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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,

FELLOW OF THE LINNEAN SOCIETY.

ENT.



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TO
THE REV. WILLIAM KIRBY, M.A. F.R.S. L.S. &c.
THIS VOLUME
IS RESPECTFULLY INSCRIBED,
AS A GRATEFUL ACKNOWLEDGEMENT
OF MANY OBLIGATIONS,
AND IN TESTIMONY OF THE SINCERE REGARD OF
THE AUTHOR.

London, Jan. 1, 1824.



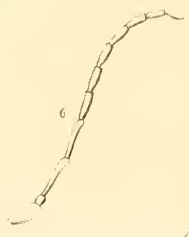


Plate by J. Curtis. Pencil. Jan 1 1824.

CICINDELA SYLVICOLA.

ORDER Coleoptera. FAMILY Cicindelidæ *Lat.*

Type of the Genus Cicindela campestris L.

CICINDELA. **Antennæ* filiform, inserted into the anterior margin of the eye. (fig. 6.)

Labrum large, somewhat triangular, slightly indented. (1.)

Mandibles large, with 4 simple teeth, and one near the base cleft. (2.)

Maxillæ furnished at their extremities with a distinct articulated hook, and strongly ciliated: *internal palpi* with 2 joints of nearly equal length; *external* with 4 joints, of which the second is equal in length to the two last. (3.)

Mentum with 2 lobes, and a strong spine in the centre: *palpi* with 4 joints: the first 2 very short, the third very long and hairy. (4.)

Thorax short, almost as broad as the head, sometimes cylindrical.

Elytra flat, rounded. Wings two. Feet formed for running, furnished with trochanters; *internal side of the anterior tibiæ* never notched: *anterior tarsi of the male* with the first 3 joints dilated. (5.)

C. SYLVICOLA *Megerlé* and *Dejean*

C. hybrida, var. *Duftschmidt*.

Above green tinged with purple, beneath metallic, green and blue. Head and thorax very finely punctured, elytra obliquely, and more deeply punctured, having a scabrous appearance, with pale yellow interrupted lunular marks at the shoulders and apex, and an abbreviated sinuated fascia in the middle. First 4 joints of *Antennæ* shining green, the remainder velvety, black. Legs and underside covered with white hairs.

In the Cabinet of Mr. Stephens.

LINNÆUS and his disciple Fabricius commenced their arrangements of the Order Coleoptera with the Scarabæidæ; and Latreille and those who have adopted his System selected

* The reader will please to observe, that throughout the work, the dissections will be made from the Insect established as the type of the genus, unless stated to the contrary; and the figures occurring in the descriptions will relate to the same figures in the plates.

for the same purpose the Cicindelidæ, considering them as the most complete in their organization. The only genus of this family found in Great Britain is that which I have described; the species forming it are all conspicuous for their beauty, and valued (with the exception of *C. campestris*) for their rarity; they are exceedingly active, and are mostly met with flying in the heat of the day in sandy situations.

The specimen figured is smaller and greener than the authentic ones from Mons. Dejeau in the magnificent collection of A. MacLeay, Esq., but it agrees very well with those in the British Museum. As an inhabitant of this country it is unique, and I am indebted to my friend J. F. Stephens, Esq., for being able to present my readers with a figure of this rare and elegant species: it was taken in Epping Forest in June 1820, and the same year it was found in profusion in different parts of the continent.—*C. sylvicola* very nearly approaches *C. hybrida*, but is readily distinguished from it by the green colour which is predominant; by the less sinuated fascia on the elytra; and by the more ferruginous colour of the third joint of the labial palpi.

C. germanica from its different form may very fairly be considered as belonging to another division of the genus. Mr. Brightwell found it in the middle of a very hot day in July 1810, running with the greatest rapidity among the short grass, on the margin of a small brook at Black-gang Chine in the Isle of Wight: it has also been taken near Dartford in Kent. The other species indigenous to this island are *C. sylvatica*, *C. hybrida*, and *C. campestris*.

The plant upon which the Insect is drawn is *Poa annua* (Annual Meadow Grass).*

* Whenever the plant to which an insect is attached can be obtained, it will be introduced in the plate; but as some feed upon putrid animal and vegetable substances, many upon each other, and as not unfrequently their habits are totally unknown,—in such instances plants will be introduced with a view to make the work as handsome and instructive as possible; and as a knowledge of Botany is absolutely necessary in order to be able to collect insects with complete success, it is hoped that figures of the indigenous plants will prove acceptable and useful to the reader.



Pub. in Illustrations London June 1 1821.

VELIA RIVULORUM.

ORDER Hemiptera. FAM. Hydrometidae Leach.

Type of the Genus Gerris currens Fab.

VELIA Lat. Gerris Fab. Hydrometra Fab.

Antennæ exerted, filiform, composed of 4 joints, the first of which is the longest, the last cylindric-oval. (1. a)

Head somewhat vertical. (1. b.)

Rostrum 2-jointed. (2. b.) inflected.

Labrum very short, not projecting. (2. a.)

Setæ (probably 4) passing through the Rostrum. (2. c.)

Feet long, formed for walking upon the water, first pair raptorious, tarsi 3-jointed, with very minute nails inserted laterally into a fissure near the extremity of the last joint. (3.)

V. RIVULORUM Lat. Cons. Gen.

Gerris rivulorum Fab. Ent. Syst. v. 4. p. 189.

Fuscous; head black, thorax deeply punctured, with two gray spots in front, and an orange mark between them; sides of the thorax and abdomen red with a black spot on the elevated edge of each segment, and a line of contiguous black spots down each side beneath; the anal segments in the abdomen of the male black: Elytron with one long and 3 round white spots—second pair of legs with the tibiæ ciliated; posterior thighs of the males bidentated, the body flattened, with a small anal joint projecting. Female with simple thighs, and a robust truncated abdomen.

In the Cabinets of Mr. Dale and the Author.

THIS pretty insect was unknown I believe as an inhabitant of this country till it was taken by Dr. Leach. My friend J. C. Dale, Esq., has since met with it in considerable abundance on his estate at Glanville's Wootton, Dorset; Mr. Samouelle has also taken it near Kew Bridge. It is found

with its congeners from April to September, by the sides of streams and springs, running upon the surface of the water.

Velia Rivulorum and *V. currens* have been described by Fabricius and other authors as distinct species; but from the remarks of my friends and my own observations, I am inclined to believe that the latter is only the pupa of the former. The fact might easily be proved, by those residing in a convenient situation confining a quantity of *V. currens* in a frame covered with coarse gauze, and floating them where they have been found. I suggest this plan, hoping that some assiduous entomologist may be induced to follow it up, and decide this doubtful and interesting question.

The insect in the plate represented flying is the male, that at rest the female, and the lines drawn near each denote their natural size. The plant figured with them is *Juncus articulatus* Linn. (Shining-fruited jointed Rush): it is found by the water's edge.



DEILEPHILA EUPHORBIAE.

Spotted Elephant.

ORDER Lepidoptera. FAM. Sphingidæ Lat.

*Type of the Genus Sphinx Elpenor Linn.*DEILEPHILA *Ochsenheimer*. *Sphinx* Linn.

Antennæ composed of many joints, with the club prismatic, and appearing hooked, it being terminated by a long, subulated, naked joint (1. a.): upper side thickly covered with scales (1. b.): under side ciliated (1. c.)

Labrum (2. a.) and mandibles attached to the head.

Mandibles parallel, curved inward, furnished internally with brushes of very strong hair (2. b.)

Maxillæ (forming the proboscis) very long and spiral: (3) is a portion of one, to show the base and the semi-cylindric canal.

Labial Palpi broad if seen in front, covered with short close scales, the first joint very much bent, second very large, somewhat oval, third tuberculiform, scarcely distinct: (4) the scales removed to show the articulations.

Wings horizontal, or deflexed in repose; a hook or catch at the exterior edge of the lower wings to retain those above.

Caterpillars with 6 anterior, 8 abdominal, and 2 anal feet.

D. EUPHORBIAE *Ochs.*

Sphinx Euphorbiæ Linn. *Syst. Nat.* 2. 802. 19. *Fab. Syst. Nat. tom. 3.* p. 367. 37. *Haw. Lep. Brit.* p. 61. 8. *Roesel. Ius. v. 1. t. 3. p. 17.*

Head and thorax white, the centre fuscous-green. Abdomen above fuscous-green, sides of the first 3 segments white, with pure black spots upon the first 2, the next 3 segments having narrow white spots on their sides. Upper wings fuscous-green, white at their base, with a black spot; the posterior margin white; a rosy fascia extending from the posterior margin to the apex, very deeply sinuated above and undulated beneath, and a darker rosy margin from the apex to the posterior angle; under wings black, whitish internally, with a deep rose-coloured fascia in the centre, and another along the external margin: the whole Insect beneath clouded rose colour, with 2 obscure black spots in the upper wings. *Antennæ* white above and fuscous beneath: legs white, first pair fuscous-green above. The male has much less black in the under wings, the *antennæ* are thicker, and the abdomen more dilated with hair at the apex, than in the female.

In the Cabinets of Mr. Raddon and the Author.

DEILEPHILA is derived from the Greek, and means Lovers of Evening. It was a genus proposed I believe by Hubner, and

established by Ochsenheimer in his "Die Schmetterling von Europa." It contains the following British species: *D. Celerio*, *Elpenor*, *Porcellus*, *lineata*, *Galii*, and *Euphorbiæ*, which are all rare excepting the second. These insects, which have been called Hawk-moths, fly about sun-set, darting from flower to flower, and hovering over the most fragrant with their long proboscis extended to extract the honey deposited in the nectaries. *Deilephila Euphorbiæ* is eminently beautiful both in its larva and imago states; and although it has been met with by the earlier collectors, I am indebted to the assiduity and liberality of my friend Mr. Raddon for being able to give its history, as well as figures of the larva, and the plant upon which it feeds.

During a long residence in Devonshire, that gentleman visited occasionally the extensive sand-hills at Appledore and Braunton Burrows near Barnstaple, where *Euphorbia Paralias* grows in great abundance; and from the size and beauty of the caterpillar it would be imagined that it might readily be found: but in the young state they are not easily discoverable; and when more advanced, they become so conspicuous that their numbers are reduced by marine birds which feed upon them:—sometimes they may be traced by their soil, at other times they may be seen far from the spot where they fed, at the extremity of a tall rush. They are full-grown about the middle of September, when they descend into the sand and change into chrysalides, forming a loose case of earth around them, from which they emerge the beginning of the following June. Sometimes, however, they remain in the pupa state two seasons, as many other Lepidoptera do;—a wise provision of Nature to prevent any accident from destroying the whole brood. The sand-hills where the larva is found are of great extent and magnitude, and must have been collected by the winds and storms to which they are constantly exposed: during the winter the whole soil is frequently removed, so as completely to alter the surface of the country; a great number of the pupa must consequently be destroyed or buried at a great depth below the surface, where probably they lie hid until they are brought to light and life by the influence of the elements*.

Dr. Schwægrichen of Leipsic informs me that in Germany *D. Euphorbiæ* feeds upon *Euphorbia esula* and *E. Cyparissias*, plants of the same division as *E. Paralias* (Sea Spurge) figured in the plate.

* I think it probable that the larva found in marshy ground at Barnsray near Crayford in Kent, and figured by Harris, as well as those recorded by De Geer as feeding upon a common *Galium*, were the caterpillars of *D. Galii*, especially as that species has been frequently confounded with *D. Euphorbiæ*.



PELTASTES PINI.

ORDER Hymenoptera. FAM. Ichneumonidæ Lat.

Type of the Genus Ichneumon necatorius Fab.

PELTASTES Ill. Ichneumon Fab., Lat. Metopius Pz.

Antennæ filiform, composed of 60 joints and upwards, inserted near the crown of the head, and equidistant from the eyes and each other. (1.)*

Clypeus formed like an escutcheon, pointed in the centre. (1.)

Labrum triangular, rounded in front. (2.)

Mandibles slightly arcuated, strong, acute, bifid near their extremities. (3. 3.)

Maxillæ short, corneous, rounded, ciliated, irregular at their outer edge. (4. a.): *Maxillary palpi* very long, hairy, 5-jointed, first joint straight cylindric; second very large, thick, clavate; third thicker than the first and nearly as long, fourth very small, fifth length of the first, cylindric. (4. b.)

Mentum oblong (5. a.): *palpi* short, hairy, 4-jointed, nearly equal, inserted near the apex of the mentum (5. b.) *Lip* membranaceous, striated, sides conniving externally. (5. c.)

Superior wings with the first submarginal cell very large, the 2 discoidal cells situated longitudinally one above the other.

Abdomen cylindric, almost sessile, composed of 7 joints in the male and 6 joints in the female: (7) *Under side of abdomen of male.*

Oviduct concealed: (6) *Underside of abdomen of female.*

Tarsi with 5 joints: (8) *Part of hinder leg.*

P. PINI nob.

Black, deeply and closely punctured; clypeus yellow; thorax with 8 yellow spots before the insertion of the wings: 2 at the base of the scutellum, which is square, bidentate, and margined with yellow behind; first and second segments of abdomen with two yellow spots, the remainder margined with yellow; wings obscure with ferruginous nervures. Antennæ black above, ferruginous beneath; legs yellow; first pair palest: hinder thighs striped black inside.

In the Cabinet of Mr. Bentley.

THE insects of this genus, like those of the whole family, are parasitic, depositing their eggs in the larvæ of Lepidoptera, which as soon as they hatch begin to feed upon the muscles

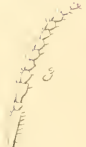
* The dissections of the mouth are taken from the type of the genus, but the other figures are drawn from the species figured in the plate.

of their victim, until the whole internal substance of the Caterpillar, with the exception of the alimentary canal, is consumed. In this diseased state it changes to a chrysalis, frequently assuming the natural form, although the colour is sometimes altered; and the lepidopterist is often disappointed in his hopes, when instead of a valuable moth or butterfly, one of these singular insects is the reward of all his care and attention.

The Ichneumonidæ, however, are eminently useful, employed as they are to keep within bounds a tribe of caterpillars which otherwise in all probability would swarm to a degree that would deprive vegetation of its beauty and utility:—An extraordinary instance occurred in the year 1782; for a further account of which I must refer the reader to “A short History of the Brown-tail Moth,” by W. Curtis.

Peltastes takes its generic name from the similitude of the clypeus to an escutcheon or shield: and I have given this species the name of *Pini*, from its being invariably found in pine groves. Like the rest of the genus (indeed of the family I might say), it is extremely variable; some having the antennæ entirely orange, others with the clypeus, palpi and all the thighs black; and yellow bands to all the segments except the first. There are but three species of this genus (proposed by Illiger) at present known to inhabit Britain, viz. *P. necatorius* Fab. which is the least rare, and has been bred from the chrysalis of *Stauropus Fagi* by Mr. Stephens; *P. dissectorius* Pz. taken by myself in the North of Devon in September 1822; and the species figured in the plate, which far exceeds the others in size, and was taken in June near Ringwood Hampshire, flying in the sunshine amongst pine-trees, by Mr. Bentley, a zealous entomologist who has added many rare and interesting species to the British Fauna.

Pinus Abies (Spruce Fir) is represented in the plate, which is to be met with in every plantation, having been introduced from Norway near a century since.



CTENOPHORA ORNATA.

ORDER Diptera. FAM. Tipulidæ *Lat.*

Type of the Genus Tipula pectinicornis *L.*

CTENOPHORA *Meig., Ill., Lat., Fab.* Tipula *L., Fab.*

Antennæ porrected, with 13 joints: first joint cylindrical, second globose, third oblong or securiform, and the following pectinated in the male (2), and simple, globose or rhomboidal in the female (3.)

Mentum horny in the centre and membranaceous towards the edges (1. a.): *Palpi* exerted; incurved, hairy, cylindrical, 4-jointed, the first very small, second and third large, and the last joint very long, flexible and wrinkled, except at its base where it is rigid. (1. c.)

Lip not inclined, ovate, hairy. (1. b.)

Ocelli none: *Antennæ with short hairs*: eyes oval, entire: mouth projecting like a beak. Abdomen of male thicker towards the extremity: of the female, thickest in the middle and tapering towards the apex, which is terminated by 2 strong processes (4.) Wings divaricating, shining. Tarsi with 5 joints.

C. ORNATA *Meg. & Meig. Syst. Besch. vol. i. p. 166.*

Yellow tinged with bright brown; thorax black, margined with yellow, and ferruginous behind the centre; 3 first joints of abdomen with black fasciæ, the fourth entirely yellow; 2 following with a triangular black mark in the centre, and the remainder ferruginous and black: wings yellow, ferruginous at the costa, black at the apex: *Antennæ* and legs orange: Tarsi black.

In the Cabinet of Mr. Dale.

THE genus Ctenophora, which is probably the most beautiful of the Tipulidæ, and remarkable for its fine antennæ, has been divided by Meigen, in his admirable work now publishing, into three divisions, taken from the structure of the joints of the antennæ of the males, which I have copied from his work, and

are marked A. B. C. in the plate. There are about eight or nine species in Britain; amongst which are *T. bimaculata* L. belonging to the first division; *T. atrata* L. belonging to the second; and *T. pectinicornis* L. the type of the third.

The larvæ are said to inhabit decayed trees, and the perfect insects are generally found amongst underwood and bushes. 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: and it appears to be equally rare upon the Continent; for Meigen has been obliged to depend upon his friend Wiedemann for a description of it. The female of this beautiful species is at present unknown.

Mr. Haworth also possesses a very rare species of this genus, which there is very little doubt is the *T. flavolata* Fab., taken many years since by Mr. Rippon in Yorkshire.

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

The plant introduced in the plate is *Polygonum aviculare* (Common Knotgrass).



Bot. Soc. London, Feb. 1 1891

NEBRIA LIVIDA.

ORDER Coleoptera. FAM. Carabidæ Lat.

Type of the Genus Carabus complanatus L.

NEBRIA Lat., Clairv., &c. Carabus L., Fab.

Antennæ linear, straight, the second joint the shortest, the fifth the longest. (6.)

Labrum nearly quadrate, slightly emarginate, not projecting beyond the labium. (1.)

Mandibles projecting far beyond the labrum, but little dilated externally, with 2 teeth near their base. (2.)

Maxillæ bent at the apex, distinctly ciliated: *internal palpi* cylindrical 2-jointed, *external* 4-jointed, the second joint the longest, the last truncated obliquely. (3.)

Mentum somewhat quadrate, with the centre lobe bifid: *palpi* 2, equal in length to the maxillary palpi; 4-jointed, the first 2 very short, the last truncated obliquely. (4.)

Thorax *cordate-truncate*; the basal angle straight: Abdomen *elongate, ovate*: back very much depressed. Wings 2. Feet formed for running, with trochanters. Anterior tarsi of the male with the first 3 joints dilated. Internal edge of the anterior tibiæ not notched.

N. LIVIDA Lat. Gen. Crus. C. lividus Linn. Faun. Suec. 791. not of Fab.

C. sabulosus Fab. Ent Syst. vol. i. p. 133. n. 40.

Head black shining; thorax ochraceous, black behind, sulcated in the middle; Elytra striated black with a pale yellow margin; Mouth, antennæ and legs pale yellow.

In the Cabinet of Mr. Vigors.

THERE is no family of Coleoptera probably of the same extent better understood than the Carabidæ, which in a great degree arises from its forming the commencement of the Order; every one is therefore obliged as soon as he begins his arrangement to study and investigate it. Latreille was evidently

anxious to make this part of the system perfect in his valuable work "Considérations Générales," &c. Clairville's "Entomologie Helvétique" was a most valuable acquisition to the student; and the Monograph by Professor Bonelli, as well as the acute observations of Dr. Leach, have left but little to be done so far as relates to the European genera. In 1792, when Fabricius published his "Entomologia Systematica," the Genus *Carabus* contained only 195 species, collected from every quarter of the globe; and now in Britain alone there are 275 species of *Carabidæ* known.

The Genus *Nebria* as it now stands contains only two British species; the one figured, which is drawn rather larger than life, was first discovered in Yorkshire by Mr. Spence, (well known as the coadjutor of Mr. Kirby,) and a single specimen was afterwards taken by Mr. Wilkin the 28th Sept. 1814 beneath a fragment of rock at Hilston near Hull in the same county. The other (*N. complanata*)—not so rare as *N. livida*, but extremely local—Sir Joseph Banks first discovered at Swansea. Dr. Leach many years after found it in the same situation; and in Sept. 1822 I was fortunate enough to take it in great abundance under the stones at high-water mark, on the sandy shore of the River Taw, near Braunton Burrows North Devon, after having been searching in vain for the larva of *Sphinx Euphorbiæ*.

Medicago lupulina (Nonesuch, black or Hop Trefoil), both in flower and fruit, is the plant figured in the plate.



ODENESIS PINI. Pine Lappet.

ORDER Lepidoptera. FAM. Bombycidae Lat.

Type of the Genus Bombyx potatoria L.

ODENESIS Germar. Gastropacha Ochs., Germ., Leach. Bombyx Lin., Fab., Lat., Haw.

Antennæ nearly straight, setaceous, strongly bipectinated in the male (1. a.) ; slightly bipectinated in the female (2.)

Maxillæ none? *Mandibles* none?

Palpi 2, not very long, porrected, 3-jointed, hairy like a brush in the female (3.): more compact and acute in the male. Middle joint twice the length of either of the others (4): with hair removed to show the joints.

Thorax not crested. *Abdomen* of male divided at the apex, and bent upwards when viewed sideways. *Wings* entire, superior ones when at rest deflexed, and the inferior projecting beyond them.

Larva with 16 feet: its hinder ones formed for walking, flat and smooth beneath, rounded above, somewhat hairy with a slight tuberculated whart upon the penultimate joint, and fasciculi of hairs disposed along the sides. Ochs.

Pupa with its segments simple, inclosed in an oblong soft cocoon.

O. PINI Linn. Faun. Suec. 1104. Haw, Lep. Brit. p. 80. 4. Roes. Ins. vol. i. p. 59.

Head, thorax and abdomen (of the male) pale fuscous. Upper wings cinereous, chesnut-brown at the base extending one fourth of the wing, surrounding a white lunular spot: an ochraceous fascia strongly marked in its outline running across parallel with the ciliated margin, very much sinuated behind, crenated before. Under wings pale chesnut. Female one-third larger than the male, similar in its markings, but throughout much paler.

In the Cabinet of the British Museum.

THE Lepidoptera is by far the most difficult of all the Orders to divide into genera, in consequence of the parts of the mouth being exceedingly minute and closely covered with scales or

hair; and the characters to be derived from the habits of the species will only be sufficient to divide them into families. Latreille in his various works has comparatively done little in the arrangement of this Order, which appears to have been the favourite of the collector and the outcast of the scientific. Savigny indeed is never to be forgotten for his inimitable dissections, so exquisitely delineated in his "Mémoires sur les Animaux sans Vertèbres," and it is to be regretted that his labours were limited to the comparison of the analogous organs of some of the Orders. Schrank has instituted many good Genera, as well as Ochsenheimer and Germar; but the characters of the former are often not satisfactory, and the latter frequently gives nothing more than an example of the genus. With such assistance it is with difficulty that the genus of an insect can be decided. The *diurna*, *crepuscularia*, and *nocturna* are undoubtedly the best understood; yet it was with great difficulty that I could determine the exact situation of the insect now under consideration. Germar and Leach have separated *potatoria* by the name of *Odenesis*, leaving *quercifolia* and *Pini* in the original genus *Gastropacha*, and the remainder of that genus is distributed between *Lasiocampa* and *Eriogaster*. *O. Pini*, however, differs so materially from *G. quercifolia*, in its short palpi, straight antennæ and entire wings, as well as in the texture of its cocoon, that it will be found to agree infinitely better with *O. patatoria*, although it may form a division in that genus.

Mr. Wilkes about the middle of September 1748 took a caterpillar of *O. Pini* upon a white-thorn bush near Richmond Park, which lived through the winter without eating; and my friend Joseph Sparshall, Esq., took a fine male in the Norfolk and Norwich hospital, 22d July 1809, and I am indebted to his kindness for being able to give a drawing of it. A British specimen has never before been figured.

Being desirous of making the subject as complete as possible, I have been induced to copy the female caterpillar figured in Roesel's "Der Montalich-herausgegebenen," &c. where he says that it feeds upon *Pinus sylvestris* and *P. Strobus*; that in June it spins a cocoon, and three weeks after the moth appears. The caterpillar of the male, which differs very much from that of the female, is published by Kleemann in his continuation of Roesel's work.

Pinus sylvestris (Scotch Fir) is figured in the plate.



CHRYSIS FULGIDA.

ORDER Hymenoptera. FAM. Chrysididæ Lat.

Type of the Genus Chrysis ignita L.

CHRYSIS. *Antennæ* inserted close to the margin of the clypeus, geniculated, fusiform, with 13 joints. (1.)

Labrum somewhat oval, entire, ciliated. (2.)

Mandibles arcuated, acute, crenated on the inner, hairy on the outer edge. (3. 3.)

Maxillæ somewhat square, the apex rounded at the internal angle and more acute externally, the interior margin dilated abruptly; membranaceous and hairy above, nearly coriaceous below the centre: *Palpi* 5-jointed, much longer than the maxillæ, third joint the thickest, fourth and fifth joints slender and twice the length of the former. (4. 4.)

Mentum triangular-oblong, (5. a.). *Palpi* short, 3-jointed, (5. b.)

Lip with the edges conniving externally. (5. c.)

Clypeus with a deep impression between the eyes. Thorax semicylindric, angular, divided by 3 transverse sutures: metathorax not elongated into a scutellum: Body contractile into a ball. Abdomen attached by a portion only of its transverse diameter, convex above, concave beneath, semicylindric, elongate, composed of 3 joints, the second being the largest, the last segment abruptly divided by a transverse impression with a row of impressed dots in the same direction. Tarsi with 5 joints (8. a fore leg). Oviduct long, soft and membranaceous, composed of several sheaths, in which is concealed a sting. Superior wings with the marginal cell shut up, submarginal and inferior discoidal cells with only a short nerve to divide them: inferior wings without distinct nervures.

C. FULGIDA Linn. Syst. Nat. 2. 948. 7. Fab. Ent. Syst. t. 2. p. 240. n. 8.

Shining: deeply punctured and pubescent: head, thorax, first segment of abdomen and legs bright blue variegated with green and purple, second and third segments of abdomen bright crimson reflecting gold and green: beneath green: tarsi and antennæ (except the first 3 joints) black. Wings fuscous. Anus 4-dentated.

In the Cabinet of Mr. Stephens.

JURINE has very aptly called the Chrysididæ the Humming-birds of entomologists; for it must be confessed that nature has been lavish in adorning them with the most splendid and effulgent colours, which cannot fail to call forth our greatest

wonder and admiration. Every one who has taken delight in observing the works of Nature must have noticed the resplendent hues of the common *C. ignita*, which is seen in the heat of the day running up and down the southern sides of walls, and about paling and posts in gardens where other species may also be found. About 16 species have been taken in this island; some of them however are so closely allied, that on further investigation they may prove to be only varieties.

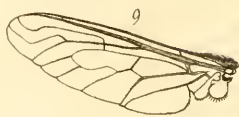
The beautiful species represented is a female (the natural size of which is denoted by crossed lines): it was taken with other specimens in June at Birch-wood or Bexley in Kent, by a collector* who has for many years enriched the first cabinets in the country by his labours; and as I well recollect the advantage and delight with which I used to visit this respectable man upon my earliest acquaintance with London, I have pleasure in making mention of him here.

Latreille has very judiciously divided the Chrysididæ into seven Genera, five of which are British: Jurine, having founded his Characters upon the forms of the cells of the wings, has not adopted them.

The Genus *Chrysis* may be divided into the species with the anal joint dentated, and those with an entire margin, as in *C. rufa* Pz.

The plant represented is *Thlaspi Bursa-pastoris* (Shepherd's Purse).

* Mr. Standish, 10 Prior Place, East Lane, Walworth; who has always Insects of his own collecting for sale.



ANTHRAX ORNATA.

ORDER Diptera. FAM. Anthracidæ Lat.

Type of the Genus Anthrax flava Hgg.

ANTHRAX Scop., Fab., Lat. Musca Linn.

Antennæ porrected, remote, 3-jointed, the first article cylindric, clavate, twice the length of the second; with long and thick tufts of hair; second nearly globular and hairy; third nearly naked, somewhat pear-shaped, with a long style terminated by a tuft of hair, or ovate with a 1- or 2-jointed style. (3.)

Head subglobose, with 3 stemmata placed upon a little tubercle: eyes reniform, converging behind, green when alive. (2.)

Trophi either entirely concealed, or projecting a little beyond the head. (1. a. part of the head which receives the trophi, and which came away with them upon dissection.)

Labrum (1. b.) horny, acute, convex above, concave beneath, inclosing the tongue.

Tongue considerably longer than the labrum, corneous, acuminate. (1. c.)

Mandibles none.

Maxillæ (1. e.) horny, linear, acute, nearly as long as the labrum.

Palpi 2, received into the cavity of the mouth, simple, cylindric, hairy, attached to the side of the maxillæ near the base, half their length. (1. f.)

Mentum? cylindrical, hollow above to receive the tongue and labrum. (1. h.)

Lip fleshy, oblong, bipartite, ribbed, extending as far as the tongue. (1. g.)

Head level with the thorax. Body 7-jointed, short, nearly quadrate, abruptly acuminated behind. Wings divaricating, long, lanceolate. (9.)

Halteres often concealed in the hair of the body. Posterior legs the longest. *Tarsi* 5, sometimes terminated by 3 claws: *pulvilli* obsolete. (8.)

A. ORNATA Hoffmannsegg.

Black shining: Head covered with black hair between the eyes, silvery behind, clypeus and under side of head 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 alternate fasciculi of fine white and black hair, 3rd and 4th segments with white fasciæ interrupted in the middle, sixth with a white spot in the centre, last joint very white with hair. Wings transparent, many-nerved, with a brunneous cloud extending two thirds the length, sinuated 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 nerves. Legs black, femurs and tibiæ covered with close yellow hairs. Halteres yellow.

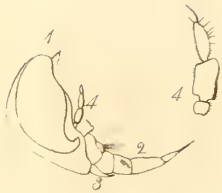
In the Cabinets of Mr. Dale, Mr. Bentley, and the Author.

MEIGEN very judiciously having separated *Belzebub* from *Anthrax*, and given it the generic name of *Stygia*, (which, however, must be changed, it having been unfortunately employed by Draparnaud many years back to distinguish a genus of *Zyganiidæ*) the family now contains four genera, two of which are British. It is probable that the sombre aspect of some of the exotic species might have induced authors to apply the name of *Anthrax* to this genus, and the association being carried further, may have given rise to the eccentric use of such names as *Abaddon*, *Belzebub*, *Cerberus*, *Hottentotta*, *Lar*, *Lucifer*, *Tantalus*, &c. for some of the foreign species.

A. ornata was first discovered by J. C. Dale, Esq. at Parley Heath, on the borders of Dorset and Hants, in July 1821, and afterwards in September 1823. It was found settling upon heath, banks, and on the ground where the turf had been pared off; it has also been captured by Mr. Bentley in the same neighbourhood. *A. flava* Hgg. (*A. Hottentotta* Lat.) I was so fortunate as to meet with the beginning of July 1822 flying amongst rushes, and lighting upon the sand near the sea-shore at Covehithe, Suffolk, and *A. circumdata* Hgg. (*Musca Hottentotta* Linn.) has been taken in Devon on the borders of woods in June; they are all very rare, and the only species at present known to inhabit Britain. Meigen has described 58 European species; but, as they delight in a warm climate, we cannot ever hope to extend our list to that number. The three species enumerated above are included in Meigen's first division, which is distinguished from the second by the structure of the antennæ, the concealment of the trophi, and the absence of a nerve which divides the submarginal cell in two.

The *Anthraces* fly in the sunshine 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 in Meigen and other authors, I have endeavoured as far as possible to investigate the subject for the information of the student.

The plant figured is *Anthemis nobilis* (Common Chamomile), found in gravelly soil, and belonging to a class of plants to which Diptera are particularly attached.



NOTONECTA MACULATA.

Spotted Boatfly.

ORDER Hemiptera. FAM. Notonectidæ *Leach.*

Type of the Genus Notonecta glauca Linn.

NOTONECTA *Linn., Geoff., Fab., Lat.*

Antennæ concealed in a cavity behind the eyes, minute, 4-jointed; first joint very small, globose; second large, somewhat cylindrical; third as long as the second, but much more slender; fourth very small, conical. (4. 4.)

Labrum exserted, large, triangular, convex: apex terminated rather abruptly. (3. 3.)

Rostrum as long as the head, inflected, arcuated, conical, 4-jointed; first triangular, truncated; second with a tuft of hair on each side beneath; third equal in length to the first and second; fourth small, bifid. (2. 2.)

Mandibles passing through the rostrum, like setæ, acute.

Maxillæ passing through the rostrum, like setæ, acute, not so long as the mandibles.

Head *vertical, transverse, as wide as anterior margin of thorax, rounded before; eyes large, oblong, converging above, external margin sinuated (1.); Thorax hexagonal, cylindrical, narrowed before. Scutellum large, triangular. Abdomen long, oval, thick, flat beneath, terminated on the side by a small ciliated process. Elytra notched at the apex. Tarsi 2-jointed, the first articulation the longest, the 4 anterior feet with strong claws; the hinder pair elongate, strongly ciliated, and with very minute claws. (6.)*

N. MACULATA *Fab. Ent. Syst. v. 4. p. 58. Coquebert's Illus. Ins. tab. 10. f. 1.*

Thorax and head pale cinereous: scutellum black: abdomen bright orange, black round the scutellum, and a very dark broad spot in the centre; the apex of abdomen on each side green. Elytra ferruginous, spotted irregularly with deep brown, anterior margin pale; wings very transparent, tinged with pink and yellow; legs dull and pale green.

In the Cabinets of Mr. Dale and the Author.

THE genus *Notonecta* contains three species, differing only in colour and markings, *N. glauca* Linn., *N. furcata* Fab., and *N. maculata*. The first inhabits almost every pond; the second is more local, but may be found plentifully about London, and other parts of the kingdom; the last appears to be confined to

the western counties, and is considered a rare and beautiful species. I never have met with it myself, and am indebted to J. C. Dale, Esq., who took it in Dorsetshire, for the specimens figured.

These insects are to be found in ponds and ditches all the year, together with the larvæ and pupæ (which are smaller than the imago): the former are without and the latter have only rudiments of wings; they are said to feed upon animalcula: the perfect insect being capable of inflicting a considerable wound with its rostrum, when taken, must be a formidable enemy amongst the weaker inhabitants of the water.

The wings, which are exquisitely delicate, and the elytra that protect them, are of little use to the insect in its natural element; but they are necessary to its preservation, by enabling it to seek a more congenial situation, when the place of its habitation is dried up by the heat of the sun, or other casualties. Upon approaching a pond, these insects may be seen lying upon their backs, with their tails touching the surface of the water, and their heads inclined downwards, watching probably for their prey; and, upon the least alarm, they row off with the greatest celerity, their hinder legs (which are most beautifully fringed with long silky hair) serving them like oars, from whence the appellation of Boatfly.

Cerastium aquaticum (Marsh Mouse-ear) is figured in the plate.



MOLORCHUS MINOR.

ORDER Coleoptera. FAM. Cerambycidae Lat.

Type of the Genus *Necydalis Umbellatarum* Linn.

MOLORCHUS Fab. *Necydalis* Linn., Lat.

Antennæ inserted in a notch in the eyes, somewhat setaceous, varying in length, first joint thick, second very small, third and following long, cylindric and rather clavate.

Labrum very minute, hairy and dilated very much in front, cordiform. (1.)

Mandibles short, triangular, slightly hooked. (2.)

Maxillæ crustaceous at the base, with 2 coriaceous lobes, the external one the largest, regularly ciliated. (3. a.) *Palpi* 2, the first 3 joints small, the last thick, ovoid, compressed and truncated. (3. b.)

Mentum broad, convex at the sides, emarginate before. (4. a.)

Lip coriaceous, 2-lobed. (4. b.) *Palpi* 2, inserted before the lip, short, 3-jointed, formed like the others. (4. c.)

Head sloped off before. Thorax without spines, nearly orbicular. Body elongate, narrow, subcylindric. Elytra abbreviated, gaping at the apex. Wings longer than abdomen, not concealed, but folded upon and covering the abdomen when at rest. Anterior legs shortest, posterior longest; thighs very much clavate. Tarsi 4-jointed, spongy beneath, the third joint deeply divided, the last rather long, terminated by 2 claws. (5. a fore-leg.)

M. MINOR Linn. *Syst. Nat.* 2. 641. 2.

M. dimidiata Fab. *Ent. Syst. t. 1. pars 2. p.* 357. 3.

Black, shining, pubescent. Head and thorax minutely punctured, the latter cylindric, oval-truncate, having 2 longitudinal shining lines near the centre. Elytra dark chesnut, with an oblique light spot upon each: the tips thicker and darker. Wings fuscous. Antennæ ferruginous. Legs bright chesnut, the thighs clavate towards the joint and black. Tibiæ hairy.

In the Cabinet of the Author.

THE genus *Necydalis* of Latreille ought probably to be divided: I have therefore adopted Fabricius's generic name for the

species with short elytra; and those with long and subulated elytra (*N. rufa* Linn. &c.) may retain their original appellation of *Necydalis*, should such a division be found advisable.

Of this singular genus there are but two species in Britain: *M. minor* figured in the plate (the smaller one being the natural size) was taken in June 1823 upon the blossoms of a tree in the beautiful and ornamental grounds of John Walker, Esq., at Arno's Grove, and communicated to me by Mr. Edwin Walker, to whose liberality I am indebted for several rare and interesting insects. *M. Umbellatarum* has been taken in the lane leading to Darent Wood, Kent, upon the dead branches of an old tree, where probably it bred; and several specimens were found also by myself in a hot day in June, upon an umbelliferous plant in a garden adjoining the same lane.

The plant introduced with the Insect is *Æthusa Cynapium* (Fools' Parsley).



LYCÆNA DISPAR. The large Copper.

ORDER Lepidoptera. FAM. Papilionidæ Lat.

Type of the Genus Papilio Phlæas Linn.

LYCÆNA Fab. Papilio Linn. Polyommatus Lat.

Antennæ slightly bent, composed of about 30 joints, the second, third, and fourth very short, the club ovate, sometimes slightly elongated, compressed at the apex. (1.)*Maxillæ* long and spiral.*Labial Palpi* porrected, first joint bent, covered with scales and hair; second very long, thickly covered with scales and hair; third joint slender, attenuated, and appearing naked. (f. 4. a palpus with the covering removed to show the joints; their natural situation and appearance are shown in f. 7. a front view of the head.)*Tarsi* 5-jointed, the first equal in length to the remainder.*Claws* small, projecting beyond the pulvilli, which are small also. (8.)

Wings all elevated when at rest: no hook or catch at the exterior edge of the lower wings to retain those above.

Larva oval, formed like a wood-louse, with 16 feet. Lat.

Pupa short, contracted, obtuse at both ends. Lat.

L. DISPAR Haw. Lep. Brit. p. 40. 51.

P. Hippothoë Esper., Lewin, & Don.

Male, upper side, bright and deep copper colour, shining, with a black spot in the upper, and a narrower one in the under wings; posterior margins black, in the inferior wings crenated; base of upper wings and abdominal margin of lower black, ciliæ white. Head, thorax and abdomen black, with yellowish hair. *Antennæ* black tipped with brown, and annulated at the joints with white. Eyes margined white. *Under side*; upper wings copper colour with a cinereous margin, having 7 black spots upon its internal edge, 3 black ocellated spots parallel with the costa, an irregular transverse line of 7 ocellated spots, and 2 more obscure, near the interior margin: lower wings pale blue shaded into cinereous, with a copper-coloured fascia at the posterior margin, having 8 black spots upon its internal, and 6 minute black spots upon its external edge, an oblique irregular line of 9 ocellated spots next, then a long narrow black spot, and 3 and 2 black ocellated spots nearer the base, ciliæ cinereous. Abdomen and legs whitish. *Female* larger and less bright, with the costa and base of upper wings duller, the nerves black towards the margin, and the spots of the underside appearing through, large, and not ocellated: under-wings black with red nerves and a copper-coloured fascia close to the margin:—under side similar to male.

In the Author's and other Cabinets.

LATREILLE has divided this beautiful genus into those with the hinder wings more or less tailed (viz. *L. dispar*, *Chryseis*, *Virgaurea* and *Phlœas*); and the others with the posterior margin entire, comprising the Blues or Argus Butterflies, amounting to 10 British species.

The splendid species selected to be figured was first discovered in Wales, as we are informed by Mr. Haworth in his valuable work "*Lepidoptera Britannica*," by the celebrated botanist Hudson. It has subsequently been captured by Dr. Skrimshire and Mr. H.; and lately in considerable abundance by Messrs. Benjamin* and Joseph Standish, who went down to Whittlesea Meer, Huntingdonshire, in expectation of finding it. They inform me that the end of July is undoubtedly the right season for this Insect, although they met with it the beginning of August 1822 and -23, flying amongst reeds, about the centre of the Meer near Yaxley; that it is very active, and in windy weather conceals itself amongst the highest reeds; upon which the Caterpillar probably feeds, as they found the Butterfly upon that plant just emerged from the chrysalis, drying its wings. I have therefore introduced in the plate a leaf of *Arundo Phragmites* (Common Reed): the Insect at rest is the male, that flying the female.

* Two collectors; of whom I purchased *L. dispar*,—and who dispose of all the Insects they take. One lives at 10 Weymouth-street, New Kent Road; the other at 10 King-street, Old Kent Road.



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EUMENES ATRICORNIS.

ORDER Hymenoptera. FAM. Vespadæ Lat.

Type of the Genus Eumenes atricornis Fab.

EUMENES Fab., Lat., Ill. Vespa Linn.

Antennæ inserted in the centre of the face, approximating, slightly geniculated, thickest toward their extremities, 12-jointed, the male having a thirteenth joint like a claw, equal in length to the last 3 joints. First and third joints long, second small. (f. 1. Antenna of male.)

Labrum an elongated triangle, or quadrate broadest at the base, ciliated in front. (2.)

Mandibles when at rest forming a rostrum or beak, long, narrow, having 3 clefts, which form 4 teeth on the internal edge. (3.)

Maxillæ elongated, ciliated, coriaceous towards their apex, corneous next the palpi, and at their base. *Palpi* very long, 6-jointed, first and second joints long, third shorter, 3 last small and slender. (4.)

Mentum oblong, cylindric, contracted above the insertion of the palpi. (5. a.)

Palpi long, 4-jointed, 2 first long and clavate; third, half the length of second; the fourth very small. (5. b.)

Lip coriaceous, striated transversely, elongate, dilated at the apex, bilobed, each lobe terminated by a gland (5. c.); a moveable lobe on each side shorter than the lip, dilated at the base, and terminated by a gland. (5. d.)

Clypeus convex, cordiform, bifid in front. Eyes deeply emarginate. Ocelli 3, distinct, smooth. Thorax with a triangular piece extending from the anterior margin to the scutellum. Abdomen with the first segment contracted into an arched, elongated peduncle, equal in length to the rest of the abdomen, or with a short funnel-shaped segment, the remaining 6 joints ovate-conic. Superior wings folded when at rest, 3 submarginal cells complete. Tarsi, first joint equal in length to 3 following; fifth terminated by pulvilli and claws, with a tooth on their internal edge. (8.) Females and Neuters armed with stings. Larvæ omnivorous.

E. ATRICORNIS Fab. Syst. Piez. 289 17.

Black, hairy, punctured, a yellow spot between the antennæ; clypeus partly or entirely yellow; anterior margin of thorax, base of the wings, posterior margin of scutellum, and a spot on each side, yellow; margin of peduncle, a large spot on each side first joint of abdomen (which is campanulate), a broad sinuated margin, and narrower margins to the 2 following joints, yellow. Legs yellow. Thighs black. Wings fuscous. Claw of antenna yellow.

In the Cabinets of Mr. Dale and the Author.

THE genus *Eumenes* is composed of those Wasps which are solitary in their habits; not congregating and forming nests, like the common Wasps and Hornets; Fabricius in his *Systema Piezatorum* described 23 species, 3 of which are European, and Panzer has added 3 or 4 more to them; but it was not recorded as a British genus until my friend the Rev. W. Kirby (equally celebrated for his invaluable works and for his acute observations) discovered it in an entomological excursion with Mr. Dale upon Parley Heath, on the borders of Hampshire, July 3, 1821;—at the end of August 1822, I captured 2 on the same heath upon gravelly and dry banks; and earlier in the last year, I am informed by Mr. Bentley, it was found by him settling upon different species of *Ericæ* which are common in such situations.

Eumenes may probably at a future period be separated into two genera; but as I cannot detect any important differences in the Trophi after the most careful examination, I shall only propose to make 2 divisions of them: the 1st may contain the species with a long petiole to the abdomen; the 2nd (to which our Insect belongs) those with the 1st segment short and funnel-shaped, of which the parts composing the mouth agreeing with the habit of the Insects, are more robust and obtuse than in the 1st division.

The plant figured is the beautiful *Erica Tetralix* (Cross-leaved Heath).



Crus. Curbed London Mar 1 182

HÆMOBORA PALLIPES.

ORDER Onaloptera *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-orbicularly 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.

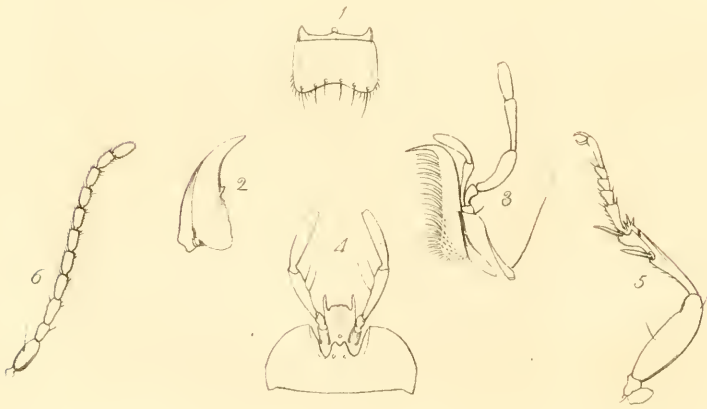
THE curious tribe to which this Insect belongs forms a 2nd division of Latreille's Diptera, and is called *Eproboscidea*.

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.



OMASEUS ATERRIMUS.

ORDER Coleoptera. FAM. Carabidæ Lat.

Type of the Genus Carabus aterrimus Fab.

OMASEUS Ziegler. Carabus Linn., Fab. Harpalus Lat. Poecilus Bon.

Antennæ filiform, first joint the largest, cylindric, oblong, second the smallest, third twice the length of the second, the following hairy, of nearly equal length. (6.)

Labrum nearly quadrate, straight at its base, rounded at its corners, emarginate and hairy in front. (1.)

Mandibles arcuated, acute, with a small tooth or elevation about the middle of the internal edge, and minute clefts near the base. (2.)

Maxillæ considerably bent at the apex, strongly ciliated on the internal edge, and externally towards the base, with 2 long hairs on the horny edge: *internal palpi* 2-jointed: *external* 4-jointed, first joint small and bent, second robust, twice the length of the first, and curved the contrary way, third same length as second, somewhat clavate, fourth shorter, oval, truncate. (3.)

Mentum large, broad and straight at its base, narrowed before, sides very convex, deeply emarginate in front, with a bifid process in the centre: *Palpi* 3-jointed, first joint very small, second long, rather uneven on its internal edge, third long, truncate: *labium* projecting beyond the first joint of palpi, produced into a spine on each side. (4.)

Thorax subquadrate, transverse, slightly rounded behind, with an impression on each side of its base. Abdomen elongate, ovate, robust.

Wings 2. Feet formed for running. Anterior tarsi with 3 dilated joints. Anterior tibiæ notched on their internal edge. (5.)

ATERRIMUS Fab. Ent. Syst. 1. p. 156. n. 141.

Black, shining: 2 impressed lines on the forehead. Thorax broader than head, with a narrow slightly reflected margin, a semi-circular line in front, from which a channel extends down the centre. Elytra broader than thorax, striated, with 2 punctures in the second stria from the suture, and another in the third, nearer the base.

In the Cabinets of Mr. Sparshall and the Author.

THIS genus, proposed by Ziegler and adopted by Dejean, has not hitherto been published with any defined characters that I am aware of: but as the species composing it do not associate

well with any of the other Harpali of Latreille, I have little doubt, as I proceed with the other groups of that extensive family, I shall be able to show clearly that the trophi are sufficiently different to warrant forming them into a distinct genus.

The individuals which *Omascus* comprises found in this country are *O. aterrimus* figured in the plate (which is a male, and drawn rather larger than life); *H. orinomum* of Leach, taken in Scotland and Ireland; and *C. nigrita* Fab., which is the *C. aterrimus* of Entomologia Britannica: it is to be found under the bark and at the roots of trees, and is common every where; but our insect, the true *O. aterrimus* of Fab., was unknown as an inhabitant of this island until it was discovered in Norfolk by my lamented friend the late Joseph Hooker, Esq. of Norwich. Mr. Sparshall afterwards found a specimen at Horning in the same county, which had just settled upon a plant in the marshes, the wings being at the time unfolded; and in January 1822 he was so obliging as to take me to the same neighbourhood, where I had the pleasure of finding 2 specimens secreted in crevices in the bark of pollard willows by the side of the river: they did not appear to be much affected by the cold at the time, although the tranquil waters which covered the surrounding country were frozen over; for one of them made its escape, and falling into the river, which had overflowed its banks, it sunk, and must have attached itself to the grass at the bottom, for after the most diligent search we could not find it: at the end of November in the same year we went again, when we found a considerable number apparently in their natural habitation, the decayed stumps of trees that had been cut down by the sides of ditches which frequently overflowed them: we dug many out of the trees, so completely enveloped that it is difficult to imagine how they could have got there, unless they had resided in the wood in the larva state: it is evidently a very local species, attached to damp situations, and able in warm weather to fly with celerity. Mr. Stephens has also had several sent from Ireland, which came safe to him in a letter by the mail; they were said to have been taken in an ants nest, the inhabitants of which they probably devour, as the Carabidæ live upon other insects, and will even destroy their own species.

Peziza aurantia of Persoon (Orange Spread-cup) being found at the roots of decayed trees, it accompanies the insect in the plate.



Edw. C. Currier, London April 1 1891

PERONEA RUFICOSTANA.

Rufous-margined Button Moth.

ORDER Lepidoptera. FAM. Tortricidæ *Leach.*

Type of the Genus P. Cristalana Don.

PERONEA nob. *Pyralis Fab., Lat. Tortrix Hub., Haw., Leach.*

Antennæ inserted on the crown of the head near to the eyes, rather thickest in the middle, having a serrated appearance under a lens, composed of 50 joints or more, hairy with a few scales, first joint cylindric, second smaller, nearly globular. (1.)

Maxillæ as long as the palpi. (3.)

Palpi 2, completely covered (when perfect) with scales, and hairy at the margins and apex (4.); first joint short, clavate; second very long, dilated in the middle; third joint slender, half the length of last (4. a. the scales being removed to show the articulations).

Wings rounded at the base, appearing ciliated on the costa, either with small tufts of scales, or with one large tuft in the centre of the upper wing. (9.)

Anterior legs with the first joint of the tarsus nearly as long as the tibiæ; coxa nearly as long as the femur. (8. b.) Posterior legs; femur short (8. b.), tibia long, with 2 spines in the centre and 2 at the apex (8. a.), all the tarsi 5-jointed. Caterpillars with 16 feet?

RUFICOSTANA nob.

Upper wings dull violaceous, yellowish white at their interior margins, a mark of chesnut, darkest in the middle, extending obliquely from the base nearly to the apex; a very minute tuft of bright ferruginous scales near the centre; and an interrupted line of spots parallel with the posterior margin; cilia rufous. Head, palpi and thorax white. Abdomen and inferior wings fuscous.

In the Cabinet of Mr. Stone.

THE genus *Tortrix*, containing at present upwards of 250 British species, may with propriety be considered a family; and as it is composed of numerous natural groups, it will be found impossible clearly to understand them unless they are formed into genera: with this object in view, I have proposed the genus *Peronea* (which is derived from the Greek, and signifies a button), and divided it into those with a large elevated tuft of scales in the centre of the upper wings, the others having small tubercles only dispersed over them. The follow-

ing arrangement of the species may be acceptable to those who have a collection of this beautiful genus, and will enable me to explain the affinities of the neighbouring groups when they come under consideration. I have carefully examined the palpi of every individual, and have to regret that many of the species have only manuscript names, (all of which are printed in italics,) an inconvenience which it is hoped will soon be superseded by the completion of Mr. Haworth's *Lepidoptera Britannica*, which it is understood will contain a Supplement in which all the new species will be described.

PERONEA

1 <i>cristana</i> F.	15 <i>N. S. ?</i>	29 <i>latifasciana</i> Haw.
2 <i>subvittana</i> Step.	16 <i>fulvovittana</i> Step.	30 <i>N. S.</i>
3 <i>albipunctana</i> Haw.	17 <i>Cristalana</i> Don.	31 <i>centrovittana</i> Haw.
4 <i>striana</i> Haw.	18 <i>profanana</i> F.	32 <i>combustana</i> Hub.
5 <i>N. S.</i>	19 <i>N. S.</i>	33 <i>albistriana</i> Haw.
6 <i>consimilana</i> Step.	20 <i>brunneana</i> Step.	34 <i>umbrana</i> Hub.
7 <i>vittana</i> Step.	21 <i>eximiana</i> Haw.	35 <i>ramistriana</i> Haw. ?
8 <i>substriana</i> Step.	22 <i>Byringerana</i> Hub.	36 <i>divisana</i> Hub.
9 <i>spadiceana</i> Haw.	23 <i>N. S.</i>	37 <i>radiana</i> Hub.
10 <i>N. S. ?</i>	24 <i>autumnana</i> Hub.	38 <i>strigana</i> Step.
11 <i>fulvocristana</i> Step.	25 <i>plumbosana</i> Haw.	39 <i>ruficostana</i> nob.
12 <i>albovittana</i> Step.	26 <i>Boscana</i> F.	40 <i>bistriana</i> Haw.
13 <i>sericeana</i> Hub.	27 <i>subcristana</i> Step.	41 <i>similana</i> Step.
14 <i>N. S. ?</i>	28 <i>N. S. ?</i>	42 <i>albicostana</i> , Step.

Tortrix favillaceana, *asinana*, and *tristana*, would follow *P. Byringerana* very well, but the last joint of the palpi is not concealed, otherwise they agree both in the proportion and form of the joints; and I suspect, if we admit these 3 species, that *T. logiana*, *Schalleriana*, *rufana*, *borana*, *Asperana* and *variegana* must be admitted also.

The unique and nondescript species figured (the natural size of which is given with the dissections) was beat from out the white-thorn, at the end of September 1823, in the New Forest, and is now in the cabinet of Mr. Stone, whose unrivalled collection of this family I have been allowed to examine at my leisure, and through whose liberality I am enabled to give dissections of this rare and valuable genus.

These insects conceal themselves in the *Lichen parictinus* (figured in the plate) when it grows upon the white-thorn, and have nearly all been taken at Darent and Coombe Woods, and in the New Forest, from the end of September to November, and even during January and February occasionally.



Del. by J. Burtis. London. (April. 1. 1891)

CRÆSUS SEPTENTRIONALIS.

ORDER Hymenoptera. FAM. Tenthredinidæ Lat.

Type of the Genus Tenthredo septentrionalis Linn.

CRÆSUS Leach. Nematus Jur., Lat. Tenthredo Linn., Fab.

Antennæ inserted between the eyes, simple, in both sexes longer than the body (especially in the females), rather thicker in the middle, and tapering towards the apex, hirsute, 9-jointed, first joint short, second very short, the following long, and decreasing in length to the apex. (1.)

Labrum exerted, pilose and ciliated, transverse quadrate, convex at the sides, rounded and slightly emarginate before. (2.)

Mandibles exerted, robust, depressed, acute, with one internal tooth towards the apex. (3.)

Maxillæ narrow and corneous at the base (4. a.), dilated in the middle, and produced into a tooth on the internal edge (c.); apex membranaceous, and appearing ovate externally, from the edges curving inward: *Palpi* long, inserted near the centre of the external side, 6-jointed, first joint shortest, fourth and fifth longest, sixth nearly filiform. (b.)

Mentum quadrate, dilated and emarginate before (5. a.); *Palpi* 4-jointed, irregular, the third being the thickest. (b.)

Lip membranaceous, 3-lobed, the centre narrow and dilated at the apex, side lobes somewhat hemispherical, striated towards their apex, thickened at their margins and ciliated. (5. c.)

Clypeus broad, emarginate. Ocelli 3. Abdomen sessile, short, cylindrical in the male, deflexed in the female. Oviduct not exerted, composed of two lamellæ, which are serrated. Superior wings with the marginal cell complete, and 4 submarginal cells. Tibiæ of hinder legs dilated at their apex. Tarsi 5-jointed, first joint the longest, very much dilated and compressed in the posterior legs, as is shown in the coloured figure. Claws unidentate internally. Pulvilli in the centre. (8. a fore-leg.) Larva with 20 membranaceous feet.

SEPTENTRIONALIS Linn. Syst. Nat. 2. 926. 36. Fab. Ent. Syst. t. 2. p. 119. n. 56.

Black, shining; head and thorax slightly punctured, pubescent, a pale yellow spot on each side the scutellum, third, fourth, fifth, sixth and seventh segments of the abdomen in the male, and third, fourth, fifth, sixth, and a spot on the seventh in the female, bright brick colour; base of thighs, tibiæ and tarsi in the 4 anterior legs ochraceous, base of tibiæ and coxæ in posterior legs whitish. Superior wings pale, ferruginous towards the centre.

In the Author's and other Cabinets.

WHEN I took the female figured in the plate, many years back, in a meadow near Bungay, Suffolk, it was considered a valuable species; but it has been frequently captured since, although never in any abundance. It is said to be taken at Darent Wood, Kent, in June; and Fabricius says the perfect insect is found amongst alders in the North of Europe, and that the caterpillars are gregarious, green, spotted black, with a yellow apex; many of the larvæ of this family are very similar in appearance to those of the Lepidoptera; they feed upon the leaves of plants, are often very brilliant, and have a peculiar manner of rolling themselves up if touched; when full-grown they curl up a leaf in the most artful manner to protect them in the chrysalis state: their feet are very differently situated to the Lepidoptera; and the accurate Jurine observes, that the number of them regulates the number of the marginal and submarginal cells in the superior wings, which shows the importance of a knowledge of the imperfect, to be thoroughly informed of the affinities of the perfect insect.

The present genus, of which we only know the species figured, was separated from *Nematus* of Jurine by Dr. Leach in the 3rd vol. of the Zoological Miscellany, in a paper upon the external characters of the Tenthredinidæ; the dilated tibiæ and tarsi in both sexes indicate a different mode of life to the other *Nemati*: this singular conformation appears occasionally in many of the Orders, although we are ignorant of its uses except in the polliniferous Apidæ.

The insects of this family may easily be known by their ample wings of many complete cells, and perfectly sessile abdomen, and on more close inspection by their peculiar oviduct: when alarmed, many of them bend down their heads and antennæ very forcibly, so as to show the attachment of the thorax.

The plant figured is *Crepis Tectorum* (Smooth Hawk's-beard).



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 cylindric, 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 inflected 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-

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.



Chrysomelidae

RHIPIPHORUS PARADOXUS.

ORDER Coleoptera. FAM. Mordelladæ Lat.

Type of the Genus Mordella paradoxa Linn.

RHIPIPHORUS Fab., Lat., &c. Mordella Linn.

Antennæ inserted between the eyes, distant, 11-jointed, basal joint largest, sub-obconic, second smallest, the 8 following in the males flabellate or bipectinated, terminal joint very long and filiform (f. 6.): third joint longest in the females, singly branched, as well as the 8 following. (6. a.)

Labrum coriaceous, porrected, semioval, ciliated. (1.)

Mandibles arcuated, acute at apex, without teeth, hairy externally. (2.)

Maxillæ very small, slightly bilobed, ciliated: *Palpi* hairy, 4-jointed, first joint very small, second and fourth the longest, truncated obliquely. (3.)

Mentum elongated, narrow in the middle, terminating in a blunt point: *Palpi* 2-jointed, hairy, basal joint the smaller, terminal clavate. (4.)

Head cordiform, very small, not visible from above. Eyes not emarginate. Thorax very much arched, trilobed, the centre behind produced into a scutellary angle. Scutellum none or obscure. Body elevated, arcuate, laterally compressed, very acute. Elytra elongated, shorter than body, acuminate at apex, gaping. Wings folded, as long as body. Tarsi simple, posterior 4-jointed, the others 5-jointed; middle and posterior legs longest. Tibiæ with spurs. Claws bifid at apex.

PARADOXUS Linn. Faun. Suec. 831. Fab. Ent. Syst. 1. pars 2. 111. 5.

Mars. Ent. Brit. 491. 9.

Black, pubescent, punctured. Thorax deeply and widely channelled in the centre, side lobes testaceous. Elytra testaceous in the male, black at the apex, black in the female slightly tinged with testaceous. Wings fuscous at apex. Abdomen orange, anus black, sometimes entirely black. Claws testaceous.

In the Author's and other Cabinets.

THIS beautiful and interesting insect, which is the only species that inhabits Britain, was considered a few years back one of our most valuable acquisitions, being only met with accidentally, from our ignorance of its habits and economy; but having been discovered in its natural habitation by my friends Dr. Leach and W. S. MacLeay, Esq., the attention of naturalists was called to the subject, and it has since been taken

in profusion in Shropshire, by the Rev. F. W. Hope; and at Southgate, not uncommonly, by Mr. Edwin Walker, in August and September 1823, to whom I am indebted for the very fine specimens figured in the plate, which far exceed in size any that I have seen elsewhere; and this gentleman observed, that the individuals taken in August were much smaller than those that were captured later in the autumn. I have seen this insect alive in Norfolk: it has also been taken in Somersetshire; and my friend Mr. Dale found one in his orchard in Dorsetshire, which induced us to search for a wasp's nest, which we found in the neighbourhood; and having destroyed and dug it up, at night it was conveyed home in a vessel closely covered, and upon examination the next morning I had the gratification of releasing a male from one of the cells, the external figure of which was hexagonal, but the operculum was circular; and the same structure is exhibited in one that Mr. Stephens received from Mr. Hope.

The eggs must be deposited in the cells of the wasps, for which purpose the acute abdomen of the female is well adapted; and the larvæ, when hatched, are probably nourished by the wasps as their own offspring:—the perfect insect, from the smallness of its mouth and the weakness of its organs, cannot, however, be a very formidable enemy. When it emerges from the chrysalis, it leaves the nest and resorts to neighbouring flowers, like the rest of the *Mordelladæ*: the wasps therefore can sustain no other injury than that which arises from the few cells occupied by the larvæ.

The smaller figure in the plate (which is the natural size) is the female, and from its different colour was considered by Panzer a distinct species, which he called *R. angulatus*; the figure of the male is magnified, and is not only distinguished from the other sex by its colour, but by its beautiful flabellated antennæ.

The plant is *Achillea Millefolium* (Common Yarrow).



Drawn by J. Curtis at London May 4 1821

PENTATOMA CÆRULEA.

ORDER Hemiptera. FAM. Pentatomidæ *Leach.*

Type of the Genus Cimex rufipes Linn.

PENTATOMA *Oliv., Lat. Cimex Linn., Fab., Wolff.*

Antennæ exerted, inserted under the margin of the head before the eyes, nearly filiform or slightly clavate, longer than the head, articulated, 5-jointed, the joints varying in length. (4 A. C.)

Rostrum inflected, distinctly 4-jointed, the second and third joints rather the longest, terminal joint hairy. (2.)

Labrum very long, attenuated, transversely striated, received into a canal in the basal joint of the rostrum (3.); its natural situation is shown at 3. a.

Mandibles and
Maxille } like setæ passing through the rostrum.

Head *trigonal*, immersed nearly, or quite up to the eyes in the thorax.

Thorax with the anterior margin much narrower than the posterior, sometimes produced into a spine on each side. Abdomen ovate, depressed, immarginate. Scutellum large, not covering the wings or elytra. Elytra coriaceous, membranaceous at apex, crossing each other horizontally. Posterior Tibiæ notched internally. Tarsi 3-jointed, middle joint small. (6. a. fore-leg.)

CÆRULEA *Linn. Syst. Nat. 2. 722. 50. Fab. Ent. Syst. t. 4. p. 123. n. 166.*

Cyaneous, sometimes tinged with violaceous or green, shining, punctured. Abdomen very minutely and regularly punctured; tips of elytra brunneous. Wings slightly fuscous, iridescent.

In the Author's and other Cabinets.

FEW Orders, perhaps, present a greater variety of outline, or more beautiful sculpture, than the European *Hemiptera*; the *Coleoptera* and *Lepidoptera* cannot exceed the brilliancy and powerful opposition of colours in many of the Chinese and South American species. With such attractions, therefore, it is not a little surprising, that in this country they should have been totally disregarded; and whilst, on the one hand, we have been assisted by *Marsham's Coleoptera*, and on the other by *Haworth's Lepidoptera Britannica*, we have no guide in this department, except in the rare and incomplete works of our Continental neighbours. During the progress of

the Entomological Transactions, I had hoped that this desideratum would have been supplied by my friend the Rev. J. Burrell; and although his valuable researches upon this subject have been so long withheld from the scientific world, I still hope he may be induced to supply this want by its publication.

The genus *Pentatoma* may be divided into three sections:—

- A. Thorax produced into a spine on each side; third joint of antennæ the longest (fig. 4. A.), containing *P. bidens*, *rufipes*, *custos* and *lurida*.
- B*. Thorax angulated, broader than abdomen; antennæ with the third joint the shortest. *P. Lynx*, *Baccarum* and *grisea*.
- * * with the second and following joints of antennæ of equal length. *P. dissimilis* and *prasina*.
- C. Thorax the same breadth at its base as the abdomen; antennæ with the basal joint oval, second the longest (f. C.) *P. Juniperina*, *melanocephala*, *perlata*, *festiva*, *oleracea* and *cærulea*.

In Mr. Vigors's cabinet is a species which belongs to this last division, received from Dr. Leach with the name of *P. picta*. It agrees tolerably well with the description in Fabricius, but I believe that Dr. L. was not satisfied of its authenticity as a British species.

Although *Cimex hæmorrhoidalis*, *liturata* and *agathina* have always been included in the genus *Pentatoma*, I was very much inclined to think that they possessed good characters to establish a distinct genus; and upon a careful investigation, (exclusive of the antennæ having the first joint equal in length to any of the others, *vide* fig. B., and of a curious keel-shaped ridge arising near the extremity of the abdomen beneath, and passing between the legs nearly up to the head,) the tarsi consist of but two joints, which do not agree with the characters even of the *family* laid down by Mons. Latreille and Dr. Leach. I shall take the first opportunity of describing this group, which I propose calling ACANTHOSOMA.

P. cærulea flies well in the sun-shine, and is to be met with about July in Coombe Wood, upon the leaves of trees in the heat of the day. I have taken it between Linton and Exmoor, upon heath, at the end of September. The natural size is shown by the smaller insect upon the plant *Erysimum cheiranthoides* (Treacle Worm-seed),



EYPREPIA RUSSULA.

Clouded Buff Moth.

ORDER Lepidoptera. FAM. Arctiadae *Leach.*

Type of the Genus Bombyx Caja Linn.

EYPREPIA *Ochsenheimer.* Arctia *Schränk., Lat.* Bombyx *Fab.* Phalæna *Linn.*

Antennæ setaceous (f. 1.), composed of many joints, covered with scales above, naked beneath, bipectinated and ciliated in the males, each branch having a bristle at its apex. (1. a.) rather serrated in the females (f. 2.), each serrature being terminated by a bristle. (2. a.)

Labrum and *Mandibles* } small and obscure.

Maxilla about the same length as the head, composed of 2 separate filaments, distant, broad and flat.

Labial palpi 2, porrected, covered with long hairs (4.), three-jointed (4. a. the hairs being removed to show the articulations.)

Wings trigonate, deflexed, undivided. Anterior tibia with a compressed spine in the centre of its internal side. Caterpillars hairy, with 16 feet.

RUSSULA *Linn. Syst. Nat.* 2. 830. 71. *Fab. Ent. Syst.* t. 3. pars 1. p. 464. n. 180. *P. sannio Linn. Faun. Suec.* 1135. *Bombyx sannius Haw. Lep. Brit.* p. 133. n. 96.

Male. Superior wings and thorax vitellinous, costa slightly fuscous, anterior margin towards the apex, interior margin, a lunulated spot in the centre, and cilia puniceous. Abdomen and inferior wings yellowish white; spot in the centre and fimbria fuliginous, cilia puniceous; main rib of antennæ, palpi and legs tinged with red. Under side, superior wings pale ochraceous, costa coccineous; base, a large spot near the centre, and a transverse irregular bar, brunneous; inferior wings pale yellow, with the lunulated spot scarcely visible. *Female* smaller than the male, dull orange, superior wings with an obscure lunulated spot; costa, interior margin, and veins dull puniceous. Abdomen banded with black; inferior wings with their base, abdominal margin, fimbria and a spot near the centre dull black. Under side orange, slightly clouded with black, having a black spot near the centre of each wing. Thorax, abdomen, and legs beneath sanguineous.

In the Author's and other Cabinets.

OCHSENHEIMER having included in this genus *Arctia*, *Callimorpha*, and *Lithosia* of Latreille, I have retained three spe-

cies only of the former genus under his name *Eyprepia*, viz. *E. russica*, *caia* and *villica*, all of which differ so much in the form of the palpi that they belong to separate divisions, and may hereafter be thought, with the other analogous foreign species, to constitute as many good genera. Figs. 5. and 5 a. are the palpi of *E. russica*, to show their difference from those of the type *E. caia*, which are given at 4. and 4. a. It is a little singular that *E. russica*, which does not associate so well with the type as *E. villica* by analogy, should agree much better with it in structure, the palpi of the last-mentioned species being terminated by a long cylindric joint, which is nearly naked. *Phalæna Plantaginis* Linn., which has hitherto been included in *Eyprepia*, is inadmissible from the great dissimilitude of the palpi, the first and third joints of which are nearly globose.

The three species found in this country are amongst the most beautiful of our Moths. *E. caia*, which is very common in our gardens, (especially in the caterpillar state, when it is seen rambling over the vegetables in every direction,) for the richness and contrast of its colours, as well as the boldness of its markings, is perhaps equal to any other European species. *E. villica* is equally handsome, but it does not possess that richness and harmony of colour so peculiar to the last species: these two, from their spots, are called Tiger Moths. *E. russica*, being the rarest, has been selected for the plate. The female, contrary to most Moths, is smaller than the male and far more rare. The former sex I have taken flying in the day amongst furze-bushes and broom at Coombe Wood, Surry, at the end of June. The caterpillar is thickly covered with reddish brown hairs, has a yellowish line down the back spotted with red, and a row of white spots along each side. A figure of it may be seen in Kleeman's Ins. Bel. tom. i. tab. 20. f. 2. It is probably, like its congeners, a general feeder, as several plants are mentioned for its food.

Ulex Europæus (Common Furze or Whin) is the plant figured.



May 1826

IBALIA CULTELLATOR.

ORDER Hymenoptera. FAM. Diplolepidæ *Lat., Leach.*

Type of the Genus Ichneumon Cultellator Fab.

IBALIA *Lat., Ill.* Ichneumon. Ophion, Banchus *Fab.* Cynips *Jur.*

Antennæ inserted in the centre between the eyes, approximating; filiform, composed of 15 joints in the male; third joint bent, clavate, emarginate on the external edge (f. 1.); a little clavate, 13-jointed in the female (1. a.), second joint very small.

Labrum corneous, small, transverse, arcuated before, emarginate in the centre. (*Lat.*)

Mandibles thick, nearly quadrate, tridentate on the internal side in one mandible and bidentate in the other, apical tooth more acute, inferior broad, truncate. (3.)

Maxillæ very broad in the middle, terminal process broad at apex, slightly bilobed, ciliated: *Palpi* short, 5-jointed, first and fourth small, second and last large, nearly obtrigonal rounded at apex, hairy. (4.)

Mentum pear-shaped. (5. a.) *Palpi* short, hairy, 3-jointed, terminal joint equal in length to the other two. (b.) *Lip* small, concave, nearly circular. (c.)

Head transverse, as broad as thorax, vaulted behind. Ocelli 3. Thorax flat, slightly compressed. Scutellum bifid behind. Abdomen attached by a very short peduncle, very much compressed, knife-shaped, being very sharp on the under side, with a puncture or spiracle on each side of last joint, the male 6-jointed, of nearly equal size, very much vaulted. (7.), the female 5-jointed, the last being equal in size to the first four, with 2 elongated laminae, between which a capillary oviduct passes, and is curved over the back. (6.) Superior wings with no decided stigma, costal nerve very distinct, one marginal cell, linear-lanceolate; 3 submarginal cells, first small, oblong, second extremely minute, third large, complete; inferior wings with one nerve branched near its extremity, four anterior feet short and slender; coxæ of posterior legs large, thighs short, robust, tibiæ very long, first joint of tarsus very long, second small, produced into a spine on the external side (8. a.), third and fourth small, fifth longer, slender (8. posterior leg of a male): all the tarsi 5-jointed, terminated by pulvilli and claws scarcely unidentate.

The dissections of the mouth were made from a female, of which the labrum was lost; the ovipositor is probably represented too short, from the specimen being imperfect.

CULTELLATOR *Fab. Ent. Syst. t. 2. p. 167. n. 142.*

Black, hairy, rugose, head and thorax striated transversely, the latter with the anterior margin elevated, and three longitudinal grooves down the back. Abdomen bright ochraceous, shining. Legs fuscous, hinder thighs tinged with chesnut colour. Wings obscure.

In the Author's Cabinet.

THE genus *Ibalia* contains at present, I believe, no other species than *Cultellator*, and was never known to inhabit Britain until the male represented in the plate was captured flying in a garden at Bungay, Suffolk, by Mr. W. H. C. Edwards, justly celebrated for his masterly engravings and knowledge of the fine arts. It is also found in Germany and the South of France. The economy and habits of this genus are supposed to be similar to the rest of the family, forming galls upon various plants.

The eccentric appearance (in the male) of the third joint of the antennæ at once shows that it belongs to the *Diplolepidæ*, of which family it is the largest species; the second submarginal cell is so minute, that it is scarcely discernible through a lens; the hinder legs in both sexes are very powerful, and exceedingly disproportioned to the body and other legs, which are remarkably small. The singular spine-like process on the second joint of the hinder tarsi of both sexes, as well as the puncture or spiracle on the side of the abdomen, have hitherto, I believe, escaped the observation of authors.

It may here be observed, that the mandibles are often not counterparts of each other, the shape being altered by their close contact when at rest; other parts of the mouth are also sometimes irregularly formed. The student must not be misled by these exceptions, which are most frequent in the *Hymenoptera*, occasionally in the *Coleoptera*, and probably all the *Mandibulata*.

The plant figured is *Stellaria media* (Common Chickweed).



SIAGONUM QUADRICORNE.

ORDER Coleoptera. FAM. Staphylinidæ *Lat., Leach.*

Type of the Genus S. quadricorne K.

SIAGONUM Kirby *Introduction to Entomology.*

Antennæ half the length of the insect, pubescent and hirsute, straight, articulated; gradually increasing in size from the second joint (which is smaller than the first) to the extremity; terminal joint obovate. (f. 6.)

Labrum exerted, transverse, bilobed, ciliated. (1.)

Mandibles of male much longer than the head, produced externally far beyond the apex, which has the appearance only of a strong tooth, ciliated internally (2.): of female, broad at their base, hooked, very slightly produced externally. (2. a.)

Maxillæ divided internally, ciliated; terminal process dilated, rounded, composed of parallel, transverse ribs, detached at the apex: *Palpi* 4-jointed, first joint small, last cylindric-ovate, terminated by a globular gland. (3.)

Mentum transverse, broadest at the base, lobed in the centre behind, and obtusely pointed before: *Palpi* appearing 4-jointed, all the joints corneous only at the base, last joint the longest.

Lip dilated anteriorly, bilobed, ciliated. (4.)

Head not broader than thorax, with a horn on each side before the eyes in the males (*vide the coloured figure*): females without horns (*fig. 7.*). Thorax narrowed behind. Elytra longer than broad. Abdomen linear, 6- and 7-jointed. Legs very short and small. Tibiæ ciliated internally, and serrated (except in the last pair) externally, spined. Tarsi 5-jointed, last joint equal in length to the other four (5. a fore-leg). Wings long, broad, transparent, with only 3 short nerves at the base.

QUADRICORNE *Pl. 1. f. 3. Kirby and Spence's Int. to Ent.*

Depressed, shining, punctured; antennæ and abdomen pilose. Head nearly black. Horns, mandibles, antennæ and legs reddish brown. Thorax deep chesnut, quadrate, narrow behind; anterior margin rather convex in the centre, angles slightly produced, rounded, with a smooth line of colour down the centre. Elytra chesnut colour, brightest towards the centre, with 2 branched and 2 simple-punctured striæ on each. Abdomen blackish, with the edges of the segments reddish brown.

In the Cabinets of Mr. Kirby, Dr. Stephenson, and the Author.

A FIGURE of *Siagonum quadricorne* was given in the 1st vol. of the *Introduction to Entomology* by Mr. Kirby, who took a

male in Suffolk several years since; but as the characters have not yet been published, I have endeavoured to supply them until the completion of that work. Its natural situation appears to be between *Bledius* and *Oxytelus*, to which it is united by the spined tibiæ and uncommon length of the last joint of the tarsi. In most insects, as well as in the higher orders of animals, where the males have horns, the females have only tubercles, or are entirely destitute of those ornaments, as in the present instance: they not only add much to their beauty, but are very serviceable in defending themselves against their enemies, as well as giving them a decided superiority over the other sex. The coloured figure is a male, drawn in perspective, to show better the horns upon the head, which makes it appear rather more narrow than the life.

Whether the specimen represented in the Plate is the same species as that figured by Mr. Kirby I cannot positively determine, although I have the original drawings for the Introduction to Entomology in my possession: but from the brightness of the colours, and the want of foveolæ upon the thorax of my specimens, I considered it at first another species, and had called it. *S. corticalis*.

Dr. Stephenson having taken a male at Kensington, and directed me to the spot, I had the pleasure of finding 2 males and as many females in March 1823 under the bark (of a felled tree), where it adhered the firmest; and during the summer of that year, Mr. Denny, I am informed, found a pair in Norfolk. From its short legs and flat form it is enabled to lie very close under the bark, and did not appear to be very active at the early period of the year when I captured it.

Mnium hornum (Thread Moss), figured with the insect, is magnified about four times.



Del. by Curtis London. 1824

GASTROPACHA QUERCIFOLIA.

Lappet Moth.

ORDER Lepidoptera. FAM. Bombycidae *Lat., Leach.*

Type of the Genus Bombyx quercifolia Linn.

GASTROPACHA *Ochs., Germ., Leach.* Bombyx *Linn., Fab., Lat., Haw.*

Antennæ recurvate, setaceous, strongly bipectinated; first joint large, with a long tuft of hair on the internal side, nearly alike in both sexes. (f. 1. female antenna.)

Labrum attached to the head. (6. a.)

Mandibles obsolete.

Maxillæ distant, broad, flat, short, membranaceous (6. c.), arising just below the pharynx. (6. f.)

Palpi 2, projecting like a beak, approximating (6. e. shows their insertion), porrected, compressed, hairy (4.); three-jointed, sub-cylindric; second joint long, slightly curved; third, obtuse (4. a.).

Head with a tuft of hair projecting in front. (7.) Thorax not crested.

Abdomen thick, especially in the female. Wings dentated, superior ones when at rest deflexed; the inferior projecting beyond them. *Tibiæ*: anterior ones short, with a curved, compressed spine on the internal side, at the base of which is a long brush of hairs. (8. a.)

Tarsi 5-jointed, terminated by strong claws, bristles, and pulvilli.

Larva hairy, with 16 feet, the hinder ones formed for walking, with fleshy appendages on each side the segments of the abdomen, which conceal the feet, particularly the three anterior pair, an evident tubercle on the penultimate joint. Pupa with its segments simple, covered with a fine whitish powder, inclosed in an oblong cocoon loosely formed of its thread and hairs.

QUERCIFOLIA *Linn. Syst. Nat. t. 2. p. 812. n. 18. Fab. Ent. Syst. t. 3. pars 1. p. 420. n. 42. Haw. Lep. Brit. p. 95. n. 19.*

Chesnut colour, slightly tinged with whitish lilac. Rib of antennæ, palpi, and tarsi, black, changing to violaceous. Superior wings dark-brown along the costa, with three black, oblique, waved lines, more or less obscure, the central one of which is visible beneath. Inferior wings at their base as pale as the abdomen, with an obscure, broad, transverse fascia, darkest towards the edges: the female is much larger than the male, and has an imperfect dark spot towards the centre of the upper wings.

In the Author's and other Cabinets.

IN the seventh Plate of British Entomology was figured *Odonestis Pini**, which was referred to that Genus from its characters agreeing better with the type *O. potatoaria* than with *Gastropacha quercifolia*; and I think it will be admitted that I have not erred in so doing, when the characters laid down in the generic description are carefully examined: the recurvate antennæ, equally bipectinated in both sexes; the distinct maxillæ; the palpi densely covered with short hairs, the last joint (in that state) appearing broad and flat, and the indented wings, are amongst the most prominent features of distinction. The Caterpillars are certainly analogous; but the curious appendages which give them the appearance, when at rest, of having twenty feet, form a singular and important distinction.

Gastropacha, which in the Greek means thick bodies, was established by Ochsenheimer, who has confounded a number of genera under this name, from his inability, as he states, to disunite them, although he at the same time acknowledges that they have distinguishing characters. Its specific name it has received from the strong resemblance it bears, when at rest, to dried oak-leaves. It is one of our largest and (when alive) most beautiful insects: the Caterpillars, which are still more beautiful, vary from gray to chesnut, having across their necks two fine velvety blue bands: they are full grown about the end of May, and feed upon Grasses, the Pear, white and black Thorn, Willow, &c. I have several times found them upon the Sloe, and in Suffolk took three upon the *Salix* sketched in the Plate: all of which produced males the beginning of July, one of which is represented with its larva.

* By an error in folio 7 it is printed *Odenesis*; and it was omitted to be observed that the head and antennæ (figures 1 and 2) are those of *O. Pini*, the palpi only being taken from a female of *O. potatoaria*.



Botby J. Curker London June 1 1892

PSEN EQUESTRIS.

ORDER Hymenoptera. FAM. Larradæ *Lat., Leach.*

Type of the Genus Trypoxylon atratum Fab.

PSEN *Lat., Jur., Panz.* Trypoxylon, Pelopæus *Fab.*

Antennæ inserted near the centre of the face, clavate, curved, smooth, 12-jointed in the female, 13-jointed in the male; first joint large, second small, terminal joint ovate. (1.)

Labrum exserted, transverse, subrotundate before, entire, ciliated. (2.)

Mandibles slender, scarcely arcuated, unidentate internally. (3.)

Maxillæ coriaceous, divided transversely, terminal process nearly membranaceous, rounded and ciliated: *Palpi* elongated, unequal, 6-jointed; first joint very small, third largest, sixth slender. (4.)

Mentum large, dilated in the centre, hairy (5. a.), (the point to which the maxilla is attached is shown at e.): *Palpi* long, 4-jointed, first joint long, second and third short, last robust, ovate. (b.)

Lip short, with the edges conniving internally. (c.)

Clypeus subrotundate, anterior margin elevated. Head transverse, as broad as thorax, with a tubercle between the antennæ. Eyes oval, entire, remote. Ocelli 3, inserted on crown of head in a triangle. Thorax short, nearly ovate. Scutellum narrow, small. Abdomen ovate-conic, with an elongated, abrupt peduncle. Superior wings with one marginal cell, not extending to the apex, and three perfect submarginal cells, the middle one nearly trigonate, either receiving one or two recurrent nerves. Inferior wings with two complete basal cells. Legs rather small. Tibiæ spined. Tarsi 5-jointed, first joint nearly as long as the three following, last terminated by simple claws and pulvilli. (8. a fore leg.)

EQUESTRIS *Fab. Syst. Piezatorum, p. 182. n. 6.*

Black: clypeus and face silvery with hair, shining; first segment of abdomen rufous, with a black spot at its base; second entirely, and third partly, rufous. Wings hyaline, iridescent. Antennæ rufous beneath. Thighs and coxæ black. Tibiæ and tarsi pale ferruginous, the former annulated with black.

In the Cabinets of Mr. Haworth and the Author.

THIS pretty little species I took flying near Lyndhurst in the New Forest the end of August 1822. Mr. Haworth has also taken it in the neighbourhood of London. My specimens per-

fectly accord with each other ; but it must be exceedingly variable if Jurine be correct in considering *Trypoxylon equestre* Fab., *Psen rufa* Panz., and his own *P. bicolor*, the same species. *P. ater* is another species found in the vicinity of London upon posts and in sandy places in June and July ; and Mr. Stephens has two others unnamed, which he considers distinct.

Jurine has made two divisions in this Genus : the first contains *P. ater*, with the second submarginal cell receiving the first recurrent nerve only ; the second contains *P. equestris*, in which the second submarginal cell receives the two recurrent nerves. Not having had an opportunity of examining a male of this Genus, the number of joints in the antennæ of that sex is given upon the authority of Jurine. The three lobes mentioned by Latreille in his observations upon the *Larradæ*, I could not discover in the lip of the species that I dissected ; and he does not mention that organ in his generic description. The females from which the characters and figures are taken are armed with sharp stings, that are not entirely concealed.

The plant figured is *Ranunculus Ficaria* (Common Pilewort).



at the University of Cambridge June 1 1824

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. (l. 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.

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).



Painted by J. Curtis London July 1824

APHODIUS VILLOSUS.

ORDER Coleoptera. FAM. Aphodiadæ *Leach.*

Type of the Genus Scarabæus Fossor Linn.

APHODIUS *Ill., Fab., Lat., Gyl.* Scarabæus *Linn.*

Antennæ rather short, inserted under the clypeus, at the base of the mandibles, 9-jointed; first joint long, robust, cylindric; second joint more or less globular; third small; fourth, fifth, and sixth transverse, somewhat cup-shaped; seventh, eighth, and ninth, forming a nearly globose ovate lamellated club. (f. 6.)

Labrum concealed by the clypeus, membranaceous, subquadrate; angles rounded, ciliated. (1.)

Mandibles concealed by the clypeus, dilated and corneous at the base, membranaceous, rounded, entire, striated at the apex, ciliated. (2.)

Maxillæ crustaceous, terminated by a dilated lobe, thickly covered with short hair externally, ciliated; and having a bifid lobe on the internal side below the base of the palpi, pilose, and ciliated: *Palpi* 4-jointed, rather long, filiform, naked; first joint small; second and fourth longer than the third joint. (3.)

Mentum somewhat quadrate, deeply emarginate, pilose: *Palpi* short, cylindric, smooth with a few hairs; joints nearly equal.

Labium membranaceous, bilobed, fimbriated. (4.)

Clypeus semicircular or lunate, in many tuberculated. Thorax transverse-quadrate. Scutellum distinct. Elytra convex, completely covering the abdomen, when viewed conjointly longer than broad. Wings 2. Feet all equi-distant, robust. Thighs with an impressed line of hairs inside, particularly in the first pair. Anterior tibiæ tridentate externally (5. a fore leg): four posterior tibiæ with 2 spines at their apex. Tarsi 5-jointed.

VILLOSUS *Gyl. Ins. Suec. t. 1. p. 40. n. 38.*

Shining: ferruginous. Clypeus angular, narrowed before, scarcely emarginate, without tubercles, punctured: thorax transverse, convex, thickly punctured, with a smooth line down the centre, pubescent. Scutellum small. Elytra convex, pilose, piceous, more fuscous on the back, with seven broad furrows having a line of punctures down each side; interstices flat, shining. Legs and underside pale piceous.

In the Cabinet of Mr. Vigors.

As it is the intention of my friend Mr. Stephens to publish a Catalogue of British Insects, comprehending all the orders,

I shall refrain from enumerating the species contained in the Genus *Aphodius* (upwards of 50), and content myself with giving the different groups into which it has been found convenient to divide them.

A. Clypeus emarginate.

- * Tuberculated; thorax sulcated transversely. *A. asper*.
- ** Smooth; elytra deeply sulcated. *A. porcatus*, &c.
- *** Smooth; elytra with flat interstices between the furrows. *A. cæsus*.
- **** Slightly emarginate, smooth. *A. villosus*, &c.
- ***** Tuberculated. *A. Fossor*, &c.

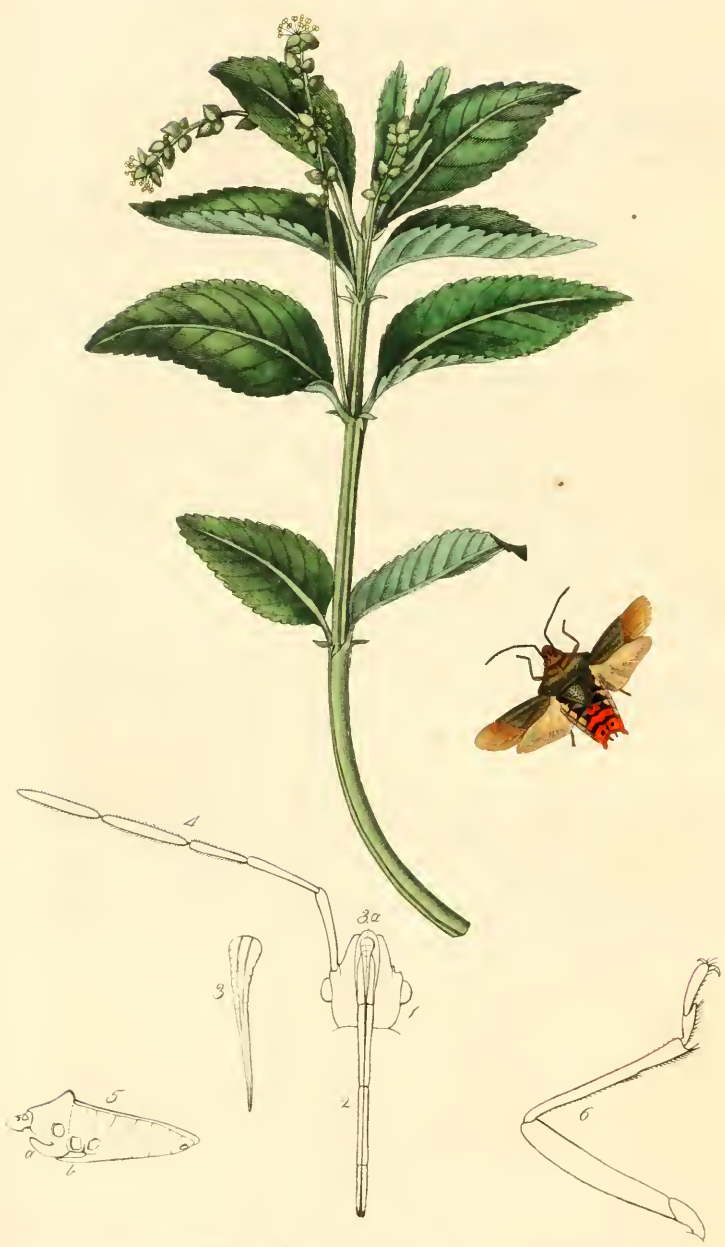
B. Clypeus entire, smooth.

A. rufipes, &c.

The larvæ have six feet; they are annulated, hairy, with a vesicle at the apex of the abdomen; they have a hard horny head; they live inactively in dung, upon which they feed. (Stewart's Nat. Hist.) The perfect insects fly in the sunshine about the excrement of animals, especially horses and cows.

Aphodius villosus is an extremely rare species on the Continent, and in this country the only specimen known is the one figured in the plate, which I found dead several years since in the month of August upon Newmarket Heath; and I have little doubt that I should have captured more if it had been earlier in the season, but my most diligent search proved fruitless.

For specimens of the local and beautiful *Anemone Pulsatilla* (Pasque Flower or Hill Tulip) I am indebted to my kind friend J. S. Henslow, Esq., Professor of Mineralogy at Cambridge, who gathered them upon Newmarket Heath, not far from the spot where the *Aphodius* was taken.



Plat. bot. v. Curtis London, July 1. 1824

ACANTHOSOMA HÆMORRHOIDALIS.

ORDER Hemiptera. FAM. Pentatomidæ *Leach.*

Type of the Genus Cimex hæmorrhoidalis Linn.

ACANTHOSOMA *nob.* *Pentatoma Oliv., Lat., Leach. Cimex Linn., Fab.*

Antennæ exerted, inserted under the margin of the head, before the eyes, nearly filiform, or slightly clavate, longer than the head, articulated, 5-jointed; first joint longer than the third, which is the shortest. (4.)

Rostrum inflected, slightly hairy, 4-jointed, the second and third joints rather longer than the others. (2.)

Labrum very long, attenuated, transversely striated, received into a canal in the basal joint of the rostrum. (3. and 3. a.)

Mandibles and *Maxillæ* } like setæ passing through the rostrum.

Head trigonate, immersed nearly or quite up to the eyes in the thorax.

Thorax with the anterior margin much narrower than the posterior, angulated on the sides with a compressed bent spine beneath, extending nearly to the head. (5. a.) Abdomen depressed above, oblong-quadrate, attenuated towards the apex, with a keel down the centre beneath, terminated by a spine which lies over or by the side of that attached to the thorax. (5. b.) Scutellum large, not covering the wings or elytra. Elytra coriaceous, membranaceous at the apex, crossing each other horizontally. Anterior tibiæ scarcely notched internally. Tarsi 2-jointed. (6. a fore leg.)

HÆMORRHOIDALIS *Linn. Syst. Nat. 2. 720. 35. Fab. Ent. Syst. t. 4. p. 98. n. 76.*

Yellowish green, irregularly punctured; the obtuse angles and a transverse band on the anterior part of the thorax orange; abdomen testaceous, variously marked with black and scarlet; tips of elytra and wings pale ferruginous. Antennæ testaceous at the base, black towards the apex. Legs and underside testaceous. Tibiæ and tarsi inclining to green.

In the Author's and other Cabinets.

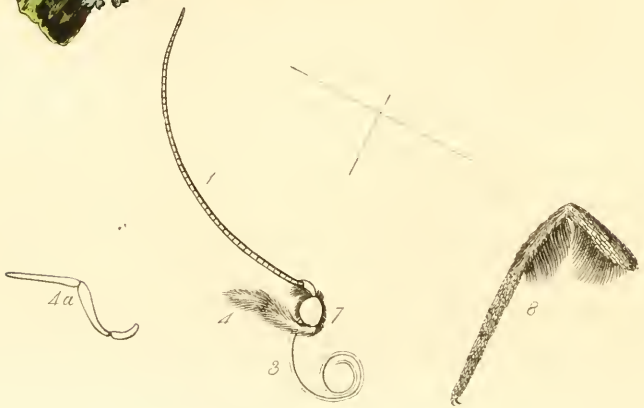
THE Genus *Acanthosoma* was proposed in a former part of the work, in allusion to the spined keel beneath the abdomen, which is part of Fabricius's specific character; it is a singular conformation, and appears to protect the rostrum, which lies close by the side. The other peculiar marks of distinction (as

has been before observed in folio 20) are the great length of the first joint of the antennæ, and the tarsi having only 2 instead of 3 joints.

At present there are but 3 British species belonging to this Genus, *A. hæmorrhoidalis*, *liturata*, and *agathina*, all of which are described by Fabricius in his *Entomologia Systematica*.

A. hæmorrhoidalis (a male of which is figured of the natural size, the female is rather larger) is by no means a rare insect, being occasionally met with during June, in hedges, upon the white thorn and various other plants. The insects of this family have a very unpleasant scent, and in every state live upon juices obtained from small insects, especially caterpillars. The larva has no wings, the pupa has rudiments only; they generally resemble the imago in colour, and are very active.

A male plant of *Mercurialis perennis* (Dog's Mercury) is figured in the Plate.



Carton. Lichen. July 1 1851

SARROTHRIPUS RAMOSANA.

Branched Sarrothripus.

ORDER Lepidoptera. FAM. Tortricidæ *Leach.*

Type of the Genus T. degenerana Hub.

SARROTHRIPUS *nob.* *Pyralis Fab., Lat. Tortrix Hub., Haw., Leach.*
Antennæ inserted on the crown of the head near to the eyes, long, setaceous, composed of numerous oblong joints, covered with scales above; first joint rather large, cylindric, curved, second small. (f. 1.)

Maxillæ nearly thrice the length of the Palpi. (3.)

Palpi 2, porrected far beyond the head, completely covered with scales resembling hair (4.); first joint short, curved upwards; second joint long, clavate, curved at the base; third joint as long or longer than the second, nearly filiform, slender. (4. a. the scales being removed.)

Head with the scales upon the crown projecting forward in front. (7.)

Wings rounded at the base, appearing slightly ciliated on the costa.

Anterior legs with a long brush of hairy scales on the interior sides of the femur and tibia. (8.) Intermediate legs the longest.

Posterior legs with 2 moveable spines in the centre of the tibia, and 2 at the apex. Tarsi 5-jointed, terminated by small claws. Caterpillars with 16 feet?

RAMOSANA *Hub. Schmet. Tort.*

Fuscous: Head, palpi, anterior part of thorax, and a great portion of the upper wings brunneous inclining to chesnut. Superior wings with a dark line branched at the base and on its inferior margin, above which towards the centre is a black spot, a row of dots extend along the posterior margin, and 3 fuscous ocellated spots, with others more obscure, form an irregular transverse line near the same margin.

In the Cabinet of Mr. Stone.

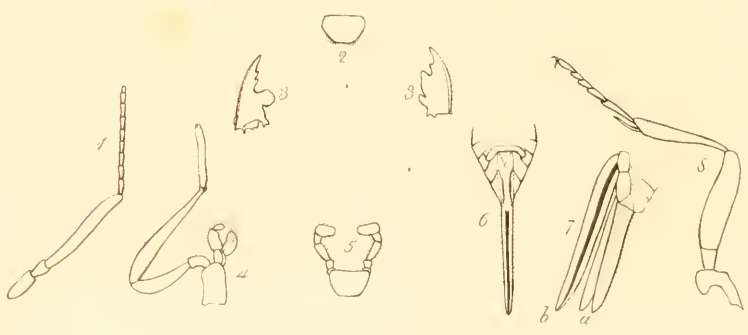
IN the 16th folio was described the Genus *Perouca*, and from the same family a small group, which has always been arranged near to them, has been selected for the present subject; it is called *Sarrothripus*, from the brushes of hair which are attached to the fore-legs. By referring to *Lepidoptera Britannica*, p. 406, it will be seen that Mr. Haworth has in some degree

anticipated me in the formation of this Genus, which contains his division *Palpanæ*: a doubt is there expressed whether they may not be varieties; but the numerous specimens which have since that time been collected leave little room for such a conjecture, and the addition of the novelty figured (the only one not described in the valuable work alluded to) renders it still more probable that they are distinct.

The present Genus, on comparison with *Peronea*, will show how little attention has been paid to the conformation of the *Lepidoptera*; such differences in any of the other orders would have been detected long since; but I hope by the dissections with which I shall always illustrate the subjects, that I may be able to interest entomologists sufficiently to induce them to attend to the structure of this beautiful order.

The following are the species contained in this Genus:—
1. *S. degenerana* Hub. 2. *dilutana* Hub. 3. *Afzeliana* Gmelin.
4. *Lathamiana* Gmelin. 5. *punctulana* Hub. *Ilicana* Fab.
6. *ramosana* Hub. They have been found at different periods of the year at Darent and Birch Woods, Kent, and in the New Forest. The rare and beautiful species, figured from the collection of Mr. Stone, was beat off a tree in July 1823, at Birch Wood, and another was taken off paling there, which induced me to think, that like *Peronea* they might be attached to Lichens, but we are completely ignorant of their economy.

Lichen prunastri (Plum-tree Lichen), growing upon a branch of a tree, is figured in the Plate.



Curculio Curtes London July 11 1824

XYELA PUSILLA.

ORDER Hymenoptera. FAM. Xiphydriadæ *Leach.**Type of the Genus X. pusilla Dal.*XYELA *Dalman.*

Antennæ inserted in the front of the face between the eyes, long, slightly hairy, 12-jointed; first joint cylindric; second short, obconic; third robust, cylindric, equal in length to the nine following joints which are filiform, the terminal joint being the smallest. (1.)

Labrum membranaceous, narrowed towards the anterior margin which is entire, ciliated. (2.)

Mandibles corneous, slightly curved, acute with three irregular teeth on the internal margin. (3. 3.)

Maxillæ membranaceous, bilobed, ciliated, the superior lobe being terminated by a smaller one. *Palpi* very long, appearing like feet, 4-jointed; first joint short; second long, bent, clavate; third very long, dilated towards the centre, attenuated to the apex, which has a small head, hollow internally; fourth joint as long as the second, membranaceous, flat.

Mentum dilated anteriorly: *Palpi* 4-jointed; first and third joints small; second longer; fourth joint large, somewhat obovate bent inward. (5.)

Lip obsolete.

Head *transverse, depressed. Eyes lateral. Ocelli 3, approximating, placed triangularly. Neck short, broad. Thorax not broader than the head. Abdomen sessile, nearly cylindric, 10-jointed. Oviduct exerted, compressed. Ovipositor ensiform, membranaceous towards the edges, corneous down the centre (7. b.), inclosed between 2 lanceolate lamellæ, hairy outside (7. a.): fig. 6. represents the under side of the oviduct, and part of the abdomen. Legs placed far behind. Tibiæ slightly hairy with a spine at the apex, the posterior with 2 bristles on the external edge. Tarsi hairy, as long or longer than the tibiæ, first joint the longest. (8. a fore leg.) Wings large, superior ones with 18 cells, 3 marginal, and 2 submarginal complete. Stigma large. Inferior wings with many cells.*

The male (*Dalman says*) is smaller, the anus is simple, not mucronated, the last segment large, scutiform, entire.

Eggs somewhat oval. Metamorphosis and economy unknown.

PUSILLA *Dalman in Trans. Stockholm Soc. April 1819. p. 123.*

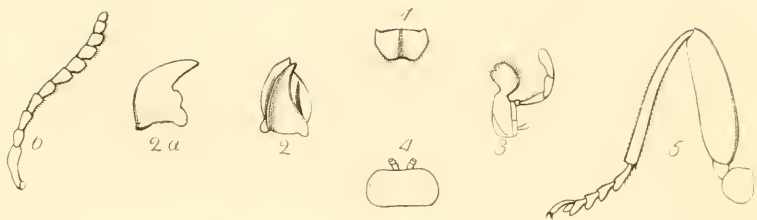
Smooth, shining. Head black, clypeus and eyes margined with yellow. Thorax black, with two orange spots on the anterior part; two first segments of abdomen with a yellow spot in the centre, the remainder of the segments brunneous pale at margins, and at the apex. Legs, oviduct and trophi dull ochraceous. Antennæ and thighs fuscous. Wings stained pale ferruginous. Stigma darker.

In the Cabinets of Mr. Stephens and the Author.

THIS Genus, which so beautifully unites the *Tenthredinidæ* with the *Uroceridæ*, evidently belongs to the family *Xiphydriadæ* of Leach, although Dalman in his valuable paper upon this Genus in the Stockholm Transactions (which are well worth the perusal of the entomologist) considers that it belongs to the *Uroceridæ*: the ample wings, however, and large stigma bear considerable affinity to the genus *Lyda*, whilst it cannot be denied that the compressed oviduct brings it close to *Xiphydria*. Dalman, in his description, has overlooked the twelfth joint of the antennæ, which is the smallest, and also one of the joints of the labial palpi, which he describes as only 3-jointed. Although the structure of this insect is altogether remarkable, no part is, I think, more curious than the maxillary palpi, which upon the insect look like feet; and from the legs being placed far behind, it is not improbable that they may occasionally be employed like those members: the second and third joints are hollow, which probably enables the insect to fold them close for protection, and the terminal joint is perfectly flexible.

Of this rare and interesting insect I have three females, taken by myself many years back upon umbelliferous plants in the vicinity of pines, in Norfolk, where those trees abound; and Mr. Stephens has one which was taken in the neighbourhood of London. The male I have never seen; but from the description, and an excellent figure given by Dalman, it appears to differ from the female only in being much smaller, and in its abdomen, which is more cylindric, rounded and simple at the anus. Another species much larger, called *X. longula* by the same author, has been taken in Sweden by Gyllenhal.

Our species appears not to be uncommon in Sweden, where it is said to be found upon *Pinus sylvestris* (Pl. 7.) during the month of July. *Charophyllum sylvestre* (Wild Chervil) being the umbelliferous plant upon which I believe my specimens were taken, it is figured in the Plate.



BUPRESTIS NITIDULA.

ORDER Coleoptera. FAM. Buprestidæ *Leach.*

Type of the Genus B. nitidula.

BUPRESTIS *Linn., Fab., &c.*

Antennæ inserted near the base of the clypeus, short, somewhat filiform, serrated in both sexes, 11-jointed, first joint long, second and terminal joints small. (6.)

Labrum small, exerted, attenuated before, slightly emarginate. (1.)

Mandibles gaping, small, more or less obtuse, bifid towards the apex. (2. the under side: 2. a. the upper side.)

Maxillæ small; the apex slightly bifid, hairy: *Palpi* filiform, 4-jointed, first joint very small, last slightly securiform. (3.)

Mentum oblong-quadrate: *Palpi* very small, approximating, 3-jointed, nearly concealed. (4.)

Head *very retuse*. Thorax *short, broad, transverse, depressed, having a mucronated process between the anterior pair of legs; the posterior margin straight and applied to the base of the elytra. Scutellum somewhat triangular, small. Elytra elongated, trigonate, depressed, entire, neither serrated nor spined. Wings two. Abdomen not formed for leaping. Feet short; tarsi 5-jointed, articulated, broad cordate trigonate, the last joint cylindrical with simple claws.* (5.)

NITIDULA *Linn. Syst. Nat. 2. 662. Fab. Ent. Syst. t. 1. pars 2. p. 214. n. 123.*

Ovate, golden green. Head and thorax minutely and irregularly punctured, the latter having a slight impression down the centre and a foveola near the posterior angle. Elytra more green than the rest, broader at the base than the thorax, attenuated towards the apex, rounded; rugose, punctured, having obscure striæ; beneath green, very glossy: legs and antennæ black, tinged with brassy green.

In the Cabinets of Mr. Dale and the Author.

THE superb family of *Buprestidæ* has recently been divided into several Genera, agreeably to the geographical distribution of the various groups discovered in the East and West Indies, the Brazils, the Cape of Good Hope and New Holland: the European species have also been divided, the cylindrical ones *B. viridis* Linn. and *B. biguttata* Linn. having

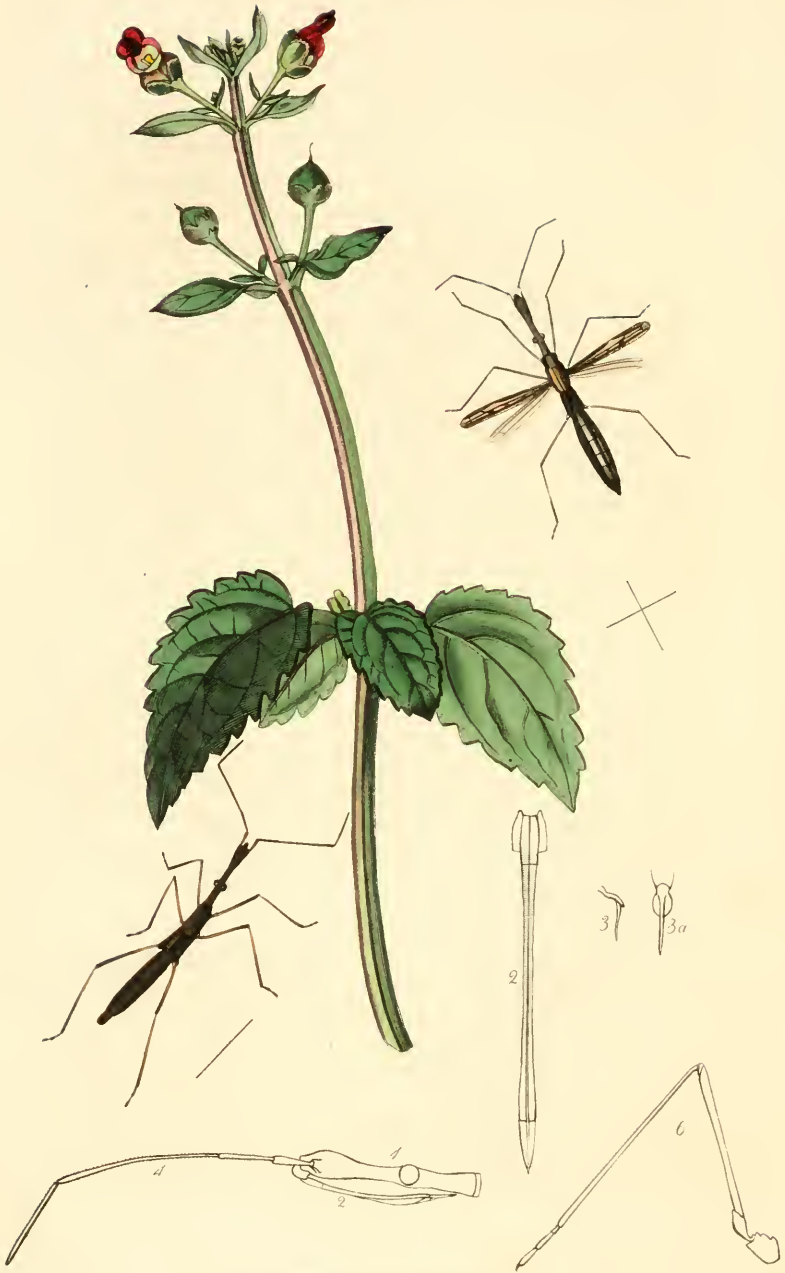
been formed into another Genus; and Fabricius having long since established the Genus *Trachys*, we had but one true *Buprestis (Salicis)* known to inhabit this country until the brilliant little species figured was detected by Mr. Dale and myself the early part of last June in an excursion to the New Forest: we beat four out of white-thorn flowers in the neighbourhood of Brockenhurst in the heat of the day, at which time they flew with great celerity.

The larvæ of this family live in wood, and are very destructive: in their œconomy they resemble the *Cerambycidae*, and like them also they are frequently conveyed in an imperfect state in timber from their native country; which accounts for the splendid exotics belonging to these families that are occasionally met with by Entomologists in this kingdom.

Mr. Marsham in the 10th volume of the Linnean Transactions relates an extraordinary fact concerning the longevity of a species of this Genus (*B. splendens* Fab.); the perfect insect was seen to emerge from a desk made of Baltic fir that had been in the Office at Guildhall upwards of 20 years: it is most probable that it remained in the larva state the greater portion of that long period. The desk having been afterwards planed, the passage which the insect formed was discovered.—In the 1st volume of the same Transactions an account is also recorded in the Minutes of a species resembling the *B. canaliculata* of Fab. having eaten through 15 pieces of muslin from Bengal.

Messrs. Kirby and Spence inform us that the brilliancy of some of the eastern species has rendered them of value to the ladies of China, whose dresses are embroidered with the resplendent elytra of the *Buprestis vittata*.

Cratægus Oxyacantha (Haw-thorn or White-thorn) is figured in the Plate.



HYDROMETRA STAGNORUM.

ORDER Hemiptera. FAM. Hydrometidæ *Leach*.*Type of the Genus H. Stagnorum.*HYDROMETRA *Lat., Fab. Cimex Linn. Gerris Fab. Aquarius Schellenburgh.**Antennæ* exerted, filiform, inserted on the sides of the head towards the apex, 4-jointed, third joint very long. (4.)*Rostrum* inflected, transversely striated, thickest towards the base and apex, obscurely 3-jointed, second joint very long. (2.2.)*Labrum* small, linear, acute. (3. the profile, 3. a. the underside.)*Mandibles* and } like setæ, passing through the rostrum.*Maxille*

Head longer and narrower than the thorax, porrected, elongate, cylindrical, thickened at the end. Eyes globose, prominent, inserted on the sides before the middle of the head. Thorax cylindrical, anterior part narrowed. Scutellum minute. Abdomen more or less filiform, dilated in the middle; margins acute; terminal joint much larger in the male than female, cylindrical, mucronated. Elytra coriaceous, long and narrow. Wings semitransparent, long and narrow. Feet long, slender, attached to the sides of the abdomen, anterior the shortest, posterior the longest. Tarsi indistinctly 3-jointed, first joint very minute. Claws inserted in a fissure at the extremity of the last joint of the tarsi, distinctly bifid only in the posterior pair. (6. a fore leg.)

STAGNORUM *Linn. Faun. Suec. 971. Fab. Ent. Syst. t. 4. p. 188. n. 4.*

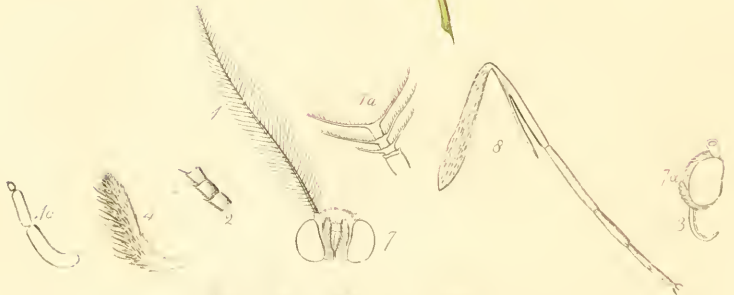
Velvety black. Thorax sometimes testaceous with a slight channel down the back. Abdomen with 2 nearly parallel lines down the back; edges dilated to the last segment with a griseous spot at each joint, shining down the centre. Elytra testaceous, clouded with black nerves. Wings fuscous with darker nerves. Feet and antennæ ferruginous or fuscous.

In the Cabinets of the British Museum and the Author.

THESE curious insects are common in almost every brook and pond during the spring, where they may be seen with *Velia* and *Gerris* gliding along the surface of the water. Most of them are either apterous, or have only short parallel elytra; but in the British Museum are two females presented to that establishment by Dr. Leach, which have long elytra crossing each other when the insect is at rest, and perfect wings as ex-

hibited in the specimen represented flying in the Plate. Like *Velia* and *Gerris*, to which our insect is closely allied, it is at present impossible to say whether the apterous specimens are pupæ or distinct species (from a difference in the colour of their legs, I am inclined to favour the latter opinion); but as far as regards the female figured, it appears extremely probable that winged specimens of the other sex would be found if sought for at the proper time of the year, as it generally occurs amongst insects, that the *males* have the advantage of wings where the *females* are apterous.

A male is represented walking at the base of the plant *Scrophularia aquatica* (Water Figwort): that flying is a female.



Actia subuloides Say 1841

BUPALUS FAVILLACEARIUS.

The grey Scollop.

ORDER Lepidoptera. FAM. Phalænidae *Lat., Leach.*

Type of the Genus B. favillacearius.

BUPALUS *Leach.* Phalæna *Linn., Fab., Lat. Geometra Hub., Haw.*

Antennæ setaceous, bipectinated in the males (1.); the branches ciliated (1. a.), slightly serrated in the females. (2. a portion of the antenna magnified.)

Maxillæ short, rather broad and flat. (3.)

Labial palpi 2, covered with scales, slightly hirsute (4.), shorter than the head, scarcely projecting beyond the eyes viewed in profile (7. a.), 3-jointed; first joint long, curved upwards; third joint very small, nearly globose. (4. a.)

Wings *very much deflexed when at rest, not angulated or indented.*

Body *slender.* Anterior legs *with a spine on the internal side of the tibia arising near the base and extending to the first joint of the tarsus* (8.); the middle and posterior legs *with spurs at the apex of the tibia, the latter with spurs also in the middle.*

Caterpillars *loopers, with 6 pectoral, 2 abdominal, and 2 anal feet.*

FAVILLACEARIUS (male) *Hub. Schmet. Geo. pl. 26. f. 139. Haw. Lep. Brit. p. 278. n. 19.*

Male hoary white, slightly tinged with ochraceous, covered with irregular minute spots; superior wings with a black transverse indented striga near the base, another dentated internally at the nervures, nearly parallel with the posterior margin, with two large dark spots on its external side, a long black spot near the disk, and a line of small black spots along the base of the cilia; inferior wings with a dentated waved dark line nearly parallel with the margin and a dark spot towards the centre; cilia yellowish brown. Eyes, antennæ and legs nearly black. *Female* smaller, the superior wings more brown, the inferior blackish.

In the Cabinets of Mr. Dule and the Author.

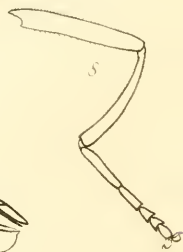
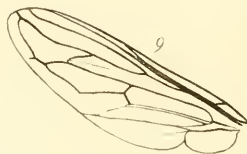
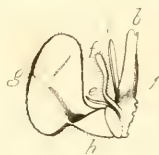
DR. LEACH, in establishing the Genus *Bupalus*, has given *Phalæna piniaria* *Linn.* as an example, to which may be added *Geometra ericetaria* *Vill.*, and probably *G. fuliginaria* and *atomaria* *Linn.*

The beautiful species figured in illustration of the Genus was first noticed, I believe, by Harris in his Aurelian as an inhabitant of this island; it was afterwards taken by Mr. Haworth in Yorkshire, since which Mr. Dale has met with it in Hampshire; and during a late visit to that county he was so obliging as to point out the locality to me.

The figure in *Der Gamlung Europaischer Schmetterlinge* of Hubner (*Geometra*, pl. 26. f. 140.) represents *G. Belgiaria*, which so much resembles the female of *B. favillacearius*, except in its pectinated antennæ, that until this year an opinion was entertained that we possessed both species: as however we found the sexes upon the same ground, and out of a considerable number of both, the males were all *B. favillacearius* and the females *B. Beegiarus*, there can no longer be a doubt of their being the sexes of the same species; and if it were not for the masculine antennæ of Hubner's figure, I should be disposed to consider it, as the female of his *B. favillacearius*; it may possibly be a strong variety of the male partaking of the colouring of the female, or the antennæ may have been erroneously figured: if it be otherwise, we do not at present possess the species.

Both sexes of *B. favillacearius* are found from the middle of May to the middle of July resting upon the ground (with the inferior wings completely concealed by the superior ones): where turf has been pared off upon heaths, especially where it is rather moist, it is easily detected, from the earth (a black peat) being so opposite in colour; and it is perhaps the most easy of all insects to capture, as nothing apparently will induce it to fly during the day: late in the evening we took specimens of the male near Lyndhurst flying very sluggishly.

The plant figured, *Tormentilla erecta* (common or officinal Tormentil), was growing upon the heaths where the moths were taken.



Paint by J. Curtis - London Aug. 1 1825

MILEZIA SPECIOSA.

ORDER Diptera. FAM. Syrphidæ *Lat., Leach.*

Type of the Genus Milesia speciosa.

MILEZIA *Fab., Lat., Meig. Musca Linn.*

Antennæ porrected, inserted upon a tubercle in front of the head, 3-jointed; first joint cylindric; 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* cylindric. *Wings* incurved, 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.

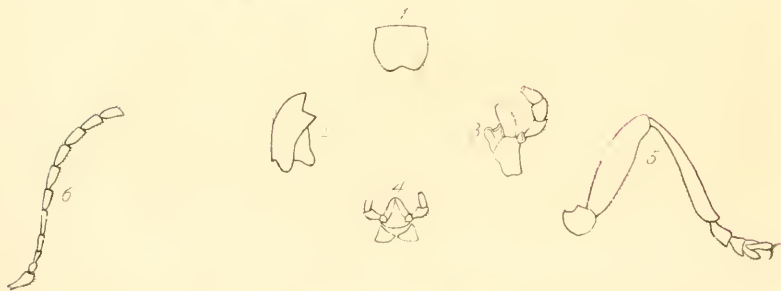
THE Genus *Milesia* as laid down by Latreille comprised numerous Genera of Fabricius and Meigen, which rendered it extremely difficult to study and determine the species of the

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.



CRYPTOCEPHALUS BIPUSTULATUS.

ORDER Coleoptera. FAM. Chrysomelidæ *Lat., Leach.*

Type of the Genus *Chrysomela sericea* *Linn.*

CRYPTOCEPHALUS *Geoff., Fab., Lat., Marsh.* *Chrysomela* *Linn.*

Antennæ inserted between and close to the eyes, remote, almost as long as the body, simple, somewhat filiform, 11-jointed, first joint large, second and third short, fourth and fifth slender, the following cylindrical, more robust. (6.)

Labrum subquadrate, coriaceous; anterior margin emarginate, in the centre ciliated. (1.)

Mandibles strongly bidentate at the apex. (2.)

Maxillæ external lobe much larger than the internal: *Palpi* 4-jointed, first joint minute, the remainder robust, last joint conic-cylindric, truncated at the apex. (3.)

Mentum coriaceous, transverse, short: *Lip* membranaceous: *Palpi* 3-jointed, first joint minute, second robust, clavate, third cylindrical truncated. (4.)

Head vertical, forced into the thorax up to the eyes. Eyes sub-renaliform. Thorax globose, nearly as broad as the elytra. Body short, ovate, cylindrical. Tibiæ without spurs. Tarsi 4-jointed, three first joints spongy beneath, first and second obtrigonal, third subcordate, bilobed, fourth cylindrical. (5. a fore-leg.)

BIPUSTULATUS *Fab. Ent. Syst. t. 1. pars 2. p. 67. n. 74.—dispar*
Payk. Fa. Su. v. 2. p. 142. n. 15. var. ε.

Black, shining; apex of elytra ochraceous, the edges black. Head and apex of abdomen punctured, hairy. Thorax perfectly smooth. Elytra with eleven punctured striæ upon each. Antennæ fuscous at their base. Legs and under side pubescent.

In the Cabinet of Mr. Dale.

NOTHING can prove more completely the rapid progress of Entomology in this country than the extensive additions that have been made to this beautiful Genus within the last twelve years, amongst the most splendid of which is *C. bipustulatus*, a single specimen having been captured by Mr. Dale near a coppice on Parley Heath, Dorset, 1st July 1823.

Marsham in his *Entomologia Britannica* enumerates twelve species only of the true *Cryptocephali*; and now there are the following:

- | | |
|---------------------------------|--|
| 1. <i>C. sexpunctatus</i> Linn. | 11. <i>C. Barbareæ</i> Linn. |
| 2. — <i>Coryli</i> Linn. | 12. — <i>pusillus</i> Fab. }
13. — <i>marginellus</i> Don. }
14. — <i>dorsalis</i> Marsh. }
15. — <i>frontalis</i> Marsh. } |
| 3. — <i>bipustulatus</i> Fab. | |
| 4. — <i>lineola</i> Fab. | |
| 5. — <i>Moræi</i> Linn. | |
| 6. — <i>sericeus</i> Linn. | 16. — <i>exilis</i> Schüp. MSS. |
| 7. — <i>similis</i> Leach. | 17. — <i>ochraceus</i> nob. |
| 8. — <i>nitens</i> Linn. | 18. — <i>bilineatus</i> Linn. |
| 9. — <i>flavilabris</i> Fab. | 19. — <i>labiatus</i> Linn. |
| 10. — <i>punctiger</i> Payk. | |

C. marginellus, *dorsalis* and *frontalis*, it is generally thought are mere varieties of *C. pusillus*, varying in different degrees from testaceous to black; and Dr. Leach has lately sent from Devonshire to the British Museum, either another curious variety or a distinct species, black with a testaceous transverse band near the base of the elytræ.

Mr. Dale having swept his insect off Heath growing upon a bank, *Erica cinerea* (Fine-leaved Heath) is figured in the plate. It is said also by Fabricius to inhabit a very old garden flower *Chrysanthemum coronarium*.



Macropis... London Sept 1851

LITHOSIA MUSCERDA.

ORDER Lepidoptera. FAM. Tineidæ *Lat.*, *Leach.*

Type of the Genus *Noctua complana* *Linn.*

LITHOSIA *Fab.*, *Lat.*, *Haw.* *Noctua* *Linn.* *Bombyx* *Hüb.*

Antennæ remote, covered with long scales above, hairy beneath, pectinated (under a lens), the pectinations arising from the centre of the joints on each side. (1. and 1. a.)

Labrum and } attached to the clypeus.
Mandibles }

Maxillæ long and spiral. (3.)

Palpi two, generally shorter than the head (7. a.); covered with various scales, the apex nearly naked (4.); 2-jointed, first joint long, cylindric, attenuated, curved upward, second joint small, somewhat rhomboid. (4. a.)

Head short, covered with close scales (not hairy in front). Eyes remote. Wings long, oblong, somewhat elliptic, incumbent or convolute. Inferior ones much folded. Anterior legs with the *coxæ* long and robust. Thighs very long and slender. Tibiæ short and slender. Tarsi 5-jointed. Pulvilli distinct. Claws obscure. (8. a fore-leg.)

MUSCERDA *Hüb.* *Bomb.* pl. 24. f. 103.

Fuscous tinged with pink and yellow, towards the costa pale straw colour; five irregular small black spots in the superior wings, the first upon the costa, the two following forming an oblique line towards the posterior margin, and two others near the centre.

In the Cabinet of Mr. Sparshall.

Two specimens of this extremely rare insect (drawn rather larger than the life) were found by Mr. Joseph Sparshall, at the end of June, upon the marshes at Horning, Norfolk, in ditches, floating on the water. The other species belonging to this Genus are, 1. *L. flava* *Fab.*; 2. *aurantia* *Haw.*; 3. *ochreola* *Hub.*; 4. *helvecola* *Hub.*; 5. *complana* *Linn.*; 6. *griseola* *Hub.*; and 7. *quadra* *Linn.*

L. quadra will form a second division in this Genus, since the second joint of the palpus is as long as the first, and curved upward: *Bombyx pulchella* and *rubricollis* Fab., with some others, are included by that author and Latreille in the Genus *Lithosia*, which has occasioned the latter to state that the palpi are three-jointed, whereas Fabricius has described them as biarticulate: after dissecting several specimens of our Genus, and examining them most carefully, I can discover only two joints; *B. pulchella* and *rubricollis*, having three distinct joints in the palpi, must therefore be constituted into a new Genus.

The plant figured is *Alisma Plantago* (Great Water Plantain), var. *lanceolata*.



W. & A. G. S. London, Eng. 1860

RAPHDIA OPHIOPSIS.

ORDER Neuroptera. FAM. Raphidiadæ *Lat., Leach.*

Type of the Genus R. Ophiopsis Linn.

RAPHIDIA *Linn., Fab., Lat., &c.*

Antennæ inserted between the eyes, remote, as long as the thorax, nearly filiform, composed of many joints (44 in the male, 42 in the female of the type), two first joints robust, last conical. (1.)

Labrum exerted, subquadrate, rather broader than long, anterior margin circular, entire. (2.)

Mandibles corneous, strong, extending beyond the labrum, elongate, curved, acute, with two sharp teeth on the internal side. (3.)

Maxillæ short, crustaceous, bilobed, ciliated: *Palpi* short, filiform, 4-jointed; first joint short, second longer, third and fourth of equal length, the latter truncated. (4.)

Mentum short, quadrate: *Palpi* short, attached to two immoveable articulations, 3-jointed, last joint long, truncated. (5.)

Clypeus broad, anterior margin nearly straight. Head *inflexed*, oval, narrowed behind. Eyes prominent. Ocelli 3 in triangle. Thorax with the first segment very long, cylindrical. Wings *deflexed*, nearly equal in size, reticulated, all the nerves hairy. Abdomen of the male produced at the apex with 2 strong teeth (7. the terminal joints viewed in profile): of the female terminated by 2 united canals, transversely striated, slightly hairy, with two valves at the apex. (6.)

OPHIOPSIS *Linn. Syst. Nat. 2. 916. 1. Fab. Ent. Syst. v. 2. p. 99. n. 1.*

Black, shining. Head slightly punctured. Clypeus, base of antennæ, legs (excepting the base and upper surface of the thighs), 2 lines down each side of the abdomen, and a spot on each segment down the back straw colour. Wings slightly coloured. Stigma brown.

In the Author's and other Cabinets.

DR. LEACH has divided this extraordinary Genus into the following species—1. *R. Londinensis*, 2. *affinis*, 3. *maculicollis*, 4. *megacephala*, and 5. *Ophiopsis*; how far they may be good species it is not easy to determine, as they are subject to great variations, and the nervures of the wings are very inconstant, frequently not agreeing in the same specimen.

R. Londinensis, as its name implies, is found in the vicinity of our capital, even as near as Copenhagen Fields; it has no stigma. *R. affinis* is a smaller species, the male of which is figured in Kirby and Spence's Introduction to Entomology (pl. 3. f. 6.); *R. maculicollis* is very similar to *R. Londinensis*, and *R. megacephala* and *Ophiopsis* appear to me to be the same.

The larvæ are described by Latreille as very nimble and voracious, living upon small insects, and concealing themselves in crevices in the bark of trees; the pupæ, like the rest of the Order, have the power of locomotion. The perfect insect also feeds upon smaller ones, its long moveable thorax enabling it to seize its prey in any direction with great facility; and it is able to bite with considerable force with its acute mandibles, which it can extend considerably.

The ovipositor is exceedingly dissimilar to those of any other insects; by Latreille's description and my own observations, it appears to be formed by two canals united, with a space between, being composed of transverse rings which enable the insect to propel the eggs to the apex, where they are received and deposited by the two appendages, in clusters like fly-blows.

The month of June appears to be the season for all the species in the imago state, and they are stated to prefer the neighbourhood of streams; the specimen however figured in the plate, with two or three others, were beat out of White-thorns in rather high ground in the New Forest.

The plant figured is *Veronica Chamædrys* (Wild Germander).



1847. *Chalcididae*. *Chalcididae*.

HEDYCHRUM ARDENS.

ORDER Hymenoptera. FAM. Chrysididæ *Lat., Leach.*

Type of the Genus C. violaceum Rossi.

HEDYCHRUM *Lat., Leach.* *Chrysis Linn., Fab., Jurine.*

Antennæ inserted close to the margin of the clypeus, geniculated, fusiform, 13-jointed; first joint the longest. (1.)

Labrum very minute, long, attenuated, ciliated. (2.)

Mandibles hairy, externally arcuated, with 3 sharp teeth towards the apex. (3.)

Maxillæ horny at the base, membranaceous towards the apex, ovate, entire, ciliated: *Palpi* 5-jointed, longer than the maxillæ, third joint rather thicker, fourth and fifth rather longer than the others. (4.)

Mentum long, dilated anteriorly: *Palpi* short, 3-jointed: *Lip* with the margins conniving externally. (5.)

Clypeus with a deep impression between the eyes, receiving the first joint of the antennæ. *Thorax* semi-cylindric, angular, divided by 3 transverse sutures. *Metathorax* not elongated into a scutellum.

Body contractile into a ball. *Abdomen* attached only by a portion of its transverse diameter, semicircular, with the extremity rounded, convex above, concave beneath, composed of three joints, the second very large. *Tarsi* 5-jointed. (8.) *Superior wings* with the marginal cell scarcely complete at the apex; *discoidal cells* very obscure. *Inferior wings* without distinct nerves.

ARDENS *Lat. Coq. Illus. Icon. Ins. dec. 2. p. 59. t. 14. f. 7.*

Shining, pubescent. Head and thorax deeply, abdomen minutely punctured. Green, centre of head, thorax and abdomen, crimson reflecting purple and gold. Posterior angles of thorax blue. Under side of abdomen black, sometimes aureous towards the base. Wings fuscous, with alternate bands of green and gold at the posterior margin. Antennæ black, green at the base. Legs green. Tarsi rufous.

In the Cabinets of the British Museum and the Author.

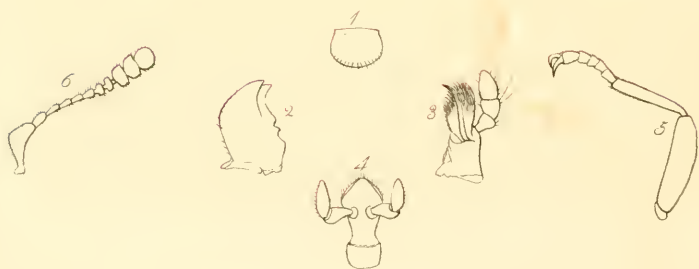
IN a former number (folio 8.) was given the Genus *Chrysis*; and another group of the same family, separated by Latreille, is the subject of the present paper. Although the *Hedychri* may equal the *Chrysidæ* in splendour, their form is by no means so elegant; the obtuseness and breadth of the abdomen di-

stinguishing them at first sight; and upon further comparison, the absence of the transverse line of impressed dots upon the last joint of the abdomen, as well as the great difference in the mandibles, independently of the variation in the wings, excite our astonishment that Jurine should have rejected a Genus so natural and well established.

Dr. Leach has divided this Genus into those with the apex of the abdomen entire, 1. *H. punctatum* Leach?; 2. *lucidulum* Geoff.; 3. *ardens* Lat. The others notched at the apex, 4. *regium* Geoff.; 5. *violaceum* Rossi. There are also in the Museum cabinet a species called *cæruleum* and another unnamed. Our insect, which was taken several years back in Norfolk, agrees tolerably well with Latreille's description, and perfectly with the British specimens in the Museum, but not very well with the rude and careless figure in Coquebert. Some specimens are twice the size indicated in the plate by the crossed lines.

The habits of this Genus are somewhat dissimilar to those of the *Chrysidæ*, being generally found in the sunshine upon the leaves of brambles and other bushes, from which they fall upon being approached, rolling themselves up into a ball.

The plant figured is *Antirrhinum Cymbalaria* (Ivy-leaved Snapdragon).



THYMALUS LIMBATUS.

ORDER Coleoptera. FAM. Silphadæ *Leach*. Necrophagi *Lat*.

Type of the Genus Cassida limbata Fab.

THYMALUS *Lat*. Silpha *Linn*. Cassida, Peltis *Fab*.

Antennæ inserted before the eyes, short, 11-jointed, first joint the longest, clavate, second short and robust, third, fourth and fifth somewhat cylindric, sixth, seventh and eighth, somewhat turbinate, the three last large, forming a compressed perfoliated club, the ninth and tenth joints being transverse, the eleventh orbicular. (6.)

Labrum exerted, nearly oval, the posterior margin straight. (1.)

Mandibles exerted, bifid at the apex, sometimes dentated internally towards the middle. (2.)

Maxillæ membranaceous, with a corneous arcuated tooth, external process short, curved inward, strongly ciliated and clothed with hair towards the apex : *Palpi* short and robust, 3-jointed, terminal joint subovate. (3.)

Mentum small, quadrate : *Palpi* 2-jointed : *Lip* large, broader than the mentum, entire, superior margin ciliated. (4.)

Head small, nearly concealed by the thorax, which is emarginate before and broad behind ; the sides being margined. Scutellum small. Elytra viewed together with the thorax elliptic, margined, much broader than the abdomen, which they completely conceal. Wings 2. Feet short, without spines. Tarsi indistinctly 5-jointed, all simple.

LIMBATUS *Fab. Ent. Syst. v. 1. pars 1. p. 294. n. 11. Syst. Eleu. v. 1. p. 344. n. 4.*

Pubescent, shining, reddish brown with a slight cupreous cast, the margins of the thorax and elytra appearing brighter. Legs and under side reddish brown. Thorax minutely punctured. Abdomen with numerous longitudinal lines of deep punctures.

In the Author's and other Cabinets.

THE remarkable habit of our insect, which is so similar to that of *Cassida* as to have led Fabricius to consider it as belonging to that Genus in his earlier works, an error however which he corrected in his *Systema Eleutorum*, has induced the Baron Dejean and other Entomologists to separate it from *Peltis* ; and it is now the only true *Thymalus* known, *Peltis* retaining the other four species (*grossa*, *ferruginea* *Fab.* &c.),

none of which have been yet met with in this country, although by accident *P. ferrugineus* was given as the type of *Thymalus* in Samouelle's Entomologist's Useful Compendium.

Thymalus limbatus is another valuable Genus added to our Fauna by Mr. D. Bydder, who took it in the New Forest in abundance during the months of June and July. It appears to be generally distributed in that neighbourhood, as I have since met with it occasionally in June near Brockenhurst and Lyndhurst. Upon stripping off the bark of decayed trees, the insect will generally be found adhering to it like a Coccus or a scale, from which circumstance we are led to believe that like many of the *Nitidulæ* it feeds upon *Boleti*, *Fungi*, &c. especially such as are found in similar situations: they no doubt at particular periods are to be found also in flowers, as Fabricius gives an Italian plant, the *Dianthus Carthusianorum*, as their habitat, and Mr. Ingpen found a single specimen upon a flower in Kent, during the present year.

Boletus versicolor (Changeable Boletus) is given with the insect.



- This by: Curtis London 1 or 1824

SESIA BOMBYLIFORMIS.

Narrow-bordered Bee Sesia.

ORDER Lepidoptera. FAM. Sphingidæ Lat.

Type of the Genus Sphinx fuciformis Linn.

SESIA Fab. Sphinx Linn., Fab., Lat., Haw.

Antennæ composed of many joints, with the club prismatic, slightly hooked, terminated at the apex by an oblique, slender style of two joints; those of the male ciliated beneath (1. the terminal joints), of the female more cylindrical, simple. (2.)

Labrum and *Mandibles* } attached to the clypeus.

Maxillæ very long and spiral.

Palpi 2, meeting over the maxillæ (7.); projecting a little beyond the head, completely covered with hairy scales (4.); 3-jointed, first joint short, second long, robust, curved upward, third very minute (4. a.)

Abdomen hairy, with the apex bearded. Wings more or less transparent, horizontal or deflexed in repose; with a hook or catch at the exterior edge of the lower wings to retain those above.

Caterpillars with 6 pectoral, 8 abdominal, and 2 anal feet, with an elevated horn at the extremity of the abdomen.

BOMBYLIFORMIS Esper Schmet. 2. t. 23. f. 2. Fab. Ent. Syst. t. 3. pars 1. p. 382. n. 12. Haw. Lep. Brit. p. 68. n. 16.

Golden green, 2d and 3d segments of abdomen nearly black, most intense on the sides; 4th and 5th bright orange: beard to the abdomen black, orange in the centre. Wings transparent, iridescent, the superior with the costa, posterior margin, and the base extending along the interior margin brown; inferior with the abdominal margin and a narrow fimbria also brown: beneath pale yellow and black. Antennæ cyaneous. Tarsi fuscous.

In the Author's and other Cabinets.

THE beautiful transparent wings of this Genus at once distinguish it from *Macroglossum*, to which it is most nearly allied; whilst the ovate and hairy abdomens and sphinx-like form (as well as the tailed Caterpillars) are sufficiently obvious characters to separate it from *Ægeria*.

S. bombyliformis may be easily distinguished from the more

common one (*S. fuciiformis*) by the narrow border of the wings, which is entirely brown, by the black instead of crimson band across the abdomen, and by the under side, which is variegated with black and white.

The larvæ, which have erroneously been stated by some authors to feed upon the wood of Willows, have been bred from the eggs by my friend J. C. Dale, Esq., to whom I am indebted for a drawing and account of the Caterpillars: when about ten days old they have several furcate spines upon each segment of the abdomen, that entirely disappear when they are full fed, at which period they vary exceedingly.

The perfect insects are remarkably swift upon the wing, and make a humming noise similar to a humble-bee; they have been taken by Mr. Dale at Enborne, near Newbury, Berkshire, in some abundance, the end of May and beginning of June: they are much attached to damp places in woods and moist meadows, where they are attracted by various flowers, especially *Pedicularis palustris* and *sylvatica*, about which they fly, extracting honey from the nectaries whilst on the wing, like the Humming Bird and other *Sphinges*.

Scabiosa succisa (Devil's-bit Scabious), the plant upon which the Caterpillars feed, is figured in the plate.



Tab. 19. - *Cardo Linnæi* n. 1. 2. 3. 4.

CIMBEX DECEM-MACULATA.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat., Leach.*

Type of the Genus Tenthredo europæa Leach.

CIMBEX *Oliv., Fab., Lat., Leach.* Tenthredo *Linn., Jur.*

Antennæ inserted between the eyes, clavate, 6-jointed, first joint cup-shaped, second very short, third very long, fourth and fifth clavate-truncate, sixth oblong, club-shaped, with a transverse suture. (1.)

Labrum small, oblong, rounded at the apex, hairy. (2.)

Mandibles exerted, unequal, robust, acute, with one or two irregular teeth on the inside. (3.)

Maxillæ membranaceous at the apex, with a large hairy lobe near the base of the palpi, extending towards the apex.

Palpi irregular, extending a little beyond the maxillæ, 6-jointed, third joint the longest, fourth somewhat clavate, sixth small, ovate. (4.)

Mentum oblong, dilated anteriorly (5. a.) : *Palpi* scarcely longer than the lip, 4-jointed, gradually increasing in size to the third joint, terminal joint small (b.) : *Lip* membranaceous, with a few hairs above, three-lobed, the centre one narrow, external lobes somewhat hemispherical. (c.)

Clypeus broad, emarginate. *Ocelli* 3. *Abdomen* sessile, cylindric in the males, somewhat ovate in the females, first segment especially of the males deeply emarginate above. *Oviduct* not exerted, composed of two lamellæ, which are serrated. *Superior wings* with 2 marginal and 3 submarginal cells. *Thighs* 4 posterior unarmed, very thick in the males. *Tibiæ* terminated by syphon-formed spurs, obtuse at the apex. *Tarsi* with the penultimate joint a little shorter than the antepenultimate, four first joints with membranaceous appendages (8. a fore leg) ; the basal joint of the 4 posterior tarsi of the males produced into a spine beneath. (8. a.)

Larva with membranaceous feet.

DECEM-MACULATA *Leach Zool. Mis. v. 3. p. 106. n. 7. T. lutea Linn. ?*
Fn. Sn. 1534.

Body obscurely villose : black, the abdomen tinged with violet, the third and seventh joints having a pale greenish yellow spot on each side ; the 3 intermediate joints of the same colour interrupted by blackish violet down the centre. *Abdominal membrane* pale yellow. *Antennæ* and *tarsi* testaceous. *Wings* pale fulvous : costa, 2 cells near the stigma and posterior margin ferruginous.

In the Cabinet of the British Museum.

DR. LEACH has described in the Zoological Miscellany (above referred to) eleven species of this fine Genus, seven of which

are ascertained to be inhabitants of Great Britain; the unique specimen figured, which is a female, was taken in the month of July at Windsor several years since by Mr. Griesbach, and presented to the British Museum by Dr. Leach.

The larvæ of this Genus greatly resemble those of the *Lepidoptera*, except that they have twenty-two feet; they have also two lateral apertures from which they are able to spirt a fluid, for what purpose we can only conjecture, probably it may be sufficiently fetid or noxious to protect them against the attacks of the destructive *Ichneumonidæ*. When the larvæ are full grown, they form for themselves an oblong hard case, which is generally attached to a twig or small branch of the tree they fed upon, within which they change to an incomplete pupa.

The plant figured is *Holcus mollis* (Creeping Soft Grass).



Painted by J. Curtis London Oct 1 1824

PACHYGASTER LEACHII.

ORDER Diptera. FAM. Stratiomydæ *Lat., Leach.*

Type of the Genus Vappo ater Fab.

PACHYGASTER Meig. Vappo *Lat., Fab.* Nemotelus *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. (l. b.)

Tongue horny, acute, attenuated from the base, shorter than the labrum. (c.)

Mandibles none.

Maxillæ long, slender, acute, concealed in the lip. (c.)

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.

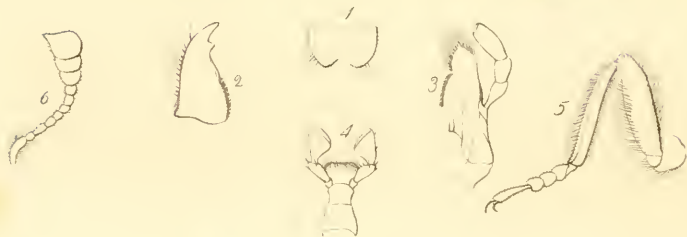
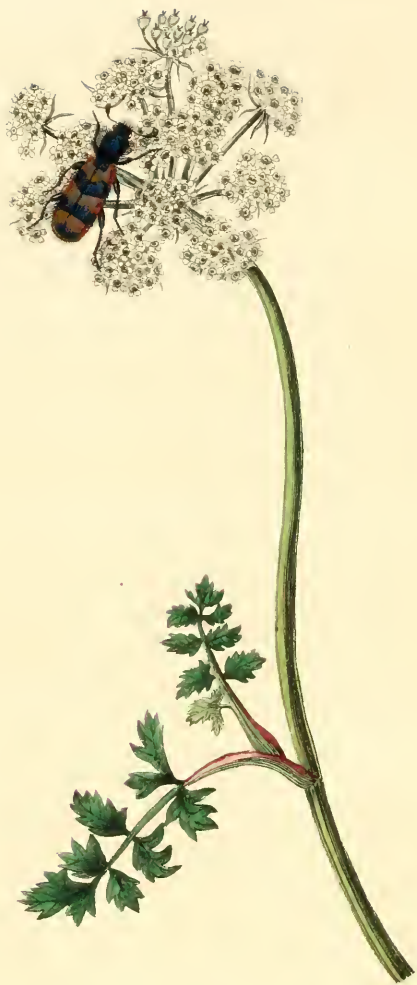
In the Cabinets of the British Museum and the Author.

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

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).



CLERUS ALVEARIUS.

ORDER Coleoptera. FAM. Cleridæ *Lat., Leach.*

Type of the Genus Attelabus Apiarius *Linn.*

CLERUS *Geof., Fab., Lat.* Attelabus *Linn.*

Antennæ inserted between and close to the eyes near the clypeus, hairy, 11-jointed, first joint long, curved, second shorter than the third, the five following short, the three last forming an oblong triangular mass, rounded externally, acuminate internally at the extremity. (f. 6.)

Labrum exserted, transverse, ciliated, narrowed before and deeply emarginate. (1.)

Mandibles arched, acute, one having a tooth on the internal edge near the apex, the other having only an irregular edge, thickly covered with short regular hairs on the inside from the base, with long hairs externally. (2.)

Maxillæ long, the terminal lobe ciliated with long close hairs, inferior lobe with short hairs: *Palpi* 3-jointed, first joint clavate, third obconic truncated, nearly equal in length to the two first. (3.)

Mentum dilated towards the base, narrowed anteriorly: *Palpi* 3-jointed, first joint minute, second clavate, third large, securiform: *Lip* broad, rounded, pubescent. (4.)

Head nearly vertical. Eyes notched. Thorax obconic-cylindric. Scutellum minute. Wings 2. Hinder thighs of the males incrassated. Tarsi 5-jointed, first joint very short, nearly concealed by the tibiæ, terminal long. Claws simple (5 a fore leg.)

ALVEARIUS *Fab. Ent. Syst. v. 1. pars 1. p. 209. n. 15. Lat. Gen. Crus. and Ins. v. 1. p. 273.*

Purplish blue, hairy. Head and thorax greenish blue, deeply and closely punctured. Elytra closely punctured in indistinct lines, bright red inclining to orange, blueish purple round the scutellum which is of the same colour, 2 transverse fasciæ, a spot near the apex, and the suture blueish purple. Legs and antennæ purple inclining to black.

In the Cabinets of Mr. Sparshall and the Author.

AT the time Mr. Marsham wrote his *Entomologia Britannica*, neither of the species that form the Genus *Clerus* were considered as British, although specimens were preserved in the old cabinets; Mr. Samouelle has also omitted the Genus in

his Useful Compendium ; Donovan, on the other hand, having received specimens of *Clerus Apiarius* from the North of England, has given a figure of it in his British Insects, vol. vii. p. 231. f. 1.

Several specimens of this beautiful Genus having been taken within the last few years, amongst which are a fine female of *C. Apiarius* captured at Dover, and transmitted to Mr. Stone, and two of *C. alvearius* sent to Mr. Sparshall from Manchester, one of which is figured in the plate, our right to record it as a British Genus can no longer be questioned. As a doubt existed in the mind of Fabricius, when he wrote his *Entomologia Systematica*, whether our insect was any thing more than a variety of *C. Apiarius*, I shall point out a few of the most obvious characters which distinguish them, although I fear it may be thought unnecessary, after Latreille and Panzer without hesitation had published them as distinct species. *C. Alvearius* is smaller (the figure in the plate is about one fourth larger than the insect), more hairy, and less shining than *C. Apiarius* : moreover the scutellum is surrounded by a purple spot, the suture is of the same colour, and the spot near the apex of the elytra is surrounded by red : these are characters sufficient to distinguish it from *C. Apiarius* : it is also well known upon the continent that the larvæ of that species inhabit bee-hives, whereas those of *C. Alvearius* (we are informed by Latreille) are attached to the nidus of *Osmia cornuta* (*Apis bicornis*, Kirby).

The larvæ, it is most probable, prey upon the young brood of the Bees ; and the perfect Beetle is found upon different flowers, at what time of the year is not ascertained.

I am indebted to Professor Henslow for specimens of *Athamanta Libanotis* (Mountain Spiguel), gathered at Hinton in Cambridgeshire.

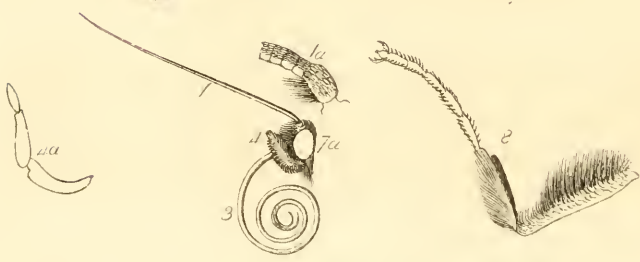


Illustration by Curtis, 1835

CUCULLIA ASTERIS.

The Starwort Shark Moth.

ORDER Lepidoptera. FAM. Noctuidæ *Leach, Lat.*

Type of the Genus *Noctua umbratica Linn.*

CUCULLIA *Schrank, Och.* *Noctua Linn., Fab., Haw.* *Tribonophora Hüb.*

Antennæ long, setaceous, composed of numerous short joints, covered with scales above, first joint the largest, with a tuft of hair beneath (1. and 1. a. the basal and a few following joints).

Labrum and *Mandibles* attached to the clypeus.

Maxillæ nearly twice the length of the antennæ. (3.)

Labial Palpi curved upward, not so long as the head, thickly covered with loose scales, terminal joint appearing naked, having only short close scales, (4.) first joint long, curved, second long, slightly attenuated, third small, spherical. (4. a. the scales being removed.)

Head *rather small, obtuse* (7. a.) Thorax with an *elevated crest.*

Abdomen *long, somewhat deflexed, frequently with tufts upon the back, and sometimes with a long pointed or divided apex.* Wings *deflexed, superior lanceolate, inferior rather small.* Legs *clothed with hair.* Tarsi *5-jointed, with a row of spines on each side beneath.*

Claws *all bifid.* Pulvilli *terminated by a horny process.*

Caterpillars with 6 *pectoral, 8 abdominal, and 2 anal membranaceous feet of equal size.*

ASTERIS *Fab. Ent. Syst. t. 3. pars 2. p. 121. n. 364. Haw. Lep. Brit. p. 168. n. 22.*

Cinereous tinged with lilac, head and thorax somewhat rufous. Abdomen fuscous, with tufts down the back, deep brown. Superior wings entire deep chesnut along the costa, with streaks of pale rufous; two irregular broken spots near the centre: Interior margin deep chesnut with lines of cinereous and black, and a lunulated transverse spot cinereous and chesnut, cilia fuscous. Inferior wings fuscous, cinereous at the base, cilia pale testaceous.

In the Cabinets of Mr. Blunt and Mr. Thompson.

THIS very natural group was first established as a Genus by Schrank under its present name *Cucullia*, from the strong resemblance which the crest has to a hood; it also forms the division "*Lanceolatæ*" in Haworth's *Lepidoptera Britannica*. The Genus contains 11 British species, 1. *C. umbratica* L.;

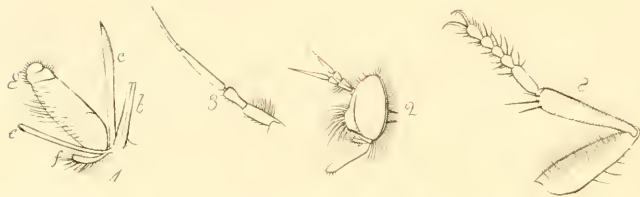
2. *Lactucæ* F.; 3. *lucifuga* Hüb.; 4. *fissina* Haw.; 5. *Tanacetii* F.; 6. *Gnaphalii* Hüb.; 7. *Chamomillæ* F.; 8. *Asteris* F.; 9. *Verbasci* L.; 10. *Scrophulariæ* Hüb.; 11. *Absinthii* L.; most of them derive their names from the plants upon which the caterpillars feed, and many of the Moths are to be found in July resting upon pales during the day, or flying about flowers in the evening, when they are very strong upon the wing.

The caterpillars, which vary considerably in colour, have great muscular power, are very lively, perfectly smooth, and have a fleshy appearance.

For the following account, as well as a drawing of the Caterpillar, I am indebted to the kindness of Mr. Blunt. "On the 24th Sept. 1821, at Darent, in a part of the wood which had been cut down the preceding spring, I found three larvæ feeding on the flowers of the *Solidago virgaurea*, from which on the 2nd of July following I bred one, and two or three days afterwards another specimen of *Cucullia asteris*: from the situation in which I keep my breeding cages, I feel satisfied that the time of an insect's appearance with me and in a natural state corresponds precisely; in this particular instance I am perfectly convinced of it, from the circumstance of my taking another specimen whilst mothing (on the same spot where I took the larvæ) towards the end of the month; it was somewhat wasted, as would be the case with an insect that had been out two or three weeks. In the following autumn I again found the larva, and bred a specimen of the moth on the 20th July: the difference of time between this and the preceding year, may be accounted for from the severity of the winter of 1822-3, which would cause all insects that had been in the pupa state during that season, to be later than usual in their appearance."

Although our insect evidently is attached to the *Solidago*, it feeds also upon the Chinese Aster (*Aster Chinensis*) from which it receives its specific name; and C. J. Thompson, Esq. of Fulham, beat a considerable number off a Copper Beech in his garden (one of which he reared): this specimen is smaller and not so brilliant in colour as the others; it is therefore possible it may be another species, differing materially only in the caterpillars, and this is the more probable because it is general throughout the Genus.

Solidago virgaurea (Common Golden Rod) is represented in the plate.



ASILUS GERMANICUS.

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

Type of the Genus Asilus forcipatus Linn.

ASILUS *Linn., Fab., Lat., Meig.* Erax *Scop.* Dasyopogon *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

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.; *æstivus* 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).



Publ. by J. Curtis London Dec. 11 1824

POGONUS BURRELLII.

ORDER Coleoptera. FAM. Carabidæ *Lat., Leach.*

Type of the Genus Carabus chalcens Marsh.

POGONUS *Ziegler.* Raptor *Megerle.* Carabus *Marsham.*

Antennæ nearly cylindric, pilose, 11-jointed, the joints gradually increasing in circumference, and decreasing in length from the third to the terminal joint, which is longer than the penultimate and oblong-conic; first joint large, second small, third as long as the first. (f. 6.)

Labrum transverse, sides convex, basal and anterior margins slightly emarginate. (1.)

Mandibles somewhat curved, slender, acute, with a small tooth near the base on the internal edge, sometimes with a larger tooth in the centre. (2.)

Maxillæ curved, slender, acute, with strong bristles on the internal edge: *Palpi* internal very slender, 3-jointed, first joint minute, second clavate, third attenuated external: 4-jointed, first joint short, the remainder longer, of nearly equal length, second cylindric, third clavate, fourth ovate, truncate. (3.)

Mentum transverse, nearly straight at its base, sides very convex being narrowed behind, deeply emarginate in front with a small bifid tooth in the centre: *Labium* exerted, coriaceous in the centre, lateral processes membranaceous: *Palpi* 3-jointed, first joint small, trigonate, second long, clavate, third somewhat ventricose, terminated (apparently) by a gland. (4.)

Head narrower than the thorax, trigonate. Thorax narrower than the abdomen, nearly quadrate, with an impression near the posterior angle. Elytra nearly thrice the length of the thorax. Scutellum minute. Wings 2. Legs formed for running, slender. Anterior tibiæ notched internally, spined at their extremities. Anterior tarsi in the male dilated, especially the basal joint (5 a fore leg).

The dissections are all made from *P. Burrellii*.

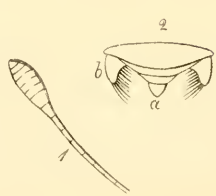
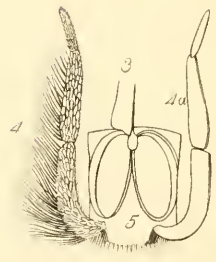
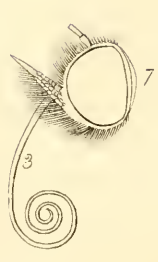
BURRELLII *Haworth's MSS.*

Head and thorax smooth, cupreous, reflecting deep green, especially round the margins, the head with a longitudinal groove on each side between the eyes, the thorax margined on the sides, narrowed behind, with the anterior angles rounded, the posterior more acute, a channel down the centre, with an impressed line forming a triangle with the anterior margin, punctured posteriorly, with an impressed line parallel to the base, and a large foveola near the posterior angles. Elytra with a narrow margin, smooth, pale ochraceous, somewhat variegated with fuscous, sometimes having a rosy tinge, an abbreviated stria next the scutellum, and eight punctured longitudinal striæ, some of which are united near the apex. Wings white, semi-transparent. Scutellum, legs, antennæ and palpi more or less dull ferruginous. Beneath black tinged with green and purple.

In the Cabinets of Mr. Burrell and the Author.

THE Genus now under consideration has been named *Pogonus* by one author, and *Raptor* by another; and not knowing which is entitled to priority, I have followed the Baron Dejean in adopting the former, not doubting but he had just reasons for so doing. I am also inclined to believe, that either no characters have hitherto been published of this genus, or that they have not yet reached this country; I have therefore been under the necessity of drawing the best I could from our three species, as well as a specific description of the beautiful individual selected for illustration, it never having been before described, although it was named many years since, by A. H. Haworth, Esq., after our old and esteemed friend the Rev. J. Burrell, F.L.S., by whom it was first detected in 1806, and to whom I am indebted for specimens, and the following particulars: "The Genus *Raptor*, confined as it is to three British species (*Burrellii* Haw.; *chalceus* Marsh.; and *æruginosus* Steph. MSS.), is perfectly maritime; the species being all found in the same situation, and may be deemed subaquatic; for in the winter, and a considerable part of the summer, the habitat of these pretty animals is entirely covered with water, which stagnates many inches deep in the low places of the marshes after the tide has flowed and ebbed. When these spots, which are first formed by a casual removal of the oozy soil for agricultural purposes, are dried, through evaporation caused by the summer sun, the soil cracks in various directions, and out of these cracks, when any one walks across the place, the *Raptors* dart up with swiftness and in great numbers. They are principally found in the months of June, July, August, and September; and if the weather be warm and dry, they may be captured, though in less quantity, in May and October. They associate with many species of *Bembidium*, and not unfrequently the *Cillemum laterale* is seen in their company. The most manifest habitat of our species is at Salthouse in Norfolk, upon the salt marshes separated from the German Ocean by a high mound of pebbles and other small stones rounded by attrition, and through which mound the tide penetrates at its highest flow."

The male is somewhat smaller than the female, but both sexes vary in magnitude. Its food is undoubtedly similar to that of other *Carabidæ*, and the soil is productive of very few plants: among these, however, the *Statice Limonium* (Lavender Thrift) is handsome and common; it is therefore made the accompaniment of the plate.



Polyommatus icarus Linn. 1758

PONTIA DAPLIDICE.

Green chequered white, or Bath white, Butterfly.

ORDER Lepidoptera. FAM. Papilionidæ *Lat., Leach.**Type of the Genus Papilio Daplidice Linn.*PONTIA *Fab., Leach. Pieris Schrank., Lat. Papilio Linn., Fab., Haw.**Antennæ* composed of about 30 joints, with an abrupt, obconic, compressed club of 7 or 8 joints (f. 1. shows part of the antenna.)*Labrum* attached to the clypeus. (2. a.)*Mandibles* attached to the clypeus, remote, parallel, ciliated. (2. b.)*Maxillæ* long and spiral (3.): with a small palpus of two joints near the base.*Labium* triangular, elongated (5.): *Palpi* porrected obliquely, 3-jointed, covered with scales, the two first with long hairs also (4.): first joint long, recurved from the base, cylindric, second conical, as long or longer than the first, the third slender, linear, much shorter than the second in *P. Cardamines* and *Daplidice* (4. a.), and longer than the second in the other species.*Wings* not very narrow or much elongated, posterior ones with a groove on the abdominal margin to receive the abdomen. Feet alike in both sexes. Tarsi 5-jointed, first joint very long. Claws unidentate or bifid.*Larvæ* elongate, cylindric, downy, sometimes tuberculated.*Pupæ* elongate, angular, beaked, attached by the tail, girted round the middle.*DAPLIDICE* *Linn. Syst. Nat.* 2. 760. 81. *Fab. Ent. Syst. t.* 3. pars 1. p. 191. n. 593. *Haw. Lep. Brit. p.* 10. n. 11.*Male* nearly white. Superior wings above blackish at the apex, interrupted by large white spots, a blackish spot near the centre towards the costa, with the transverse nerve passing through it whitish: posterior wings variegated with griseous: superior wings beneath with the same spots, and a small one near the posterior angle green speckled with black: inferior wings beneath green speckled with black, having a row of white spots on the margin, an interrupted fascia parallel to the margin, and three other white spots towards the base. Abdomen black with griseous hairs. *Female* larger than the male, with an additional blackish spot near the posterior angle of the superior wings, a blackish margin with white spots, and a large black spot upon the inferior wings; beneath similar to the male.*In the Cabinet of Mr. Stephens.*THE Genus *Pontia* contains five British species, which, with the exception of the one figured, are amongst the most com-

mon of our Butterflies, the caterpillars of many of them being the greatest pests amongst our vegetables, by feeding upon and destroying the different varieties of cabbages cultivated in our kitchen gardens.

As the Genus now stands, it may be divided into those with the wings rounded, *P. Brassicæ* L.; *Rapæ* L.; *Napi* L.;—the others having the wings variegated beneath, *P. Cardamines* L.; *Daplidice* L.: the palpi of the first division have the terminal joint longer than either of the other joints; whereas the terminal joint is shorter than the second in the two species of the second division, and *P. Cardamines* has two additional nerves extending to the costa of the superior wings. *P. Sinapis* I have ventured to remove from the Genus *Pontia*, the form of the wings as well as the total disagreement of the nerves rendering such a step necessary; and I am borne out by the extraordinary difference in the palpi, which are short, flat, the first joint being very large, conic, second small, quadrate, the third very small, nearly globose. Although I have availed myself of the inimitable and elegant dissections of Mons. Savigny to illustrate the subject, it has not been done without the most careful comparison of them with nature; and I shall take advantage of this opportunity of correcting an error in his first plate, the figures relating to *P. Daplidice* being numbered 2. instead of 3. which error is carried through the plate.

Pieris Daplidice, like many other insects, seems to be periodical in its appearance. It was taken in the days of Ray, by Vernon near Cambridge; by Petiver, near Hampstead: Lewin also notices it as British. By its trivial name we may infer it has been taken near Bath; a faded specimen was taken in June 1802, in Whitewood near Gamlingay, Cambridgeshire, by the late Dr. Abbott; and another (a female), upon the heights near Dover Castle, August 14, 1818, by J. F. Stephens, Esq. to whom I have to acknowledge my obligations for the loan of the specimen figured, and also for the handsome manner in which he has in this as upon all other occasions rendered me every assistance in the progress of this volume.

Godart in the *Encyclopédie Méthodique* informs us that "*P. Daplidice* is very common in Europe. It inhabits woods, and meadows particularly: it first appears in April and May, and afterwards in August. The caterpillar feeds upon many species of cabbage, upon *Reseda lutea*, and according to Hübner upon a wild Mustard, the seeds of which it eats. Its body is of an obscure blue embroidered with yellow and spotted with black; its head is of a light green with yellow spots and black dots. The chrysalis is greenish or ash-coloured, according to the age."

Reseda lutea (Base Rocket, or Wild Mignonette) is figured with the insect.



Lin. y. Curtis London. T. 1. p. 112.

TRICHIOSOMA LATERALE.

ORDER Hymenoptera. FAM. Tenthredinidæ *Lat., Leach.*

Type of the Genus Tenthredo Lucorum Linn.

TRICHIOSOMA *Leach.* *Cimbex Oliv., Fab., Lat.* *Tenthredo Linn., Fab., Jur.*

Antennæ inserted between the eyes, clavate, punctured, 7-jointed, first joint nearly globose, very hairy, second transverse, third very long and slender, fourth and fifth clavate, truncate, sixth dilated anteriorly, forming the base of the club which has an elevated transverse suture. (f. 1.)

Labrum quadrate, angulated at the base, rounded before and ciliated, slightly produced in the centre. (2.)

Mandibles exerted, of the male very long, slender, acute, most commonly with two teeth on the internal side. (3.)

Maxillæ with the external lobe corneous, the internal one membranaceous, hairy: *Palpi* irregular, extending a little beyond the maxillæ, composed of six joints nearly equal in length, the fourth being the most dilated, and the terminal most slender. (4.)

Mentum short, oblong, slightly angulated before (5. a.): *Palpi* a little longer than the lip, 4-jointed, first and second joints somewhat long, cylindric, third joint membranaceous, flat, broad, terminal joint slender, cylindric (b.): *Lip* membranaceous, three-lobed, the centre lobe rather the smallest, attenuated towards the base. (c.)

Clypeus broad, slightly emarginate. Ocelli 3. Abdomen sessile, villose, cylindric in the males, somewhat ovate and depressed in the females, first segment, especially of the males, slightly emarginate above. Oviduct not exerted, composed of two lamellæ which are serrated. Superior wings with 2 marginal and 3 submarginal cells. Thighs 4 posterior dentated and incrassated in the males. Tibiæ with siphon-formed spurs, obtuse at the apex. Tarsi 5-jointed, with the penultimate joint a little shorter than the antepenultimate, four first joints with small membranaceous appendages, dentated beneath, especially the first joint of the males. Claws simple (8 fore leg of a male).

Larva with membranaceous feet.

LATERALE *Leach Zool. Mis. v. 3. p. 109. n. 2.*

Æneous black covered with soft yellowish hairs. Head and antennæ very black; sides and underside of abdomen, tibiæ, tarsi, and costa, yellow inclining to ferruginous. Wings stained with yellow, posterior margin fuscous.

In the Author's and other Cabinets.

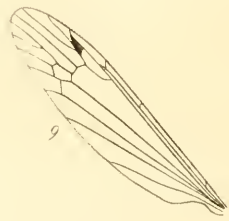
THE Genus *Trichiosoma* was established by Dr. Leach in his valuable Monograph upon the *Tenthredinidæ*: it is closely

allied to the Genus *Cimbex*; from which, however, it is very distinct in the formation of the organs of manducation, the labrum being very broad, the mandibles are tridentate, and the relative proportions of the joints of the palpi are very different; the most constant character in the antennæ is the great length of the third joint, the tarsi have their joints angulated beneath towards the centre, not spined near the apex as in *Cimbex*, from which the males may be instantly known, by their wanting the membranaceous covering near the base of the abdomen, and the four posterior thighs being furnished with a tooth. The dissections in the plate are all taken from a male, in which sex the *instrumenta cibaria* far exceed those of the female in size, especially the labrum and mandibles.

Trichiosoma laterale is a rare insect, specimens being only occasionally met with in the woods about London: Mr. Samouelle first captured a specimen at Coombe, in the month of April; the one figured (which is a male) came from Darent; and I believe Mr. Stephens has also specimens from the same neighbourhood: the other British species are, *T. sylvaticum* Leach.; *Lucorum* Linn.; *tibiale* Steph.; *Scalesii* Leach., and *unidentatum* Leach.

The larvæ, like those of *Cimbex*, roll themselves up in a peculiar manner, and when full grown inclose themselves in a hard case, which they attach to the plant they fed upon. One species (*T. Lucorum*) is very abundant upon the White-thorn (Pl. 31.); and in the winter, when the leaves have fallen off, the cocoons are easily collected; and in April following the fly will make its appearance.

Hyacinthus non-scriptus Linn.; *Scilla nutans* Smith (Harebell Squill) is figured with the insect.



LIMNOBIA OCELLARIS.

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

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

Palpi 2, exserted, 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

Britain there are at least 50 species in our cabinets; amongst which are, *L. picta* F.; *fuscipennis* Meig.; *nemoralis* Meig.; *ferruginea* Meig.; *littoralis* Meig.; *fimbriata* 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 œconomy 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).

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<i>Hyacinthus non-scriptus</i> , <i>Wild Hyacinth</i> . . .	49	<i>Reseda lutea</i> , <i>Wild Mignonette</i> . . .	48
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<i>Lichen parietinus</i>	16	<i>Scabiosa succisa</i> , <i>Devil's-bit Scabious</i> . . .	40
<i>Lichen Prunastri</i> , <i>Plum-tree Lichen</i> . . .	29	<i>Scrophularia aquatica</i> , <i>Water Figwort</i> . . .	32
<i>Medicago lupulina</i> , <i>Nonesuch</i>	6	<i>Solidago virgaurea</i> , <i>Common Golden-rod</i> . . .	45
<i>Mercurialis perennis</i> , <i>Dog's Mercury</i> . . .	28	<i>Statice Limonium</i> , <i>Lavender Thrift</i> . . .	47
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ERRATA AND ADDENDA.

Folio. Line.		Folio. Line.	
1	22 for Duftschmidt read Duftschmid.		
* 5a	18 for Caterpillar read Caterpillars: and for it might read they might. 36 for Pupa read Pupæ.		
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.		
6	25 for black behind read black before and behind.		
7	for Odenesis read Odonestis.		
7a	25 for patatoria read potatoria.		
9	32 after Tarsi 5 add jointed.		
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		
			which <i>Pentatoma picta</i> is men- tioned, I have received a note from Mr. Vigors, 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.'"
		21a	2, 6, 8 and 24, for russica read russula.
		29	for Ramosana, degenerana, &c. read Ramosanus, degeneranus, &c.
		35a	7 for Gamlung read Samlung. 14 for Beegjarius read Belgjarius.
		41	32 add Claws bifid.
		43	39 for Lord Sidney read Lord Sydney.
		46a	14 for Hæmatopota read Tabanus.

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*.

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 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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