

THE
NATURAL HISTORY
OF
BRITISH INSECTS;
EXPLAINING THEM
IN THEIR SEVERAL STATES,
WITH THE PERIODS OF THEIR TRANSFORMATIONS,
THEIR FOOD, OECONOMY, &c.

TOGETHER WITH THE
HISTORY OF SUCH MINUTE INSECTS
AS REQUIRE INVESTIGATION BY THE MICROSCOPE.

THE WHOLE ILLUSTRATED BY
COLOURED FIGURES,
DESIGNED AND EXECUTED FROM LIVING SPECIMENS.

By E. DONOVAN,

V O L. II.

L O N D O N :

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M D C C X C I I I .

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THE
NATURAL HISTORY
OF
BRITISH INSECTS.

PLATE XXXVII.

PAPILIO IRIS.

EMPEROR OF THE WOODS, OR PURPLE HIGH FLYER,

LEPIDOPTERA.

GENERIC CHARACTER.

Papilio.

Antennæ clavated. Wings when at rest, erect. Fly by day.

SPECIFIC CHARACTER.

Wings indented; above, purple; darker round the Edges, with seven distinct white Spots on the first Wings; on the second, an irregular broad white Stripe, and a red Eye. Beneath, black, brown, and white.

Linn. Syst. Nat. p. 476. P. cx.

The *Papilio Iris* is esteemed among the beautiful, and placed with the rare of the *English Lepidoptera*. The cursory reader may not perceive that superiority, particularly as many of the minute Insects infinitely excel in real beauty and richness of colouring; but the scientific

tific will be ever ready to give it the first place as a British Papilio, and to those a figure of the Caterpillar and Chrysalis will be an acceptable acquisition. It derives the title of Purple High Flyer, as it very rarely descends to the ground; except in some few instances, it has never been taken but in the most elevated situations, and even those instances have been after a strong wind, or heavy rain: The tops of the loftiest forest trees afford it an asylum, and in the Caterpillar and Chrysalis state, it is preserved from the wanton cruelty of man, by the almost inaccessible height of its habitation. They feed on the Sallow, *salix caprea*, and the Caterpillars are obtained by beating the branches of the tree with a pole twenty or thirty feet in length; it is then but a necessary precaution to cover the ground beneath with large sheets to a certain distance, or the insects which fall, will be lost among the herbage.

It is in Caterpillar about *May* and *June*; it passes to the Chrysalis state, and in *July* or *August* is a Papilio.

The great difficulty and trouble to rear the Caterpillars, when found; and greater difficulty to take the Fly, has stamped a valuable consideration on it, and particularly so when fine, and a high price is but esteemed an adequate compensation for it if in good preservation. The male is smaller, but more beautiful than the female; the upper side of the wings of the female not being enriched with that vivid change of purple which the male possesses in such an eminent degree; but the underside of the female is far richer in the various teints of colour than the male: they are both beautifully spotted, mottled, and waved with brown, black, white, and orange. The Chrysalis is of a very delicate texture, much resembling thin white paper, and is tinged in several parts with a very lively purple hue which it borrows from the wings of the enclosed insect, and bears the characteristic mark of a Papilio, by being suspended from the tail, with the head downward.



P L A T E X X X V I I I .

C I M E X S T A G N O R U M .

W A T E R B U G .

H E M I P T E R A .

Shells or upper Wings semi-cruftaceous, not divided by a ftraight Suture, but incumbent on each other ; Beak curved downward.

G E N E R I C C H A R A C T E R .

Cimex Antennæ longer than the Thorax. Thorax margined. In each Foot three Joints.

S P E C I F I C C H A R A C T E R .

Black, brown, long, slender. Head one third of its whole length. Antennæ as long as the Head, and very slender. Eyes minute, prominent. Fore Legs fhorteft, length half an inch, breadth one third of a line.

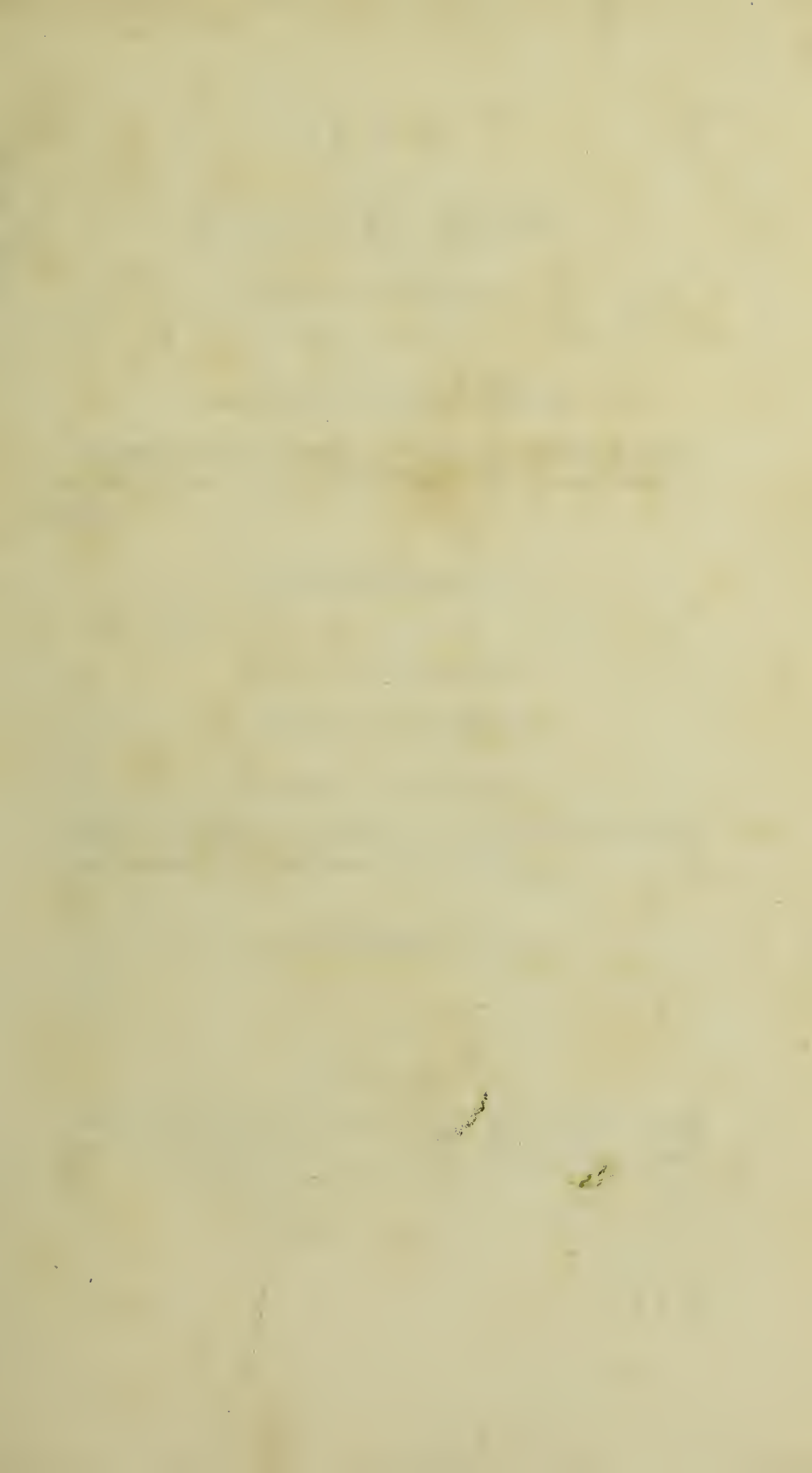
Linn. Syft. Nat.

Many fpecies of the *Cimex* genus differ fo materially in their general form, that very nice attention is neceffary to difcriminate the fpecies which evidently belong to this extenfive family. The external appearance of the Houfe, or Scarlet Bug, cannot intimate the connection to the fame genus with this slender bodied infect ; but fo they are arranged by Linnæus, and fo they will appear on a proper infpection of thofe parts which conftitute their generic character.

The prefent fpecies is common, and may be taken during great part of the warm feafons. We have an Infect of the fame genus (*Cimex Lacuftris*) which has frequently attracted notice by the variety and activity of its motions, when sporting on the furface of ftagnant pools, or other ftanding water : It appears to fly, or skim the furface, but its wings are not often expanded, the lightnefs of its body

and length of its legs, permitting it to dart with great velocity in any direction, and when it alights, it causes only a gentle tremulous motion beneath it. Its habits have much affinity to the generality of aquatic insects, and being constantly found on that element, would almost determine it to be of that race; but it is rather amphibious, and very rarely descends beneath the surface. It will at intervals rest for several minutes motionless on the water, its six legs are then expanded, and the tarsi of the feet only touch the surface; but the *Cimex Stagnorum* is remarkable for the regularity and carefulness of all its actions; it rarely runs, but treads the water, slow, and ever appears to apprehend danger; it frequently pauses suddenly, and if it then perceives any thing disagreeable, retires. Aquatic Insects are generally supplied at several parts of their body with an oily matter that the water cannot penetrate, and the legs of this Insect is apparently possessed of that property.





P L A T E XXXIX.

COCCINELLA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ knotted, truncated. Palpi longer than the Antennæ; body hemispheric. Shells and Thorax bordered. In each Foot three Joints,

FIG. I. and FIG. IV.

SPECIFIC CHARACTER,

COCCINELLA 22—PUNCTATA.

Head black, Corflet and Shells yellow. The first with five black Spots, the latter with twenty-two. Length $1\frac{1}{2}$ line.

FIG. II.

14. PUNCTATA.

Shells orange, with fourteen black Spots. Head black. Thorax black in the Center, with an orange Margin and a black Spot on each Side.

FIG.

F I G. III.

6. PUSTALATA.

Head, Thorax, and Shells black, with three red Spots on each Shell. Length $1\frac{1}{2}$ line.

F I G V,

7. PUNCTATA.

LADY COW, OR LADY BIRD.

Head and Thorax black, Shells red, with seven black Spots; length, three or four lines.

The history of those several insects so nearly resemble each other, that one general account will comprise all that can be said of any of the species. The larva is not unlike the adult insect, though its body is longer and tapering, and it hath no shells to defend it if in danger; its security therefore depends on its feet, which are rather longer, or at least appear longer, than in the after-state; all the species, whether as the larva or the adult, commonly feed on grafs, but they as frequently are taken on the plantain, thistle and rose, or any other plant, whether wild or cultivated. They fasten themselves to the leaves of any plant that is near when they enter the Chrysalis state, and its appearance is then as if it were tied to the leaf by threads which pass each other in transverse directions; they remain only a few days in the Chrysalis, as it undergoes but little change. May, June, and July, or later if the weather should prove fine, is the time to find them; many of the species are so numerous in almost every situation, that collectors give little trouble to obtain them, or at least search for such only as are most uncommon.



P L A T E XL.

P H A L Æ N A R O S E A.

R E D A R C H E S.

L E P I D O P T E R A.

G E N E R I C C H A R A C T E R.

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

S P E C I F I C C H A R A C T E R.

Rose colour. On the superior Wings a dark, waved, or arched line, and a row of spots near the margin.

The Caterpillar of this *Phalæna* feeds on the Oak. Our specimen was taken from an oak at Norwood, July 15. They are not very common, although found, during the month of July, in several parts near London.

F I G. I.

T H E L A R V A

O F T H E

C O C C I N E L L A 7—P U N C T A T A.

In Plate XXXIX we have represented several species of the *Coccinella* in their perfect or adult state. Our present figure is the larva of the 7 *Punctata*, Fig. V. It is a very common Insect; and will feed on almost every kind of vegetable food.

P H A L Æ N A P R A S I N A N A ?

S C A R C E S I L V E R L I N E .

L E P I D O P T E R A .

Phalæna.

S P E C I F I C C H A R A C T E R .

Body and under Wings white, first Wings green, with two oblique arrow lines of pale yellow.

We possess two species of the Green Silver Line; one *Phalæna Prasinana*, of Linnæus; the second unknown to that author; but since described in the *Species Insectorum* of Fabricius. Those two species nearly resemble each other, are both taken from the Oak, and are distinguished only in some few particulars, the *Scarce Silver Line* has its Superior Wings of a plain pea-green, with two stripes of feint yellow, the Body and inferior Wings are of an immaculate white. But the Common Silver Line is more variegated in its colour, having a dash of a paler hue between each Silver Line, and an orange or crimson border. The Scarce Silver Line is taken in July, in woods.

Note, Fabricius appears to have changed the name of this Insect in his *Spec Inf.* for in the *System Entom.* he calls the common Silver Line *Prasinana*, the same as Linnæus does, which in the *Spec* he has altered to *Fagana*.



P L A T E XL.

F I G. I.

VORTICELLA POLYMORPHA.

GENERIC CHARACTER.

A Worm, capable of contracting or extending itself, naked, with rotatory cilia.

Many-shaped Vorticella green, opaque.

It is impossible to describe the various forms those little Insects can assume; and, from the microscope, it is both doubtful and difficult to give a correct figure of it, as the activity of its motions and changes frequently misplace it from the verge of the focus. It is scarcely perceptible to the naked eye, and is generally of a green colour.

F I G. II.

VORTICELLA ROTATORIA.

SPECIFIC CHARACTER.

Cylindrical Vorticella, with a little foot projecting from the neck; a long tail, furnished with four points.

Of all the species of minute Insects, this Vorticella seems to have engaged the attention of the curious most. Baker has described

it under the title of *the Wheel Animalculum*, and hence it is well known. It is found in gutters, or leaden pipes, in the summer. This Insect possesses one property by no means common to larger animals, or even known of many of the minuter kinds; it lives in the water, but may be kept dry for months; and when again it is immersed in that element, it will regain its life and motion in half an hour.

F I G. III.

TRICHODA LYNCEUS.

GENERIC CHARACTER.

An invifible, pellucid, hairy Worm.

SPECIFIC CHARACTER.

Nearly fquare; with a crooked beak. The mouth hairy.

F I G. IV.

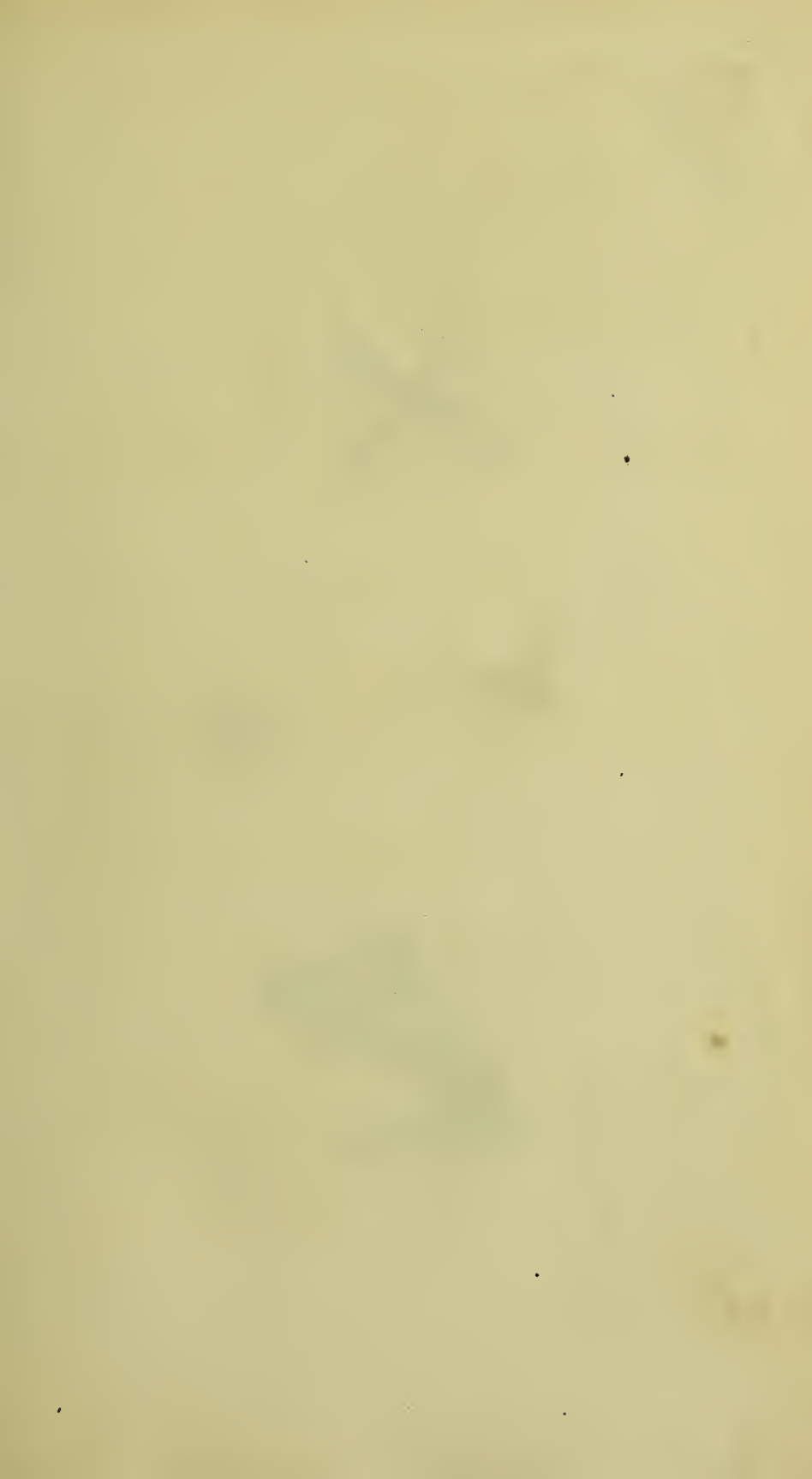
KERONA PATELLA.

GENERIC CHARACTER.

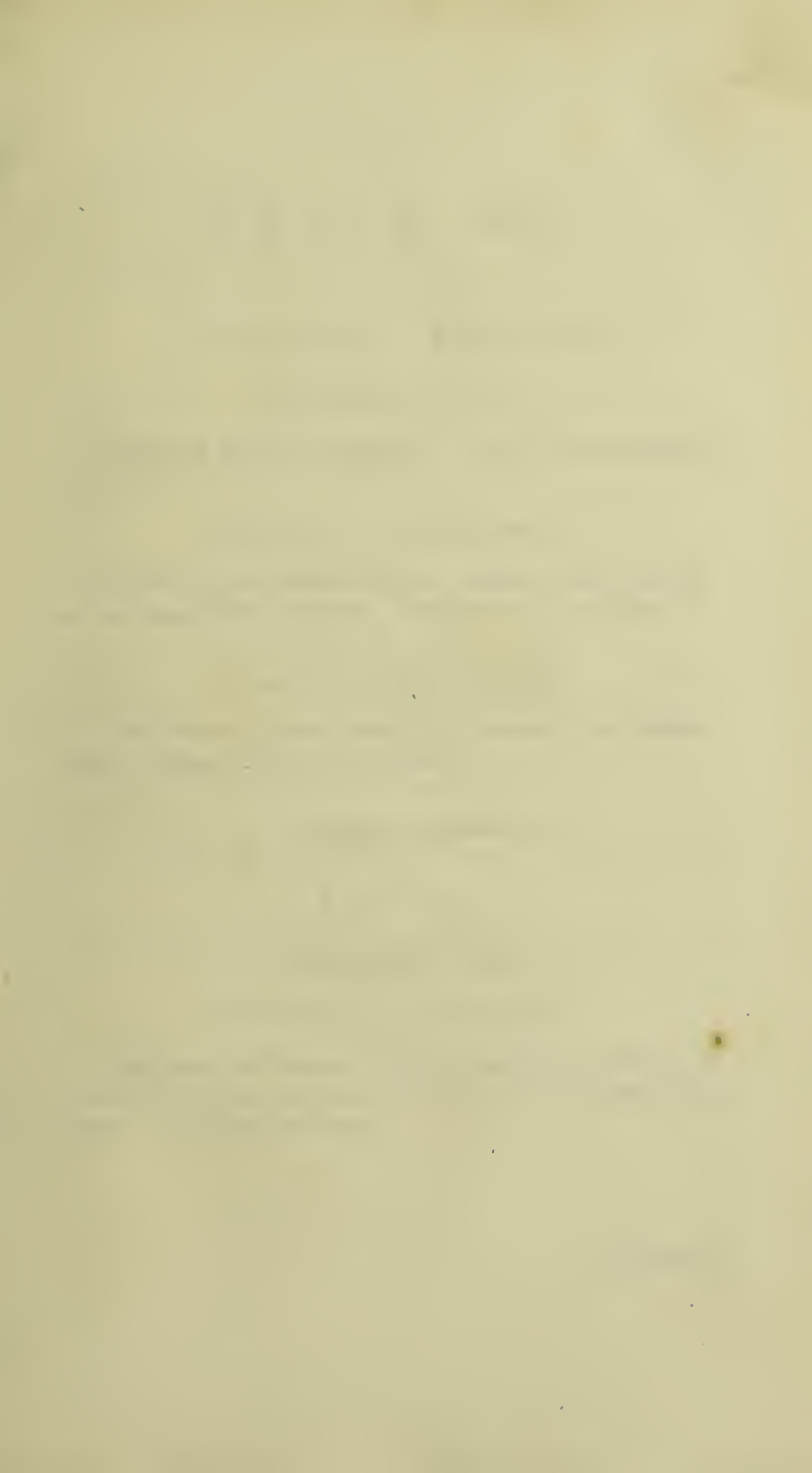
An invifible Worm with horns.

With one valve, orbicular, chryftalline; the fore-part notched; the body lies in the middle of the fhell: above and below are hairs or horns, of different lengths, jutting out beyond the fhell, and acting in ftead of feet and ears.

Müller's Ani. Infuf.









P L A T E XLII.

F I G. I.

ICHNEUMON RAMIDULUS.

HYMENOPTERA.

Wings four; generally membranous. Tail of the females armed with a sting.

G E N E R I C C H A R A C T E R.

Ichneumon. Jaws, without tongue. Antennæ of more than 30 joints, long, filiform, vibrating. Sting within a bivalve sheath.

S P E C I F I C C H A R A C T E R.

Tawny brown. Thorax beneath, and extremity of the abdomen, black. Abdomen curved and compressed.

F I G. II.

ICHNEUMON RAPTORIUS.

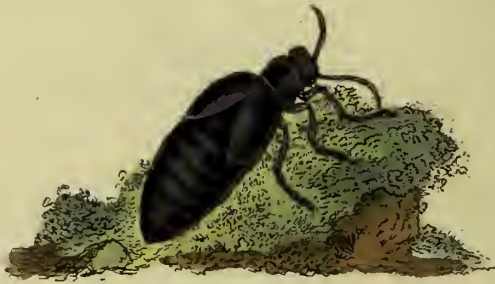
S P E C I F I C C H A R A C T E R.

Head, thorax, and extremity of the abdomen black; center spot of yellow on the thorax; and two first divisions of the abdomen bright orange. Legs black and brown.

Ichneumons are the most voracious of all the winged Insects;—in their nature, robust and powerful, and armed with a formidable sting; they are the dread, and destroyer of other tribes, and mortal enemies to each other; like the animal * whence their significant appellation is derived, they exist by rapine and plunder, and support their infant offspring on the vitals of larger Insects.

The female Ichneumon, when ready to lay her eggs, is seen eagerly rushing from one plant to another, if its prey offers, which is generally the Larva of the *Phalæna*, *Papilio*, &c. it darts down with the ferocity of an eagle, and grasps the tender body in its claws; it is now in vain that the unwieldy animal attempts resistance, as all its efforts are but the sport of a savage conqueror. For raising the body almost upright, or into the form of a bow, the creature returns it in an instant, and dashes the sting up to the base, in the softest part of the caterpillar's body; this, if undisturbed, it will repeat thirty or forty times, always choosing a fresh spot for every new wound, and often entirely scarifying the Insect. The stung animal refuses to eat, and sometimes its illness terminates in its death, though generally the eggs are matured, and the Insects produced from the living body, so that if it survives its misery, and the wounds heal, the heat of the body ripens the embryos, and the young Ichneumons gnaw, and tear large passages through the body, to complete their delivery. July and August are the Months those species we have described are on the wing.

* The Ichneumon is a well known animal in Egypt, particularly near the river Nile, and are useful for destroying the Eggs of the Crocodile, &c.



P L A T E X L I I I .

P A P I L I O H Y A L E .

SAFFRON BUTTERFLY,

LEPIDOPTERA.

G E N E R I C C H A R A C T E R .

Antennæ clavated. Wings, when at rest, erect. Diurnal.

S P E C I F I C C H A R A C T E R .

Wings entire, rounded, deep yellowish orange. On the superior wings a black, and on the inferior wings an orange spot in the center; and a deep irregular border of black on the margin. Antennæ and legs yellow. Breadth two inches.——*Syst. Ent.* 477. 148.—*Linn. Syst. Nat.* 2. 764. 100.—*Fn. Sv.* 1040.

The *Papilio Hyale* has been described by several authors, English and Foreign, and the natural historians of Germany have generally noticed it. Unlike many Insects we have in our country, it is found in every part of Europe, but in greater abundance in Africa and America.

Its breadth in England rarely exceeds two inches; but influenced by a warmer climate, they arrive at a higher degree of perfection than in those northern countries, at least they are commonly taken much larger. With us it has ever been esteemed as a rare Insect, though seen this season in Kent in greater plenty than for several years; but as they were probably only an accidental brood, they may again disappear for a considerable time. The Fly is to be taken in autumn, but seldom after August.

Our Figure is of the male;—the female has several irregular yellow spots on the black borders.

P L A T E XLIII.

MELOE. PROSCARABEUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ globular, the last globule oval. Thorax roundish. Shells soft. Head gibbous, and bent downwards.

SPECIFIC CHARACTER.

Blue, black. No wings. Shells short. Abdomen long. Antennæ thickest in the middle. Head broad. Thorax narrower than the head, and without margin. Length $1\frac{1}{4}$ inch.—*Syst. Ent.* 259. 1.—*Linn. Syst. Nat.* 2. 679. 1.—*Fn. Sv.* 826.

It is by no means for the beauty, but singularity of this creature that we have given it a place in our present selection. If it is too perfect for the larva of an Insect, it certainly appears too imperfect for the adult state; it has shells, but cannot fly, and their length compared with the proportion of the body contributes much to its awkward appearance. It is very quick-sighted, and runs with swiftness when in danger. After death the body is considerably contracted, and the native brilliancy of colour it possessed while living immediately vanishes. When touched, a brown liquor oozes from the sides.

We have several species of the *Meloe* differing in size, colour, and proportion; the *Meloe Proscarabeus* is the most common, at least near London. It feeds under the surface of the ground, on the tender fibrils of plants, and prefers the light earth of the flower-garden for its devastation. May be taken in May or June.



P L A T E XLIV.

T H E L A R V A

O F T H E

L I B E L L U L A D E P R E S S A.

In Plate 24 of this work we have represented the *LIBELLULA DEPRESSA* in the winged state, and our present Figure is, of the Larva of that Insect. We have before described it as a savage voracious creature in every state of its existence. The Larva, which is an aquatic, feeds on Insects of that element; and when it becomes adult, Moths, Butterflies, and other winged Insects are its prey. As Lepidopterous Insects are not provided with any weapons, defensive or offensive, it will encounter the largest, grasp them in its claws, and tear them to pieces. Its mouth is spacious, and well adapted for that purpose.

The Larvæ of most winged Insects pass to the Aurelia, or Chrysalis state, and thence produce the Fly; but the Larvæ of the *Libellulæ* never undergoes that change, and though its appearance is altered several times in its progress to perfection, it does not become dormant. When the ultimate period of its last change arrives, it crawls to the bank, or side of the ditch, and affixing its legs firmly to the ground, or grass, it collects all its strength, and by one violent effort the future between the Thorax and Abdomen is broken, whence the Head and Thorax is protruded; after some pause the exuvia is cast off, and the Wings, which were before enwrapped in the short cases at the bottom of the Thorax, expand. The creature now entirely formed for flight, only waits a short time to exhale the superfluous moisture, and then rushes into the air, to spread havoc and disorder.

P L A T E



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P L A T E XLV.

P H A L Æ N A J A C O B Æ Æ .

C I N N A B A R M O T H .

L E P I D O P T E R A .

G E N E R I C C H A R A C T E R .

P H A L Æ N A .

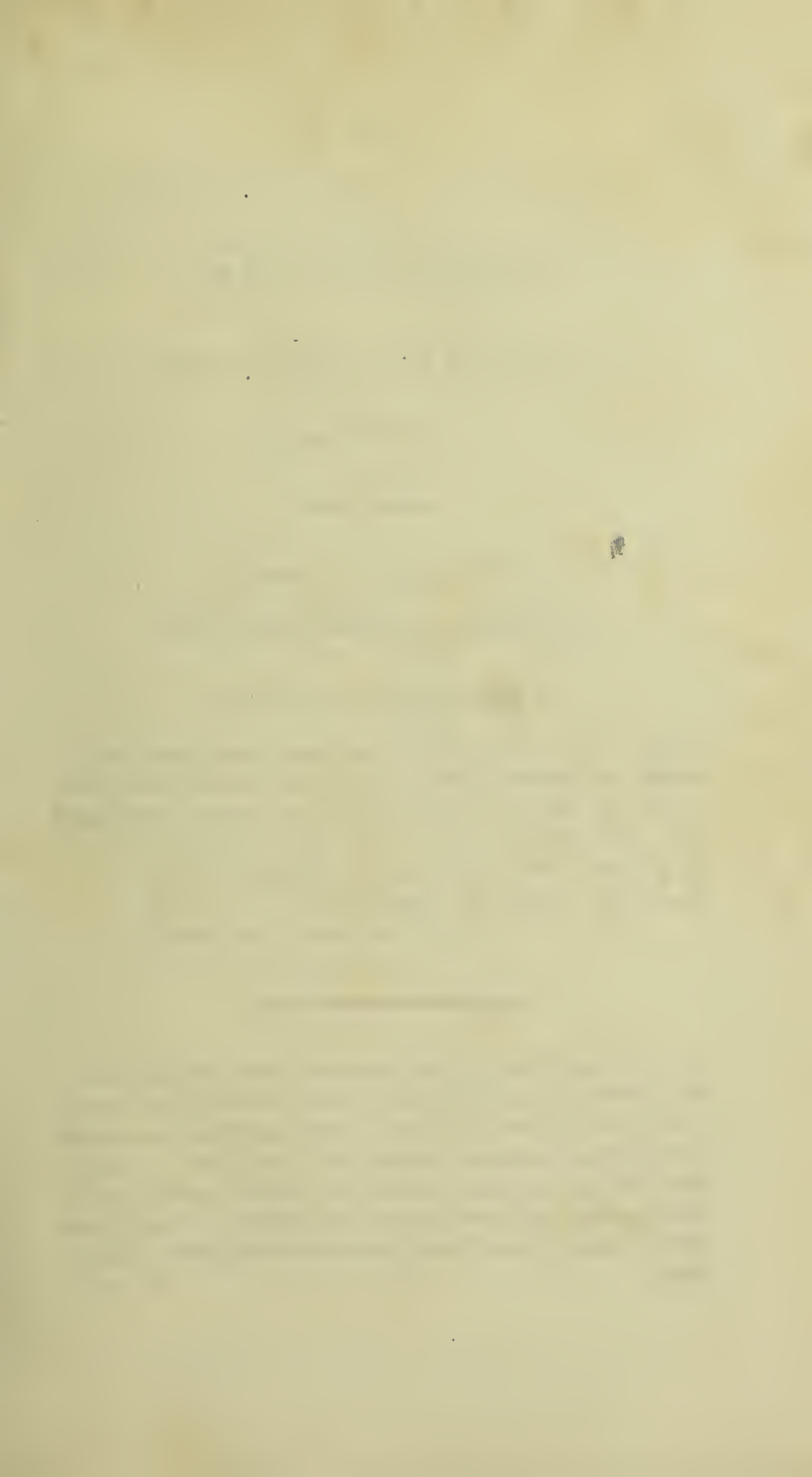
Spiral Trunk ; Back smooth, without Crest.

S P E C I F I C C H A R A C T E R .

Antennæ and body black. First Wings dark olive, with longitudinal red line near the anterior margin, and two red spots near the exterior. Second Wings red, with a black margin.—*Syst. Ent.* 588. 113.—*Linn. Syst. Nat.* 2. 839. 111.—*Fn. Sv.* 1155.

As the Rag-wort grows spontaneously in almost every part of the country, the yearly increase of the Cinnabar Moth Caterpillars is generally considerable ; and though many must inevitably perish before they arrive at perfection, the Fly may always be found in plenty in June, the Caterpillars in July and August.







P L A T E XLVI.

P H A L Æ N A F E S T U C Æ .

G O L D S P O T M O T H .

L E P I D O P T E R A .

G E N E R I C C H A R A C T E R .

Spiral Trunk; Back smooth, without Crest.

S P E C I F I C C H A R A C T E R .

First Wings brown, with two gold-silver spots on each. Second Wings and Abdomen pale brown. Head. Antennæ and Thorax bright orange brown.—*Syst. Ent.* 607. 71.—*Linn. Syst. Nat.* 2. 845. 131.—*Fn. Sv.* 1170.—*Degeer Inf. Vers. Germ.* 2. 1. 312. 3.—*Albin. Inf. Tab.* 84. Fig. G. H.—*Wilks Pap.* 8. Tab. 1. a. 17.—*Æta Holm.* 1748. Tab. 6. Fig. 3. 4.—*Kleman. Inf.* 1. Tab. 30. Fig. A.

The Caterpillars which are smooth, and of a plain green colour, are found on such plants as grow in ditches, or fenny situations.—The *Sisymbrium Nasturtium*, *Water Cress*, is its common food, but it will devour with avidity most aquatic vegetables, particularly the *Festuca Fluitans*, *Floating Fescue Grass*. It is esteemed one of the rarest Species of *Phalænæ* we have in this country, its elegant form and rich colouring determines it also one of the most beautiful. Near

London it has been fought with most success in the Battersea Fields, or on those banks which abound with aquatic plants, between Battersea and Richmond; the marshes in the vicinity of Deptford and Rotherhithe have been yet more productive; we do not however understand that any have been taken this season about the metropolis.

The very singular manner in which this Caterpillar constructs its web, deserves particular notice: previous to its transformation from the *Larva* to the *Aurelia*, it quits the tender plants which afford nourishment, and retires to those, better calculated for its protection, in its defenceless state; its choice is generally the *Scirpus Lacustris* (*Bull Rush*), or the stoutest plant that is near, if its leaves are rushy and strong. Its first process is to make a deep incision across the leaf, which it effects with little labour, as its mouth is well armed for the purpose; the upper part of the leaf being thus deprived of its support, instantly becomes dependent; the Caterpillar embraces the two surfaces of the fractured leaf, and weaves its web between. The web is of an exquisite texture and whiteness, and bears great resemblance to the webs of some spiders that frequent watery places.

The Caterpillars are found in June and July, the Fly in August.





P L A T E XLVII.

FIG. I.

PROTEUS DIFFLUENS.

GENERIC CHARACTER.

An invisible, very simple, pellucid Worm, of a variable form.

SPECIFIC CHARACTER.

Proteus, branching itself out in a variety of directions.

FIG. II.

TRICHODA BOMBA.

GENERIC CHARACTER.

An invisible, pellucid, hairy worm.

SPECIFIC CHARACTER.

Changeable, with a few hairs dispersed on the fore part.

Müller's Ani. Inf.

Proteus Diffluens, under some of its changes appears rather a shapeless mass, than an animated body; it consists of gelatinous, pellucid substance, replete with dark coloured molecules, which either direct or attend, the internal exertions and actions of the animalculum; it pushes forth branches of various shapes.

Is found in fenny situations, but very rare; the author of the *Animacula Infusoria*, observed it only twice.

TRICHODA BOMBA.

Inconstant as the former, and nearly as difficult to define; it is sometimes spherical, immediately after it will become oval, Kidney shaped, &c. It is very lively, and darts with much velocity; is thick, pellucid, and of a clay colour, or brighter.



P L A T E XLVIII.

FIG. I.

TIPULA CROCATA.

DIPTERA.

Wings two.

GENERIC CHARACTER.

Head long. Palpi 4, curved. Trunk very short.

SPECIFIC CHARACTER.

Black spotted with yellow. Legs tawny, with black feet, and a black ring round the posterior thighs. Wings tawny, with a marginal brown spot.

Syst. Ent. 748. 5.—*Linn. Syst. Nat.* 2. 971. 4.—
Fn. Sv. 1739.

Geoff. Inf. 2. 553. 7. *Tab.* 19. *Fig.* 1.

Degeer Inf. 6. 349. 10.

Raj. Inf. 72. 4.

Schaeff. Icon. Tab. 126. *Fig.* 4.

Scop. carn. 845.

FIG.

F I G. II.

TIPULA RIVOSA.

SPECIFIC CHARACTER.

Brown-grey. Eyes black. Antennæ feathered. Wings larger than the body, with three brown patches near the margin. Tail of the female bifid. Length one inch.

Syst. Ent. 748. 2.—*Linn. Syst. Nat.* 2. 971. 2.—
Fn. Sv. 1738.

Geoff. Inf. 2. 554. 2.

Degeer. Inf. 6. 341. 2. *Tab.* 19. *Fig.* 1.

Raj. Inf. 72. 2.

Scop. carn. 846.

Æta Holm. 1739. *Tab.* 9. *Fig.* 8.

Sulz. Inf. Tab. 20. *Fig.* 128.

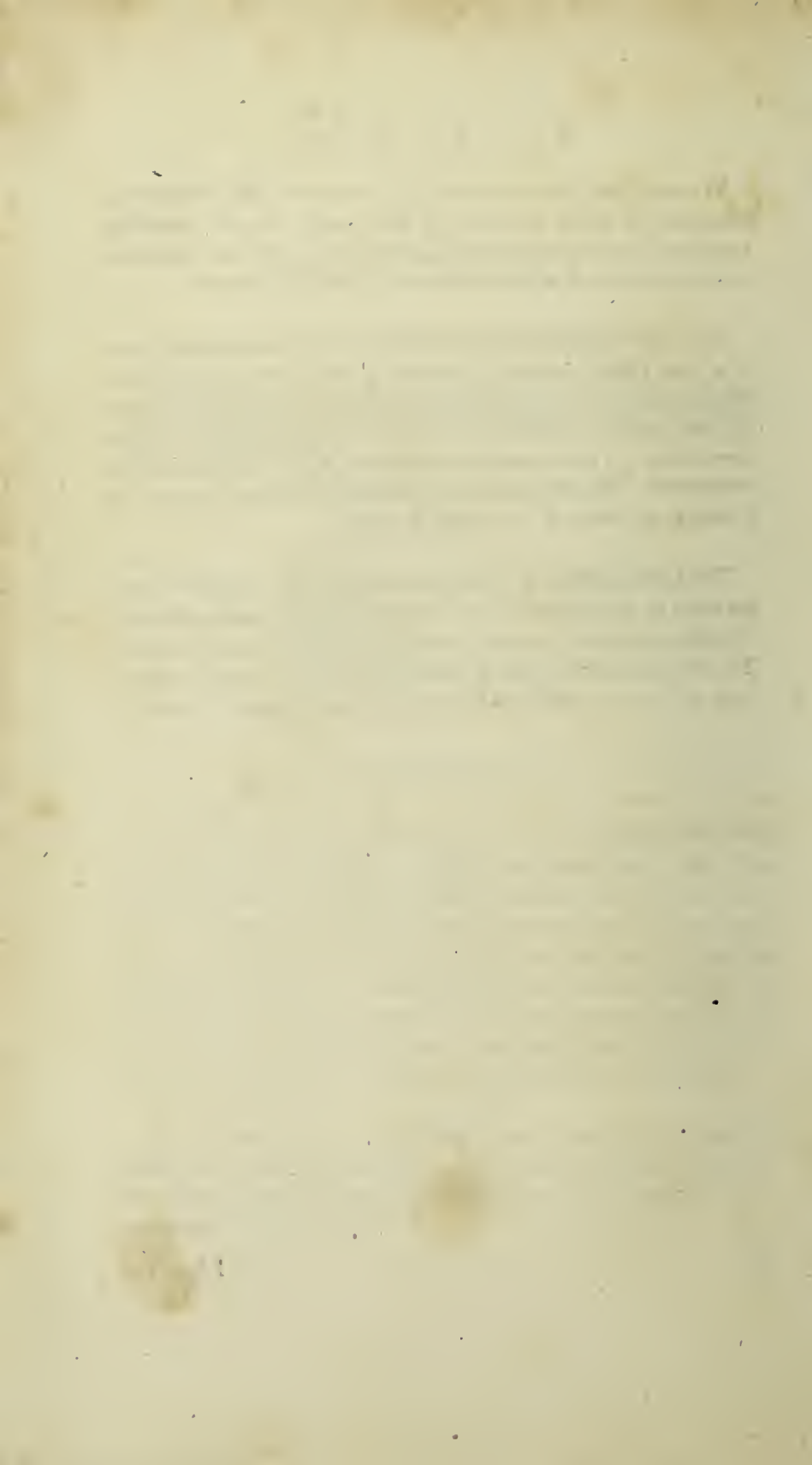
The Genus *Tipula*, comprises an extensive family of the Dipterous Order, or of such Insects as are furnished with two Wings only. Our largest Species are *Tip. Rivosa*, *Crocata*, *Lunata*, &c. the most common is *T. Oleracea*, generally known by the trivial appellations, *Long Legs*, *Old Father*, &c. It is, as are also the other Species, perfectly harmless and inoffensive; yet their singular form, and more particularly the extraordinary disproportion of their legs, operates frequently to their disadvantage with the ignorant, who readily suppose they have to avoid, the secreted sting, of whatever appears awkward or uncommon.

Our smaller Species are infinitely more numerous, and many of them are not described, being so very minute as to remain unnoticed. The *Tipula Plumosa*, Plate XXII, differs materially in its general appearance from the larger kinds.

We rarely find a specimen of the larger kinds of *Tipula* with the legs complete; the loss of one or two of those members do not materially retard the briskness of its motions, but it cannot fly after suffering a total amputation, though it will then live a considerable time.

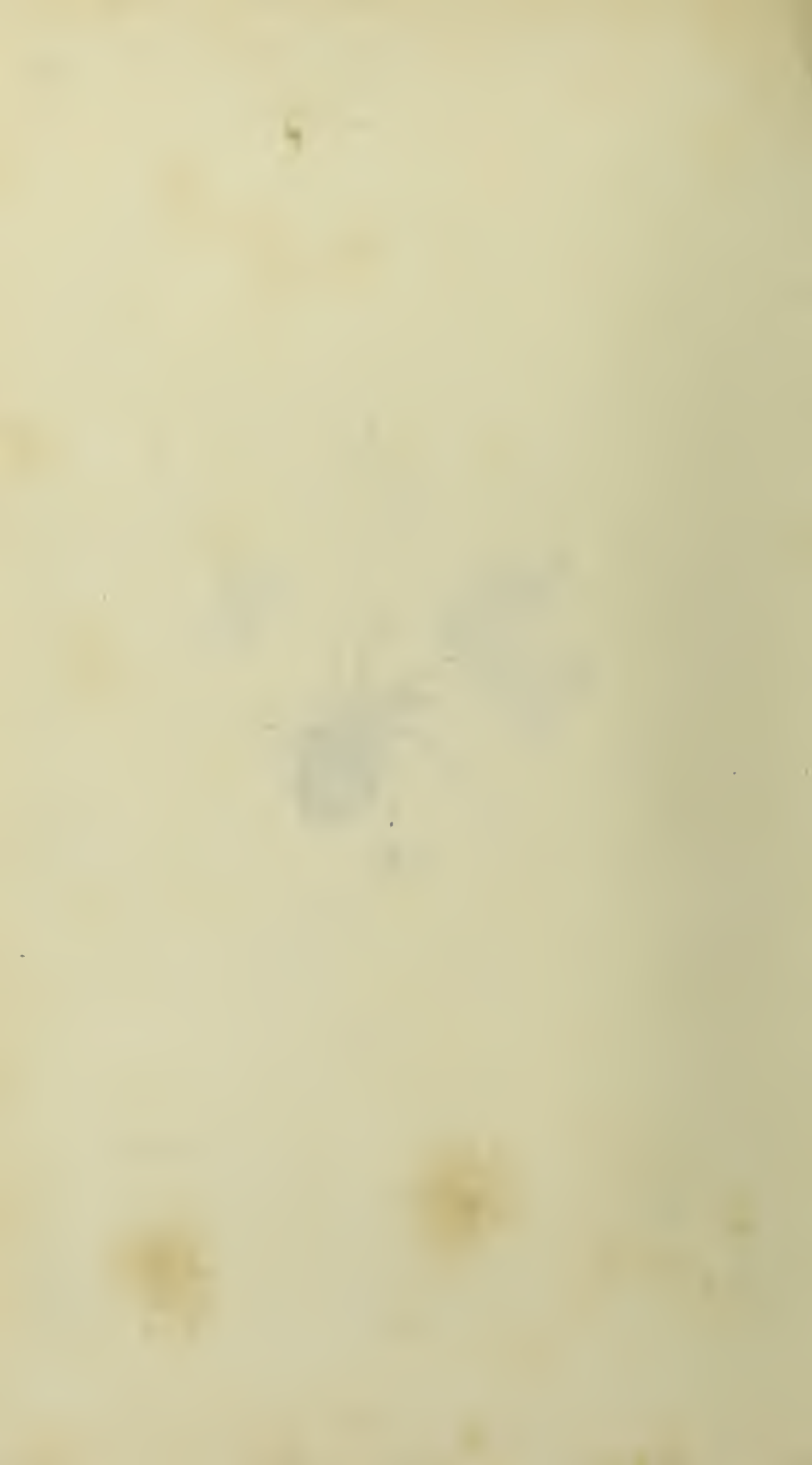
The *Tipula Rivofa* being entangled by two of its legs in the snare of a large spider [*ARANEA DIADEMA*], at first endeavoured to disengage them by force, but this rather added to its calamity, and a third leg was attracted by the glutinous matter on the threads; the spider approached, and the creature accelerated its escape by leaving its legs in the web. It is very common to observe the broken limbs of the *Tipulæ* in the snares of this species of spider.

The Larvæ of many *Tipulæ*, more especially the very minute sorts, are found in standing water, but the larger, generally feed on the roots of grass, and may be found by turning up the light surface of the earth. The *Tipula Rivofa* is taken in May and June, the *Tipula Crocata* in June and July; the latter is observed in the flower-garden or orchard.









P L A T E XLIX.

A R A N E A D I A D E M A.

WHITE CROSS, SPIDER.

APTERA.

No wings.

G E N E R I C C H A R A C T E R.

Legs eight. Eyes eight.

S P E C I F I C C H A R A C T E R.

Abdomen gibbous, red-brown, with white spots in the form of a cross.

Syst. Ent. 434. 13.—*Linn. Syst. Nat.* 2. 1030. 1.

—*Fn. Sv.* 1993.

ARANEA cruciger.—*Degeer. Inf.* 7. 218. 1. *Tab.* 11. *Fig.* 3.

ARANEA Linnæi.—*Scop. carn.* 1077.

Mouff. Inf. 233. *Fig.* 1.

Aldrov. Inf. 608. *Fig.* 9.

Tonst. Inf. Tab. 18. *Fig.* 17. 19. 20.

Raj. Inf. 18. 2.

List. Aran. *Fig.* 2.

Frisch. Inf. 7. *Tab.* 4.

Clerk. Aran. Tab. 21. *Fig.* 2.

Schaeff. Elem. Tab. 21. *Fig.* 2.

——— *Icon. Tab.* 19. *Fig.* 9.

The Genus *Aranea* includes a vast, if not endless variety of species, and though the greatest dissimilarity may be observed as to size, proportion, or colouring, of many individual kinds, yet the rapaciousness

common to the family, is apparent in all. Our domestic Spiders are plain in their colours, and seldom attain a very extraordinary size; the gardens are infested by species somewhat larger, and more lively in their marks and teints, but if we wish to trace the just gradations of the beauty, or size, of those detestable creatures, the forests abound; and will afford the highest gratification to the enquiries of the naturalist. We have Spiders purely white, or white stained with a lovely green; yellow, marked with a vivid red; purples shaded with the richest hues, and the brightest browns, bespangled with the utmost elegance and symmetry: Yet under those rich adornments which nature has so profusely bestowed on this complication of beauty, and ferocity, we discover inherent qualities, which, in larger animals, would become formidable, and though we feel confident of our superiority over the insidious art of such a contemptible creature, yet the mind is susceptible of an inward abhorrence at its touch, which neither the expansion of philosophy, or ignorance of its disposition, will sometimes suppress. It is probable, that *Thomson*, in his description of the Spider, felt this sympathy of the human mind,

“ ——— To heedless flies the window proves
 A constant death; where, gloomily retired,
 The villain Spider lives, cunning and fierce,
 Mixture abhorr'd! Amid a mangled heap
 Of carcases, in eager watch he sits,
 O'er-looking all his waving snares around.
 Near the dire cell, the dreadful wanderer oft
 Passes, as oft the ruffian shews his front;
 The prey at last ensnar'd, he dreadful darts
 With rapid glide along the leaning line;
 And fixing in the wretch his cruel fangs,
 Strikes backward grimly pleas'd: the flutt'ring wing,
 And shriller sound declare extreme distress,
 And ask the helping hospitable hand.”

Early in the spring we find the nests of Spiders in the crevices of old walls, trees, and other obscure places. They are enclosed in webs of a white, yellow, or grey colour, varying according to the species;

species; immediately that the warmth of the sun has hatched them, they disperse, it being no longer necessary to live in societies, which indeed, would deprive some of their subsistence.

In February we took a nest of minute yellowish eggs, which proved to be the infant offspring of the *A. Diadema*, they scarcely exceeded the size of a pin's head when hatched, and were of a bright yellow colour; at first their food was the common house fly, but their increase in bulk was so rapid that it was necessary to destroy many, to preserve a few; we therefore selected four specimens, which being fed in separate glasses, and on different insects, exhibited each a distinct degree of strength, and colour. One specimen destroyed thirty of the common house fly in a day; it then appeared much enlarged, and the colours were almost black, except the spots of white, which sparkled with infinite lustre; but being confined a week without a fresh supply, its colours were considerably faded; another week of abstinence reduced its colours to a pale uniform brown, the body was much wasted, and the creature became perfectly ravenous. It devoured a vast quantity of food, and recovered much of its former colours a few hours after.

Our largest Spiders are incomparable for their size, or venomous qualities, to the productions of America, or of the eastern countries; in Germany they are far superior in size to our specimens, but in Surinam they are infinitely surpassed, Spiders of those parts being often found with legs as thick as a goose-quill, and three or four inches in length, which with difficulty support a body as large as a pullet's egg. Their snares are commonly extended from one branch of a tree to another, covering the space of twenty or thirty feet, and is sufficiently strong to entangle the largest insects. A. Seba has figured a Spider of this description, as descending from an arm of a tree, into the nest of a small species of Humming Bird, to suck the blood of the parent, and eggs.

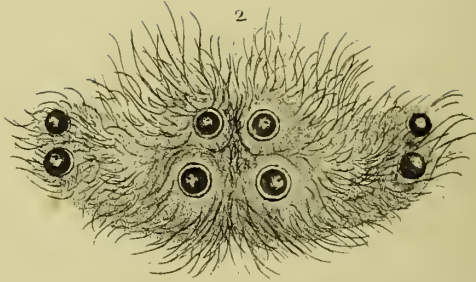
“ The eyes of the Spider are a very beautiful microscopic object, viewed either as transparent or opaque; they have generally eight, two on the top of the head, that look directly upwards; two in the front, a little below the foregoing, to discover what passes before it; and on each side a couple more, one whereof points sideways forward, the other sideways backward; so that it can see almost all around it. They are immovable, and seem to be formed of a hard, transparent, horny substance. The number of eyes is not the same in all the species of the

Spider. They have eight legs, with fix joints, thickly beset with hairs, and terminating in two crooked moveable claws, which have little teeth like a saw; at a small distance from these claws, but placed higher up, is another, somewhat like a cock's spur, by the assistance of which it adheres to it's webs; but the weapon wherewith it seizes and kills its prey is a pair of sharp crooked claws, or forceps, placed in the fore-part of the head. They can open or extend these pincers as occasion may require; when undisturbed they suffer them to lie one upon another. Mr. *Lewenboeck* says, that each of these claws has a small aperture, or slit, through which he supposes a poisonous juice is injected into the wound it makes.

“ The exuvia of the Spider, which may be found in cobwebs, being transparent, is an excellent object; and the fangs, or forceps, may be easier separated from it, and examined with more exactness than in a living Spider. The contexture of the Spider's web, and their manner of weaving them, have been discovered by the microscope. The Spider is supplied with a large quantity of glutinous matter within it's body, and five dugs, or teats, for spinning it into thread. This substance, when examined accurately, will be found twisted into many coils, of an agate colour, and which, from its tenacity, may be easily drawn out into threads. The five teats are placed near the extremity of its tail; from these the aforefaid substance proceeds; it adheres to any thing it is pressed against, and being drawn out, hardens in the air. The Spider can contract or dilate at pleasure the orifices through which the threads are drawn. The threads unite at a small distance from the body, so that those which appear to us so fine and single, are notwithstanding composed of five joined together, and these are many times doubled when the web is in formation.”

———— The Spider parallels design,
Sure as Du Moivre, without rule or line.

POPE.



P L A T E L.

F I G. I.

The head and thorax, natural size.

F I G. II.

A fragment of the head, with the eyes complete, as it appears when examined by the speculum of an opaque microscope, describing the situation of those organs, in this species of Spider.

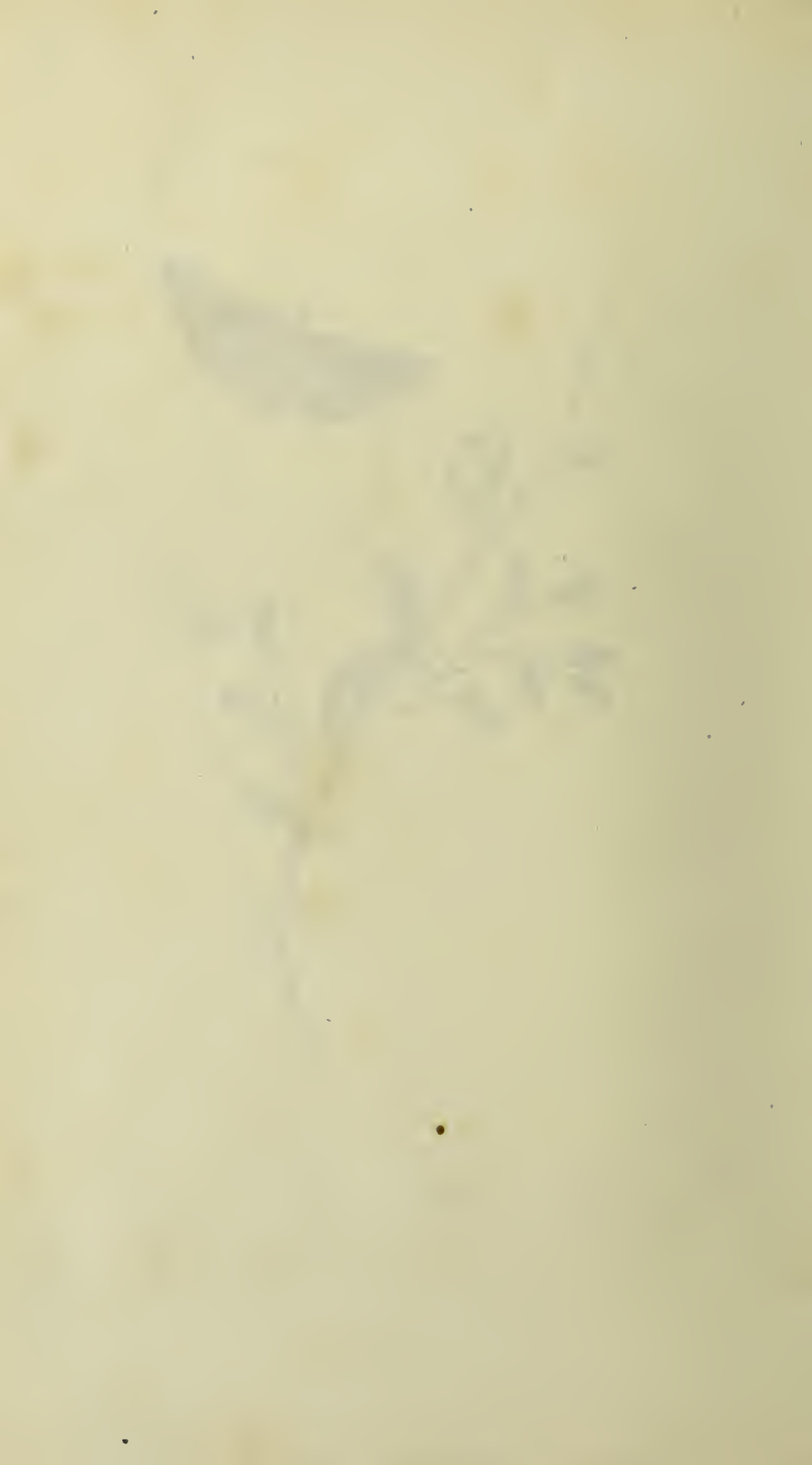
F I G. III.

One of its fore claws, natural size.

F I G. IV.

The extremity of the claw magnified. Every foot is constructed after this form.





P L A T E L I.

P H A L Æ N A P I S I.

B R O O M M O T H.

L E P I D O P T E R A.

G E N E R I C C H A R A C T E R.

Antennæ taper from the base. Wings, in general, contracted when at rest. Fly by night.

Noctua.

S P E C I F I C C H A R A C T E R.

First wings red brown, clouded with dark brown, two spots in the centre, and a pale yellow undulated line near the exterior margin. Second wings and abdomen light brown with a broad shade of a greyish colour.

Syst. Ent. 610. 88.—*Lin. Syst. Nat.* 2. 854. 172.—
Fn. Sv. 1206.—*Degeer. Inf. Verf. Germ.*
2. 1. 322. 10.

Raj. Inf. 160. 10.

Wilks pap. 4. *Tab.* 1. a. 7.

Roef. Inf. 1. *Phal.* 2. *Tab.* 52.

Merian. Europ. Tab. 50.

The Caterpillars will devour indiscriminately the leaves of the knot-grass, of pease, the broom, &c. it is from the latter food, the Moth receives its name. The Caterpillars are found in July and

August, and descend into the ground late in September or the first week in October, and the Fly comes forth in July.

Caterpillars that enter the earth in the larva form, pass to the chrysalis, and issue forth in the perfect or Fly state, have no occasion for a web to protect them; and therefore few species prepare one. But among those which remain exposed in the open air, a very small proportion neglect to weave a web with the utmost skill and industry; the least attentive to this apparently necessary precaution are the Papiliones, who, often regardless of their situations, are found [in chrysalis] suspended against walls, the trunks, or branches of trees, and even paleys in very public roads.



P L A T E L I I.

SPHINX TIPULIFORMIS.

CURRANT SPHINX.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ somewhat prism form, tapering at each end: tongue in general exerted: feelers two, reflected: wings deflected.

* *SESIA* *Fabr.*

SPECIFIC CHARACTER

AND

SYNONYMS.

Wings transparent with the margin and band black: abdomen black, and bearded, the alternate incisures yellow.

SPHINX TIPULIFORMIS. *Linn. Syst. Nat.* 2. 804. 32.—*Fn. Sv.* 1096.

SESIA TIPULIFORMIS: alis fenestratis: margine fasciaque nigris, abdomine barbato nigro: incisuris alternis margine flavis. *Fabr. Ent. Syst. T. 3. p. I.* 385. 21.

Clerk. Icon. Tab. 9. Fig. 31.

Fuesl. Magaz. Tab. 1. Fig. 6.

Harr. Inf. angl. Tab. 3. Fig. 8.

A very elegant, and common Species of the Sphinx *genus*: it is taken in June and July. After the Insect dies, the colour of the thorax and abdomen, except the yellow bands, is entirely black, or black with a very faint gloss of a reddish blue: but is an exceedingly brilliant dark purple, while the creature is alive; and the yellow belts on the alternate divisions of the body, glitter in the sunshine with the effulgence of molten gold. The legs are yet more beautiful, as the purple, though paler, is of a livelier lustre; and every joint is deeply fringed with the same golden colour as that on the body. The wings, which are perfectly transparent, except at the apex, are delicately veined, and ribbed with black lines. The fan or bearded tail of the body is expanded or contracted at pleasure.

If the creature bursts from its chrysalis in the morning, it is generally observed sporting among the leaves of the nearest plants about noon; and this is commonly the time the male is seen seeking its mate.

The very singular appearance of this insect before the lens of the opaque microscope, induces us to give this magnified figure in addition to the plate in which the larva, pupa, and perfect state are delineated in the natural size.



P L A T E LIII.

S P H I N X T I P U L I F O R M I S .

C U R R A N T S P H I N X .

LARVA, PUPA, and SPHINX of the Natural Size.

The female of this species deposits her eggs in the crevices of the smaller branches and twigs of bushes. A peculiar instinct almost invariably directs her to the stalks of the currant tree, which are not only easily penetrated but afford the most grateful nourishment to the young brood. Immediately that the larva is enlarged from the egg, it perforates the stalk; and having entire possession by this means of the inner channel, feeds on the pith, or medullary substance, which is abundant in the stalks of this particular plant. Thus besides obtaining food in plenty, it is secured from the attacks of many depredators, to which all larvæ or caterpillars are exposed, with the exception of internal feeders.

It changes to the pupa state in the hollow or cavity it has formed within the stem.

A short time before the insect bursts forth, the pupa or chrysalis is protruded through the outer bark, precisely in the same manner as the pupa of *Sphinx Apiformis*, (Plate 25), and is supported by a similar contrivance, every segment being serrated, or armed, with a row of very minute teeth, which firmly embrace the substance of the stalk, and elevate the Chrysalis in an oblique posture; until the last efforts of the Insect completely disengages it from the case.

Sphinx tipuliformis is the only kind of Hawk moth with transparent wings common near London, and is also one of the smallest insects of this division of the Linnæan Sphinges. The currant *Sphinx* is tak-





PLATE LIV.

FIG. I.

CICADA SANGUINOLENTA.

HEMIPTERA.

GENERIC CHARACTER.

Snout inflected: antennæ setaceous; wings four, membranaceous and deflected: legs generally formed for leaping.

SPECIFIC CHARACTER

AND

SYNONYMS.

Black; wing-cases with two spots, and a band of sanguineous red,

CICADA SANGUINOLENTA *Gmel.* 2101. 22.

CERCOPIS SANGUINOLENTA: atra, elytris maculis duabus fasciisque sanguineis. *Fabr. sp. inf.* 2. p. 329. n. 3.

Cicada nigra, elytris maculis sex rubris, *Geoffr. inf. par. I.* p. 418. t. 8. f. 5.

One of the most beautiful of the *Cicadæ*. found in this Country. Though common in some parts of Europe, it is rare with us. We have observed it chiefly among the chalky foils of Kent, and in the woods about Dartford. It is taken in June and July.

FIG.

F I G . I I .

C I C A D A S P U M A R I A .

C U C K O W - S P I T I N S E C T , O R

" F R O T H W O R M . "

S P E C I F I C C H A R A C T E R

A N D

S Y N O N Y M S .

Fuscous: wing-cases with two lateral white spots.

CICADA SPUMARIA: fusca, elytris maculis binis albis lateralibus: fascia duplici interrupta albida. *Linn. Fn. Succ.* 881.

Cicada fusca, fascia duplici albida interrupta transversa.—*Geoff. Inf.* 1. 415. 2.

Cicada Spumaria Graminis fusca, alis superioribus maculis albis.—*Degeer Inf.* 3. 163. 1. *Tab.* 11. *Fig.* 1—21.

Locusta pulex Swammerdamii, nobis Cicadula.—*Raj. Inf.* 67.

Ranatra bicolor, capite nigricante.—*Petiv. Gazoph.* *Tab.* 61. *Fig.* 9.

Cicada fusca alis superioribus maculis albis, in spuma quadam vivens.—*Degeer Acta Holm.* 1741. 221.

Vermes spumans.—*Frisch. Inf.* 8. 26. *Tab.* 12.

Locusta germanica.—*Roes. Inf.* 2.—*Gryll. Tab.* 23.

Sulz. Inf. Tab. 10. *Fig.* 64.

Schaeff. Elem. Tab. 42.

Fuefly, Inf, Helv. 450.

CERCOPIS spumaria.—*Fab. Spec. Inf. tom.* 2. 329.

Cicada Spumaria is not only common in this country, but is abundant in every part of Europe. It frequents most plants, but those especially which exhale much moisture. The food of the larva appears entirely of the vegetable kind, and consists, perhaps, for the most part, of the superabundant fluids which all plants transpire.

“ The CUCKOW-SPIT, or FROTH-WORM, is often found hid in that frothy matter which we find on the surface of plants. It has an oblong, obtuse body ; and a large head, with small eyes. The external Wings, for it hath four, are of a dusky brown colour, marked with two white spots : the head is black. The spume in which it is found wallowing, is all of its own formation, and very much resembles frothy spittle. It proceeds from the vent of the animal, and other parts of the body ; and, if it be wiped away, a new quantity will be quickly seen ejected from the little animal’s body. Within this spume, it is seen in time to acquire four tubercles on its back, wherein the wings are enclosed ; these bursting, from a reptile it becomes a winged animal.” *Adams.*

The colour of the winged Insect is found to vary from a deep chocolate, to a very pale brown. It is taken in July and August.

It rarely uses its wings for flight, as the hind legs are formed for leaping ; at one effort it will frequently bound to the distance of two or three yards.

F I G . I I I .

C I C A D A V I R I D I S .

G R E E N F R O G - H O P P E R .

S P E C I F I C C H A R A C T E R

A N D

S Y N O N Y M S .

Wing-cases green, with yellow margin; head yellow with two black dots,

CICADA VIRIDIS: elytris viridibus, capite flavo: punctis nigris.

Linn. Fn. Suec. 896.

Fabr. Sp. inf. 2 p. 326. n. 26.—*Mant. inf.* 2. p. 271. n. 34.

Locusta pulex paullo minor.—*Raj. Inf.* 68. 3.

Ranatra viridescens. — *Petiv. Gazoph.* 73. Tab. 76. Fig. 6. —

Geoff. Inf. 1. 417. 5.

Fuesly. Inf. Helv. 24. 465.

CICADA *Viridis.*—*Fab. Spec. Inf.* 1. 2. 326.

A species not uncommon, but less plentiful than the *C. Spumaria*. It is found in July and August, on aquatic plants; generally on the high rushes which abound in marshy places.



P L A T E L V.

PAPILIO URTICÆ.

SMALL TORTOISE-SHELL BUTTERFLY.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ clavated. Wings, when at rest, erect. Fly by day.

SPECIFIC CHARACTER.

Deep orange. Wings considerably indented. Above, on the superior Wings, six black and two whitish spots. Inferior Wings, one large spot on each. A broad exterior black border, edged with black and yellow, and a row of light blue spots on each Wing. Underfide, black-brown with waves and dashes of yellow, brown, &c.

Syst. Ent. 505. 263.—*Linn. Syst. Nat.* 2. 777. 167.

—*Fn. Sv.* 1058.—*Geoff. Inf.* 2. 37. 4.

Papilio urticaria vulgatissima, rufo nigro cœruleo et albo coloribus varia. Raj. Inf. 117. 1.

Robert. Icon. Tab. 5.

Huffn. Pi&t. 2. *Fig.* 16.

Merian. Europ. 44. *Tab.* 44.

Albin. Inf. Tab. 4. *Fig.* 51.

Schaeff. Icon. Tab. 142. *Fig.* 1. 2.

Goed. Inf. 3. *Tab.* 3.

————— *Éc. Éc.*

A very beautiful species of the *Papilio*; and, were it less frequent, would be infinitely esteemed for the elegant combination of its colours; but is at present little regarded. The old Flies are observed in May, the Caterpillars are hatched about the middle of June; in July they are full fed, and cast their last exuviae: they transform into Chrysalis, in which state they remain only fifteen days, and then burst forth a *Papilio*.

They continue to breed in vast quantities during the warm weather; and have, if the season be favourable, several broods before the winter.

The Chrysalis is brown, but often assumes much of a golden hue; and, though not its common appearance, is sometimes seen entirely of a rich gilded, or gold colour; but this is unnatural, and generally indicates that the Caterpillar has been stung by the Ichneumon Fly. The Caterpillars are taken on the Nettle*.

* *Urtica Dioica.* Linn.



P L A T E LVI.

FIG. I.

PYROCHROA COCCINEA*.

SPECIFIC CHARACTER.

Beneath, Legs and Antennæ black. Head, Thorax and Shells bright red, inclining to brown.

The above Insect which *Fabricius* has, after that celebrated French Naturalist *Geoffroy*, made a new genus, under the title *Pyrochroa**, has in general been considered by the Collectors of Insects as the *Cantharis Sanguinolentæ* of *Linnæus*; but this cannot be the case, as the descriptions by no means corresponds; nor is it the *Lampyrus Coccinea* of that author, as quoted by *Fabricius*; we are therefore inclined to think, that notwithstanding it is so plenty with us, it was unknown to the Swedish Naturalist at the time he wrote; especially as the specimen was not contained in his cabinet.

It is very common in England, in July.

* *Geoff. Inf.* 1. 388. 1. tab. 6. fig. 4.

P L A T E LVI.

F I G. II.

SILPHA QUADRIPUNCTATA.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ clavated, foliated. Head prominent. Thorax margined.

SPECIFIC CHARACTER.

Head, Antennæ, and Legs black. Thorax yellow, with a large spot of black. Shells yellow, with four small black spots. Length half an inch.

Appears local to certain parts of this kingdom: is sometimes taken by beating the Oaks in Caen-wood, near Hampstead, in July; it is, however, rare.

1



2



3



P L A T E L V I I ,

F I G . I .

P H A L Æ N A L A M D E L L A .

T I N E A .

S P E C I F I C C H A R A C T E R .

Superior Wings bright yellow brown, with a triangular dark spot, extended obliquely from the inferior margin, to the center of the Wing, and terminated by a minute detached spot of the same colour.

A non-descript, and has hitherto only been taken on Epping-forest: the brood was discovered in a furze-bush, by Mr. Bentley, an eminent Collector of Insects, in July 1789; the Cabinets of several Naturalists have been supplied from the parcel then taken, as the Species has rarely been observed since.

We prefer the name *Lamdella*, as the form of the Greek *Lamda* (λ) is well characterized, on the superior Wings.

F I G . I I .

P H A L Æ N A A U R A N A .

P Y R A L I S * .

S P E C I F I C C H A R A C T E R .

Superior Wings brown, with two orange spots on each; inferior Wings brown.

Syst. Ent. 653. 48.—*Fabri. Spec. Inf.* II. 286. 66.

* *Fab. Gen. Inf.*

A n

An elegant Species of the minuter kinds of Lepidopterous Insects: it derives its name from the spots of bright orange, or gold colour, which are on the superior wings: is very rare: our specimen was taken in Kent, late in July; it appears peculiar to that county only, or is certainly very unfrequently, if ever, found elsewhere.

Larva unknown.

F I G. III.

P H A L Æ N A A P I C E L L A.

T I N E A.

SPECIFIC CHARACTER.

Grey. A circular spot of gold, or orange colour, at the apex of each superior Wing.

Non-descript, and is also very rare. Our specimen was procured by beating a White thorn-bush, on Epping-forest, early in May.

The orange spot on the ends of the upper wings afford the most striking distinction for a Specific Character; we therefore denominate it Apicella.

WISHING to comprife such information as may recommend our Work, to a general Clafs of Readers, we are absolutely compelled to deviate from that uniform path which we at firft intended to purfue ; by introducing the figures of fome Moths before we can procure their larva ; we promife this will rarely occur, except with Infefts whose larva are unknown ; and the Author will fpare no expence, or trouble, to attain even thofe : but, were he to refufe a place to the many valuable fpecimens recently difcovered, it would be very difpleafing to the greater part of his Subscribers ; therefore, as an invariable obfervance of fuch intention, promifes only to exclude the moft rare of our Infefts, we cannot always indulge it : on this plan, in the firft Volume we could neither have represented the Phal. Batis, *Peach Blossom*, as the larva has only once been found ; or the Phal. Chrifternana, whole larva is unknown* : Thefe are Infefts which few Cabinets in England poffefs ; hence the figures muft be very acceptable, and their rarity a fufficient apology for their premature introduction.

* The Caterpillars of a very fmall portion of minute Moths are known ; and many Species in the adult ftate are fo very rare, as to have efaped the attention of the moft accurate Entymologifts. Of the number which are afcertained as natives, very few are hitherto figured, or even defcribed.



3



P L A T E LVIII.

FIG. I. I.

P H A L Æ N A P R U N I E L L A.

L E P I D O P T E R A.

G E N E R I C C H A R A C T E R.

P H A L Æ N A.

Antennæ taper from the base. Wings, in general, contracted when at rest. Fly by night.

T I N E A.

S P E C I F I C C H A R A C T E R.

Superior wings brown, inclining to purple; from the interior margin is extended a broad white dash along the posterior margin, nearly two thirds of its length; but is interrupted near the extremity by a square spot of dark brown. Inferior wings grey. Head and thorax white. Abdomen grey.

We have copied the name *Pruniella*, from that celebrated work of Clerk, said to be executed under the immediate inspection of *Linnaeus* himself: He has figured it in the 11th Plate, Fig. 4. But the great scarcity of that work, there not being twelve copies in this country, can have contributed in a very small measure to its being generally known; which indeed is the fact, as it does not appear any writer since that time has figured, or even described it. Some were, perhaps, ignorant of its having been figured in Clerk's Plates, which however, could not have been the case with *Linnaeus*; but we cannot find that he has described it, or referred to Clerk's figure in any part of his works;

though a copy of that book came over with the Linnæan collection, into the hands of Dr. Smith; nor can we trace any description of this moth in the writings of *Fabricius*; he also has not quoted the figure: We may hence conclude that although the insect is frequent in the months of June and July, it is little known, except with those who possess collections; and even many of that description are perhaps unacquainted with the circumstance of its having been named by Clerk, and probably by no other author,

Taken at Highgate.

FIG. II.

PHALÆNA MARGINELLA,

LEPIDOPTERA.

GENERIC CHARACTER.

PHALÆNA.

TINEA.

SPECIFIC CHARACTER.

First wings bright, pale brown, with a broad white margin. Second wings white.

Our present species was unknown to *Linnæus*; but according to his definition of *genera*, is one of the *tineæ*; it will be necessary, however, to distinguish it from the *tinea marginella* of *Fabricius*, which is a native of Germany, and altogether different; that writer, it is well known, divided many of the genera of *Linnæus*, and from their materials constituted an infinitely greater number; it was by such divisions he separated the *tineæ*, into the genera, *tineæ* and *alucita*,

titæ, removing the *alucitæ** of Linnæus under the title of *Pterophorus*.

He therefore uses the specific name *marginella* to his *tinea* and *alucita*. Our specimen is described by him, under the name *Alucita marginella*. It is found on the juniper in May.

Taken at Dartford.

FIG. III.

PHALÆNA PAVONANA.

LEPIDOPTERA.

GENERIC CHARACTER.

PHALÆNA.

TORTRIX.

SPECIFIC CHARACTER.

Superior wings clouded with black and buff-coloured markings, and a very minute representation of a peacock's feather at the apex. A dorsal spot of bright brown, surrounded with a deep black mark. Inferior wings grey brown, with the eye of the peacock's feather at the apex.

This singular Tortrix, which abounds with beautiful markings, is particularly distinguished by the elegantly little mark at the apex of the upper wings, which appears like the feather of a peacock's tail:

* The insects distinguished by this title are known by the trivial names *Plumes*, or *Fans*; their wings being entirely formed of feathers connected only near the base in the manner of a fan.

the ferruginous dorsal spot, surrounded with a thick black mark, although pretty, is by no means peculiar to this species, being common to several other minute moths: the clouded markings of black and buff-colour, interspersed with silver, give this little animal a beautiful appearance, particularly under the microscope. The under wings have a similar appearance of a peacock's feather, but more obsolete at the apex.

We believe this species has never been described before, and very rarely taken. Our specimen was found in Suffex.—August.



P L A T E L I X .

F I G . I .

P H A L Æ N A P A V O N A N A

M A G N I F I E D .

F I G . I I .

P H A L Æ N A P R U N I E L L A

M A G N I F I E D .

We cannot select more pleasing objects for microscopical investigation, than those two minute moths, especially the first; the markings appear rather confused without the assistance of glasses, but a lens of a very small power completely develops it of this imaginary obscurity, and displays an elegance sufficient to recommend it to our attention; but independent of such consideration, it will, it is presumed, be considered as a material advantage to the description annexed, to accompany the figure of the natural size with a microscopical representation; not to enforce that such addition is indispensibly necessary, but when moths like the present offer, whose marks, though beautiful, appear confused, it will certainly much assist to its necessary information; as well as in future to determine the species itself.



P L A T E L X.

CURCULIO SCROPHULARIÆ.

COLEOPTERA.

G E N E R I C C H A R A C T E R.

Antennæ elbowed in the middle, and fixed in the snout, which is prominent and hairy. Joints in each foot four.

*** *Long snout. Thighs dentated.*

S P E C I F I C C H A R A C T E R.

Somewhat spherical. Thorax narrow, beset with yellow-white hairs. Shells black brown, striated; a large black spot on the future, on each side of which are two small spots. Length three lines.

Syst. Ent. 140. 68.—*Linn. Syst. Nat.* 2. 614. 61.

—*Fn. Sv.* 603.

Geoff. Inf. 1. 296. 44.

Degeer Inf. 5. 208. 3. *Tab.* 6. *Fig.* 17. 18. 19. 20.

List. Scarab. Angl. 395. 35.

Reaum. Inf. 3. *Tab.* 2. *Fig.* 12.

This singular little insect feeds, when in the larva state, on plants of the *scrophularia* genus, (fig-wort), and thence receives its specific name. The beetle is not uncommon in June, and is usually found on the same plants as the larva: the minuteness of this creature evades a complete discovery of the uncommonly tessellated appearance it assumes before the speculum of an opaque microscope; our plate represents the chrysalis and beetle, natural size, together with a considerably magnified figure of the latter.







P L A T E L X I .

P H A L Æ N A S T R A M I N E A .

L E P I D O P T E R A .

G E N E R I C C H A R A C T E R .

Antennæ taper from the base. Wings, in general, contracted when at rest. Fly by night.

N O C T U A .

S P E C I F I C C H A R A C T E R .

Antennæ and tongue deep yellow. Head and thorax covered with long hairs; which, with the superior wings, are pale yellow, or bright clay colour; in the middle of the superior wing is a kidney-shaped spot of dull grey, enclosed by a dark reddish brown line, which is united to the anterior margin by another spot of the same colour. Near the exterior margin is a broad obsolete band of pale brown, but where it touches the anterior margin it is darker; within this band are nine white spots, or points, and between the band and exterior margin of the wing, on the lower edge, is a bright black point; there are several other reddish brown points scattered upon the upper wing, near the base. The inferior wings are of a yellowish-white, with a shade of purple, a dark spot on the middle, and a pale black, broad border, with a white fringe.

This elegant species of the *Noctua* division of Moths, appears to be not only a nondescript, but altogether unknown before; even to the best practical entymologists: That an insect of such magnitude should have been unnoticed by *Linnaeus*, or *Fabricius*, is not very singular, as several nondescripts of a similar, and many of an inferior,

size, are to be seen in almost every cabinet; but that the species should have escaped the researches of the most eminent collectors, is rather astonishing.

We have sought every information which our connection would permit; and from the result we scarcely hesitate to pronounce the insect of a nondescript species, and our specimen to be perfectly unique; at least it is a newly-discovered acquisition to many scientific entymologists.

The original, whence the figure has been copied, is in the collection of the author; it was taken in a lane leading immediately from the wood at *Tottenham*, the last week in June, 1793. It was discovered in the evening, on a blade of grass; and, from its wet appearance, as well as exquisite preservation, it had certainly just emerged from its chrysalis.

The Caterpillar may be supposed to be an underground feeder, and to subsist on the roots of grass, &c. or one of that kind which comes only above the surface of the earth in the night.



P L A T E L X I I .

MUSCA ONOPORDINIS?

D I P T E R A .

Wings two.

G E N E R I C C H A R A C T E R .

A soft flexible trunk, with lateral lips at the end. No palpi.

S P E C I F I C C H A R A C T E R .

Head, thorax, and body, yellow brown. Wings, variegated with brown spots.

Syst. Ent. 787. 80.*Fabric. Spec. Inf.* 2. 455. 105.

Whether this is the *Musca Onopordinis* of Linnæus, as quoted, we cannot exactly determine; it answers to his description of that insect, but he speaks so very concisely, that we will not venture to assure ourselves of his *M. Onopordinis* being our species. In this and many other instances we find, that though brevity is the greatest excellence of the Linnæan descriptions, it is also their most essential fault,

The species may, with much propriety, stand under the name *Onopordinis*, as we believe it has never been figured before; and, should the Linnæan species be hereafter discovered to differ from the present, a new name may be readily given to that insect.

Flies in April and May, and is very common in the summer, in woods.

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF CHEMISTRY
1954

RESEARCH REPORT
No. 1000

BY
[Illegible Name]

ADVISOR
[Illegible Name]

CHICAGO, ILLINOIS
1954



P L A T E L X I I I .

F I G . I .

S I L P H A T H O R A C I C A .

C O L E O P T E R A .

G E N E R I C C H A R A C T E R .

Antennæ clavated, foliated. Head prominent. Thorax margined.

S P E C I F I C C H A R A C T E R .

Black. Three longitudinal lines on each shell. Thorax red-brown.

Syst. Ent. 73. 6.—*Linn. Syst. Nat.* 2. 571. 13.—

Fn. Sv. 452.—*Stroem. Act. Nidrosf.* 3. Tab. 6.

Fig. 1.

Silpha. Degeer Inf. 4. 174. 3. Tab. 6. *Fig.* 7.

Peltis nigra, &c.—Geoff. Inf. 1. 121. 6.

Scarabæus.—Raj. Inf. 90. 10.

Casida nigra, &c.—Gadd. Satag. 25.

Silpha Thoracea. Scop. carn. 54.

Bergstr. Nomencl. 1. 23. 5. Tab. 3. *Fig.* 5.

Schaeff. Icon. Tab. 75. *Fig.* 4.

Sulz. Inf. Tab. 2. *Fig.* 12.

Taken at Charlton in June. It is a very rare species in every part of this country, though not unfrequent in Germany.

F I G .

F I G . I I . I I I .

CASSIDA CRUENTATA.

C O L E O P T E R A .

G E N E R I C C H A R A C T E R .

Antennæ knotted, enlarging towards the ends. Shells and thorax bordered. Head concealed under the corselet.

S P E C I F I C C H A R A C T E R .

Bright green above, on each shell near the scutellum a very bright fanguineous mark, Beneath, body and thighs black. Legs and feet light brown.

Is found on verticillated plants and thistles in May.

Although confounded by some with the common Cassida (*C. Viridis*), it differs very essentially from that insect: it is smaller; of a deeper green colour, and does not fade to a dirty brown after death: but the bright fanguineous marks on the shells are scarcely visible in a dead specimen; the former is very common in May, but our species is rare.

C. Cruentata has never been either described or figured before.

F I G .

F I G . I V .

S I L P H A O B S C U R A .

C O L E O P T E R A .

S I L P H A .

S P E C I F I C C H A R A C T E R .

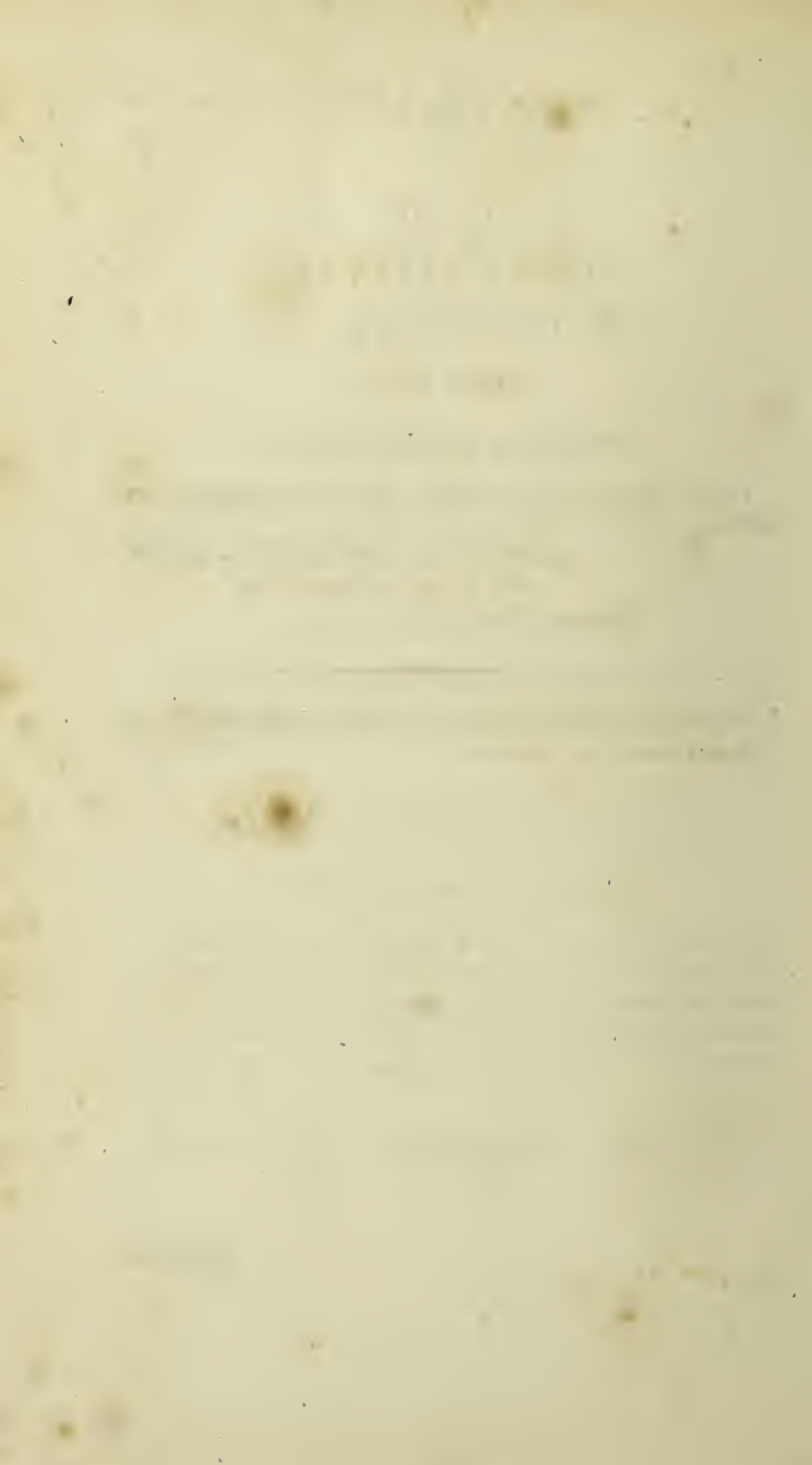
Entirely black. She'lls punctured; with three longitudinal lines on each.

Syst. Ent. 74. 11.—*Linn. Syst. Nat.* 2. 572. 18.

—*Fn. Sv.* 457.—*Scop. carn.* 57.

CASSIDA. Udm. Diff. 8.

Very frequent in May: breeds in corn-fields and meadows; but is found in many other situations.





P L A T E L X I V .

F I G . I .

CERAMBYX VIOLACEUS.]

COLEOPTERA.

G E N E R I C C H A R A C T E R .

Antennæ articulated, and tapering to the end. Shells long and narrow. Four joints in each foot. Thorax with lateral spines, or tubercles.

S P E C I F I C C H A R A C T E R .

Head, thorax, and shells, blue-purple. Legs, and underfide black;

Linn. Syst. Nat. 2. 635. 70.—*Fn. Sv.* 667.

Degeer Inf. 5. 88. 24.

Stenocorus violaceus. *Scopol. Ann. Hist. Nat.* 597. 59.

Cantharis, &c. *Gadd. Difs.* 28.

Frisch. Inf. 12. Tab. 3.

Callidium violaceum. *Fab. Spec. Inf.* 1. 237. 5.

Is exceedingly rare in England. Our specimens were taken on Epping Forest in June.

It is suspected that this species, although now taken in England, was not originally a native, but by accident has been introduced into this country, from Germany, or some other part of Europe.

An ingenious collector * informs us, that those taken at Epping are generally found exactly in the same place, and it is worthy a remark, on the same spot there are three posts of foreign fir, which evidently

* Mr. Bentley.

L

harbour

harbour a quantity of Larvæ; probably of this insect, though not yet determined.

Has been taken in different parts of the kingdom, and appears to be naturalized with us at this time.

F I G. II. III.

CERAMBYX HISPIDUS.

C O L E O P T E R A.

C E R A M B Y X.

S P E C I F I C C H A R A C T E R.

Head and thorax spined, brown. Shells, upper half white with cinereous clouds; lower, brown, with longitudinal ridges, and three strong spines on each, next the future. Antennæ longer than the body, black and white alternately.

Linn. Syst. Nat. 2. 627. 30.—*Fn. Sv.* 651.

Geoff. Inf. 1. 206. 9.—*Fab. Spec. Inf.* 1. 215. 27.

Cerambyx fasciculatus. *Degeer Inf.* 5. 71. 9. *Tab.* 3. *Fig.* 17.

Scarabæus. Antennis articulatis longis. *Raj. Inf.* 67. 4.

Schaeff. Icon. Tab. 14. *Fig.* 9.

Frisch. Inf. 13. p. 22. *Tab.* 16.

One of the most beautiful of our Coleopterous Insects, and is common in certain situations during most part of the summer.

Fig. II. represents it of the natural size. Fig. III. magnified.



P L A T E / LXV.

FIG. I.

PHALÆNA INTERROGATIONANA,

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

TORTRIX.

SPECIFIC CHARACTER.

Superior wings dark red-brown with an undulated line resembling the note of interrogation on each. Inferior wings and body pale brown.

Is very rare, and has only been hitherto taken in the wilds of Kent, and some other distant parts of the country; our specimen was taken in August.

An insect so singularly marked, cannot readily be confounded with any other species, as we do not possess one which bears much resemblance to it; the most striking particular for a specific distinction are the two waved lines of white on the superior wings, which being contrasted with the brown colour, gives it a very unusual appearance.

It is an undescribed insect, and we have called it *Phalæna Interrogationana*, as the white undulated mark, if viewed sideways, resembles a note of interrogation.

L 2

FIG.

FIG. II. III.

PHALÆNA SEMI-ARGENTELLA.

LEPIDOPTERA.

TINEA.

SPECIFIC CHARACTER.

Superior wings gold, with stripes of silver, inferior wings grey-brown.

Fig. II. natural size. Fig. III. magnified appearance.

Pha. Semi-argentella is without exception one of the most brilliant little moths we have; the natural size is scarcely sufficient to display its superior elegance, but when examined by the microscope, imagination cannot paint a more resplendent object, for we instantly discover a most wonderful combination of all the varied shades of molten silver and burnished gold; its superior wings are entirely adorned with plates which exhibit in one view the appearance of those costly metals, but vary with every direction of light; that which appears gold in one point of sight becoming red, or bright orange, while the shades which were before of a dark brown, assumes the resplendence of burnished gold; the thorax glitters with the same splendor; the head, antennæ, and even the legs, partake also of this rich colouring in some changes of light; the inferior wings are of a very delicate texture, grey colour, changeable, and though comparatively small, are surrounded by a deep fringe, which gives them the appearance of proportion.

We are unacquainted with the works of any author that contain a figure of this insect, or we might perhaps be enabled to determine whether

whether it is not the *Pha. T. Seppella** of Fabricius; the descriptions nearly correspond, but we are unwilling, without other proof, to give it that specific name.

Until very lately it was considered as an exceedingly rare insect, but several specimens were taken at Highgate last summer.

 FIG. IV.

PHALÆNA CURTISELLA.

LEPIDOPTERA.

TINEA.

SPECIFIC CHARACTER.

Superior wings, and thorax white, speckled, and spotted with brown. Inferior wings and body pale brown.

This insect is very uncommon, and though it has never been either figured or described before, it has been arranged in those cabinets which possessed the specimen, under the specific name *Curtisella*, after Mr. CURTIS, author of the *Flora Londinensis*, &c.

The name was originally inserted by Mr. MARSHAM, in his manuscripts, and was intended as a compliment to the abilities of that scientific gentleman; it has not hitherto appeared in public, but we can feel no reluctance to adopt the same name.

* *Alis auratis, frigis duabus argenteis. Gen. Inf. Mant. 296.*



P L A T E L X V I .

B O M B Y L I U S M A J O R .

H U M B L E - B E E F L Y .

D I P T E R A .

Wings two.

G E N E R I C C H A R A C T E R .

Trunk taper, very long, sharp, between two horizontal valves.

S P E C I F I C C H A R A C T E R .

Body short, thick, covered with thick yellowish down. Wings dark brown next the anterior margin; transparent next the posterior margin. Legs long, slender, black.

Linn. Syst. Nat. 2. 1009. 1.—*Fn. Sv.* 1918.

Bombylius variegatus, &c.

Degeer. Inf. 6. 268. 1. *Tab.* 15. *Fig.* 10.

Afilus, &c. *Geoff. Inf.* 2. 466. 1.

Reaumi. Inf. 4. *Tab.* 8. *Fig.* 11, 12, 13.

Mouff. Inf. 64. *Fig.* 5.

Scop. Carn. 1018.

Raj. Inf. 273.

Schaeff. Icon. Tab. 79. *Fig.* 5.

Huffnag. Inf. Tab. 8. *Fig.* 1.

Aldr. Inf. 350. *f.* 10.

We have only three species of this genus in England, *Major*, *Medius*, and *Minor*.

B. Major is not very rare, its usual time of appearance is June and July.

Together with other species of the *Bombylius* genus, it is sometimes called the Sword-Bee-Fly: this appellation it receives from the singular form of its trunk; to assist our description, we have represented its appearance when magnified, at Fig. I.

It hovers from flower to flower, when the warmth of the sun invites it abroad, and extracts the nectar from flowers, by darting its proboscis into them, but never rests while feeding.



P L A T E L X V I I .

M E L O E V A R I E G A T U S .

S C A R C E M E L O E .

C O L E O P T E R A .

G E N E R I C C H A R A C T E R .

Antennæ globular, the last globule oval. Thorax roundish. Shells soft. Head gibbous, and bent downwards.

S P E C I F I C C H A R A C T E R .

Head and thorax dull green, margined with red. Shells short, dull green shagreened. Body large; above variegated with red, green, and copper colour: beneath purple. Legs reddish purple.

In form and size this species is not unlike the common *Meloe* *; but is far superior to that Insect, for the beauty of its colours: when the creature is alive the upper part of the body partakes of the most vivid colours, but those colours become more obscure after the Insect dies;— this difference of the appearance, between the living and dead specimen of the same species, is not peculiar to this Insect only, but is commonly observed of most other kinds. The body is large in proportion to the other parts, but after death it is so contracted, or distorted from its natural shape, as to assume the appearance of an incoherent mass; the skin so corrugated as to receive a false light on different parts of the surface, and consequently the natural glow of

* *M. Proscarabæus.*

the colours considerably decreased by the exhalation of that moisture which served to refresh them in the living state.

The underside, from the greater tenacity of the skin, or shelly substance, is less liable to alteration than the upper side; it is entirely of a dark, but beautiful purple, which is changeable in proportion to the convexity of the body, to the most brilliant hues; the legs are also of a beautiful purple, with the appearance of bronze or copper colour intermixed.

It does not appear to be frequent in any part of Europe; even in Germany it is rarely, if ever taken: as one of the *British Coleoptera* it is very little known, and is perhaps confined to the distant parts of Kent, where it is not generally diffused, but is found local to certain situations.

Mr. Crow, of Feverham, very fortunately met with a brood of them last season, and transmitted several specimens to his friends in London. They varied considerably in several respects, and particularly in their colours; some appearing much more beautiful than others.

The male is smaller than the female; they secrete themselves beneath the surface of the earth, and subsist on the roots of grass, or herbage in general: are sometimes found by turning up the mould, or may be observed crawling among the grass. Come forth in April, or May.



P L A T E LXVIII.

FIG. I. II.

DYTISCUS MINUTUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ taper, or clavato perfoliated. Feet villous and broad.

SPECIFIC CHARACTER.

Yellow-brown, Shells striated, and marked with short longitudinal stripes of black.

Fabri, Spec. Inf. 1. 297. 36.

Chrysomela Minuta. Linn. Syst. Nat.

Dytiscus Minutus. Linn. Syst. Nat. 2. 667. 23.—Fn. Sv. 778.

Dytiscus Ruficollis. Degeer. Inf. 4. 404. 18. Tab. 16. Fig. 9.

Linnaeus placed this Insect among the CHRYSOMELÆ, under the specific name *Minuta*; but Degeer consigned it to the DYTISCUS genus, and gave it the name *Ruficollis*: As a DYTISCUS it also appeared in the *Systema Naturæ*; and Fabricius, as well as other late Entomologists, have determined it to that genus, either calling it *Minutus*, or after Degeer, *Ruficollis*.

At Fig. I. is represented its appearance when magnified, and at Fig. II, the natural size.

Is not common; our specimens were taken on *Epping Forest* in *June*. It is an aquatic Insect, or one of that kind which passes through the several states in the water, and subsists on the smaller kinds of Insects, or on the fragments of macerated vegetables. Swims very swiftly.

FIG. III. IV.

DYTISCUS FERRUGINEUS.

COLEOPTERA.

DYTISCUS.

SPECIFIC CHARACTER.

Very convex. Above red-brown. Beneath paler.

Lin. Syst. Nat.

FIG. III. natural Size, FIG. IV. magnified.

This Insect is one of the same family, and was found at the same time and place as the preceding species. Is not very frequently met with.

FIG.

FIG. V.

DYTISCUS SULCATUS.

COLEOPTERA.

DYTISCUS.

SPECIFIC CHARACTER.

Shells brown, with four broad furrows, in which are grey-brown hairs. Head black, anterior part yellow, with transverse stripes. Thorax black, with yellow marks. Beneath black.

Syst. Ent. 231. 6.

Linn. Syst. Nat. 2. 666. 13.—*Fn. Sv.* 773.

Geoff. Inf. 1. 189. 5.

DYTISCUS *fasciatus*, &c. *Degeer Inf.* 4. 397. 4.

HYDROCANTHARIS. *Raj. Inf.* 94. 3. 10.

Frisch. Inf. 13. p. 13. *Tab.* 7.

Roes. Inf. 2. *Aquat.* 1. *Tab.* 3. *Fig.* 7.

Bradl. Nat. Tab. 26. *Fig.* 2. A.

Schaeff. Icon. Tab. 3. *Fig.* 3.

Bergstr. Nomencl. 1. *Tab.* 5. *Fig.* 3. 4. 5. *Tab.* 7. *Fig.* 6. 7.

It is suspected that the DYTISCUS *Sulcatus* is only the female of the DYTISCUS *Cinercus*, and by no means a distinct species, although Linnæus considered it as such.

It is common in the month of *May*, and thence is found throughout the Summer. It passes through the different changes, and exists in the adult state in the water; and like others of the same tribe, devours the smaller kinds of aquatic Insect, or tender vegetables. It darts with astonishing swiftness in search of its prey by the assistance of its hinder legs, which are well contrived for that purpose.

1870

1871

1872

1873

1874

1875

The first of the year was a very dry one, and the crops were much injured. The weather was very hot, and the ground was very hard. The crops were much injured, and the yield was very small.

The second of the year was a very wet one, and the crops were much injured.

The third of the year was a very dry one, and the crops were much injured.

The fourth of the year was a very wet one, and the crops were much injured.

The fifth of the year was a very dry one, and the crops were much injured.

The sixth of the year was a very wet one, and the crops were much injured.

The seventh of the year was a very dry one, and the crops were much injured.

The eighth of the year was a very wet one, and the crops were much injured.

The ninth of the year was a very dry one, and the crops were much injured.

The tenth of the year was a very wet one, and the crops were much injured.

The first of the year was a very dry one, and the crops were much injured. The weather was very hot, and the ground was very hard. The crops were much injured, and the yield was very small.

The second of the year was a very wet one, and the crops were much injured. The weather was very hot, and the ground was very hard. The crops were much injured, and the yield was very small.

1876





P L A T E LXIX.

P H A L Æ N A R U B I.

F O X - C O U L O U R E D M O T H.

L E P I D O P T E R A.

G E N E R I C C H A R A C T E R.

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

No Trunk. First Wings horizontal. Second erect.

S P E C I F I C C H A R A C T E R.

Antennæ feathered. Wings entire, with a whitish margin; two whitish transverse waves on the first pair.

Syst. Ent. 565. 35.

Linn. Syst. Nat. 2. 813. 21.—*Fn. Sv.* 1103.

Wilk. Pap. 25. *Tab.* 3. a. 19.

Amiral. Inf. 32.

Roes. Inf. 3. *Tab.* 49.

The females of this species are very rarely met with, as they conceal themselves among the grass; but the males are commonly taken when flying, and generally indicate that the females are near.

The Caterpillars will feed on the willow, but prefer the leaves of the bramble.

In this state they are found about the latter end of June, July, or August; and remain so during the Winter. In April they change to the Pupa form, and in May they appear in the Fly state.

The Moth has little to recommend it to notice; and the Pupa, like most others, is of a dull uniform black brown; it is therefore under the form of a caterpillar that it appears to most advantage.



1



2 |

| 1

2



3

|

P L A T E LXX.

FIG. I.

SCARABÆUS TESTUDINARIUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ clavated, their extremities fissile. Five joints in each foot.

SPECIFIC CHARACTER.

Head black without tubercles. Thorax black, punctured, and covered with short soft hairs. Shells deeply and equally striated, so as to produce even and regular ridges between the striæ, which are of an obscure black, sprinkled with small spots of a deep yellow. Feet are of a dirty brown colour.

This beautiful animal was described by *Fabricius* as an English Insect in his first work, the *Systema Entomologiæ*, but we have never seen a specimen of it before. A figure of this Insect may be found in *Fuessly*, *Jablonsky*, and *Olivier*; but these works being in few hands, we trust our figure will not be unacceptable to the English Entomologist,

Fig. I. The natural size denoted by a line,

Fig. I. The magnified appearance.

F I G . I I .

S C A R A B Æ U S C O N F L A G R A T U S .

C O L E O P T E R A .

S C A R A B Æ U S .

S P E C I F I C C H A R A C T E R .

The whole body black and shining, except the shells, which are testaceous, striated, with an oblong spot, rather obscure on each side near the external margin. On the head are three tubercles, the middle one larger than the others. Thorax convex and pointed.

This Insect resembles much the *Scarabæus Conspurcatus*, but is a little bigger.

It is also figured by *Jablonsky* and *Olivier*, and is described by *Fabricius* in his new Work the *Entomologiæ Systema*.

Fig. II. The line shews the natural size.

Fig. II. Magnified appearance.

FIG. III.

SCARABÆUS QUADRIMACULATUS.

COLEOPTERA.

SCARABÆUS.

SPECIFIC CHARACTER.

Head black, without tubercles, but has two little protuberances over the mouth. Thorax black, shining, convex, and covered with impressed points. Shells black, striated, with two red spots on each, one small at the base near the outer margin, the other larger near the apex. Underfide, feet, and antennæ are black and polished.



We are of opinion that the three Insects in the annexed plate will be new to most of our English Collectors, notwithstanding they are to be found in this country.

As it would be very difficult, if not impossible, to give a just representation of these minute Insects in the natural size, we have preferred giving the magnified appearance; the outlines which accompany each, and bear the same numbers, denote the true size of the original specimens.

Fig. III. The line shews the natural size.

Fig. III. Magnified appearance.

This species is described by *Linnaeus*, *Fabricius*, and other authors, and has been figured by *Olivier* and *Jablonsky*, being frequently met with in foreign cabinets. It is the smallest of this genus.

Olivier describes this insect as having the antennæ and feet red; but it is not so in our specimen.







P L A T E LXXI.

P H A L Æ N A V I L L I C A.

CREAM-SPOT TYGER MOTH.

LEPIDOPTERA.

G E N E R I C C H A R A C T E R .

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

* No Trunk. Wings depressed, deflexed. Back smooth.

S P E C I F I C C H A R A C T E R .

Antennæ, head, and thorax black, with a white spot on each side the latter. First wings black, with eight large cream-coloured spots. Second wings and body orange, with black spots.

Syst. Ent. 2. 581. 85.

Linn. Syst. Nat. 2. 820. 41.

Geoff. Inf. 2. 106. 1.

Harris. Aurel. Tab. 4.

Raj. Inf. 156. 4.

Alb. Inf. Tab. 21.

Frisch. Inf. 10. *Tab.* 2.

Reaum. Inf. 1. *Tab.* 31. *Fig.* 4. 6.

Roes. Inf. 4. *Tab.* 28. *Fig.* 2.

————— *Tab.* 29. *Fig.* 1. 4.

Wilk. Pap. Tab. 3. a. 2.

Chickweed is a favorite food with the Caterpillars of this Insect, but it will eat the leaves of the currant, white-thorn, nettle, grass, &c. if the former cannot be readily procured.

The Caterpillars are black and foxy, or hairy; but in a less degree than the Caterpillars of Ph. Caja, Great Tyger Moth, which we have figured in the early part of this work.

About the latter end of April the Caterpillars have attained their full size, and change into chrysalis; late in May they appear in the winged state.

It is by no means so frequent as the Great Tyger Moth, though not very rare; but it is infinitely superior for the happy combination of its colours to it, or either of the British species of that tribe which are trivially termed Tygers: it is already high in the esteem of collectors; and were specimens of the kind less common, it would be in great request among the English Entomologists.

Frequents banks which face the rising sun.



P L A T E LXXII.

CERAMBYX ÆDILIS.

LONG-HORNED CERAMBYX.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ articulated, and tapering to the end. Shells long and narrow. Four joints on each foot. Thorax, with lateral spines or tubercles.

SPECIFIC CHARACTER.

Antennæ considerably longer than the body. Head, thorax, and shells grey, with shades of brown, sprinkled with yellow, and dark brown spots. Thorax spined.

Syst. Ent. 164. 1.—*Linn. Syst. Nat.* 2. 628. 37.—

Fn. Sv. 653.

Cerambyx, &c. *Linn. It. Oel.* 8.

Degeer. Inf. 5. 66. 5. *Tab.* 4. *Fig.* 1. 2.

Capricornus rufficus. *Petiv. Gazoph. Tab.* 8. *Fig.* 8.

Mouff. Inf. 151. *Fig.* 2.

Frisch. Inf. 13. *Tab.* 12.

Sulz. Hist. Inf. Tab. 4. *Fig.* 27.

Æt. Nidros. 4. *Tab.* 16. *Fig.* 8.

Schaeff. Icon. Tab. 14. *Fig.* 7.

Bergstr. Nomencl. 1. 3. 5. *Tab.* 1. *Fig.* 5. 6.

Tab. 2. *Fig.* 1.

Fab. Spec. Inf. 1. 209. 1.

This species is found in every part of Europe, though very scarce; and in England it is extremely rare.

And

And it is no less distinguished for the very singular structure and length of its antennæ, than for its rarity; that part which forms one of the most certain characteristics of almost every tribe of Insects, constitutes the most prominent character in this.

Of its use, we are altogether ignorant, as the various opinions that have been given by former writers are now obliterated; some have supposed that they were the organs of hearing, or smell; and others have imagined that they were susceptible of the least motion in the ambient fluid in which they move.

Geoffroy discovered the organs of hearing in several amphibious animals, viz. in the toad, frog, viper, some other serpents, lizard, water-salamander, and skate*; and many of the most eminent anatomists of the present time have discovered by their researches into the animal kingdom, those organs in different creatures. Professor Camper, in 1765, published remarks on the organs of hearing in fishes, in the *Harlem Transactions* †: Mr. Hunter has described others in the *Philosophical Transactions* ‡; and Dr. Monro has described and figured great variety of them in his large work on the structure and physiology of fishes.

Probably, induced by those discoveries professor Fabricius endeavoured to ascertain the organs of hearing in Insects also; and about nine years ago published an account of this interesting discovery in the *New Copenhagen Transactions* §, with figures of those organs in the crab and lobster: he found the external orifice of the organ in these animals to be placed between the long and the short antennæ, the cochlea, &c. being lodged in the upper part, which Linnæus calls the thorax, near the base of the serrated projection at its apex; we must therefore conclude that the antennæ of Insects are appropriated for some other purposes than those it is at present suspected they answer.

The *Cerambyx Ædilis*, Fabricius informs us, lives in the trunks of trees; its horns are moveable, as it can either direct them forward, or support them in an erect position; and when it sleeps, it reclines them along its back; it also reclines them when it walks quick, or has to pass through a narrow track, as the least resistance from any thing in its way, would be very liable to injure, or break them off.

Our specimen was taken in May.

* *Memoires Etrangers de l'Acad. de Paris*, 1755.

† In the Year 1763, &c. ‡ Vol. lxxii. § Vol. ii. p. 375.

L I N N Æ A N I N D E X

T O

V O L. II.

COLEOPTERA.

			Plate	Fig.
Scarabæus Testudinarius	-	-	70	1.
———— Conflagratus	-	-	ib.	2.
———— Quadrimaculatus	-	-	ib.	3.
Silpha Quadripunctata	-	-	56	2.
—— Thoracica	-	-	63	1.
—— Obscura	-	-	ib.	4.
Cassida Cruentata *	-	-	ib.	2. 3.
Coccinella 22 punctata	-	-	39	1. 4.
14 punctata	-	-	ib.	2.
6 pustulata	-	-	ib.	3.
7 punctata. Cow-lady, or Lady-bird	-	-	ib.	5.
Larva of Coccinella, 7 punctata	-	-	40	1.
Curculio Scrophulariæ	-	-	60	
Cerambyx Ædilis	-	-	72	
———— Violaceus	-	-	64	1.
———— Hispidus	-	-	ib.	2. 3.
Pyrochroa Coccinea. (Fab.)	-	-	56	1.
Dytiscus Minutus	-	-	68	1. 2.
———— Ferrugineus	-	-	ib.	3. 4.
———— Sulcatus	-	-	ib.	5.
Meloe Variiegatus *	-	-	67	
—— Proscarabæus	-	-	43	

The Star * distinguishes those which have not been named before.

H E M I P.

I N D E X.

H E M I P T E R A.

	Plate	Fig.
Cicada Sanguinolenta - - -	54.	1.
----- Spumaria, Cuckow-spit - - -	ib.	2.
----- Viridis - - - - -	ib.	3.
Cimex Stagnorum, Water-bug - - -	38	

L E P I D O P T E R A.

Papilio Iris, Purple Emperor Butter-fly - - -	37	
----- Hyale, Saaron, or clouded orange Butter-fly	43	
----- Urticæ, small Tortoise-shell Butter-fly - - -	55	
Sphinx Tipuliformis - - - - -	53	
Magnified appearance of S. Tipuliformis - - -	52	
Palæna Rosæ. Red Arches Moth - - -	40	
----- Prasinana? Scarce Silver-line Moth - - -	ib.	
----- Jacobææ. Cinnabar Moth - - -	45	
----- Pifi. Broom Moth - - - - -	51	
----- Sraminea * - - - - -	61	
----- Villica. Cream Spot Tyger Moth - - -	71	
----- Rubi. Fox coloured Moth - - -	69	
----- Festucæ. Gold Spot Moth - - -	46	
----- Lambdella * - - - - -	57	1.
----- Aurana - - - - -	ib.	2.
----- Apicella * - - - - -	ib.	3.
----- Pruniella * - - - - -	58	1.
----- Marginella - - - - -	ib.	2.
----- Pavonana * - - - - -	ib.	3.
----- Pavonana, magnified appearance * - - -	59	1.
----- Pruniella, ditto * - - - - -	ib.	2.
----- Interrogationana * - - - - -	56	1.
----- Semi-argentella * - - - - -	ib.	2. 3.
----- Curtifella * - - - - -	ib.	4.

I N D E X.

N E U R O P T E R A.

	Plate	Fig.
Libellula Depreffa. The larva of - -	44	

H Y M E N O P T E R A.

Ichneumon Rami 'ulus - - - -	42	1.
----- Raptorius - - - -	ib.	2.

D I P T E R A.

Tipula Crocata - - - - -	48	1.
----- Rivofa - - - - -	ib.	2.
Mufca Onopordinis? - - - - -	62	
Bombylius Major - - - - -	66	

A P T E R A.

Aranea Diadema. White Crofs Spider - -	49	
Vorticella Polymorpha - - - - -	41	1.
----- Rotatoria - - - - -	ib.	2.
Trichoda Lynceus - - - - -	ib.	3.
----- Bomba - - - - -	47	2.
Kerona Patella - - - - -	41	4.
Proteus Diffluens - - - - -	47	1.

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Conflagratus Scarabæus	70	2.
Crocata, Tipula	48	1.
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Lambdella, Phalæna	57	1.
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Lynceus, Trichoda	41	3.
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I N D E X.

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Prafinana, Phalæna, Scarce Silver-line Moth	40	
Proscarabæus, Meloe	43	
Pruniella, Phalæna	58	1. 1.
Punctata, 22. Coccinella	39	1. 4.
Punctata, 14. Coccinella	ib.	2.
Punctata, 7. Coccinella	ib.	5.
Pustulata, 6. Coccinella	ib.	3.
Quadripunctata, Silpha	56	2.
Quadrinaculatus, Scarabæus	70	3.
Ramidulus, Ichneumon	42	1.
Raptorius, Ichneumon	42	2.
Rivofa, Tipula	48	2.
Rosea, Phalæna. Red Arches Moth	40	
Rotatoria, Vorticella	41	2.
Rubi, Phalæna, Fox coloured Moth	69	
Sanguinolenta, Cicada	54	1.
Semi-argentella, Phalæna	65	2. 3.
Scrophulariæ, Curculio	60	
Spumaria, Cicada, Cuckow-spit	54	2.
Stagnorum, Cimex, Water-bug	38	
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ERRATA

ERRATA TO VOL. II.

Page II, for Plate XL. *read* XLI.

Plate LXVIII, should have been numbered LXIX.

Plate LXIX, should have been numbered LXVIII.

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