90	— <i>pulicaria</i> . . . . .	198	5	3.36
<i>Galanthus nivalis</i> . . . . .	462	10	1.17	<i>Iris foetidissima</i> . . . . .	131	3	1.82
<i>Galeobdolon luteum</i> . . . . .	178	4	8.87	— <i>Pseudacorus</i> . . . . .	292	7	2.77
<i>Galeopsis Ladanum</i> . . . . .	175	4	1.17	<i>Isatis tinctoria</i> . . . . .	559	12	6.26
— <i>versicolor</i> . . . . .	116	3	2.87	<i>Jasione montana</i> . . . . .	734	16	2.86
<i>Galium cruciatum</i> . . . . .	329	7	4.77	<i>Juncus articulatus</i> . . . . .	369	8	7.46
— <i>palustre</i> ? . . . . .	397	9	8.47	— <i>cœnosus</i> . . . . .	2	1	7.26
— <i>verum</i> . . . . .	317	7	3.77	— <i>effusus</i> . . . . .	525	11	8.28
<i>Genista anglica</i> . . . . .	89	2	3.17	— <i>liniger</i> . . . . .	405	9	8.85
— <i>tinctoria</i> . . . . .	313	7	7.17	<i>Jungermannia epiphylla</i> . . . . .	234	5	3.37
<i>Gentiana Amarella</i> . . . . .	220	5	1.87	<i>Juniperus cominatus</i> mas . . . . .	365	8	8.28
— <i>campestris</i> . . . . .	105	3	6.87	<i>Knappia agrostidea</i> . . . . .	519	11	6.78
— <i>Pneumonanthe</i> . . . . .	281	6	7.27	<i>Knautia arvensis</i> . . . . .	748	16	7.4
— <i>verna</i> . . . . .	444	10	8.87	<i>Lagurus ovatus</i> . . . . .	735	16	6.77 (trabiosa)
<i>Geranium lucidum</i> . . . . .	426	9	1.17	<i>Lamium album</i> . . . . .	756	16	4.11
— <i>phæum</i> . . . . .	670	14	2.77	— <i>purpureum</i> . . . . .	132	3	6.31
— <i>pratense</i> . . . . .	51	2	2.77	<i>Lapsana communis</i> . . . . .	70	2	8.50
— <i>Pyrenaicum</i> . . . . .	188	4	1.37	<i>Lathræa squamaria</i> . . . . .	253	6	3.29
— <i>Robertianum</i> . . . . .	152	4	6.87	<i>Lathyrus Aphaca</i> . . . . .	160	4	1.92
— <i>sanguineum</i> . . . . .	100	3	6.47	— <i>Nissolia</i> . . . . .	267	6	2.60
<i>Geum rivale</i> . . . . .	193	4	5.87	— <i>palustris</i> . . . . .	445	10	7.15
— <i>urbanum</i> . . . . .	271	6	2.87	— <i>pratensis</i> . . . . .	492	11	7.5
<i>Glaucium luteum</i> . . . . .	66	2	8.87	— <i>sylvestris</i> . . . . .	249	6	3.72
— <i>violaceum</i> . . . . .	479	10	6.87		265	6	4.5

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
Leontodon Taraxacum . . . . .	248	6	5.71	Myriophyllum verticillatum . . . . .	497	11	4.70
Lepidium campestre . . . . .	677	15	8.71	Myrrhis odorata . . . . .	624	13	3.50
— latifolium . . . . .	684	15	7.35	Narcissus Pseudo-narcissus . . . . .	98	2	8.62
— ruderale . . . . .	518	11	1.5	Nardus stricta . . . . .	390	9	2.24
Leucojum aestivum . . . . .	108	3	1.5	Narthecium ossifragum . . . . .	115	3	1.112
Lichen parietinus . . . . .	16	1	6.5	Neottia spiralis . . . . .	176	4	1.8
— Prunastri . . . . .	29	1	6.5	Nepeta cataria . . . . .	500	11	7.48
Ligusticum scoticum . . . . .	758	16	1.10	Nitella hyalina . . . . .	484	11	4.53
Ligustrum vulgare . . . . .	409	9	8.16	Nymphæa alba . . . . .	485	11	8.84
Limosella aquatica . . . . .	765	16	8.23	— lutea . . . . .	495	11	6.58
Linnæa borealis . . . . .	762	16	1.11	Enanthe pimpinelloides . . . . .	432	9	8.44
Linum catharticum . . . . .	424	9	6.1	Ononis arvensis . . . . .	332	7	5.55
— perenne . . . . .	55	2	2.5	Onopordum Acanthium . . . . .	741	16	7.20
Listera cordata . . . . .	634	14	2.8	Ophioglossum vulgatum . . . . .	303	7	1.116
Lithospermum arvense . . . . .	331	7	2.7	Ophrys anthropophora (G. Acro) . . . . .	280	6	6.18
— officinale . . . . .	412	9	6.3	— apifera . . . . .	311	7	2.3
Littorella lacustris mas . . . . .	107	3	1.2	— aranifera . . . . .	244	6	2.40
Lobelia Dortmanna . . . . .	203	5	1.3	— Monorchis (G. Morum) . . . . .	237	5	5.59
— urens . . . . .	550	12	2.8	— muscifera (G. may. o. do.) . . . . .	516	11	4.45
Lolium perenne . . . . .	213	5	5.45	Orchis albidia . . . . .	641	14	8.20
Lonicera Caprifolium . . . . .	124	3	5.9	— bifolia (G. Halimæ, G.) . . . . .	233	5	6.68
Lotus corniculatus . . . . .	259	6	1.2	— conopsea (G. Gymnades) . . . . .	268	6	5.60
Luzula campestris (L. monoc) . . . . .	616	13	4.5	— fusca . . . . .	255	6	2.18
Lychnis dioica mas var. alba . . . . .	54	2	3.1	— latifolia . . . . .	423	9	3.31
— var. diurna . . . . .	182	4	8.5	— maculata . . . . .	285	6	8.5
— Flos Cuculi . . . . .	591	13	6.90	— mascula . . . . .	230	5	7.31
Lycoperdon Bovista . . . . .	355	8	2.1	— Morio . . . . .	370	8	2.115
Lycopsis arvensis . . . . .	413	9	8.1	— pyramidalis . . . . .	260	6	5.65
Lycopus europæus . . . . .	461	10	7.1	— tephrosanthos . . . . .	679	15	6.89
Lysimachia nemorum . . . . .	164	4	1.2	— ustulata . . . . .	216	5	2.54
— Nummularia . . . . .	476	10	3.55	— viridis . . . . .	570	12	2.125
— vulgaris . . . . .	250	6	1.6	Origanum vulgare . . . . .	283	5	1.2.4
Lythrum Salicaria . . . . .	289	6	3.4	Ornithogalum nutans . . . . .	481	10	7.44
Malaxis Loeselii . . . . .	582	13	2.1	— umbellatum . . . . .	470	10	1.53
Malva moschata . . . . .	197	5	2.2	Ornithopus perpusillus . . . . .	232	5	2.35
— rotundifolia . . . . .	696	15	4.5	Orobanche carulea . . . . .	382	8	2.30
— sylvestris . . . . .	465	10	7.4	— minor . . . . .	302	7	1.5
Marrubium vulgare . . . . .	753	16	8.5	Orobus tuberosus . . . . .	172	4	2.1
Matricaria Chamomilla . . . . .	78	2	8.2	Osmunda regalis . . . . .	704	15	7.50
Meconopsis cambrica . . . . .	743	16	6.7	Oxalis acetosella . . . . .	300	7	6.8
Medicago lupulina . . . . .	6	1	1.6	Oxyria reniformis . . . . .	714	15	2.22
— maculata . . . . .	695	15	6.10	Papaver Argemone . . . . .	458	10	1.27
— sativa . . . . .	687	15	6.5	— hybridum . . . . .	503	11	6.60
Melampyrum arvense . . . . .	273	6	4.2	— Rhœas . . . . .	276	6	5.86
— cristatum . . . . .	262	6	2.4	Parietaria officinalis . . . . .	387	9	2.1
— pratense . . . . .	225	5	6.5	Paris quadrifolia . . . . .	138	3	8.24
Melica cærulea . . . . .	205*	5	5.7	Parnassia palustris . . . . .	79	2	1.53
— uniflora . . . . .	173	4	5.3	Pastinaca sativa . . . . .	221	5	6.25
Melittis Melissophyllum . . . . .	719	15	6.8	Pedicularis sylvatica . . . . .	451	10	5.56
Mentha hirsuta . . . . .	320	7	6.5	Peltidea canina . . . . .	319	7	2.9
— rotundifolia . . . . .	269	6	4.2	Peplis Portula . . . . .	459	10	5.79
Menyanthes trifoliata . . . . .	294	7	1.5	Petroselinum segetum (G. Sibon) . . . . .	691	15	6.25
Menziesia polifolia . . . . .	574	12	1.2	Peucedanum Silaus . . . . .	549	12	8.22.82
Mercurialis annua . . . . .	218	5	4.3	Peziza aurantia . . . . .	15	1	1.22
— perennis . . . . .	28	1	7.5	Phalaris Arundinacea . . . . .	721	15	8.100
Mespilus Cotoueast . . . . .	129	3	4.3	— canariensis . . . . .	460	10	3.28
— germanicus . . . . .	759	16	6.1	Phallus fetidus, or impudicus . . . . .	469	10	8.101
Millium effusum . . . . .	710	15	2.9	Phleum pratense . . . . .	749	16	8.54
— lendigerum . . . . .	650	14	1.1	Phyteuma orbiculare . . . . .	738	16	2.99
Mnium hornum . . . . .	23	1	1.1	Picris echioides . . . . .	314	7	1.10
Moenchia erecta . . . . .	377	8	8.7	— hieracioides . . . . .	744	16	3.68
Monotropa Hypopithys . . . . .	726	16	2.9	Pimpinella dioica . . . . .	724	16	4.1
Montia fontana . . . . .	456	10	3.2	— saxifraga . . . . .	92	2	5.47
Muscari racemosum . . . . .	583	13	6.2	Pinguicula grandiflora . . . . .	603	13	6.26
Myosotis arvensis . . . . .	169	4	5.5	— lusitanica . . . . .	341	8	3.65
— palustris . . . . .	63	2	1.5	— vulgaris . . . . .	90	2	8.2
Myosurus minimus . . . . .	437	10	8.1	Pinus Abies . . . . .	4	1	3.45
Myrica Gale . . . . .	763	16	6.3	— sylvestris . . . . .	7	1	5.22

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Plantago lanceolata	448	10	4-5	Rubus fruticosus	72	2	5.75
— media	651	14	5.5	— idæus	618	13	1.78
Poa annua	1	1	1.1	— saxatilis	619	13	5.2
— aquatica	566	12	1.1	Rumex Acetosa	396	9	5.22 V.17
— bulbosa	467	10	6.7	— Acetosella	594	13	2.13
— decumbens	239	5	1.6	— pratensis	191	4	1.22
— fluitans	159	4	1.6	Ruppia maritima	466	10	1.58
— rigida	134	3	8.7	Ruscus aculeatus	489	11	8.67
— trivialis	551	12	6.3	Sagina procumbens	584	13	4.21
Polemonium cœruleum	636	14	7.	Sagittaria sagittifolia	700	15	7.23
Polycarpon tetraphyllum	760	16	4.2	Salicornia herbacea	119	3	1.16
Polygala vulgaris	62	2	8.1	Salix Forbyana	96	2	5.8
Polygonum aviculare	5	1	8.1	— repens	613	13	8.
— Bistorta	622	13	2.1	— Sallow	24	1	5.42.70.95
— Fagopyrum	406	9	1.7	—	121	2	5.1.1.11.32
— Hydropiper	431	9	5.6	Salsola Kali	442	10	5.16
— Persicaria	284	6	6.8	Salvia verbenaca	222	5	4.35
— viviparum	652	14	4.5	Sambucus nigra	746	16	2.18
Polyogon Monspelienis	767	16	5.4	Samolus Valerandi	154	4	7.29
Populus Tremula V.1.85	715	15	5.	Sanguisorba officinalis	493	11	8.13
Potamogeton pectinatum	359	8	1	Sanicula europæa	189	4	6.76
Potentilla anserina	227	5	1.1	Saponaria officinalis	722	16	5.30
— reptans	50	1	8.1	Saxifraga aizoides	103	3	1.7
— verna	623	13	6.2	— cernua	171	4	1.21
Poterium Sanguisorba	447	10	6.1	— granulata	84	2	5.77
Prenanthes muralis	391	9	6.8	— hypnoides	192	4	1.24
Primula elatior	282	6	1.	— oppositifolia	683	15	5.64
— farinosa	215	5	2.9	— stellaris	170	4	6.69
— Veris	348	8	5.1	— tridactylites	219	5	2.11.00
— vulgaris	316	7	5.1	— umbrosa	573	12	8.10
Prunella vulgaris	202	5	4.	Scabiosa columbaria	180	4	1.34
Prunus Cerasus	212	5	2.	— succisa	40	1	5.19
— spinosa	81	2	6.1	Scandix Pecten-Veneris	401	9	8.61
Pulmonaria angustifolia	610	13	1.1	Schœnus mariscus	524	11	4.22
— maritima	556	12	3.2	— nigricans	544	12	4.65.11.
Pyrethrum inodorum	393	9	8.1	Scilla autumnalis	586	13	2.
— Parthenium	675	15	1.8	Scirpus fluitans	592	13	4.14.11.2
Pyrola media	93	2	3.	— maritimus	472	10	3.24
— minor	647	14	6.2	— palustris	599	13	6.44
Pyrus communis	578	13	5.1	— (Isoleptis) setaceus	463	10	6.27
— Malus	91	2	2.1	Scleranthus annuus	299	7	2.53
— torminalis	535	12	6.6	Scrophularia aquatica	32	1	7.28.1.74
Quercus Robur	755	16	5.3	— vernalis	340	8	2.23
Radiola millegrana	358	8	1.6	Scutellaria galericulata	389	9	3.40
Ranunculus aquatilis	95	2	1.	— minor	362	8	2.100
— arvensis	301	7	3.	Sedum acre	379	8	1.101
— auricomus	420	9	6.	— dasyphyllum	410	9	1.123
— bulbosus	408	9	6.3	— villosum	648	14	4.59
— Ficaria	25	1	4.2	Selinum palustre	580	13	4.20
— Lingua	394	9	1.1	Senecio Jacobæa	499	11	5.51
— parvulus	196	5	1.2	— squalidus	477	10	8.42
Raphanus maritimus	588	13	3.4	— viscosus	306	7	1.89
Reseda lutea	48	1	5.5	Serratula tinctoria	183	4	1.33
— Luteola	373	8	4.1	Sesleria cœrulea	661	14	8.37
Rhamnus Frangula	286	6	1.7	Setaria viridis	733	16	7.9
Rhinanthus Cristagalli	449	10	7.2	Sherardia arvensis	388	9	3.33
Rhodiola rosea	637	14	8.1	Silene acaulis	109	3	6.67
Rhynchospora alba	608	13	3.6	— anglica	350	8	2.64
Ribes Grossularia	419	9	4.1	— inflata	308	7	5.66
— nigrum	571	12	6.3	— maritima	287	6	1.29
Rosa canina	374	8	1.7	— nutans	429	9	8.63
— hibernica	596	13	3.8	Sinapis alba	546	12	1.91
— spinosissima	552	12	3.	— nigra	764	16	3.20
Rottholia incurvata	554	12	1.9	Sison Amomum	94	2	8.35
Rubia peregrina	327	7	2.8	Sisymbrium Nasturtium	201	5	6.60
Rubus cœsius, in fruit	356	8	5.	— Sophia	542	12	2.67
— in flower	384	8	6.3	— sylvestre	474	10	2.19
— Chamæmorus	643	14	6.2	— tenuifolium	293	7	3.4

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<i>Sium latifolium</i>	750	16	2.10	<i>Trollius europæus</i>	190	4	4.61
— <i>nodiflorum</i>	531	12	1.48	<i>Tuber cibarium</i>	251	6	1.100
<i>Smyrnum Olusatrum</i>	415	9	3.58	<i>Tulipa sylvestris</i>	513	11	8.41
<i>Solanum Dulcamara</i>	102	3	8.28	<i>Turritis glabra</i>	717	15	7.8
— <i>nigrum</i>	403	9	3.67	<i>Tussilago Farfara</i>	367	8	4.24
<i>Solidago virgaurea</i>	45	1	5.5	— <i>Petasites</i>	604	13	4.12
<i>Sonchus arvensis</i>	593	13	8.5	<i>Typha angustifolia</i>	702	15	1.94
— <i>oleraceus</i>	539	12	5.72	— <i>latifolia</i>	494	11	2.100
<i>Sparganium simplex</i>	436	10	3.12	<i>Ulex europæus</i>	21	1	5.49
<i>Spartina glabra</i>	638	14	1.103	<i>Ulmus campestris?</i>	43	1	2.77
<i>Spartium Scoparium</i>	611	13	6.7	— <i>campestris?</i>	515	11	6.20
<i>Spergula arvensis</i>	692	15	3.27	<i>Urtica dioica</i>	288	6	6.5
— <i>nodosa</i>	399	9	3.28	— <i>pilulifera</i>	536	12	3.47
<i>Spiræa Filipeudule</i>	598	13	2.17	<i>Utricularia minor</i>	343	8	1.45
<i>Splachnum ampullaceum</i>	315	7	1.130	— <i>vulgaris</i>	207	5	1.47
<i>Stachys palustris</i>	247	6	2.44	<i>Vaccinium Myrtillus</i>	73	2	3.53
— <i>sylvatica</i>	65	2	3.8	— <i>Oxyccoccus</i>	523	11	6.1
<i>Statice Armeria</i>	298	7	2.12	— <i>uliginosum</i>	631	14	5.2
— <i>Limonium</i>	47	1	1.25	— <i>Vitis idæa</i>	662	14	2.8
<i>Stellaria graminea</i>	295	7	2.103	<i>Valeriana Calcitrapa</i>	246	6	2.4
— <i>holostea</i>	130	3	8.38	— <i>dentata</i>	106	3	8.7
— <i>media</i>	22	1	3.63	— <i>auricula</i>	668	14	3.2
— <i>nenorum</i>	621	13	8.10	— <i>officinalis</i>	547	12	5.18
— <i>uliginosa</i>	587	13	6.62	<i>Verbascum nigrum</i>	602	13	2.54
<i>Stratiotes aloides</i>	488	11	4.53	— <i>Thapsus</i>	344	8	6.1
<i>Symphitum officinale</i> var.	155	4	2.14	<i>Verbena officinalis</i>	67	2	2.50
<i>Tamarix gallica</i>	685	15	7.54	<i>Veronica agrestis</i>	133	3	3.8
<i>Tamus communis</i>	443	10	1.142	— <i>Beccabunga</i>	236	5	1.47
<i>Tanacetum vulgare</i>	421	9	8.10	— <i>Chamædrys</i>	37	1	4.60
<i>Taxus baccata</i>	18	1	8.30	— <i>hederifolia</i>	615	13	6.2
<i>Teucrium Scorodonia</i>	560	12	3.1	— <i>hybrida</i>	646	14	2.34
<i>Thalictrum flavum</i>	376	8	6.41	— <i>montana</i>	678	15	2.71
— <i>minus</i>	664	14	4.8	— <i>officinalis</i>	660	14	3.4
<i>Thesium linophyllum</i>	228	5	1.116	— <i>scutellata</i>	553	12	7.25
<i>Thlaspi alpestre</i>	665	14	8.75	— <i>serpyllifolia</i>	371	8	2.112
— <i>arvense</i>	614	13	2.1	— <i>triphyllos</i>	567	12	6.38
— <i>Bursa-pastoris</i>	8	1	4.2	— <i>verna</i>	568	12	8.56
— <i>perfoliatum</i>	663	14	6.94	<i>Viburnum Lantana</i>	375	8	2.37
<i>Thymus Calamintha</i>	590	13	2.27	— <i>Opulus</i>	483	11	2.21
— <i>Serpyllum</i>	581	13	8.17	<i>Vicia Cracca</i>	457	10	3.24
<i>Tilia europæa</i>	667	14	6.9	— <i>lathyroides</i>	258	6	1.71
<i>Tillex muscosa</i>	564	12	4.47	— <i>sativa</i>	321	7	3.54
<i>Tormentilla erecta</i>	33	1	6.61	— <i>var. angustifolia</i>	165	4	5.57
<i>Tragopogon porrifolius</i>	433	9	3.10	— <i>sepium</i>	438	10	1.100
— <i>pratensis</i>	275	6	2.102	— <i>sylvatica</i>	455	10	6.20
<i>Trichonema Columnæ</i>	612	13	7.44	<i>Villarsia nymphoides</i>	681	15	7.27
<i>Trientalis europæa</i>	120	3	3.28	<i>Vinca major</i>	626	14	5.22
<i>Trifolium arvense</i>	576	12	7.3	— <i>minor</i>	112	3	2.26
— <i>glomeratum</i>	528	11	4.53	<i>Viola canina</i>	168	4	1.127
— <i>ochroleucum</i>	245	6	8.88	— <i>hirta</i>	386	9	5.12
— <i>officinale</i>	261	6	4.12	— <i>lutea</i> var.	166	4	3.82
— <i>pratense</i>	181	4	5.40	— <i>odorata</i>	42	1	8.45
— <i>subterraneum</i>	659	14	5.92	— <i>palustris</i>	411	9	3.76
<i>Triglochin maritimum</i>	58	2	3.17	— <i>tricolor</i>	605	13	8.86
<i>Trinia glaberrima</i>	724	16	4.1	<i>Viscum album</i> mas.	562	12	2.52
<i>Triticum repens</i> var.	309	7	3.74	<i>Zannichellia palustris</i>	718	15	1.120

## SYSTEMATIC INDEX OF PLANTS.

CLASS 1. MONANDRIA.	Plate.	Vol.	Vol.	CLASS 2. DIANDRIA.	Plate.	Vol.	Vol.
<i>Salicornia herbacea</i>	119	3	1	<i>Ligustrum vulgare</i>	409	9	8
<i>Hippuris vulgaris</i>	506	11	2	<i>Circea lutetiana</i>	140	3	5
<i>Callitriche aquatica</i>	708	15	4				

	Plate.	Vol.	Vol.
Veronica hybrida . . . . .	646	14	2
— officinalis . . . . .	660	14	3
— serpyllifolia . . . . .	371	8	2
Beccabunga . . . . .	236	5	1
— scutellata . . . . .	553	12	7
— montana . . . . .	678	15	2
— Chamædrys . . . . .	37	1	4
— agrestis . . . . .	133	3	3
— hederifolia . . . . .	615	13	6
— triphyllus . . . . .	567	12	6
— verna . . . . .	568	12	8
Pinguicula lusitanica . . . . .	341	8	3
— vulgaris . . . . .	90	2	8
— grandiflora . . . . .	603	13	6
Utricularia vulgaris . . . . .	207	5	1
— minor . . . . .	343	8	1
Verbena officinalis . . . . .	67	2	2
Lycopus europæus . . . . .	461	10	7
Salvia verbenaca . . . . .	222	5	4
Anthoxanthum odoratum . . . . .	514	11	1

CLASS 3. TRIANDRIA.

Valeriana Calcitrapa . . . . .	246	6	2
— officinalis . . . . .	547	12	5
Fedia dentata . . . . .	106	3	8
Crocus aureus . . . . .	609	13	8
Trichonema Columnæ . . . . .	612	13	7
Iris Pseudacorus . . . . .	559	12	6
— fetidissima . . . . .	131	3	1
— in fruit . . . . .	292	7	2
Cladium Mariscus . . . . .	524	11	4
Schænus nigricans . . . . .	544	12	4
Blissinus compressus . . . . .	725	16	8
Rhynchospora alba . . . . .	608	13	3
Cyperus fuscus . . . . .	395	9	3
Eleocharis palustris . . . . .	599	13	6
— fluitans . . . . .	592	13	4
Scirpus setaceus . . . . .	463	10	6
— maritimus . . . . .	472	10	3
Eriophorum angustifolium . . . . .	428	9	6
Nardus Stricta . . . . .	390	9	2
Phalaris canariensis . . . . .	460	10	3
— arundinacea . . . . .	721	15	8
Setaria viridis . . . . .	733	16	7
Cynodon dactylon . . . . .	728	16	3
Phleum pratense . . . . .	749	16	8
Alopecurus pratensis . . . . .	709	15	7
— agrestis . . . . .	56	2	5
— bulbosus . . . . .	534	12	1
Gastridium lendigerum . . . . .	650	14	1
Milium effusum . . . . .	710	15	2
Polygogon Monspeliense . . . . .	767	16	5
Agrostis vulgaris . . . . .	737	16	8
Knappia agrostidea . . . . .	748	16	7
Aira cristata . . . . .	357	8	4
— cæspitosa . . . . .	689	15	8
— præcox . . . . .	620	13	7
Melica cærulea . . . . .	205*	5	5
— uniflora . . . . .	173	4	5
Sesleria cærulea . . . . .	661	14	8
Poa aquatica . . . . .	566	12	1
— fluitans . . . . .	159	4	1
— rigida . . . . .	134	3	8
— bulbosa . . . . .	467	10	6
— trivialis . . . . .	551	12	6
— annua . . . . .	1	1	1
Tridia decumbens . . . . .	239	5	1
Briza minor . . . . .	353	8	3

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Briza media . . . . .	186	4	8
Spartina glabra . . . . .	638	14	1
Dactylis glomerata . . . . .	694	15	2
Cynosurus cristatus . . . . .	135	3	2
Festuca rubra . . . . .	157	4	5
Bromus mollis . . . . .	128	3	6
— diandrus . . . . .	640	14	7
Brachypodium sylvaticum . . . . .	256	6	5
Avena pubescens . . . . .	625	13	7
Lagurus ovatus . . . . .	756	16	4
Arundo Phragmites . . . . .	606	13	2
Calamagrostis epigejos . . . . .	666	14	1
Ammophila arenaria . . . . .	297	7	7
Lolium perenne . . . . .	213	5	5
Rotbollia incurvata . . . . .	554	12	1
Elymus arenarius . . . . .	520	11	4
Hordeum murinum . . . . .	187	4	1
Triticum repens . . . . .	309	7	3
Montia fontana . . . . .	456	10	3
Polycarpon tetraphyllum . . . . .	760	16	4

CLASS 4. TETRANDRIA.

Dipsacus sylvestris . . . . .	711	15	6
— pilosus . . . . .	639	14	6
Knautia arvensis . . . . .	735	16	6
Scabiosa succisa . . . . .	40	1	5
— columbaria . . . . .	180	4	1
Sherardia arvensis . . . . .	388	9	3
Asperula odorata . . . . .	184	4	1
— cynanchica . . . . .	150	4	7
Galium cruciatum . . . . .	329	7	4
— palustre . . . . .	397	9	8
— verum . . . . .	317	7	3
Rubia peregrina . . . . .	327	7	2
Exacum filiforme . . . . .	628	14	4
Plantago media . . . . .	651	14	5
— lanceolata . . . . .	448	10	4
Centunculus minimus . . . . .	768	16	8
Sanguisorba officinalis . . . . .	493	11	8
Cornus sanguinea . . . . .	505	11	8
Alchemilla vulgaris . . . . .	185	4	5
— alpina . . . . .	204	5	1
Cuscuta Epithymum . . . . .	464	10	3
Ilex Aquifolium . . . . .	59	2	2
Potamogeton pectinatum . . . . .	359	8	1
Ruppia maritima . . . . .	466	10	1
Sagina procumbens . . . . .	584	13	4
Mœnchia erecta . . . . .	377	8	8
Tillæa muscosa . . . . .	564	12	4
Radiola millegrana . . . . .	358	8	1

CLASS 5. PENTANDRIA.

Myosotis arvensis . . . . .	169	4	5
— palustris . . . . .	63	2	1
Lithospermum officinale . . . . .	412	9	6
— arvense . . . . .	331	7	2
— maritimum . . . . .	556	12	3
Anchusa sempervirens . . . . .	452	10	8
Cynoglossum officinale . . . . .	450	10	2
Pulmonaria angustifolia . . . . .	610	13	1
Symphytum officinale . . . . .	155	4	2
Borago officinalis . . . . .	137	3	4
Asperugo procumbens . . . . .	757	16	8
Lycopsis arvensis . . . . .	413	9	8
Echium vulgare . . . . .	563	12	6
Primula vulgaris . . . . .	316	7	5
— elatior . . . . .	282	6	1
— veris . . . . .	348	8	5

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<i>Primula farinosa</i> . . . . .	215	5	2	<i>Caucalis latifolia</i> . . . . .	632	14	4
<i>Menyanthes trifoliata</i> . . . . .	294	7	1	<i>Torilis infesta</i> . . . . .	656	14	4
<i>Villarsia nymphaeoides</i> . . . . .	681	15	7	— <i>Anthriscus</i> . . . . .	14	1	8
<i>Hottonia palustris</i> . . . . .	151	4	1	— <i>nodosa</i> . . . . .	422	9	1
<i>Lysimachia vulgaris</i> . . . . .	250	6	1	<i>Daucus Carota</i> . . . . .	491	11	6
— <i>nemorum</i> . . . . .	164	4	1	<i>Bunium flexuosum</i> . . . . .	425	9	8
— <i>nummularia</i> . . . . .	476	10	3	<i>Conium maculatum</i> . . . . .	688	15	3
<i>Anagallis arvensis</i> . . . . .	75	2	1	<i>Peucedanum palustre</i> . . . . .	580	13	4
— <i>tenella</i> . . . . .	440	10	6	<i>Athamanta Libanotis</i> . . . . .	44	1	2
<i>Convolvulus arvensis</i> . . . . .	205	5	5	<i>Silaus pratensis</i> . . . . .	549	12	8
— <i>Soldanella</i> . . . . .	521	11	8	<i>Crithmum maritimum</i> . . . . .	174	4	7
<i>Polemonium caeruleum</i> . . . . .	636	14	7	<i>Heracleum sphondylium</i> . . . . .	600	13	3
<i>Campanula rotundifolia</i> . . . . .	324	7	6	<i>Ligusticum scoticum</i> . . . . .	758	16	1
— <i>patula</i> . . . . .	351	8	2	<i>Angelica sylvestris</i> . . . . .	585	13	8
— <i>latifolia</i> . . . . .	699	15	6	<i>Sium latifolium</i> . . . . .	750	16	2
— <i>Trachelium</i> . . . . .	627	14	2	<i>Carum verticillatum</i> . . . . .	680	15	4
— <i>glomerata</i> . . . . .	85	2	4	<i>Sison Amomum</i> . . . . .	94	2	8
— <i>hybrida</i> . . . . .	504	11	4	<i>Petroselinum segetum</i> . . . . .	691	15	6
— <i>hederacea</i> . . . . .	257	6	3	<i>Oenanthe pimpinelloides</i> . . . . .	432	9	8
<i>Phyteuma orbiculare</i> . . . . .	738	16	2	<i>Coriandrum sativum</i> . . . . .	729	16	8
<i>Jasione montana</i> . . . . .	369	8	7	<i>Myrrhis odorata</i> . . . . .	624	13	3
<i>Lobelia Dortmanna</i> . . . . .	203	5	1	<i>Scandix Pecten Veneris</i> . . . . .	401	9	8
— <i>urens</i> . . . . .	550	12	2	<i>Cherophyllum sylvestre</i> . . . . .	30	1	3
<i>Impatiens fulva</i> . . . . .	747	16	5	<i>Anthriscus</i> . . . . .	<i>ib.</i>		
<i>Viola hirta</i> . . . . .	386	9	5	<i>Pastinaca sativa</i> . . . . .	221	5	6
— <i>odorata</i> . . . . .	42	1	8	<i>Smyrniolum Olusatrum</i> . . . . .	415	9	3
— <i>palustris</i> . . . . .	411	9	3	<i>Anethum Foeniculum</i> . . . . .	126	3	8
— <i>canina</i> . . . . .	168	4	1	<i>Foeniculum vulgare</i> . . . . .	<i>ib.</i>		
— <i>tricolor</i> . . . . .	605	3	8	<i>Pimpinella saxifraga</i> . . . . .	92	2	5
— <i>lutea</i> . . . . .	166	4	3	<i>Trinia glaberrima</i> . . . . .	724	16	4
<i>Verbascum Thapsus</i> . . . . .	344	8	6	<i>Apium graveolens</i> . . . . .	141	3	3
— <i>nigrum</i> . . . . .	602	13	2	<i>Ægopodium Podagraria</i> . . . . .	669	14	8
<i>Datura Stramonium</i> . . . . .	673	14	7	<i>Viburnum Lantana</i> . . . . .	375	8	2
<i>Hyoscyamus niger</i> . . . . .	486	11	2	— <i>Opulus</i> . . . . .	483	11	2
<i>Atropa Belladonna</i> . . . . .	446	10	1	<i>Sambucus nigra</i> . . . . .	746	16	2
<i>Solanum Dulcamara</i> . . . . .	102	3	8	<i>Tamarix gallica</i> . . . . .	685	15	7
— <i>nigrum</i> . . . . .	403	9	3	<i>Corrigiola littoralis</i> . . . . .	629	14	8
<i>Erythraea Centaurium</i> . . . . .	238	5	4	<i>Parnassia palustris</i> . . . . .	79	2	1
<i>Samolus Valerandi</i> . . . . .	154	4	7	<i>Statice Armeria</i> . . . . .	298	7	2
<i>Lonicera Caprifolium</i> . . . . .	124	3	5	— <i>Limonium</i> . . . . .	47	1	1
<i>Rhamnus Frangula</i> . . . . .	286	6	1	<i>Linum perenne</i> . . . . .	55	2	2
<i>Euonymus europæus</i> . . . . .	194	4	3	— <i>catharticum</i> . . . . .	424	9	6
<i>Ribes nigrum</i> . . . . .	571	12	6	<i>Drosera anglica</i> . . . . .	473	10	8
— <i>Grossularia</i> . . . . .	419	9	4	<i>Myosurus minimus</i> . . . . .	437	10	8
<i>Hedera Helix</i> . . . . .	557	12	8				
<i>Illecebrum verticillatum</i> . . . . .	732	16	4	CLASS 6. HEXANDRIA.			
<i>Glaux maritima</i> . . . . .	548	12	7	<i>Galanthus nivalis</i> . . . . .	462	10	1
<i>Thesium limophyllum</i> . . . . .	228	5	1	<i>Leucojum æstivum</i> . . . . .	108	3	1
<i>Vinca minor</i> . . . . .	112	3	2	<i>Narcissus Pseudo-narcissus</i> . . . . .	98	2	8
— <i>major</i> . . . . .	626	14	5	<i>Allium arenarium</i> . . . . .	697	15	8
<i>Herniaria ciliata</i> . . . . .	745	16	8	— <i>ursinum</i> . . . . .	366	8	2
<i>Chenopodium murale</i> . . . . .	398	9	2	<i>Fritillaria Meleagris</i> . . . . .	326	7	1
— <i>olidum</i> . . . . .	414	9	1	<i>Tulipa sylvestris</i> . . . . .	513	11	8
— <i>acutifolium</i> ? . . . . .	402	9	2	<i>Gagea lutea</i> . . . . .	751	16	6
<i>Beta maritima</i> . . . . .	310	7	1	<i>Ornithogalum umbellatum</i> . . . . .	470	10	1
<i>Salsola Kali</i> . . . . .	442	10	5	— <i>nutans</i> . . . . .	481	10	7
<i>Ulmus campestris</i> . . . . .	515	11	6	<i>Scilla autumnalis</i> . . . . .	586	13	2
<i>Gentiana Pneumonanthe</i> . . . . .	281	6	7	<i>Hyacinthus non-scriptus</i> . . . . .	49	1	3
— <i>verna</i> . . . . .	444	10	8	<i>Muscari racemosum</i> . . . . .	583	13	6
— <i>Amarella</i> . . . . .	220	5	1	<i>Narthecium ossifragum</i> . . . . .	115	3	1
— <i>campestris</i> . . . . .	105	3	6	<i>Asparagus officinalis</i> . . . . .	740	16	3
<i>Eryngium maritimum</i> . . . . .	53	2	5	<i>Convallaria majalis</i> . . . . .	430	9	2
<i>Hydrocotyle vulgaris</i> . . . . .	142	3	8	— <i>multiflora</i> . . . . .	278	6	2
<i>Helosciadium inundatum</i> . . . . .	541	12	8	<i>Acorus Calamus</i> . . . . .	716	15	4
— <i>nodiflorum</i> . . . . .	531	12	1	<i>Juncus effusus</i> . . . . .	405	9	8
<i>Sanicula europæa</i> . . . . .	189	4	6	— <i>articulatus</i> . . . . .	2	1	7
<i>Bupleurum rotundifolium</i> . . . . .	475	10	5	— <i>acutiflorus</i> ? . . . . .	<i>ib.</i>		
— <i>tenuissimum</i> . . . . .	633	14	7	— <i>cænosus</i> . . . . .	525	11	8



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<i>Juncus bulbosus</i> . . . . .	525	11	8	<i>Silene acaulis</i> . . . . .	109	3	6
<i>Luzula campestris</i> . . . . .	616	13	4	<i>Stellaria nemorum</i> . . . . .	621	13	8
— <i>liniger</i> . . . . .	234	5	3	— <i>media</i> . . . . .	22	1	3
<i>Berberis vulgaris</i> . . . . .	378	8	5	— <i>holostea</i> . . . . .	130	3	8
<i>Frankenia laevis</i> . . . . .	540	12	4	— <i>graminea</i> . . . . .	295	7	2
<i>Peplis Portula</i> . . . . .	459	10	5	— <i>uliginosa</i> . . . . .	587	13	6
<i>Rumex pratensis</i> . . . . .	191	4	1	<i>Arenaria peploides</i> . . . . .	223	5	1
— <i>Acetosa</i> . . . . .	396	9	5	— <i>trinervis</i> . . . . .	149	4	2
— <i>Acetosella</i> . . . . .	594	13	2	— <i>serpyllifolia</i> . . . . .	333	7	3
<i>Oxyria reniformis</i> . . . . .	714	15	2	— <i>media</i> . . . . .	349	8	4
<i>Triglochin maritimum</i> . . . . .	58	2	3	<i>Cotyledon Umbilicus</i> . . . . .	478	10	1
<i>Colchicum autumnale</i> . . . . .	657	14	1	<i>Sedum villosum</i> . . . . .	648	14	4
<i>Alisma Plantago</i> . . . . .	36	1	5	— <i>acre</i> . . . . .	379	8	1
<i>Actinocarpus Damasonium</i> . . . . .	727	16	6	— <i>dasyphyllum</i> . . . . .	410	9	1
CLASS 7. HEPTANDRIA.				<i>Oxalis Acetosella</i> . . . . .	300	7	6
<i>Trientalis europæa</i> . . . . .	120	3	3	<i>Agrostemma Githago</i> . . . . .	61	2	4
CLASS 8. OCTANDRIA.				<i>Lychnis Flos Cuculi</i> . . . . .	591	13	6
<i>Epilobium hirsutum</i> . . . . .	57	2	4	— <i>dioica</i> . . . . .	54	2	3
— <i>tetragonum</i> . . . . .	113	3	6	— <i>sylvestris</i> . . . . .	182	4	8
<i>Chlora perfoliata</i> . . . . .	153	4	8	<i>Cerastium viscosum</i> . . . . .	372	8	5
<i>Vaccinium Myrtillus</i> . . . . .	73	2	3	— <i>arvense</i> . . . . .	254	6	1
— <i>uliginosum</i> . . . . .	631	14	5	— <i>latifolium</i> . . . . .	209	5	6
— <i>Vitis Idæa</i> . . . . .	662	14	2	— <i>aquaticum</i> . . . . .	10	1	7
— <i>Oxycoccus</i> . . . . .	523	11	6	<i>Spergula arvensis</i> . . . . .	692	15	3
<i>Menziesia polifolia</i> . . . . .	574	12	1	— <i>nodosa</i> . . . . .	399	9	3
<i>Erica Tetralix</i> . . . . .	13	1	4	CLASS 11. DODECAN-			
— <i>cinerea</i> . . . . .	35	1	2	DRIA.			
<i>Calluna vulgaris</i> . . . . .	145	3	5	<i>Lythrum Salicaria</i> . . . . .	289	6	3
<i>Daphne Mezereum</i> . . . . .	507	11	3	<i>Agrimonia Eupatoria</i> . . . . .	595	13	5
— <i>Laureola</i> . . . . .	368	8	6	<i>Reseda Luteola</i> . . . . .	373	8	4
<i>Polygonum Persicaria</i> . . . . .	284	6	6	— <i>lutea</i> . . . . .	48	1	5
— <i>Hydropiper</i> . . . . .	431	9	5	<i>Euphorbia helioscopia</i> . . . . .	589	13	8
— <i>Bistorta</i> . . . . .	622	13	2	— <i>paralias</i> . . . . .	3	1	5
— <i>viviparum</i> . . . . .	652	14	4	— <i>Portlandica</i> . . . . .	322	7	1
— <i>aviculare</i> . . . . .	5	1	8	— <i>amygdaloides</i> . . . . .	34	1	8
— <i>Fagopyrum</i> . . . . .	406	9	1	CLASS 12. ICOSANDRIA.			
<i>Paris quadrifolia</i> . . . . .	138	3	8	<i>Prunus Cerasus</i> . . . . .	212	5	2
<i>Adoxa Moschatellina</i> . . . . .	97	2	3	— <i>spinosa</i> . . . . .	81	2	6
CLASS 9. ENNEANDRIA.				<i>Cratægus oxyacantha</i> . . . . .	35	1	2
<i>Butomus umbellatus</i> . . . . .	214	5	3	<i>Mespilus germanica</i> . . . . .	759	16	6
CLASS 10. DECANDRIA.				<i>Cotoneaster vulgaris</i> . . . . .	129	3	4
<i>Monotropa Hypopithys</i> . . . . .	726	16	2	<i>Pyrus communis</i> . . . . .	578	13	5
<i>Andromeda polifolia</i> . . . . .	655	14	6	— <i>malus</i> . . . . .	91	2	2
<i>Arbutus Unedo</i> . . . . .	597	13	7	— <i>terminalis</i> . . . . .	535	12	6
— <i>Uva ursi</i> . . . . .	555	12	6	<i>Spiræa Filipendula</i> . . . . .	598	13	2
<i>Pyrola minor</i> . . . . .	647	14	6	<i>Rosa spinosissima</i> . . . . .	552	12	3
— <i>media</i> . . . . .	93	2	3	— <i>hibernica</i> . . . . .	596	13	3
<i>Chryso-splenium oppositifolium</i> . . . . .	110	3	8	— <i>canina</i> . . . . .	374	8	1
<i>Saxifraga stellaris</i> . . . . .	170	4	6	<i>Rubus idæus</i> . . . . .	618	13	1
— <i>umbrosa</i> . . . . .	573	12	8	— <i>cæsius, fruit.</i> . . . . .	356	8	5
— <i>oppositifolia</i> . . . . .	683	15	5	— <i>flower</i> . . . . .	384	8	6
— <i>aizoides</i> . . . . .	103	3	1	— <i>fruticosus</i> . . . . .	72	2	5
— <i>granulata</i> . . . . .	84	2	5	— <i>saxatilis</i> . . . . .	619	13	5
— <i>cernua</i> . . . . .	171	4	1	— <i>Chamæmorus</i> . . . . .	643	14	6
— <i>tridactylites</i> . . . . .	219	5	2	<i>Fragaria vesca</i> . . . . .	690	15	2
— <i>hypnoides</i> . . . . .	192	4	1	<i>Potentilla sterilis</i> . . . . .	509	11	8
<i>Scleranthus annuus</i> . . . . .	299	7	2	— <i>fragaria</i> . . . . .	<i>ib.</i>		
<i>Saponaria officinalis</i> . . . . .	722	16	5	— <i>anserina</i> . . . . .	227	5	1
<i>Dianthus Armeria</i> . . . . .	163	4	2	— <i>reptans</i> . . . . .	50	1	8
— <i>cæsius</i> . . . . .	522	11	2	— <i>verna</i> . . . . .	623	13	6
<i>Cucubalus baccifer</i> . . . . .	761	16	8	<i>Tormentilla erecta</i> . . . . .	33	1	6
<i>Silene anglica</i> . . . . .	350	8	2	— <i>officinalis</i> . . . . .	<i>ib.</i>		
— <i>nutans</i> . . . . .	429	9	8	<i>Geum urbanum</i> . . . . .	271	6	2
— <i>inflata</i> . . . . .	308	7	5	— <i>rivale</i> . . . . .	193	4	5
— <i>maritima</i> . . . . .	287	6	1	<i>Dryas octopetala</i> . . . . .	644	14	3
				<i>Comarum palustre</i> . . . . .	558	12	2

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<b>CLASS 13. POLYANDRIA.</b>							
<i>Actæa spicata</i> . . . . .	654	14	2	<i>Melampyrum cristatum</i> . . . . .	262	6	2
<i>Chelidonium majus</i> . . . . .	199	5	2	— <i>arvense</i> . . . . .	273	6	4
<i>Glaucium luteum</i> . . . . .	66	2	8	— <i>pratense</i> . . . . .	225	5	6
— <i>violaceum</i> . . . . .	479	10	6	<i>Lathræa Squamaria</i> . . . . .	160	4	1
<i>Papaver hybridum</i> . . . . .	503	11	6	<i>Pedicularis sylvatica</i> . . . . .	451	10	5
— <i>Argemone</i> . . . . .	458	10	1	<i>Linaria Cymbalaria</i> . . . . .	38	1	4
— <i>Rhæas</i> . . . . .	276	6	5	— <i>Elatine</i> . . . . .	543	12	6
<i>Meconopsis Cambricum</i> . . . . .	743	16	6	— <i>spurium</i> . . . . .	158	4	3
<i>Nuphar lutea</i> . . . . .	495	11	6	— <i>vulgaris</i> . . . . .	64	2	6
<i>Nymphæa alba</i> . . . . .	485	11	8	<i>Antirrhinum Orontium</i> . . . . .	337	7	8
<i>Tilia europæa</i> . . . . .	743	14	6	<i>Scrophularia aquatica</i> . . . . .	32	1	7
<i>Helianthemum vulgare</i> . . . . .	279	6	2	— <i>vernalis</i> . . . . .	340	8	2
<i>Delphinium Consolida</i> . . . . .	76	2	5	<i>Digitalis purpurea</i> . . . . .	468	10	4
<i>Aconitum Napellus</i> . . . . .	731	16	5	— <i>Linnaea borealis</i> . . . . .	762	16	1
<i>Aquilegia vulgaris</i> . . . . .	392	9	7	<i>Limosella aquatica</i> . . . . .	765	16	8
<i>Stratiotes aloides</i> . . . . .	488	11	4	<i>Orobanche minor</i> . . . . .	302	7	1
<i>Anemone Pulsatilla</i> . . . . .	27	1	1	— <i>cerulea</i> . . . . .	382	8	2
— <i>nemorosa</i> . . . . .	87	2	1				
— <i>apennina</i> . . . . .	383	8	3	<b>CLASS 15. TETRADY-</b>			
<i>Clematis Vitalba</i> . . . . .	342	8	2	<b>NAMIA.</b>			
<i>Thalictrum minus</i> . . . . .	664	14	4	<i>Draba verna</i> . . . . .	122	3	8
— <i>flavum</i> . . . . .	376	8	6	<i>Lepidium ruderales</i> . . . . .	518	11	1
<i>Adonis autumnalis</i> . . . . .	167	4	2	— <i>latifolium</i> . . . . .	684	15	7
<i>Ranunculus Ficaria</i> . . . . .	25	1	4	— <i>campestre</i> . . . . .	677	15	8
— <i>Lingua</i> . . . . .	394	9	1	<i>Hutchinsia petrea</i> . . . . .	713	15	8
— <i>aureicomus</i> . . . . .	420	9	6	<i>Thlaspi arvense</i> . . . . .	614	13	2
— <i>aquatilis</i> . . . . .	95	2	1	— <i>perfoliatum</i> . . . . .	663	14	6
— <i>arvensis</i> . . . . .	301	7	3	— <i>alpestre</i> . . . . .	665	14	8
— <i>bulbosus</i> . . . . .	408	9	6	<i>Capsella Bursa-pastoris</i> . . . . .	8	1	4
— <i>parvulus</i> . . . . .	196	5	1	<i>Cochlearia anglica</i> . . . . .	240	5	1
<i>Trollius europæus</i> . . . . .	190	4	4	— <i>danica</i> . . . . .	127	3	2
<i>Helleborus viridis</i> . . . . .	148	4	2	<i>Coronopus Ruellii</i> . . . . .	200	5	1
— <i>fetidus</i> . . . . .	363	8	2	<i>Iberis amara</i> . . . . .	274	6	1
<i>Caltha palustris</i> . . . . .	224	5	1	<i>Teesdalia nudicaulis</i> . . . . .	512	11	3
				<i>Isatis tinctoria</i> . . . . .	734	16	2
<b>CLASS 14. DIDYNAMIA.</b>				<i>Cakile maritima</i> . . . . .	83	2	1
<i>Ajuga reptans</i> . . . . .	139	3	1	<i>Dentaria bulbifera</i> . . . . .	144	3	2
— <i>Chamæpitys</i> . . . . .	537	12	8	<i>Cardamine impatiens</i> . . . . .	630	14	2
<i>Teucrium Scorodonia</i> . . . . .	560	12	3	— <i>hirsuta</i> . . . . .	418	9	1
<i>Nepeta cataria</i> . . . . .	500	11	7	— <i>pratensis</i> . . . . .	179	4	1
<i>Mentha rotundifolia</i> . . . . .	269	6	4	<i>Nasturtium officinale</i> . . . . .	201	5	6
— <i>hirsuta</i> . . . . .	320	7	6	— <i>sylvestre</i> . . . . .	474	10	2
<i>Glechoma hederacea</i> . . . . .	125	3	4	<i>Diplotaxis tenuifolia</i> . . . . .	293	7	3
<i>Lamium album</i> . . . . .	132	3	6	<i>Sisymbrium Sophia</i> . . . . .	542	12	2
— <i>purpureum</i> . . . . .	70	2	8	— <i>officinale</i> . . . . .	705	15	8
<i>Galeopsis Ladanum</i> . . . . .	175	4	1	<i>Barbarea vulgaris</i> . . . . .	86	2	7
— <i>versicolor</i> . . . . .	116	3	2	<i>Erysimum Alliarum</i> . . . . .	569	12	7
<i>Galeobdolon luteum</i> . . . . .	178	4	8	— <i>cheiranthoides</i> . . . . .	20	1	7
<i>Betonica officinalis</i> . . . . .	235	5	1	<i>Cheiranthus fruticulosus</i> . . . . .	325	7	3
<i>Stachys sylvatica</i> . . . . .	65	2	3	<i>Matthiola sinuata</i> . . . . .	347	8	2
— <i>palustris</i> . . . . .	247	6	2	<i>Hesperis inodora</i> . . . . .	435	10	2
<i>Ballota nigra</i> . . . . .	487	11	6	<i>Arabis thaliana</i> . . . . .	146	3	8
<i>Marrubium vulgare</i> . . . . .	753	16	8	— <i>stricta</i> . . . . .	701	15	7
<i>Clinopodium vulgare</i> . . . . .	304	7	6	— <i>Turritia</i> . . . . .	74	2	7
<i>Origanum vulgare</i> . . . . .	283	5	1	— <i>hirsuta</i> . . . . .	635	14	5
<i>Thymus Serpyllum</i> . . . . .	581	13	8	<i>Turritis glabra</i> . . . . .	717	15	7
<i>Acinus vulgaris</i> . . . . .	723	16	2	<i>Brassica campestris</i> . . . . .	211	5	2
<i>Calamintha officinalis</i> . . . . .	590	13	2	— — — — —	336	7	5
<i>Melittis Melissophyllum</i> . . . . .	719	15	6	— <i>Rapa</i> . . . . .	617	13	2
<i>Scutellaria galericulata</i> . . . . .	389	9	3	— <i>oleracea</i> . . . . .	352	8	6
— <i>minor</i> . . . . .	362	8	2	— <i>monensis</i> . . . . .	529	11	8
<i>Prunella vulgaris</i> . . . . .	202	5	4	<i>Sinapis alba</i> . . . . .	546	12	1
<i>Bartsia viscosa</i> . . . . .	354	8	1	— <i>nigra</i> . . . . .	764	16	3
— <i>Odontites</i> . . . . .	270	6	2	<i>Raphanus maritimus</i> . . . . .	588	13	3
<i>Rhinanthus Cristagalli</i> . . . . .	449	10	7				
<i>Euphrasia officinalis</i> . . . . .	263	6	2	<b>CLASS 16. MONADEL-</b>			
				<b>PHIA.</b>			
				<i>Erodium cicutarium</i> . . . . .	231	5	1

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Geranium phæum . . . . .	670	14	2
— pratense . . . . .	51	2	2
— robertianum . . . . .	152	4	6
— lucidum . . . . .	426	9	1
— pyrenaicum . . . . .	188	4	1
— sanguineum . . . . .	100	3	6
Althæa officinalis . . . . .	707	15	6
Malva sylvestris . . . . .	465	10	7
— rotundifolia . . . . .	696	15	4
— moschata . . . . .	197	5	2

CLASS 17. DIADELPHIA.

Fumaria officinalis . . . . .	404	9	5
— capreolata . . . . .	427	9	3
Corydalis claviculata . . . . .	46	1	8
Polygala vulgaris . . . . .	62	2	8
Spartium scoparium . . . . .	611	13	6
Cytisus . . . . .	ib.		
Genista tinctoria . . . . .	313	7	7
— anglica . . . . .	89	2	3
Ulex europæus . . . . .	21	1	5
Ononis arvensis . . . . .	332	7	5
Anthyllis vulneraria . . . . .	330	7	1
Orobus tuberosus . . . . .	172	4	2
Lathyrus Aphaca . . . . .	267	6	2
— Nissolia . . . . .	445	10	7
— pratensis . . . . .	249	6	3
— sylvestris . . . . .	265	6	4
— palustris . . . . .	492	11	7
Vicia sylvatica . . . . .	455	10	6
— Cracca . . . . .	457	10	3
— sativa . . . . .	321	7	3
— angustifolia . . . . .	165	4	5
— lathyroides . . . . .	258	6	1
— sepium . . . . .	438	10	1
Ervum hirsutum . . . . .	266	6	1
Ornithopus perpusillus . . . . .	232	5	2
Hippocrepis comosa . . . . .	658	14	2
Hedysarum Onobrychis . . . . .	88	2	6
Astragalus hypoglottis . . . . .	698	15	2
— glycyphyllos . . . . .	208	5	2
Melilotus officinalis . . . . .	261	6	4
Trifolium subterraneum . . . . .	659	14	5
— glomeratum . . . . .	528	11	4
— arvense . . . . .	576	12	7
— pratense . . . . .	181	4	5
— ochroleucum . . . . .	245	6	8
Lotus corniculatus . . . . .	259	6	1
Medicago sativa . . . . .	687	15	6
— lupulina . . . . .	6	1	1
— maculata . . . . .	695	15	6

CLASS 18. POLYADELPHIA.

Hypericum Androsæmum . . . . .	545	12	8
— perforatum . . . . .	510	11	2
— pulchrum . . . . .	496	11	4

CLASS 19. SYNGENESIA.

Tragopogon pratensis . . . . .	275	6	2
— porrifolius . . . . .	433	9	3
Helminthia echioides . . . . .	314	7	1
Picris hieracioides . . . . .	744	16	3
Sonchus arvensis . . . . .	593	13	8
— oleraceus . . . . .	539	12	5
Prenanthes muralis . . . . .	391	9	6
Leontodon Taraxacum . . . . .	248	6	5
Apargia hispida . . . . .	480	10	4

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Thrinicia hirta . . . . .	653	14	8
Hieracium pilosella . . . . .	532	12	4
— sylvaticum . . . . .	511	11	6
Crepis tectorum . . . . .	17	1	3
Hypochaeris radicata . . . . .	385	8	3
Lapsana communis . . . . .	253	6	3
Cichorium Intybus . . . . .	69	2	3
Arctium Lappa . . . . .	572	12	7
Serratula tinctoria . . . . .	183	4	1
Cardus acanthoides . . . . .	323	7	2
Cnicus palustris . . . . .	312	7	6
— arvensis . . . . .	296	7	6
— pratensis . . . . .	380	8	3
— heterophyllus . . . . .	649	14	8
— acaulis . . . . .	206	5	3
Onopordium Acanthium . . . . .	741	16	7
Carlina vulgaris . . . . .	642	14	2
Bidens tripartita . . . . .	439	10	3
Eupatorium cannabinum . . . . .	400	9	5
Tanacetum vulgare . . . . .	421	9	8
Artemisia maritima . . . . .	229	5	5
— Absinthium . . . . .	161	4	6
— vulgare . . . . .	671	14	6
Gnaphalium dioicum . . . . .	645	14	8
— rectum . . . . .	538	12	2
— germanicum . . . . .	490	11	1
Conyza squarrosa . . . . .	277	6	8
Erigeron acre . . . . .	417	9	7
Tussilago Farfara . . . . .	367	8	4
Petasites vulgaris . . . . .	604	13	4
Senecio viscosus . . . . .	306	7	1
— squalidus . . . . .	477	10	8
— Jacobæa . . . . .	499	11	5
Aster Tripolium . . . . .	80	2	1
— var. . . . .	114	3	7
Solidago Virgaurea . . . . .	45	1	5
Cineraria campestris . . . . .	101	3	4
Inula Helenium . . . . .	693	15	7
Pulicaria dysenterica . . . . .	682	15	2
— vulgaris . . . . .	198	5	3
Limbarda crithmoides . . . . .	243	6	1
Doronicum Pardalianches . . . . .	754	16	2
Bellis perennis . . . . .	517	11	8
Chrysanthemum Leucanthemum . . . . .	162	4	8
— segetum . . . . .	335	7	2
Pyrethrum Parthenium . . . . .	675	15	1
— inodorum . . . . .	393	9	8
Matricaria Chamomilla . . . . .	78	2	8
Anthemis Cotula . . . . .	26	1	8
— nobilis . . . . .	9	1	8
Achillea Ptarmica . . . . .	52	2	1
— millefolium . . . . .	19	1	2
Centaurea nigra . . . . .	241	5	8
— Scabiosa . . . . .	361	8	4
— Calcitrapa . . . . .	676	15	7

CLASS 20. GYNANDRIA.

Habenaria bifolia . . . . .	233	5	6
— viridis . . . . .	570	12	2
— albida . . . . .	641	14	8
Gymnadenia conopsea . . . . .	268	6	5
Orchis maculata . . . . .	285	6	8
— latifolia . . . . .	423	9	3
— tephrosanthos . . . . .	679	15	6
— fusca . . . . .	255	6	2
— ustulata . . . . .	216	5	2
— mascula . . . . .	230	5	7

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Orchis Morio . . . . .	370	8	2	Salix repens . . . . .	613	13	8
—— pyramidalis . . . . .	260	6	5	Empetrum nigrum . . . . .	526	11	1
Aceras anthrophophora . . . . .	280	6	6	Viscum album . . . . .	562	12	2
Herminium monorchis . . . . .	237	5	5	Hippophae rhamnoides . . . . .	454	10	1
Ophrys muscifera . . . . .	516	11	4	Myrica Gale . . . . .	763	16	6
—— apifera . . . . .	311	7	2	Humulus Lupulus . . . . .	502	11	1
—— aranifera . . . . .	244	6	2	Tamus communis . . . . .	443	10	1
Neottia spiralis . . . . .	176	4	1	Populus tremula . . . . .	715	15	5
Epipactis palustris . . . . .	527	11	6	Rhodiola rosea . . . . .	637	14	8
—— grandiflora . . . . .	305	7	8	Mercurialis perennis . . . . .	28	1	7
Listera Nidus-avis . . . . .	498	11	1	—— annua . . . . .	218	5	4
—— ovata . . . . .	441	10	8	Hydrocharis Morsus-ranæ . . . . .	307	7	1
—— cordata . . . . .	634	14	2	Juniperus communis . . . . .	519	11	6
Liparis Loeselii . . . . .	582	13	2	Taxus baccata . . . . .	18	1	8
Corallorhiza innata . . . . .	736	16	3	Ruscus aculeatus . . . . .	489	11	8
Cypripedium Calceolus . . . . .	416	9	6				
Aristolochia Clematidis . . . . .	501	11	8				
CLASS 21. MONOECIA.				CLASS 23. POLYGAMIA.			
Arun maculatum . . . . .	607	13	6	Holcus mollis . . . . .	41	1	3
Zannichellia palustris . . . . .	718	15	1	Arrhenatherum avenaceum . . . . .	742	16	1
Chara vulgaris . . . . .	601	13	4	Parietaria officinalis . . . . .	387	9	2
Nitella hyalina . . . . .	484	11	4	Atriplex portulacoides . . . . .	453	10	7
Typha latifolia . . . . .	494	11	2	—— patula . . . . .	407	9	3
—— angustifolia . . . . .	702	15	1	Acer Pseudo-platanus . . . . .	577	12	7
Sparganium simplex . . . . .	436	10	3	—— campestre . . . . .	328	7	5
Carex dioica . . . . .	381	8	3	Fraxinus excelsior . . . . .	565	12	7
—— remota . . . . .	672	14	3				
—— divisa . . . . .	706	15	1	CLASS 24. CRYPTOGA-			
—— digitata . . . . .	712	15	4	MIA.			
—— Pseudo-cyperus . . . . .	533	12	8	Hymenophyllum Tunbridgense . . . . .	346	8	1
—— limosa . . . . .	471	10	6	Osmunda regalis . . . . .	704	15	7
—— præcox . . . . .	82	2	3	Ophioglossum vulgatum . . . . .	303	7	1
Eriocaulon septangulare . . . . .	561	12	4	Equisetum arvense . . . . .	318	7	2
Littorella lacustris . . . . .	107	3	1	Splachnum ampullaceum . . . . .	315	7	1
Alnus glutinosa . . . . .	703	15	6	Mnium hornum . . . . .	23	1	1
Buxus sempervirens . . . . .	339	8	1	Funaria hygrometrica . . . . .	143	3	1
Urtica pilulifera . . . . .	536	12	3	Bryum subulatum . . . . .	77	2	4
—— dioica . . . . .	288	6	6	Hypnum alopecurum . . . . .	111	3	2
Ceratophyllum demersum . . . . .	730	16	1	—— velutinum . . . . .	118	3	4
Myriophyllum verticillatum . . . . .	497	11	4	Jungermannia epiphylla . . . . .	365	8	8
Sagittaria sagittifolia . . . . .	700	15	7	Peltidea canina . . . . .	319	7	2
Poterium sanguisorba . . . . .	447	10	6	Lichen parietinus . . . . .	16	1	6
Quercus Robur . . . . .	755	16	5	—— prunastris . . . . .	39	1	6
Fagus sylvatica . . . . .	674	15	5	Coprinus ? . . . . .	334	7	1
Betula alba . . . . .	434	10	5	Agaricus coccineus . . . . .	71	2	1
Carpinus Betulus . . . . .	579	13	2	—— flavipes ? . . . . .	123	3	1
Corylus Avellana . . . . .	345	8	3	—— plicatilis . . . . .	210	5	8
Pinus sylvestris . . . . .	7	1	5	Boletus versicolor . . . . .	39	1	1
—— Abies . . . . .	4	1	3	—— subtomentosus ? . . . . .	156	4	1
Bryonia dioica . . . . .	686	15	2	Peziza aurantia . . . . .	15	1	1
				Phallus impudicus . . . . .	469	10	8
CLASS 22. DIOECIA.				Tuber cibarium . . . . .	251	6	1
Salix Forbyana . . . . .	96	2	5	Lycoperdon Bovista . . . . .	355	8	2

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	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
Adder's-tongue . . . . .	303	7	1	Agrimony, hemp . . . . .	400	9	5
Agaric, plaited . . . . .	210	5	8	Alder . . . . .	703	15	6
—— yellow-stalked . . . . .	123	3	1	Alexanders . . . . .	415	9	3
—— scarlet . . . . .	71	2	1	Alkanet, bastard . . . . .	331	7	2
Agrimony . . . . .	595	13	5	—— evergreen . . . . .	452	10	8

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
All-seed.	358	8	1	Bog-rush, prickly	524	11	4
— four-leaved	760	16	4	Boletus, changeable	39	1	1
Anemone, wood	87	2	1	— tomentose	156	4	1
— mountain	383	8	3	Borage	137	3	4
Angelica, wild	585	13	8	Box tree	339	8	1
Archangel, white	132	3	6	Bramble, stone	619	13	5
— yellow	178	4	8	— common	72	2	5
— red	70	2	8	Breakstone, chickweed	584	13	4
Arrow-grass, sea	58	2	3	Briar, wild	374	8	1
Arrow-head	700	15	7	Brome grass, wood	256	6	5
Ash tree	565	12	7	— soft	128	3	6
Asparagus	740	16	3	— upright	640	14	7
Aspen tree	715	15	5	Brook-lime	236	5	1
Asphodel, Lancashire	115	3	1	Brook-weed	154	4	7
Avens, common	271	6	2	Broom, common	611	13	6
— mountain	644	14	3	Broom-rape, less	302	7	1
— water	193	4	5	— purple	382	8	2
Balm, purple and white-bas- tard	719	15	6	Bryony, black	443	10	1
Barberry	378	8	5	— red-berried	686	15	2
Barley, wall	187	4	1	Buck-bean	294	7	1
Bartsia, viscous	354	8	1	Buck-thorn, sea	454	10	1
— red	270	6	2	— alder	286	6	1
Base-rocket	48	1	5	Buck-wheat	406	9	1
Basil thyme	723	16	2	Bugle, common	139	3	1
—, wild	304	7	6	Bugloss, wild	413	9	8
Bastard balm	719	15	6	Burdock	572	12	7
— toad-flax	228	5	1	Burnet rose	552	12	3
Bear-berries	555	12	6	Burnet Saxifrage, dwarf	724	16	4
Bear's foot	363	8	2	— common	92	2	5
Bed-straw, white water	397	9	8	— great	493	11	8
Beech tree	674	15	5	Bur-reed, less	436	10	3
Beet, sea	310	7	1	Butcher's broom	489	11	8
Bell-flower, giant	699	15	6	Butter-bur	604	13	4
— round-leaved	324	7	6	Butter-wort, pale	341	8	3
— field	351	8	2	— large-flowered	603	13	6
— Nettle-leaved	627	14	2	— common	90	2	8
— Ivy-leaved	257	6	3	Cabbage, Isle of Man	529	11	8
— clustered	85	2	4	Cabbage, field	211	5	2
— corn	504	11	4	—	336	7	5
Bent grass, bearded	767	16	5	— sea	352	8	6
— fine	737	16	8	Calamint, common	590	13	2
Bethlehem-star, common	470	10	1	Campion	109	3	6
— yellow	751	16	6	—, white	54	2	3
— drooping	481	10	7	—, red	182	4	8
Betony wood	235	5	1	Canary grass, manured	460	10	3
Bilberry	73	2	3	— reed	721	16	8
— great	631	14	5	Candy-tuft, bitter	274	6	1
Bindweed, small	205	5	5	— naked-stalked	512	11	3
— sea	521	11	8	Canterbury-bells	627	14	2
Birch tree	434	10	5	Caraway, whorled	680	15	4
Bird grass	551	12	6	Carex, fingered	712	15	4
Bird's eye	215	5	2	— remote	672	14	3
Bird's foot	232	5	2	— bracteate-marsh	706	15	1
— clover	259	6	1	— vernal	82	2	3
Bird's-nest Orchis	498	11	1	— separate-headed	381	8	3
—, yellow	726	16	2	— green-and-gold	471	10	6
Birthwort	501	11	8	— bastard Cyperus	533	12	8
Bistort, great	622	13	2	Carline thistle	642	14	2
— alpine	652	14	4	Carrot, wild	491	11	6
Bitter-sweet	102	3	8	Catchfly, sea	287	6	1
Black-thorn	81	2	6	— English	350	8	2
Bladder-snout	207	5	1	— bladder	308	7	5
Blinks, water	456	10	3	— moss	109	3	6
Boat-lip, coral-rooted	736	16	3	— Nottingham	429	9	8
Bog-bean	294	7	1	Catchweed, trailing	757	16	8
— fringed	681	15	7	Cat-mint	500	11	7
Bog-rush, black	544	12	4	Cat's-ear, long-rooted	385	8	3
				Cat's foot, mountain	645	14	8

	Plate.	Vol.	Vol.		Plate.	Vol.	Vol.
Cat's-tail . . . . .	494	11	2	Daffodil, common . . . . .	93	2	8
Celandine, great . . . . .	199	5	2	——— chequered . . . . .	326	7	1
Celery, wild . . . . .	141	3	3	Daisy . . . . .	517	11	8
Centauray, common . . . . .	238	5	4	Damewort, scentless . . . . .	435	10	2
Chamomile, common . . . . .	9	1	8	Dandelion . . . . .	248	6	5
——— Feverfew . . . . .	78	2	8	Darnel, perennial . . . . .	213	5	5
——— stinking . . . . .	26	1	8	Dead-nettle . . . . .	132	3	6
Cherry tree . . . . .	212	5	2	Devil's-bit Scabious . . . . .	40	1	5
Chervil, wild . . . . .	30	1	3	Dew-berry bush . . . . .	356	8	5
——— . . . . .	720	15	3	——— fruit . . . . .	384	8	6
Chickweed, common . . . . .	22	1	3	Dittander, broad-leaved . . . . .	684	15	7
——— broad-leaved, rough . . . . .	209	5	6	Dock, meadow . . . . .	191	4	1
——— berry-bearing . . . . .	761	16	8	Dodder, less . . . . .	464	10	3
Cicely, sweet . . . . .	624	13	3	Dogberry tree . . . . .	505	11	8
Cinquefoil, Marsh . . . . .	558	12	2	Dog's mercury . . . . .	28	1	7
——— spring . . . . .	623	13	6	Dog rose . . . . .	374	8	1
——— common . . . . .	50	1	8	Dog's tail-grass, crested . . . . .	135	3	2
Cistus, dwarf . . . . .	279	6	2	Dog's violet . . . . .	168	4	1
Clary, wild . . . . .	222	5	4	Double-tooth, trifold . . . . .	439	10	3
Cloud-berry . . . . .	643	14	6	Dropwort, common . . . . .	598	13	2
Clover . . . . .	181	4	5	——— Parsley water . . . . .	432	9	8
Club-grass, salt-marsh . . . . .	472	10	3	Dutch myrtle . . . . .	763	16	6
Club-rush, floating . . . . .	592	13	4	Earth-nut . . . . .	425	9	8
——— marsh-creeping . . . . .	599	13	6	Elder, common . . . . .	746	16	2
——— least . . . . .	463	10	6	Elecampane . . . . .	693	15	7
Cockle, corn . . . . .	61	2	4	Elm . . . . .	515	11	6
Cock's-foot-grass, smooth . . . . .	638	14	1	Epipactis, marsh . . . . .	527	11	6
——— rough . . . . .	694	15	2	——— white . . . . .	305	7	8
——— Weybridge . . . . .	739	16	5	Eryngo, sea . . . . .	53	2	5
Colewort . . . . .	211	5	2	Eye-bright . . . . .	263	6	2
Colt's-foot . . . . .	367	8	4	Feather moss, Fox-tail . . . . .	111	3	2
Columbine . . . . .	392	9	7	——— velvet . . . . .	118	3	4
Comfrey, common . . . . .	155	4	2	Fennel . . . . .	126	3	8
Conferva, river . . . . .	291	7	1	Fescue-grass, creeping . . . . .	157	4	5
Coralwort, bulbiferous . . . . .	144	3	2	Feverfew, common . . . . .	675	15	1
Coriander, common . . . . .	729	16	8	——— corn . . . . .	393	9	8
Cornel tree . . . . .	505	11	8	Figwort, yellow . . . . .	340	8	2
Corn-salad, oval-fruited . . . . .	106	3	8	——— water . . . . .	32	1	7
Cotton-grass, common . . . . .	428	9	6	Flag, stinking . . . . .	131	3	1
Couch-grass . . . . .	309	7	3	——— in fruit . . . . .	292	7	2
Cow-parsnep, common . . . . .	600	13	3	——— water . . . . .	559	12	6
Cowslip . . . . .	348	8	5	Flax, pereunial . . . . .	55	2	2
Cow wheat, crested . . . . .	262	6	2	——— purging . . . . .	424	9	6
——— purple . . . . .	273	6	4	Fleabane, samphire-leaved . . . . .	243	6	1
——— meadow . . . . .	225	5	6	——— common . . . . .	682	15	2
Crab tree . . . . .	91	2	2	——— less . . . . .	198	5	3
Crake herry . . . . .	526	11	1	——— blue . . . . .	417	9	7
Cranberry . . . . .	523	11	6	——— great . . . . .	277	6	8
Cranesbill, shining . . . . .	426	9	1	Fleawort, mountain . . . . .	101	3	4
——— Hemlock . . . . .	231	5	1	Flix-weed . . . . .	542	12	2
——— mountain . . . . .	188	4	1	Flowering-rush . . . . .	214	5	3
——— meadow . . . . .	51	2	2	Fluellin, round-leaved . . . . .	158	4	3
——— dusky . . . . .	670	14	2	Fly-trap, English . . . . .	473	10	8
——— bloody . . . . .	100	3	6	Fools' parsley . . . . .	11	1	2
Cresses, winter . . . . .	86	2	7	Fox-glove . . . . .	468	10	4
Crocus, golden . . . . .	609	13	8	Fox-tail grass, bulbous . . . . .	534	12	1
Crosswort . . . . .	329	7	4	——— field . . . . .	56	2	5
Crow-berry . . . . .	526	11	1	——— meadow . . . . .	709	15	7
Crow-foot, wood . . . . .	420	9	6	Freshwater soldier . . . . .	488	11	4
——— bulbous . . . . .	408	9	6	Fritillary, common . . . . .	326	7	1
——— small . . . . .	196	5	1	Frog-bit, common . . . . .	307	7	1
——— water . . . . .	95	2	1	Fumitory, ramping . . . . .	427	9	3
——— corn . . . . .	301	7	3	——— common . . . . .	404	9	5
Cud-weed, common . . . . .	490	11	1	——— climbing . . . . .	46	1	8
——— upright . . . . .	538	12	2	Furze . . . . .	21	1	5
Cuckow-pint . . . . .	607	13	6	——— needle . . . . .	89	2	3
Currants, black . . . . .	571	12	6	Garlic sand . . . . .	697	15	8
Cyperus, fuscous . . . . .	395	9	3	Gentian, autumnal . . . . .	220	5	1

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Gentian field . . . . .	105	3	6	Holly tree . . . . .	59	2	2
— spring . . . . .	444	10	8	Hone-wort, corn . . . . .	691	15	6
Gentianella, least . . . . .	628	14	4	Honeysuckle, perfoliate . . . . .	124	3	5
Germander . . . . .	133	3	3	Hop, common . . . . .	502	11	1
— wood . . . . .	560	12	3	— trefoil . . . . .	6	1	1
— wild . . . . .	37	1	4	Horehound, black . . . . .	487	11	6
Gladiole, water . . . . .	203	5	1	— water . . . . .	461	10	7
Gladwyn . . . . .	292	7	2	— white . . . . .	753	16	8
Glaudmoss, bottle-shaped . . . . .	315	7	1	Hornbeam tree . . . . .	579	13	2
Glasswort, prickly . . . . .	442	10	5	Horned-poppy, violet . . . . .	479	10	6
Globe-flower . . . . .	190	4	4	— yellow . . . . .	66	2	8
Goat's-beard, yellow . . . . .	275	6	2	Horned-pond-weed . . . . .	718	15	1
— purple . . . . .	433	9	3	Hornwort, common . . . . .	730	16	1
Gold-dust . . . . .	379	8	1	Horseshoe-vetch, tufted . . . . .	658	14	2
Goldens . . . . .	393	9	8	Horse-tail, cornfield . . . . .	318	7	2
Golden-locks, little . . . . .	143	3	1	Hound's-tongue, common . . . . .	450	10	2
Golden-rod . . . . .	45	1	5	Hyacinth . . . . .	49	1	3
Goldilocks . . . . .	420	9	6	— starch . . . . .	583	13	6
Goldilocks, Tunbridge . . . . .	346	8	1	Jack-by-the-hedge . . . . .	569	12	7
Goldylocks . . . . .	766	16	2	Jacob's-ladder . . . . .	636	14	7
Gooseberry, rough . . . . .	419	9	4	Jasione, mountain . . . . .	369	8	7
Goose-foot, stinking . . . . .	414	9	1	Juniper tree . . . . .	519	11	6
— nettle-leaved . . . . .	398	9	2	Ivy . . . . .	557	12	8
— entire-leaved . . . . .	402	9	2	Ixia, Dawlish . . . . .	612	13	7
Gorze . . . . .	21	1	5	Kidney-vetch . . . . .	330	7	1
Goutweed . . . . .	669	14	8	Knapweed, great . . . . .	361	8	4
Grass-of-Parnassus . . . . .	79	2	1	— black . . . . .	241	5	8
Grass-vetch, crimson . . . . .	445	10	7	Knappia, early . . . . .	748	16	7
Greenweed, Dyer's . . . . .	313	7	7	Knawell, annual . . . . .	299	7	2
Gromwell, corn . . . . .	331	7	2	Knot-grass, whorled . . . . .	732	16	4
— common . . . . .	412	9	6	— common . . . . .	5	1	8
Ground-ivy . . . . .	125	3	4	Ladies-bed-straw, yellow . . . . .	317	7	3
Ground-pine . . . . .	537	12	8	Ladies'-finger . . . . .	330	7	1
Groundsel, stinking . . . . .	306	7	1	Ladies'-slipper . . . . .	416	9	6
Guelder-rose . . . . .	483	11	2	— -smock, common . . . . .	179	4	1
Hair-grass, crested . . . . .	357	8	4	— hairy . . . . .	418	9	1
— early . . . . .	620	13	7	— impatient . . . . .	630	14	2
— turfy . . . . .	689	15	8	— traces . . . . .	176	4	1
Hard-grass, sea . . . . .	554	12	1	Lady's-mantle, cinquefoil . . . . .	204	5	1
Harebell, Suill. . . . .	49	1	3	— common . . . . .	185	4	5
Hare's-tail grass . . . . .	756	16	4	Lamb's-lettuce . . . . .	668	14	3
Hawks'-beard, smooth . . . . .	17	1	3	Larkspur . . . . .	76	2	5
Hawkweed, mouse-ear . . . . .	532	12	4	Lathyrus, yellow . . . . .	267	6	2
— wood . . . . .	511	11	6	— wild . . . . .	265	6	4
Hawthorn . . . . .	31	1	2	Leopard's-bane . . . . .	754	16	2
Hazel-nut tree . . . . .	345	8	3	Lily-of-the-valley . . . . .	430	9	2
Heath, Irish . . . . .	574	12	1	Lime-grass, sea . . . . .	520	11	4
— fine-leaved . . . . .	35	1	2	— tree . . . . .	667	14	6
— cross-leaved . . . . .	13	1	4	Linden tree . . . . .	667	14	6
Heath-pea . . . . .	172	4	2	Ling . . . . .	145	3	5
Hedge-mustard . . . . .	705	15	8	Linnaea, two-flowered . . . . .	762	16	1
Hedge-parsley, red . . . . .	14	1	8	Liquorice, wild . . . . .	208	5	2
Hedynois, rough . . . . .	480	10	4	Liverwort, ground . . . . .	319	7	2
— deficient . . . . .	653	14	8	Lobelia, acrid . . . . .	550	12	2
Hellebore, green . . . . .	148	4	2	London-pride . . . . .	573	12	8
Hemlock . . . . .	688	15	3	Loose-strife, yellow . . . . .	250	6	1
Hemp-nettle, red . . . . .	175	4	1	Lords-aud-Ladies . . . . .	607	13	6
— large-flowered . . . . .	116	3	2	Lousewort, common . . . . .	451	10	5
Henbane . . . . .	486	11	2	Lovage, Scottish . . . . .	758	16	1
Hen's-foot, knotted . . . . .	422	9	1	Lucerne . . . . .	687	15	6
— broad-leaved . . . . .	632	14	4	Lungwort, narrow-leaved . . . . .	610	13	1
— hedge . . . . .	14	1	8	— sea . . . . .	556	12	3
Hep tree . . . . .	374	8	1	Madder, wild . . . . .	327	7	2
Herb Christopher . . . . .	654	14	2	— little field . . . . .	388	9	3
— Gerard . . . . .	669	14	8	Maiden's-hair . . . . .	186	4	8
— Paris . . . . .	138	3	8	Malaxis, dwarf . . . . .	582	13	2
— Robert . . . . .	152	4	6	Mallow, musk . . . . .	197	5	2
Hill-tulip . . . . .	27	1	1	— dwarf . . . . .	696	15	4

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Mallow, common . . . . .	465	10	7	Nettle, Roman . . . . .	536	12	3
Maple . . . . .	328	7	5	Nightshade, common . . . . .	403	9	3
Mare's-tail . . . . .	506	11	2	"    Enchanter's . . . . .	140	3	5
Marigold, corn . . . . .	335	7	2	"    woody . . . . .	102	3	8
Marjoram, wild . . . . .	283	6	2	Nipplewort, common . . . . .	253	6	3
Marram . . . . .	297	7	7	Nonesuch . . . . .	6	1	1
Marsh-mallow . . . . .	707	15	6	Oak, true British . . . . .	755	16	5
Marsh-marigold . . . . .	224	5	1	Oat, downy . . . . .	625	13	7
Matweed, small . . . . .	390	9	2	Ophrys, spider . . . . .	244	6	2
"    sea . . . . .	297	7	7	"    fly . . . . .	516	11	4
Meadow-grass, hard . . . . .	134	3	8	"    musk . . . . .	237	5	5
"    annual . . . . .	1	1	1	Orache, shalberd-leaved . . . . .	407	9	3
"    decumbent . . . . .	239	5	1	"    shrubby . . . . .	453	10	7
"    Flote . . . . .	159	4	1	Orchis, bee . . . . .	311	7	2
"    reed . . . . .	566	12	1	"    brown . . . . .	255	6	2
"    bulbous . . . . .	467	10	6	"    dwarf . . . . .	216	5	2
"    roughish . . . . .	551	12	6	"    meadow . . . . .	370	8	2
Meadow-pinks . . . . .	591	13	6	"    green, or frog . . . . .	570	12	2
"    -rue-weed . . . . .	376	8	6	"    marsh . . . . .	423	9	3
"    -saffron . . . . .	657	14	7	"    red-handed . . . . .	268	6	5
"    -saxifrage . . . . .	549	12	8	"    late-flowering . . . . .	260	6	5
Medick, purple . . . . .	687	15	6	"    green-man . . . . .	280	6	6
"    heart . . . . .	695	15	6	"    butterfly . . . . .	233	5	6
Medlar tree . . . . .	759	16	6	"    monkey . . . . .	679	15	6
Melic-grass, wood . . . . .	173	4	5	"    early . . . . .	230	5	7
"    purple . . . . .	205*	5	5	"    spotted . . . . .	285	6	8
Mercury, annual . . . . .	218	5	4	"    whitish . . . . .	641	14	8
Mezereon, laurel . . . . .	368	8	6	Osier, basket . . . . .	96	2	5
Mezereon . . . . .	507	11	3	Owler . . . . .	703	15	6
Mignonette, wild . . . . .	48	1	5	Ox-eye . . . . .	162	4	8
Milfoil, Less-hooded . . . . .	343	8	1	Ox-lip . . . . .	282	6	1
"    whorled . . . . .	497	11	4	Ox-tongue, bristly . . . . .	314	7	2
Milk-vetch, purple . . . . .	698	15	2	"    hawkweed . . . . .	744	16	3
Milkweed, marsh . . . . .	580	13	4	Panick-grass, creeping . . . . .	728	16	3
Milkwort . . . . .	62	2	8	"    green . . . . .	733	16	7
Millet-grass, panick . . . . .	650	14	1	Pansy, yellow-mountain . . . . .	166	4	3
"    soft . . . . .	710	15	2	Parsley, spreading Hedge . . . . .	656	14	4
Mint, round-leaved . . . . .	269	6	4	Parsnep, wild . . . . .	221	5	6
"    hairy . . . . .	320	7	6	Pasque-flower . . . . .	27	1	1
Mistletoe . . . . .	562	12	2	Pearwort, upright . . . . .	377	8	8
Mithridate mustard . . . . .	677	15	8	Pear tree . . . . .	578	13	5
Moneywort . . . . .	476	10	3	Pellitory-of-the-wall . . . . .	387	9	2
Monk's-hood . . . . .	731	16	5	Penny rot . . . . .	142	3	8
Moonwort, royal . . . . .	704	15	7	Pennywort, narrow-leaved . . . . .	518	11	1
Moor's-corn . . . . .	227	5	1	Pepperwort, mountain . . . . .	713	15	8
Moor-grass, blue . . . . .	661	14	8	Periwinkle, greater . . . . .	626	14	5
Moschatel, tuberous . . . . .	97	2	3	"    less . . . . .	112	3	2
Moss, thread . . . . .	23	1	1	Persicaria . . . . .	284	6	6
Mother-of-thyme . . . . .	581	13	8	Pheasant's-eye . . . . .	167	4	2
Mountain-auricula . . . . .	215	5	2	Pilewort . . . . .	25	1	4
"    sorrel . . . . .	714	15	2	Pimpernel, bog . . . . .	440	10	6
Mouse-ear, corn . . . . .	254	6	1	"    scarlet . . . . .	75	2	1
"    marsh . . . . .	63	2	1	"    bastard . . . . .	768	16	8
"    narrow-leaved . . . . .	372	8	5	"    yellow . . . . .	164	4	1
"    field . . . . .	169	4	5	Pink, Deptford . . . . .	163	4	2
"    marsh . . . . .	10	1	7	"    mountain . . . . .	522	11	2
Mouse-tail, little . . . . .	437	10	8	Pipewort, jointed . . . . .	561	12	4
Mudwort . . . . .	765	16	8	Plantain, ribwort . . . . .	448	10	4
Mugweed . . . . .	329	7	4	"    hoary . . . . .	651	14	5
Mugwort . . . . .	671	14	6	Plume-thistle, meadow . . . . .	380	8	3
Mullein, black . . . . .	602	13	2	Pondweed, fennel-leaved . . . . .	359	8	1
"    great . . . . .	344	8	6	"    tassel . . . . .	466	10	1
Mustard, white . . . . .	546	12	1	"    horned . . . . .	718	15	1
"    common . . . . .	764	16	3	Poppy, long rough-headed . . . . .	458	10	1
"    common hedge . . . . .	705	15	8	"    common red . . . . .	276	6	5
Navelwort, common . . . . .	478	10	1	"    round rough-headed . . . . .	503	11	6
Neottia, spiral . . . . .	176	4	1	"    yellow . . . . .	743	16	6
Nettle, common . . . . .	288	6	6	Prenanthes, wall . . . . .	391	9	6



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Primrose . . . . .	316	7	5	Sea stock . . . . .	347	8	2
Privet . . . . .	409	9	8	Self-heal . . . . .	202	5	4
Puff-ball . . . . .	355	8	2	Sengreen, opposite-leaved . . . . .	110	3	8
Purslane, water . . . . .	459	10	5	Service-tree, wild . . . . .	535	12	6
Quaker-grass . . . . .	186	4	8	Sheep-killing penny-grass . . . . .	142	3	8
—, small . . . . .	353	8	3	Shepherd's-needle . . . . .	401	9	8
Radish, sea . . . . .	588	13	3	— pulse . . . . .	8	1	4
Ragged-Robin . . . . .	591	13	6	— perfoliate . . . . .	663	14	6
Ragwort . . . . .	499	11	5	— alpine . . . . .	665	14	8
—, inelegant . . . . .	477	10	8	Shoreweed, plantain . . . . .	107	3	1
Rampion, round-headed . . . . .	738	16	2	Silverweed . . . . .	227	5	1
Ramsons . . . . .	366	8	2	Skirret, broad-leaved . . . . .	750	16	2
Raspberry bush . . . . .	618	13	1	Skull-cap, less . . . . .	362	8	2
Red-shanks, mossy . . . . .	564	12	4	— common . . . . .	389	9	3
Reed, common . . . . .	606	13	2	Sloe tree . . . . .	81	2	6
— wood . . . . .	666	14	1	Smallage . . . . .	141	3	3
— sea . . . . .	297	7	7	Snakeweed, spotted . . . . .	284	6	6
Reed-mace . . . . .	494	11	2	Snapdragon, ivy-leaved . . . . .	38	1	4
—, less . . . . .	702	15	1	— less . . . . .	337	7	8
Rest-harrow . . . . .	332	7	5	Sneezewort, yarrow . . . . .	52	2	1
Roast-beef Iris . . . . .	292	7	2	Snowdrop . . . . .	462	10	1
Rock-cress, Bristol . . . . .	701	15	7	Snow-flake, summer . . . . .	108	3	1
Rocket . . . . .	86	2	7	Soapwort . . . . .	722	16	5
— wall . . . . .	293	7	3	Soft-grass, oat-like . . . . .	742	16	1
Rose, Belfast . . . . .	596	13	3	— creeping . . . . .	41	1	3
Rosemary, wild . . . . .	655	14	6	Solomon's-seal, common . . . . .	278	6	2
Rosewort, yellow . . . . .	637	14	8	Sorrel, sheep's . . . . .	594	13	2
Rueweed, less . . . . .	664	14	4	— mountain . . . . .	714	15	2
Rupturewort, ciliated . . . . .	745	16	8	— common . . . . .	396	9	5
Rush, flaxen . . . . .	234	5	3	— wood . . . . .	300	7	6
— round-fruited . . . . .	525	11	8	Sow-thistle, common . . . . .	539	12	5
— field . . . . .	616	13	4	— corn . . . . .	593	13	8
— jointed . . . . .	2	1	7	Spatling, poppy . . . . .	308	7	5
— soft . . . . .	405	9	8	Spearwort, great . . . . .	394	9	1
Rush-grass, white-headed . . . . .	608	13	3	Speedwell, Welch . . . . .	646	14	2
— compressed . . . . .	725	16	8	— mountain . . . . .	678	15	2
Saintfoin . . . . .	88	2	6	— smooth . . . . .	371	8	2
Sallow . . . . .	121	3	5	— common . . . . .	660	14	3
Saltwort, black . . . . .	548	12	7	— ivy-leaved . . . . .	615	13	6
Samphire, marsh . . . . .	119	3	1	— fingered . . . . .	567	12	6
— rock . . . . .	174	4	7	— narrow-leaved . . . . .	553	12	7
St. John's-wort, perforated . . . . .	510	11	2	— vernal . . . . .	568	12	8
— upright . . . . .	496	11	4	Spignell, mountain . . . . .	44	1	2
Sandwort, sea spurry . . . . .	349	8	4	Spindle tree . . . . .	194	4	3
— sea . . . . .	223	5	1	Spread-cup, orange . . . . .	15	1	1
— plantain-leaved . . . . .	149	4	2	Spring-grass . . . . .	514	11	1
— thyme-leaved . . . . .	333	7	3	Spruce fir . . . . .	4	1	3
Sanicle . . . . .	189	4	6	Spurge, Portland . . . . .	322	7	1
Satyrium . . . . .	570	12	2	— sea . . . . .	3	1	5
Sauce-alone . . . . .	569	12	7	— sun . . . . .	589	13	8
Sawwort, common . . . . .	183	4	1	— wood . . . . .	34	1	8
Saxifrage, yellow mountain . . . . .	103	3	1	Spurry, corn . . . . .	692	15	3
— drooping bulbous . . . . .	171	4	1	— knotted . . . . .	399	9	3
— moss . . . . .	192	4	1	Squill, autumnal . . . . .	586	13	2
— rue-leaved . . . . .	219	5	2	Star-grass . . . . .	708	15	4
— purple . . . . .	683	15	5	— thistle . . . . .	676	15	7
— white . . . . .	84	2	5	— wort, sea . . . . .	80	2	1
— hairy . . . . .	170	4	6	—, var. . . . .	660	3	7
Scabious, small . . . . .	180	4	1	Stitchwort, less . . . . .	295	7	2
— field . . . . .	735	16	6	— bog . . . . .	587	13	6
Scotch fir . . . . .	7	1	5	— great . . . . .	130	3	8
Screw-moss, awl-shaped . . . . .	77	2	4	— broad-leaved . . . . .	621	13	8
Scurvy-grass, English . . . . .	240	5	1	Stonecrop, biting . . . . .	379	8	1
— Danish . . . . .	127	3	2	— round-leaved . . . . .	410	9	1
Sea-heath, smooth . . . . .	540	12	4	— hairy . . . . .	648	14	4
— holly . . . . .	53	2	5	Stone-parsley, bastard . . . . .	94	2	8
— purslane . . . . .	453	10	7	Stonewort, common . . . . .	601	13	4
— rocket . . . . .	83	2	1	— little transparent . . . . .	484	11	4

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Strangle-tare . . . . .	258	6	1	Vetch, tufted . . . . .	457	10	3
Strapwort, sand . . . . .	629	14	8	— common . . . . .	165	4	5
Strawberry, wood . . . . .	690	15	2	— wood . . . . .	455	10	6
— barren . . . . .	509	11	8	Vetchling, meadow . . . . .	249	6	3
— tree . . . . .	597	13	7	— marsh . . . . .	492	11	7
Succory, wild . . . . .	69	2	3	Violet, dog's . . . . .	168	4	1
Sulphurwort, meadow . . . . .	549	12	8	— marsh . . . . .	411	9	3
Sun-dew, great . . . . .	473	10	8	— hairy . . . . .	386	9	5
Sweet-flag . . . . .	716	15	4	— sweet . . . . .	42	1	8
— gale . . . . .	763	16	6	— pansy . . . . .	605	13	8
Swine's-cress . . . . .	200	5	1	— Calathian . . . . .	281	6	7
Sycamore tree . . . . .	577	12	7	Viper-grass . . . . .	563	12	6
Tamarisk, French . . . . .	685	15	7	Upland-Burnet . . . . .	447	10	6
Tansy . . . . .	421	9	8	Wake-robin . . . . .	607	13	6
Tare, hairy . . . . .	266	6	1	Wall-cress, tower . . . . .	74	2	7
— common . . . . .	321	7	3	— common . . . . .	146	3	8
— . . . . .	165	4	5	— -flower . . . . .	325	7	3
Teasel, wild . . . . .	711	15	6	— -pepper . . . . .	379	8	1
— small . . . . .	639	14	6	Wartwort . . . . .	589	13	8
Thistle, welted . . . . .	323	7	2	Water-blinks . . . . .	456	10	3
— dwarf . . . . .	206	5	3	— -cress, creeping . . . . .	474	10	2
— creeping . . . . .	296	7	6	— -cress . . . . .	201	5	6
— marsh . . . . .	312	7	6	— -lily, yellow . . . . .	495	11	6
— cotton . . . . .	741	16	7	— white . . . . .	485	11	8
— melancholy . . . . .	649	14	8	— -parsnep, procumbent . . . . .	531	12	1
Thorn-apple . . . . .	673	14	7	— -pepper . . . . .	431	9	5
Thorough-wax, common . . . . .	475	10	5	— -plantain, great . . . . .	36	1	5
— less . . . . .	633	14	7	— -violet . . . . .	151	4	1
Thrift, lavender . . . . .	47	1	1	— -pennywort . . . . .	142	3	8
— common . . . . .	298	7	2	Wayfaring tree . . . . .	375	8	2
Throatwort . . . . .	699	15	6	Weld . . . . .	373	8	4
Thrumwort, star-headed . . . . .	727	16	6	Welch-medlar . . . . .	129	3	4
Timothy-grass . . . . .	749	16	8	Whin . . . . .	21	1	5
Toad-flax, common . . . . .	64	2	6	— petty . . . . .	89	2	3
— sharp-pointed . . . . .	543	12	6	White-rot . . . . .	142	3	8
Toothwort, great . . . . .	160	4	1	— floating . . . . .	541	12	8
Tormentil, officinal . . . . .	33	1	6	White-thorn . . . . .	31	1	2
Touch-me-not, fulvous . . . . .	747	16	5	Whitlow-grass . . . . .	122	3	8
Tower-mustard, hairy . . . . .	635	14	5	Whortleberry, red . . . . .	662	14	2
— smooth . . . . .	717	15	7	Willow, creeping dwarf . . . . .	613	13	8
Towerwort . . . . .	717	15	7	— herb, purple-spiked . . . . .	289	6	3
Traveller's-joy . . . . .	342	8	2	— large-flowered . . . . .	57	2	4
Treacle-mustard . . . . .	614	13	2	— square-stalked . . . . .	113	3	6
Truffle . . . . .	251	6	1	Winter-green, intermediate . . . . .	93	2	3
Trefoil, melilot . . . . .	261	6	4	— chickweed . . . . .	120	3	3
— round-headed . . . . .	528	11	4	— less . . . . .	647	14	6
— common purple . . . . .	181	4	5	Woad, wild . . . . .	734	16	2
— subterraneous . . . . .	659	14	5	Wolds . . . . .	373	8	4
— hare's-foot . . . . .	576	12	7	Woodroof, sweet . . . . .	184	4	1
— brimstone . . . . .	245	6	8	— small . . . . .	150	4	7
— marsh . . . . .	294	7	1	Wood-sage . . . . .	560	12	3
Tulip, wild . . . . .	513	11	8	— -sorrel . . . . .	300	7	6
Turkey-pod . . . . .	74	2	7	Wormseed, treacle . . . . .	20	1	7
Turnip . . . . .	617	13	3	Wormwood, sea . . . . .	229	5	5
Tutsan . . . . .	545	12	8	— common . . . . .	161	4	6
Tway-blade, least . . . . .	634	14	2	Woundwort, marsh . . . . .	247	6	2
— common . . . . .	441	10	8	— hedge . . . . .	65	2	3
Valerian, Portuguese . . . . .	246	6	2	Yarrow, common . . . . .	19	1	2
— great wild . . . . .	547	12	5	Yellow-rattle . . . . .	449	10	7
Vervain . . . . .	67	2	2	— -wort, perforated . . . . .	153	4	8
Venus's-comb . . . . .	401	9	8	Yew tree . . . . .	18	1	8
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Folio. Line.	Folio. Line.
1 22 for Duftschmidt read Duftschmid.	which <i>Pentatoma picta</i> is men- tioned, I have received a note from Mr. Vigers, which says, "On referring to the insect in my cabinet, I find a memoran- dum affixed to it in the hand- writing of Dr. Leach, in the following words: 'Taken at Exeter in Devonshire by myself. I have another specimen.'"
* 5a 18 for Caterpillar read Caterpillars: and for it might read they might.	21a 2, 6, 8 and 24, for russica read russula.
36 for Pupa read Pupæ.	29 for Ramosana, degenerana, &c. read Ramosanus, degeneranus, &c.
4 It is possible this may be the <i>Ichneu- mon chrysopus</i> Lewin, Trans. Linn. Soc. v. 3. p. 4. tab. 2. f. 5.	33a 7 for Gamlung read Samlung.
6 25 for black behind read black before and behind.	14 for Beegiarus read Belgiarus.
7 for Odenesis read Odonestis.	41 32 add Claws bifid.
7a 25 for patatoria read potatoria.	45 39 for Lord Sidney read Lord Sydney.
9 32 after Tarsi 5 add jointed.	46a 14 for Hæmatopota read Tabanus.
11 26 add Marsh. Ent. Brit. 358.1.	
14 32 for excluded before read excluded after.	
15a 9 for nigrita read Nigrita.	
20 21 for Posterior tibiæ read Anterior tibiæ.	
20 Since this paper was published, in	

For an explanation of the terms used in this Volume, the reader is referred to Samouelle's Useful Compendium, Stewart's Elements of Natural History, and the forthcoming volumes of Kirby and Spence's Introduction to Entomology.

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Binders are requested on no account to beat the Volume until it has been published a sufficient time to prevent the ink being transferred by pressure.

\* Whenever a follows the number of the Folio, it refers to the second page of that Folio.

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Folio.	Line.	Folio.	Line.
20	8 <i>for articulated read pedicled.</i>	53	24 <i>for longest read shortest.</i>
23	<i>for Siagonum read Siagonium.</i>	25	<i>for shortest read longest.</i>
*46a	11 <i>for albipes read albiceps.</i>	*53a	18 <i>for Millard read Miller.</i>
47	17 <i>for 3-jointed read 2-jointed, 1st joint</i>	56a	23 <i>after abdomen add and simple antennæ.</i>
	<i>clavate, 2nd attenuated; external</i>	70	24 <i>for articulated read pedicled.</i>
	<i>4-jointed, &amp;c.</i>	79	37 <i>for 4 read 2.</i>
48	24 <i>omit sometimes tuberculated.</i>	87	28 <i>for neck read contracted base of the</i>
	<i>28 for n. 11 read n. 8.</i>		<i>abdomen.</i>
50	13 <i>for (2* 9) read (2* g).</i>	87a	1 <i>for neck read contracted base of the</i>
			<i>abdomen.</i>
		88a	<i>Geometra teneraria</i> Hüb. belongs to
			<i>this genus.</i>

Obs.—A new title-page is now given for Vol. I. and a new leaf for Folio 63.

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ERRATA AND ADDENDA.

Folio, Line.  
 \*14a 23 for Omoptera read Omaloptera.  
 58 The genus *Cryptus* has been recently named *Schizocerus*, which, for reasons given in our text, we shall adopt.  
 63a 3rd from the bottom, for female read male.  
 69 29 for 2 read 3 submarginal cells.  
 82a 6 for anterior read interior.  
 87 22 for spheciform read fusiform.  
 106a 22 after Bovis omit Linn.  
 110a 35 for laid read lay.  
 111a 5th line from the bottom, for 4 read 3 distinct transformations.  
 114 Since the genus *Pulex* was published, we have been favoured with specimens of *P. Hirundinis* by Thomas Carpenter, Esq., who has pointed out the antennæ, which in this species are as long as the head, placed

Folio, Line.  
 above the eyes, and are received when at rest into a deep groove, and when erected look like the ears of a rabbit; they are 4-jointed, the basal joint having a few long bristles.—The trophi are similar to those of *P. Canis*, but the maxillæ are more slender and acute.  
 126 The genus *Tyrophaga* is we believe *Piophila* of Fallen.  
 127 — This line shows the length of the *Cassida* figured, which was omitted in the plate: it is more than one-fifth the length of the magnified figure.  
 129a 4th line from the bottom, for Llandidus read Llandidno.  
 14Ca 23 after unca add Hüb., Haw.—uncana.  
 141 5 for Order Coleoptera read Order Hymenoptera.

For an explanation of the terms used in this Work, the reader is referred to Kirby and Spence's Introduction to Entomology, Samouelle's Useful Compendium, and Stewart's Elements of Natural History.

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Binders are requested on no account to beat the Volume, until it has been published a sufficient time to prevent the ink being transferred by pressure.

\* Wherever the letter a follows the number of the Folio, it indicates a reference to the second page of that Folio.



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ERRATA AND ADDENDA.

Folio. Line.

\* 99a 51 for *flavo-maculatus* read *flavo-scutellatus*.

134a It is probable that Mons. Latreille's genus *Asindulum* is the *Gnoriste* of Meigen, in which case it will come near to *Platyura*, and we must acknowledge and correct our error: but the figure in the genera *Crustaceorum*, &c. leaves us still in doubt; for the nervures of the wings, the form of the tarsi, and the length of the claws, are by no means analogous to the *Tipulidæ*.

137a *Odynerus spinipes* is Mr. Kirby's genus *Epipone*; and we suspect that Panzer's figure of *O. parietina* is the female. No. 10 is probably the female of No. 15.

150 *Neides elegans*. Upon examining several specimens taken by Mr. Dale upon *Ononis arvensis*, I find that the scutellum is elongated, and hangs over the abdomen like a tail.

161 25

162 27

164 33

166 54, 42, & 47

162

} for *Cocææ* read *Coxæ*.

The male of *M. notatus* has 2 long curled membranous appendages, one on each side the apex of the abdomen; the anterior tibiæ have a strong bifid tooth on the inside near the middle, the 2nd joint of the tarsi is not short, and the tibiæ of the middle pair of legs have a fascicle of hair near the apex.

for *Colas* read *Colax*.

166  
177 *Miselia bimaculosa* is said to have been taken at Bristol in June.

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ERRATA AND ADDENDA.

Folio.	Line.	Folio.	Line.
*195a	S. Drurii. I possess a specimen found in September in the Borough, resting upon the leaf of a plant, apparently just out of the Chrysalis.	219a	Mr. R. Wood of Manchester has presented me with a female of <i>Mono-chamus dentata</i> , which was taken near that place, and kept alive by him several weeks: he at the same time informed me that three specimens of <i>M. Sartor</i> had been captured there.
—	S. Carolina. Mr. Vigors's specimen was taken either by Mr. Honey or Mr. Fenton.	226	25 for <i>Scutellum read Postscutellum.</i> 35 for <i>Prothorax read Antepectus.</i> 34 for <i>Mesothorax read Medipectus.</i> 35 for <i>Metathorax read Metasternum.</i>
198	<i>Anomalon Vesparum</i> . Several males hatched the end of last April, as I anticipated. Is it not probable that they would have lived till females of another brood appeared in the following July?	231a	27 for <i>Lardew read Cardew.</i>
202a	for <i>Betonica officinalis, &amp;c. read Prunella vulgaris (Self-heal).</i>	252	Mr. Davis has lately informed me that he finds <i>Mezium sulcatum</i> as late as the middle of October, that it is frequently found amongst old waste paper in booksellers' warehouses, and that he discovered one in an old specimen of <i>Dyticus</i> , on pulling it to pieces.
ib.	last line but 4. for <i>Dundington read Duddingston.</i>	254a	dele line 17. 26 for t. 12. read 52. 29 for Linn. read Fab. 39 for 264 read 244.
205a	for <i>paludosus Gyll., read meridianus Linn.</i>		
204a	15 for <i>Onthophagus read Onthophilus</i>		
205a	25 for p. 3, read 332.		
206a	for <i>The Dwarf Orchis read An Orchis (probably maculata) was in flower, &amp;c.</i>		

\* The letter a following the number of the Folio indicates a reference to the second page of that Folio.

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ERRATA AND ADDENDA.

<p>Folio. Line.            *52a 4 for Austriacus Panz. read fracticornis Fab.            126 4 for putris read Casei.            ib. a 11 dele the T. putris L. and.            171a 4 read 1. S. madidus, Fab. Ent. Syst.—Marsh.—Olivier's t. 5, f. 61. represents another insect, although it is referred to by Fabricius, Marsham, and Schönherr.            215a 38 for longicornis Fab. read longicornis Steph.            241 5 from bottom for June read July.            244a after line 27 insert—II. With the club serrated internally.            250 for hybernicus read hibernicus.            264 Mr. C. C. Babington of St. John's Col-</p>	<p>Folio. Line.            lege, in a letter to me says, "<i>Thecla Pruni</i> was discovered by myself at Monk's Wood near Sawtry, Huntingdonshire, the last week of June this year; the Rev. W. P. Garnons of Sidney College, afterwards accompanied me to the same wood the first week in July, when we found the insect in the greatest plenty."            269a Obs. An opportunity offered of correcting all the plates before they were published, so that the note at the bottom of the page was unnecessary.            275 <i>Saperda Atkinsoni</i>, was taken in Mr. Atkinson's garden at Grove-end, in 1827.</p>
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\* The letter a following the number of the Folio indicates a reference to the second page of that Folio.

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ERRATA AND ADDENDA.

I have reason to believe that the *Alysia*, figured in the 141st plate, is parasitic upon a species of *Tephritis*, and that the shell-like *Pupæ* belonged to this dipterous genus; the larvæ having been infested with the maggots of the *Alysia* whilst feeding on the parenchyma of the celery leaves.

Folio. Line.

- 112 2 & 5 for ZONITIS read CONOPALPUS.  
 4 for Zonitis præusta Fab., read  
 Conopalpus flavicollis Gyl.  
 Obs. All the dissections were made  
 from the species figured.  
 \*247a 11 dele ante-  
 250 8th from the bottom, for crown of the  
 head, read crown and

Folio. Line.

- 286 11 for Trechi read Trichii.  
 303 *Lesteva Leachii* may possibly be  
 the *A. dichrous* Grav.  
 315a add to the last line after insect,  
 "and is magnified about twice the  
 size of nature."  
 333a 23 for lotus read latus.

\* The letter (a) following the number of the Folio indicates a reference to the second page of that leaf.

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Folio. Line.		Folio. Line.	
198	Anomalon Vesparum. Mr. Blackwall, of Crumpsall Hall, has bred the male the end of May.		near Nottingham: the <i>female</i> is so similar to that of <i>A. retusa</i> , that the only difference I can discover is in the colour of the spurs to the tibiæ, which are <i>ferruginous</i> , and not dusky or <i>black</i> as in <i>A. retusa</i> .
353 41	for 583 read 582.	374 38	for STRICTICA read STRICTICA.
341a* 11	for at read of the tarsi.	380	Cinetus dorsiger.
344a	add, at the bottom of the page, The Plant is <i>Verbascum Thapsus</i> (Great Mullein).		The size of this insect was omitted in a few of the impressions: it is the length of this line  .
346a 25	after centre add (fig. 9).	381a,	last line but one, for <i>Aira præcox</i> (Early Hair-grass) read <i>Carex dioica</i> mas (Common Separate-headed <i>Carex</i> ). I regret that in their journey from Cam- bridge the labels were displaced, which led to a transposition of the names.
	Obs. The figure of <i>Leiochiton Readii</i> is coloured scarcely blue enough.		
347a 27	for <i>Eumolps</i> read <i>Eumolpi</i> : I al- lude to the genus <i>Lamprosoma</i> of Kirby.		
357	Anthophora Haworthana. Since this species was published I have received a pair from Dr. Howitt, who takes the sexes		

\* The letter (a) following the number of the Folio indicates a reference to the second page of that leaf.

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66	<i>Helcomyza ustulata</i> . Either Dr. Leach made some mistake in the names sent to him by M. Meigen, or else he has changed them; for our insects are the <i>Actora æstuanus</i> of this author's last work.	406a	*** AMPHIMALLA, Lat. Although I had collected at various times a large number of specimens, I was mistaken in supposing that I had the sexes, for there was not a female amongst them, which has been the cause of my giving incorrect characters of this subgenus; they ought to have been— Antennæ 9-jointed, 5 terminal joints forming the club which is very small in the female. The legs differ in the sexes, as in the other species.
589	<i>Agriotypus armatus</i> . Mr. Wailes in a letter says, "I took a specimen on the shore of Derwentwater (amongst the small stones so characteristic of lakes amongst the older strata,) in April last. It is a female."	419a	<i>Nomada Dalii</i> was taken at Charmouth, Dorset, the 12th May, and not in the New Forest.
*395a 8	<i>for one read our.</i>	424 4	<i>for Irish read Highland.</i>
395	The characters of ♂ and ♀ added to the figures of the antennæ in the Plate, have been accidentally transposed, and the signs in the description, lines 14 and 17, have been made to correspond, to prevent further mistakes.		

\* The letter (a) following the number of the Folio indicates a reference to the second page of that leaf.

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N.B. A Supplement and Alphabetical Index to the Genera will be shortly published.

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ERRATA AND ADDENDA.

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439 34	after centre add and produced behind like a scutellum which is sometimes	469	Borborus hamatus, add to the specific description, hinder thighs of the male armed at the base with a hooked tooth.
445	<i>Asiraca pulchella</i> . Mr. Dale has two females which are larger than the males.	472a 25	for sublunulate one read sublunulate spot.
446	I have lately seen a specimen of <i>C. purpurascens</i> F. taken by Mr. Saunders near Weymouth.	477	Tachydromia. The three following species have been discovered by Mr. Haliday.
448	<i>Lasioglossum tricingulum</i> . I find that I possess the female of this curious insect.	3 <sup>a</sup>	umbrarum Hal., Hollywood, County Down.
*453a 12	delete that. Mr. Dale has a male with elytra covering the whole body.	5 <sup>2</sup>	arenaria Hal. Ditto.
		5 <sup>b</sup>	Graminum Hal. Taken in England.

\* The letter (a) following the number of the Folio indicates a reference to the second page of that leaf.

For an explanation of the terms used in this Work, the reader is referred to Kirby and Spence's Introduction to Entomology, Samouelle's Useful Compendium, and Stewart's Elements of Natural History.

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The number of species being in many instances doubled since the first edition was published, it is become necessary to reprint it; and as the great utility of a Work of this kind is to make it as compact and as cheap as possible, no unnecessary names will be inserted; it will therefore be of the same size and form as the First Edition; it will be printed on writing-paper, in alternate columns if possible, the Genera in CAPITALS, and they as well as the Species will be numbered, and an Alphabetical Index of the Genera will be added.

DRAWINGS.

In consequence of the heavy expenses attending the publication of the BRITISH ENTOMOLOGY, the Author is desirous of disposing of the original drawings, amounting to upwards of 500. The last eleven years he has devoted to the execution of them; the Insects have been drawn from British specimens; in the dissections he has delineated nothing but what he has himself observed; and the Plants have been executed from living specimens.

PROOF IMPRESSIONS.

Of these there were only four sets, one of which is not subscribed for. Gentlemen who may wish to possess the Drawings or Proofs may learn the price, &c., by applying to Mr. CURTIS, 57 Upper Charlotte Street, Fitzroy Square, London.



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ERRATA AND ADDENDA.

- Folio.  
 312, line 4, for *nebulalis Hüb.* read *nebulalis Haw.*, which is the *prunalis* of the *Wien. Verz.*  
 561, The *Chimarra* occurred in abundance on the shores of the falls of the Shannon at Castle Connel, also on board the steam-boat on Loch Dergh, and by various streams and lakes in Connemara.  
 526, *Anisoplia suturalis* has been found by Robert Ball, Esq., of Dublin, in abundance on the *Rubus saxatilis* in South Arran Islands, Ireland; they dropped into the heaths as if dead when disturbed. Mr. Wm. MacCauley, an intelligent young man, at Roundstone, in Connemara, has taken specimens on the sand-hills in that neighbourhood.  
 565, the 5th line from the bottom, after "names" add "in his *Systema Naturæ*," for in his *Fauna Suecica*, Linnæus has described several species.

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559, line 9, after *external* add *maxillary*.

578, Mr. Dale's specimen of *Papilio Podalirius* is the one that was taken by Dr. Abbot.

582, Mr. Henry Denny, of Leeds, has communicated the following observations on the supposed Larvæ of *Clythra 4-punctata*: "I suspect they inhabit Ant-hills. In a large nest of the *Formica rufa* which I procured from Kirkstall Woods, and kept in a box prepared for the purpose, I several times saw amongst the little bits of sticks, straw, and various substances of which these insects form their nests, a larva that appeared to be in a sort of case, formed of other materials, within which it could draw itself when alarmed. In a short time these disappeared, and some weeks after I found 3 or 4 specimens of the *Clythra 4-punctata* crawling in the box, evidently but just emerged from the pupa, as the elytra were quite soft and pale."

606, It was in June, not July, that Mr. Walton took the *Paramecosoma* on the banks of the Nidd, where I had the pleasure of seeing it alive this year in his company.

616, line 25, after *crossing*, add with a tooth at the extremity of the inner margin.

621, ♂ instead of ♀ has been added by mistake to fig. 7 in the Plate.

MR. CURTIS has the pleasure of announcing that this Work will be completed in 3 more Volumes.

For an explanation of the terms used in this Work, the reader is referred to Kirby and Spence's Introduction to Entomology, Samouelle's Useful Compendium, and Stewart's Elements of Natural History.

Purchasers are recommended to have their volumes put in Boards only, until the Work is completed, when a Systematic Arrangement of the whole will be given.

Binders are requested not to beat the Volume, until it has been published a sufficient time to prevent the ink being transferred by pressure, and on no account to damp the Book, as it will cause the Plates to stick to the opposite leaf.

BY THE SAME AUTHOR,

A GUIDE

TO AN

ARRANGEMENT OF BRITISH INSECTS.

A Second Edition is preparing for the press, and will be published as soon as possible.

The number of species being in many instances doubled since the first edition was published, it is become necessary to reprint it; and as the great utility of a Work of this kind is to make it as compact and as cheap as possible, no unnecessary names will be inserted; it will therefore be of the same size and form as the First Edition; it will be printed on writing paper, in alternate columns if possible, the Genera in CAPITALS, and they as well as the Species will be numbered, and an Alphabetical Index of the Genera will be added.

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- Folio.  
 374, in the description of the Palpi the basal joint has been omitted; read therefore at line 20: *Palpi* not reaching the apex of the lobe, naked, quadriarticulate, inserted in a deep groove, basal joint slender but concealed, 2nd cup-shaped, 3rd a little longer, 4th equal in length to the others united, elliptical (3).  
 line 24, *Palpi* inserted in cavities on each side, short, triarticulate, basal joint and part of the 2nd concealed, 3rd twice as long, stouter and subovate (4).  
 632<sup>b</sup>, last line but one, for *Queckit* read *Quekett*.  
 649<sup>b</sup>, line 24, for *oscillaris* read *oscillans*.  
 line 25, for *paludium* read *paludum*.  
 652, line 32, for *clavigerum* read *clavicerum*.  
 Plate 657, the insect is magnified: the expanse is 5 lines.  
 The length of two other insects is omitted in the plates, but their dimensions are given in the letter-press.  
 The letter <sup>b</sup>, following the number of the folio, indicates a reference to the second page of the leaf.

MR. CURTIS has the pleasure to announce that this Work will be completed in 16 Volumes; and also that

THE SECOND EDITION IS JUST PUBLISHED  
 OF HIS

GUIDE

TO AN

ARRANGEMENT OF BRITISH INSECTS,

Price 10s. 6d.

SOLD BY MESSRS. J. PIGOT & CO., 59 FLEET STREET.

This edition, which contains 1500 generic and nearly 15,000 specific names, has the great advantage of being printed on bank post *writing-paper*, and so arranged that it can be cut up for labelling cabinets. The Genera are printed in CAPITALS, and both Genera and Species are numbered, which render this Catalogue invaluable for reference and correspondence, and an *Alphabetical Index* of the *Genera* is also added.

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ERRATA AND ADDENDA.

Folio.

712<sup>b</sup>, line 41, for *Dorchester* read *Doncaster*.

569<sup>b</sup>, line 37, for it is *read* it has.

417, for CERATOPHYLLUS read CERATOPSYLLUS. This name, which was compounded to express the peculiar structure of the horned Fleas, was misprinted when the genus was established in this work, and it was not corrected, as the Author intended, in the Guide.

Plate 553. The Gerris is magnified; the length is  $3\frac{1}{4}$  lines, the expanse  $4\frac{1}{2}$ .

The letter <sup>b</sup>, following the number of the folio, indicates a reference to the second page of the leaf.

Mr. CURTIS has the pleasure of announcing that the 16th Volume, which will complete this Work, is in progress, and will be published in the course of next year. He is also preparing for the press,

A SYNOPSIS OF BRITISH INSECTS,

which he trusts will supply the desideratum so long wanted in this branch of Natural History, of a concise work by which species may be determined. It is intended to complete the Orders in single Volumes, so that every one will be complete in itself, and may be purchased separately at a reasonable price. The unrivalled collection in the possession of the Author, which has cost him thirty years of labour and a very large sum of money, will, he hopes, enable him to make this Work acceptable to every one desirous of becoming acquainted with the insects they may meet with in their walks and excursions, as well as an useful manual to the scientific Naturalist.

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ERRATA.

Folio 659, line 37, for 14 read 12.

— 723, last line but 1, for 393 read 392.

Plate 732. *Agrion rubellum* Van. Lin. : the var. figured is *A. aurantiacus* of Mons. de Selys-Longchamps.

Folio 744<sup>b</sup>. It is Pelecinus and Helorus which Mr. Holiday supposes Proctotrupes connects, and not Diapria and Ceraphron.

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