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NATURAL HISTORY
BRITISH INSECTS

DETAILED THEM
IN THEIR SEVERAL STATES
WITH THE PERIODS OF THEIR TRANSFORMATION AND
THEIR FOOD OR NUTRIMENT

TOGETHER WITH THE
HISTORY OF EACH AND ITS INSECTS

BY J. G. KENNEDY
COLLECTED BY THE AUTHOR

DESIGNED AND ENGRAVED FROM DRAWINGS BY

W. H. BARNARD

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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.

VOL. IV.

LONDON:

PRINTED FOR THE AUTHOR,

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THE MICROSCOPIC SOCIETY

COLOR PLATE FIGURES

DESIGNED AND DRAWN BY THE MICROSCOPIC SOCIETY

BY J. BROWN

1843

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CAMBRIDGE, MA USA



T H E
NATURAL HISTORY
O F
BRITISH INSECTS,

P L A T E C I X.

PAPILIO PODALIRIUS;

SCARCE SWALLOWTAIL.

BUTTERFLY.

LEPIDOPTERA.

GENERIC CHARACTER.

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

SPECIFIC CHARACTER.

Above pale yellow, beneath paler. On the first wings (upper side) six pale black stripes and a black margin. On the second wings, an oblique black stripe, and a black border with five semilunar blue spots, two long tails. Stripes more numerous on the under side.

PAPILIO *Podalirius*, alis caudatis subconcoloribus flavis centibus, fasciis fuscis geminatis, posticis subtus linea sanguinea.

Syst. Ent. 451. 38.

Linn. Syst. Nat. 2. 751. 36.

Mus. Lud. Vir. 208.

Papilio alis pallide flavis, rivulis transversis nigris secundariis angulo subulato maculaque crocea. *Geoff. Inf.* 2. 56. 24.

Papilio *Sinon. Pod. Inf.* 62. tab. 2. fig. 1.

Cram. Inf. 13. tab. 152. tab. 2. fig. 1.

Merian. Europ. 163. tab. 44.

Roes. Inf. 1. pap. 2. tab. 2.

Reaum. Inf. 1. tab. 11. fig. 3. 4.

Fonst. Inf. tab. 5. fig. 5.

Esp. pap. 1. tab. 1. fig. 2.

Schæff. elem. tab. 94. fig. 4.

———— *Icon.* tab. 45. fig. 3. 4.

Raj. Inf. III. 3.

Fab. Spec. Inf. 2. 15. 58.

Fabricius * and some other entomological writers have very minutely described the Larva and Pupa state of this rare butterfly; the Larva feed on the leaves of the turnip, cabbage, and other plants of the same genus; it is of a yellow colour, with spots of brown, head pale green. The Pupa is yellow, spotted with brown also, and has two teeth, or sharp points in the fore-part.

We have received the Butterfly from North America, as well as from Germany; it appears to be a native of most parts of the European Continent, though perhaps not frequently found.—*Berkenhout* is the only writer who has described it as an English species †; he says it is rare (in this country,) found in woods. In the perfect state, visits flowers in the day time.

* Habitat in Europæ Brassicæ.

Larva solitaria, flavescens, fusco punctata, capite pallide virescente.

Puppa flavescens, fusco punctata, antice bidentata. *Fab. Spec. Inf. &c.*

† Synopsis of the Natural History of Great Britain and Ireland.

1957
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P L A T E C X.

P H A L Æ N A P E N T A D A C T Y L A.

WHITE FEATHERED 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.

* 7 * ALUCITÆ.

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

Every part snow white, except the eyes, which are black, anterior wings bifid, posterior tripartite.

P H A L Æ N A P E N T A D A C T Y L A *Alucita* alis patentibus fissis quinque partitis niveis, digito quinto distincto. *Lin. Syst. Nat.* 2. 542. 304. *edit.* 10.

P. Pentadactylus, alis niveis, anticis bifidis, posticis tripartitis.
Syst. Ent. 672. 6—*Fab. Spec. Inf.*
Geoff. Inf. 2. 91. 1.
Reaum. Inf. 1. tab. 20. fig. 1. 2.
Roef. Inf. 1. phal. 4. tab. 5.
Ammir. Inf. tab. 23.
Sulz. Inf. tab. 16. fig. 10.
Petiv. Gazoph. tab. 67. fig. 6.

The Caterpillar of this singular Insect is very common in May; it is of a green colour, with a white stripe down the back, and one on each side; it casts its skin several times.

We have observed some Caterpillars which were quite smooth, after casting their skin become rough or covered with hairs; and others which

were white become black by the same process; in this caterpillar we have observed a similar change: a specimen which was of a plain green as before described, became suddenly spotted with black as shewn in our plate, that skin being cast off it assumed its former appearance and became a pupa.

It feeds on grafs, nettles, &c. near the sides of ditches, and is found sporting in the evening, when in the fly state among the grafs and herbage.

The Caterpillar becomes a Pupa about the beginning of June.—It affixes itself by the tail to a stalk of grafs in the same manner as those of the Butterfly genus, and like them is often found with the head suspended downwards; it can by a sudden spring turn itself upright again.

In a little book entitled the AURELIAN'S POCKET COMPANION, by Moses Harris, we find this species described, and called the *White Plumed*, but the Linnæan specified Name *Didactyla* is added:—And under the Linnæan name *Pentadactyla* (our present specimen) he has described the *Brown plumed**.—The same confusion is extended to his folio work the AURELIAN. In Plate I. he has figured the White plumed under the specific name *Didactyla*, and in Plate 30, the Brown plume, under *Pentadactyla*. Linnæus has comprised all those Lepidopterous Insects whose wings appear to consist of several distinct feathers, connected only at the shafts, under the subdivision *Alucitæ*, but Fabricius has given them the new name PTEROPHORUS, and added the name *Alucitæ* to a small division of the Tinea, as Phal. *Christylostella*, &c. of Linn.

The Phal. *Pentadactyla* appears in the perfect state about the latter end of June, sometimes earlier.

* Another specimen of the same division of the genus (*Alucitæ*) but of a brown colour "Alis fisis fuscis, &c." Linn.

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3



1



5



6



2

4



P L A T E C X I.

F I G. I. II.

C H R Y S O M E L A 4 P U N C T A T 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 knotted enlarging towards the ends. Corselet margined.

*** Body Cylindrical.

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

Head and thorax black. Shells yellow brown with two black spots on each. Antennæ ferrated.

C H R Y S O M E L A 4 *punctata* cylindrica, thorace nigro, elytris rubris: punctis duobus nigris, Antennis brevibus. *Linn. Syst. Nat.* 2. 374. 50. edit. 10.

C H R Y S O M E L A 4 *punctata* thorace nigro, elytris rubris, maculis duabus rubris antennis ferratis. *Degeer. Inf.* 5. 32. tab. 10. fig. 7.

Melontha coleoptris rubris maculis quatuor nigris, thorace nigro. *Geoff. Inf.* 1. 195. tab. 3. fig. 4.

Buprestio 4 punctata. *Scop. Ent. Carn.* 206.

Cryptocephalus 4 punctatus. *Fab. Spec. Inf.* 1. 13³. 3.
Schæff. Elem. tab. 83. fig. 1.

————— *Icon.* tab. 6. fig. 1. 2. 3.

This

This species is scarce, though more frequently met with than either of the following *Chrysomelæ*. It is generally found on the Hazel-nut tree.

FIG. III. IV.

CHRYSOMELA SANGUINOLENTA.

COLEOPTERA.

CHRYSOMELA.

SPECIFIC CHARACTER.

Black blue, a bright orange or red exterior margin to the elytra.

CHRYSOMELA Sanguinolenta ovata atra, elytris margine exteriori sanguineis. *Linn. Syst. Nat.* 2. 591. 38. *Syst. Ent.* 101. 40.

CHRYSOMELA nigro cœrulea, elytris atris punctatis margine exteriori rubro. *Geoff. Inf.* 1. 259. 8. tab. 4. fig. 8.

Chrysomela rubro marginata. *Sc. Degeer Inf.* 5. 298. 7. tab. 8. fig. 26.

Buprestis Sanguinolenta. *Scop. carn.* 203.

Extremely rare in England; our specimen was found on the trunk of an ash tree in June 1794——in Kent.

FIG.

F I G . V . V I .

C H R Y S O M E L A C O C C I N E A .

C O L E O P T E R A .

C H R Y S O M E L A .

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

Fine red, with two black spots on each elytra, and one on the thorax.

C H R Y S O M E L A *coccinea* oblonga, thorace marginato fanguineo, macula nigra, elytris fanguineis maculis duabus nigris. *Linn. Syst. Nat.* 2. 592. 43.—*Fn. Sv.* 532.

C H R Y S O M E L A 4 *maculata*, &c. *Degeer Inf.* 5. 301. 10. *tab.* 9. *fig.* 1.

Coccinella Coleoptris rubris maculis 4 nigris. *Vdm. Diff.* 13. *Fab. Spec. Ent.* 1. 131. 83.

Very rarely met with : our specimen was taken on a thistle in a field between Kennington Common and Camberwell, May 1794. The species has not till very lately been considered as a native of this country.



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P L A T E CXII.

S C A R A B Æ U S F U L L O .

COLEOPTERA.

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

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

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 .

Antennæ, of seven laminæ *. Head, thorax, and shells brown, spotted with white. Beneath white.

SCARABÆUS FULLO scutellatus muticus, antennis heptaphyllis, corpore nigro pilis albis, scutello macula duplici alba. *Linn. Syst. Nat.* 2. 553. 57.—*Fn. Sv.* 394.

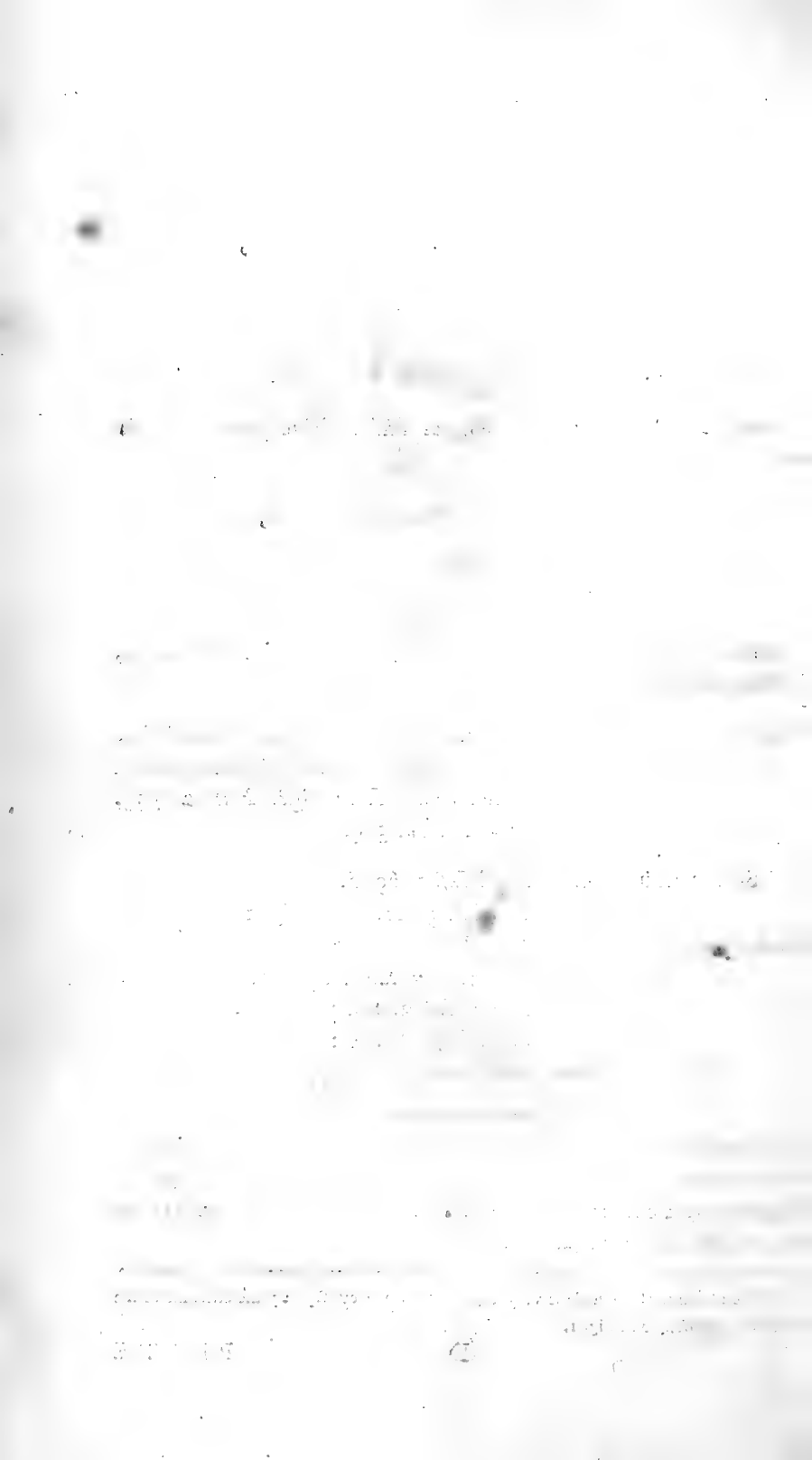
SCARABÆUS, &c. *Geoff. Inf.* 1. 69. 2.
Frisch. Inf. 11. tab. 1. fig. 1.

SCARABÆUS Variegatus. *Roef. Inf.* 4. tab. 30.
Schæff. Icon. tab. 23. fig. 2.
Hæfn. Inf. 2. tab. 7.
Sulz. Hist. Inf. 1. 1.

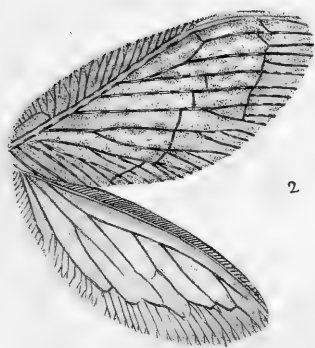
Melolontha Fullo. *Fab. Spec. Inf.* 1. 35. 1.

Except the Stag Beetle, (*Cervus Lucanus*) which is figured already in this work, this is the largest Coleopterous Insect ever found in England; it is extremely rare, and is said to be met with only in the sand on the sea coast near Sandwich.

* The antennæ of the male is very large, as shewn in our figure; the antennæ of the female is represented at Fig. 1.



1900
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P L A T E CXIII.

F I G. I.

HEMEROBIUS HIRTUS.

NEUROPTERA.

Wings four, naked, transparent, reticulated with veins or nerves.
Tail without a sting.

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

Mouth prominent. Palpi four. Wings deflexed. Antennæ longer than the thorax, taper, extended.

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

First wings transparent reticulated with brown veins, hairy. Veins fewer on the second wings.

HEMEROBIUS hirtus, alis albis fusco reticulatis, fasciis duabus fuscescentibus. *Linn. Syst. Nat.*

2. 912. 6.—*Fn. Sv.* 1507.

Degeer Inf. 2. 2 70. 12. tab. 22. fig. 4. 5.

This very common Insect is found on the nut tree, and oak. It conceals itself in the middle of the day among the foliage, or flies only in moist, shady places. It is always observed to be very brisk at the approach of a thunder storm, like the Hemorobius Perla, &c.

The nerves on the wings are so exceedingly delicate, that it is impossible to give an accurate representation of the natural size ; but to remedy that defect, we have shewn the magnified appearance of an upper and under wing at Fig. 2.

The wings are of a pale transparent brown ; which as the Insect moves in different directions reflect all the vivid colours of a Prism.

TY
USA



P L A T E CXIV.

P H A L Æ N A C O S S U S.

GOAT 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.

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.

Grey, with short black irregular curved lines on the upper wings. Antennæ feathered.

P H A L Æ N A C O S S U S. *Bombyx* elinguis, alis deflexis nebulosis, thorace fascia postica atra. *Linn. Syst. Nat.* 2. 504. 40. edit. 10.

P H A L Æ N A pectinicornis elinguis, alis albo cinereis, striis transversis nebulosis nigris. abdomine annulis albis.

Geoff. Inf. 2. 102. 4.

Degeer Inf. Vers. Germ. 2. 1. 268. 1.

Merian. Europ. tab. 36.

Roef. Inf. 1. phal. 2. tab. 18.

Reaum. Inf. 1. tab. 17. fig. 1. 5.

Albin. Inf. tab. 35. fig. 56.

Lyonet Traite de Chenille.

Schæff. Icon. tab. 61. fig. 1. 2.

Goed. Inf. 2. tab. 33.

The Caterpillar of the Goat Moth feeds on the internal substance of willow trees; it is said to be also found in the body of the oak, but we have never discovered any in such a situation. The eggs are laid in the crevices of the trees; as soon as the Caterpillars are hatched, they begin to pierce into the solid wood. In most parts of England they are called Auger Worms; the holes which they make in the timber appearing as if bored with that Instrument.

It lives in the Caterpillar state three years before it is transformed to a pupa; when full fed it is four inches long, the body appears very fleshy, and without hairs; the head is black, and armed with very sharp forceps; the case is composed of bits of wood and saw-duff, which it unites with a strong web; the inside is lined with a fine smooth white filmy substance, like tannin; it passes to the pupa state in the cavity which it has perforated in the caterpillar state, within three or four inches of the opening: it remains only two months in that state before the Fly is produced.

Is found in chrysalis in May; in the fly state, the latter end of June, or in July.

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P L A T E C X V .

C H R Y S O M E L A C E R E A L I S .

COLEOPTERA.

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

Antennæ knotted, enlarging towards the ends. Corselet margined.

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 .

Thorax and shells striped with blue, crimson and yellow green inclining to gold. Wings fine scarlet.

C H R Y S O M E L A C E R E A L I S . Ovata aurata, thorace lineis tribus coleoptrisque quinque cœruleis. *Syst. Ent.* 100. 33. *Linn. Syst. Nat.* 2. 588. 17.

C H R Y S O M E L A aurea fasciis cœruleis cupreisque alternis, punctis inordinatis.

Geoff. Inf. 1. 262. 14.

Schæff. Icon. tab. 1. fig. 3.

Fab. Spec. Inf. 1. p. 124. 45.

This beautiful Insect is a native of Georgia in North America; and has been received from several parts of Africa, as Guinea, &c.

It has also been found (though we believe very rarely) in the southern parts of Europe, particularly in Italy; and we have reason to conclude it has been met with in the south of France, and in Germany*.

We presume to include it among the English Chrysomelæ, on the authority of the late Mr. Hudson, author of the *Flora Anglica*, &c. who appears to be the only Naturalist that has taken it in Great Britain, except the Rev. Mr. Hugh Davies, of Beaumaris, who also met with a specimen of it on a mountain in Wales some years since.

The colour of the stripes on the shells sometimes vary; and the underside, which in our Insect is purple, is often of a shining brownish colour; the transparent wings, which are concealed beneath the shells, are bright red.

* Habitat in Europæ australioris segete, in spatio scoparia. D. Prof. Hermann.
Fab. Spe. Inf.

THE UNIVERSITY
OF CALIFORNIA
LOS ANGELES



2



1

P L A T E C X V I .

S P H I N X C H R Y S O R R H Œ A .

GOLDEN-TAIL SPHINX.

LEPIDOPTERA.

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

Antennæ thickest in the middle. Wings, when at rest, deflexed. Fly slow, morning and evening only.

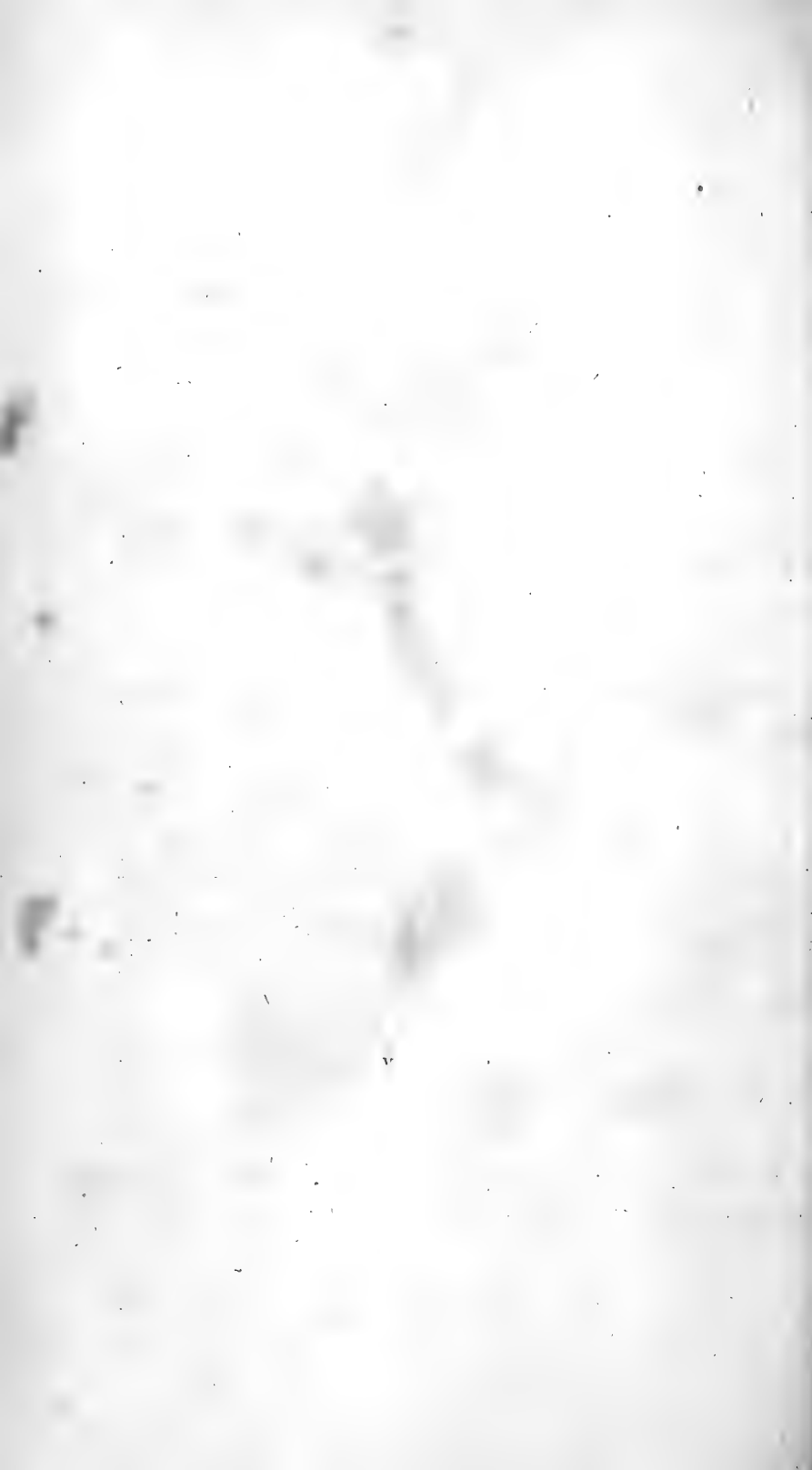
S P E C I F I C C H A R A C T E R .

Wings transparent with black veins. Head, thorax, body, shining black with yellow rings or belts. Tail fine golden yellow.

In the paintings of *Ernst*, a figure of a transparent-winged Sphinx, similar to this, is given, under the specific name *Oestriformis*: we are not clearly convinced he intended it for this Insect, nor can we conceive the name to be by any means applicable; we therefore pass over the reference to that very scarce work as doubtful, and reject his specific name lest he should mean another Insect.

Linnæus has not described this species, nor have we found a description of it in the writings of Fabricius.

It is rare in England. THOMAS MARSHAM, Esq. Sec. L. S. favoured me with the specimen from which the annexed figure is taken; it was met with in Kensington Gardens in June.



1974
GARDNER, W. MA, USA



P L A T E C X V I I .

P H A L Æ N A C R A T Æ G I .

O A K E G G E 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 .

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 .

Wings rounded. Ash-colour, or dull brown, with obscure waves of a darker colour.

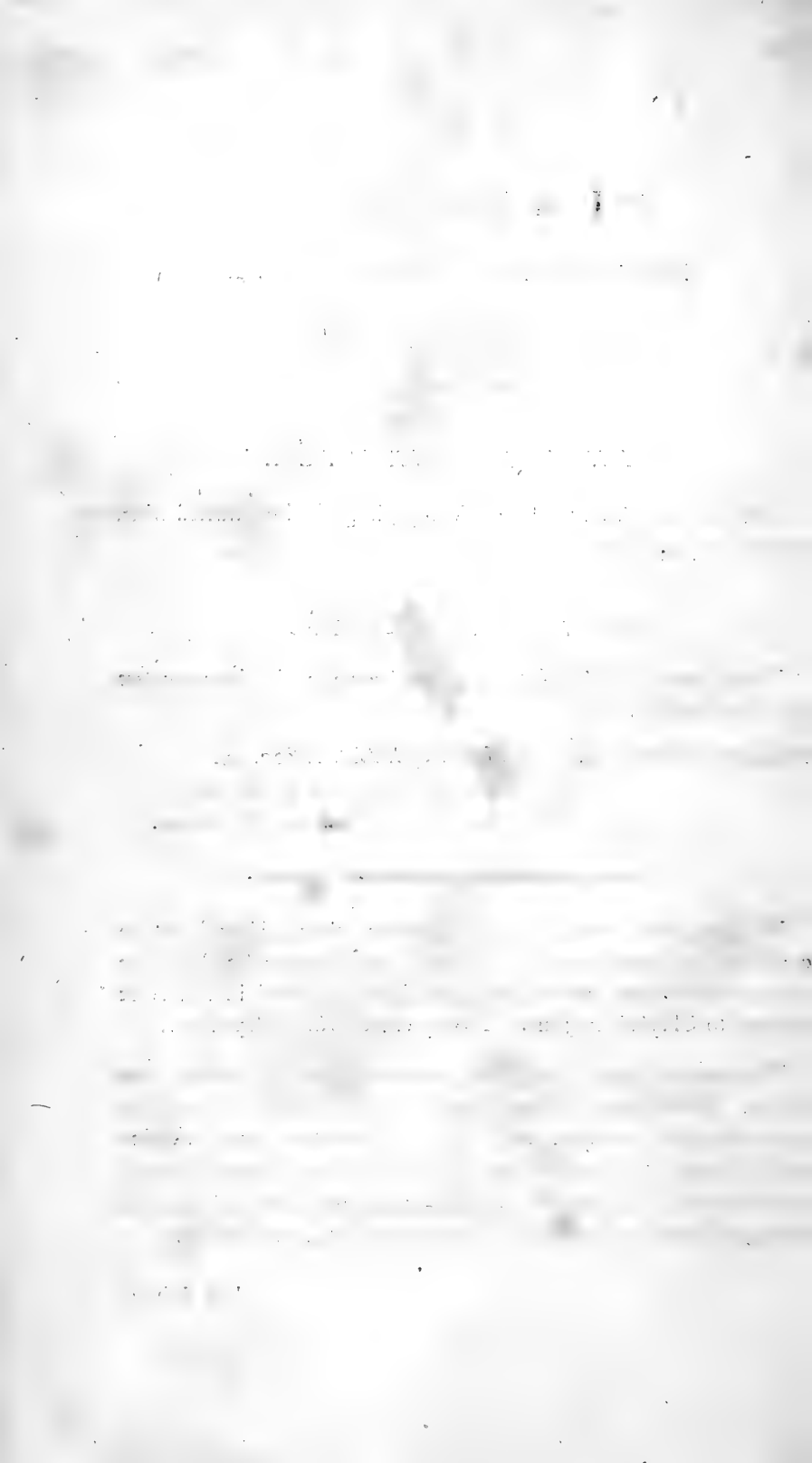
P H A L Æ N A C R A T Æ G I .

Linn. Syst. Nat. 2. 823. 48.*Reaum. Inf.* 1. tab. 44. fig. 10.*Degeer Inf.* 1. tab. 11. fig. 20. 21.

We have never found this Insect common, though it must not be considered as a rare species; it is seldom met with near London: our specimen was found in the Caterpillar state at Dartford in May. It changed to Chrysalis in June. The fly came forth in September.

The male is rather smaller than the female generally, though not always. The strength of their colours is very inconstant, especially in the female, which we have seen very dark in some specimens; in others nearly as pale as the male; the general distinction however between the two sexes is, the male being of a light grey with spots and waves of brown, the female of an obscure brown with spots more diffused.

P L A T E



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F I G . I .

C I M E X L A C U S T R I S .

H E M I P T E R A .

Shells, or upper Wings, semi-crustaceous, not divided by a straight 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 .

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 ,

A N D

S Y N O N Y M S :

Above black. Beneath black changeable to white. Antennæ black, of four joints, half as long as the body. Eyes large, prominent. Fore Legs much shorter than the rest.

Cinex Lacustris. linearis niger, pedibus anticis brevissimis. Linn. Syst. Nat. 2. 732. 117.—Fab. Spec. Inf. Fn. Sv. 970.

Insectum Tipula dictum. Bauh. Ball. 213. fig. I.

This Insect is met with in great plenty on still waters, in summer; it runs quick on the surface.

F I G. II.

CIMEX ACUMINATUS.

SPECIFIC CHARACTER,

AND

S Y N O N Y M S.

Oval. Olive colour. Antennæ of five joints. Snout sharp. Thorax narrow before. Two brown longitudinal lines from the Eyes to the posterior margin of the Target.

Cimex Acuminatus, &c.—*Linn. Syst. Nat.* 2. 723. 59.—*Fn. Sv.* 939.

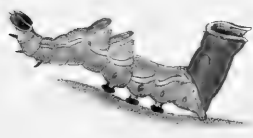
Degeer Inf. 3. 271. 16. *tab.* 14. *fig.* 12, 13.

Musca cimiciformis.

Raj. Inf. 56. 6.

Met with in *May*, on the Fern *. We have never found it common.

* *Osmunda Regalis.*



P L A T E CXIX.

P H A L Æ N A Z I C Z A C.

PEBBLE PROMINENT 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.

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.

Brown and white clouded like an Agate; a large clouded Eye, next to the exterior margin of the first Wings; on the interior margin a tuft, or appendage. Antennæ feathered.

P H A L Æ N A Z I C Z A C. B. Alis deflexis dorso dentatis apicibusque macula grisea subocellari, antennis squamatis.

Syst. Ent. 573. 35. *Linn. Syst. Nat.* 2. 827.

61.—*Fn. Sv.* 1116.

Geoff. Inf. 2. 124. 29.

Merian. Europ. tab. 147.

Frisch. Inf. 3. tab. 1. fig. 2.

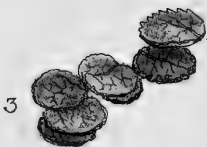
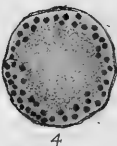
Degeer Inf. 1. tab. 6. fig. 1. 10.

Reaum. Inf. 2. tab. 22. fig. 9—16.

Fab. Spec. Inf. 2. p. 186. 76.

This singular and beautiful Caterpillar is found on the Willow, early in *June*; it becomes a Pupa within a fine, brown web, which it spins between two or three leaves, (as represented in our Plate,) late in the same month; the Moth comes forth in *August*.

The trivial name prominent has been given to this Insect, because when the Moth is at rest the remarkable appendages on the interior margin of the upper Wings form a prominent tuft above the back; we have six different species of *Phalæna* in this country which have the same character, and are known among Collectors by the several names, Pale, Maple, Swallow, Iron, Pebble, and Cockscorn, Prominents; the last is common, the rest are generally very rare.



P L A T E C X X .

A P I S C E N T U N C U L A R I S ,

C A R P E N T E R B E E .

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

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 .

Jaws, with a Trunk deflexed. Antennæ elbowed in the middle, first joint longest. Wings plain. Body hairy.

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 .

Black. Body long, narrow. Head, Thorax, and Legs covered with greyish hair. Abdomen smooth, beneath covered with tawny hair.

Apis Centuncularis, nigra, ventre lana fulva.—*Syst. Ent.* 385. 42.—

Linn. Syst. Nat. 2. 575. 4. *edit.* 10.

Geoff. Inf. 2. 410. 5.

Scop. carn. 799.

Reaum. Inf. 6. *tab.* 10. *fig.* 3, 4.

Fab. Spec. Inf. 1. 486. 59.

The wonderful instinct that directs the smallest Insects to provide for the safety of their future progeny, never fails to strike the attention of the inquisitive researcher into their oeconomy.—To perpetuate their
race

race is the great end of their being, and the most astonishing effort of their ingenuity and care is employed to perfect this grand design. We not only find innumerable eggs, and larvæ of Insect on all kinds of plants; in all standing waters; and in animal matter, when putrid; but many which can only be hatched from the egg by the warmth of living animals; thus the *Tabanus* pierces the thick hide of the Cow, and plunges its eggs into the flesh; the heat and moisture of which nourishes both in the egg, and larva; the *Hippobosca equina* protrudes its eggs into the *rectum* of Horses; and the *Ichneumon* into living Caterpillars: to those we could add many remarkable instances of Insects, who have shewn a lower species of perception, by depositing their eggs in places where the larvæ would find abundance of proper food; and with such ingenious contrivances for their safety in a defenceless state, as we could only expect from the sagacity of larger animals; but it is only our intention to premise with those general remarks, lest the subject we have chosen for our present Plate should be considered as a solitary example of such ingenuity, and care towards their future offspring.

The Natural History of the Common Bee has been both fully and ably treated of, by *Schirach*, *Maraldi*, *Reaumur*, *Debraw*, and other authors of respectability, and may be supposed to be pretty generally known by those conversant in rural affairs; the manners, however, of other species of the same genus has neither been so fully explained, nor examined; they yet present a fund for the enquiries of the Naturalist, equally worthy his attention; though less beneficial; as the honey they make cannot be converted to our use.

Among the solitary Bees, some penetrate into the earth, scoop out hollow cavities; then polish the sides within, and deposit their eggs, with proper food for the larvæ, till it becomes a Pupa. Others form nests of loose sand, which they glue together with a strong cement; those nests are generally formed against walls that are exposed to the south; without, they are rude and irregular, but within are very neatly finished, and divided into several cells or apartments, in each of which the Parent Bee lodges an egg. Of our present, and a few other species, we may say,

“ In firmeſt oak they ſcoop a ſpacious tomb,
 “ And lay their embryo in the ſpurious womb *.”

We find this ſeaſon, the *Apis Centuncularis* has done conſiderable injury among the Timber Plantations in *Effex*; and we have ſimilar information from ſome parts of *Cambridgeſhire*. A Gentleman ſent me (early in the Spring) a piece of Oak, containing a quantity of the larva, from his plantation at *Birdbrook*, in *Effex*. He informs me, ſeveral Gentlemen in his neighbourhood had found large trunks of apparently healthy Oaks, completely perforated and filled with the larva of this miſchievous Inſect; in many inſtances the trunk had been materially injured, and the caſes were arranged as ſhewn by the horizontal Section at Fig. 4, in our Plate.—The perforations were in a longitudinal direction, ſeveral feet through the ſolid timber, and when the leaves were freſh, appeared as ſhewn at Fig. 1.

The Inſect commences its operation at the upper part of the trunk of the tree; then boring in an oblique direction for about two inches or more, it follows a longitudinal courſe, it divides the ligneous fibres, or threads, till it forms the diameter of the cavity, which is about three-eighths of an inch, its depth various; ſometimes only a few inches, at others, conſiderably more; when the cavity is entirely formed, and all the duſt and fragments cleared away, it finiſhes the ſides perfectly ſmooth; the hardeſt knot in the timber being inſufficient to reſiſt the ſtrength of its jaws.—The cavity, when finiſhed, appears divided by ſlight ridges, placed at the diſtance of about three quarters of an inch from each other; this ſerves to regulate the ſize of each apartment or cell; and it now only remains to be lined for the reception of the egg: this lining is generally compoſed of roſe-leaves; and is applied to the apartments in a very curious manner: the Parent Bee flies with a leaf to the orifice of the perforation, where ſhe clips it round to the ſize of the hole; this is forced to the bottom of the loweſt cell; about ſeven, eight, or ten of ſuch pieces form the firſt layer; it next forms the ſides, or cylindrical part of the lining; this is done by laying ſeveral whole leaves partly over each

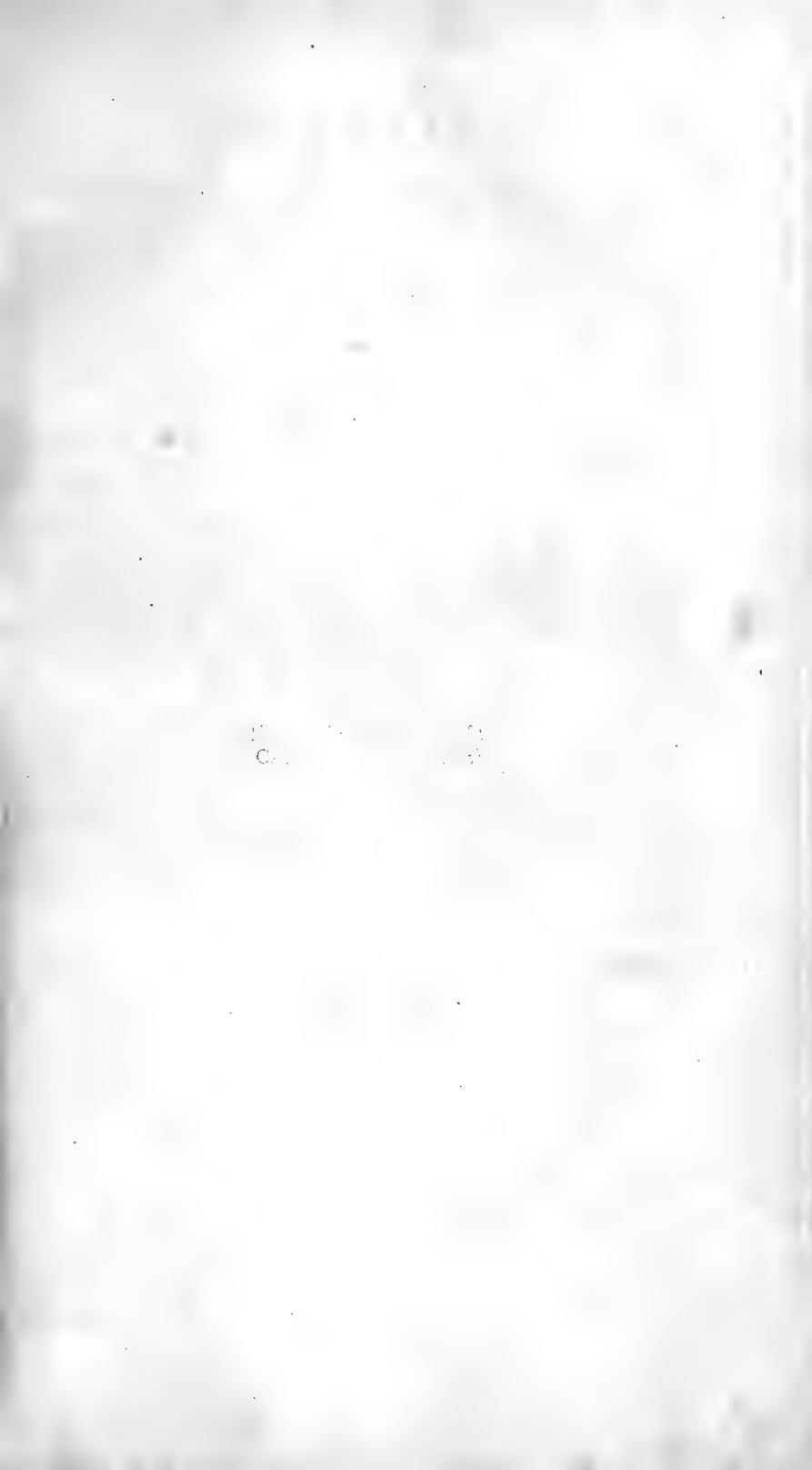
* Brookes on Univerſal Beauty:

other, as shewn in our Plate, and cementing them together with a glutinous substance; thus the sides and bottom, each consisting of several layers, being finished, (in the form of a thimble) the Bee partly fills it with a kind of paste, then throws over it a small quantity of leaves, reduced to powder, and deposits the egg; the covering to the whole is formed of the same materials, and in the same manner as the bottom; when she has forced about ten or fifteen circular pieces of leaves into the avenue and cemented them to the top, the covering is completed, and the egg is completely secured from accident.—The covering separated is shewn in the Plate, at fig. 3, the larvæ, at fig. 2.

In this manner she proceeds with, and finishes every cell distinctly, till the perforation is entirely filled: in some trees forty or fifty such perforations are placed within a quarter of an inch of each other.—The Bee comes forth late in August; if the lowest is formed before those above, it eats its way up the channel, through their cases.

Mr. *Adams*, in his Essay on the Microscope, mentions a remarkable circumstance of a Bee (we suspect of this species). “A friend of mine (says he) had a piece of wood cut from a strong post * that supported the roof of a cart-house, full of these cells or round holes, three-eighths of an inch diameter, and about three-fourths deep, each of which was filled with these rose-leaf cases, finely covered in at top and bottom.”

* We learn this post was fir.





P L A T E C X X I .

C U R C U L I O .

COLEOPTERA.

Wings two. Covered by two Shells, divided by a longitudinal future.

GENERIC CHARACTER.

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

F I G. I. II.

C U R C U L I O Æ Q U A T U S .

SPECIFIC CHARACTER.

Rostrum long, slender, dark brown sprinkled over with bronze; Thorax the same. Shells reddish brown. Legs brown.

Fab. Ent. Syst.

F I G. I. Natural Size.

This Insect was found in *May* on the hazel; the species varies in size, but more in colour.

G

F I G.

C U R C U L I O P Y R I.

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.

Snout short. Thighs dentated. General colour bronze changeable to yellow red, brown, green, &c. Shells striated and punctured.

CURCULIO PYRI. brevirostri femoribus dentatis æneo fuscus.

Linn. Syst. Nat. 2. 615. 72.

Fn. Sv. 623.

Curculio brevirostri, antennis fractis rufis, corpore oblongo æneo nitido, pedibus rufis *. *Degeer Inf.* 5. 246. 34.

Curculio viridis opacus, pedibus antennisque magis fuscis. *Linn. It. Scan.* 355.

It has been suspected by some Entomologists, that this Insect should only be considered as a variety of *Curculio Argentatus*. Much of its beautiful appearance depends on the time we take it in; when first hatched its colours are very rich and highly glossed with gold, but it gradually becomes dirty brown, or almost black.

The cause of this alteration in its appearance is easily perceived by the microscope; the first, or ground colour is dark brown, but is entirely covered with oblong scales of various beautiful colours, particularly of a reddish gold, or bronze, interspersed with those of green, and brown colour; when the Insect is first hatched, the scales lay over each other so as to conceal the ground colour; but as they rub off, or are otherwise injured, the brown becomes the general colour.—They vary also very much from red, to

* Variat pedibus rufis et nigris. *Fab. Spec. Inf.* 1. 198. 217.

yellow, or green hues, when first hatched; and are sometimes found late in the season, with almost every scale rubbed off.

Linnæus and Fabricius say, it is found on Pear trees †. We have met with it on several other trees. Found from *May* to *September*.

F I G . V . V I . V I I .

C U R C U L I O C A P R E Æ .

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

Small, black. A longitudinal whitish line down the Thorax. Two waved white lines across the shells, with a longitudinal mark of brown on each. Legs black.

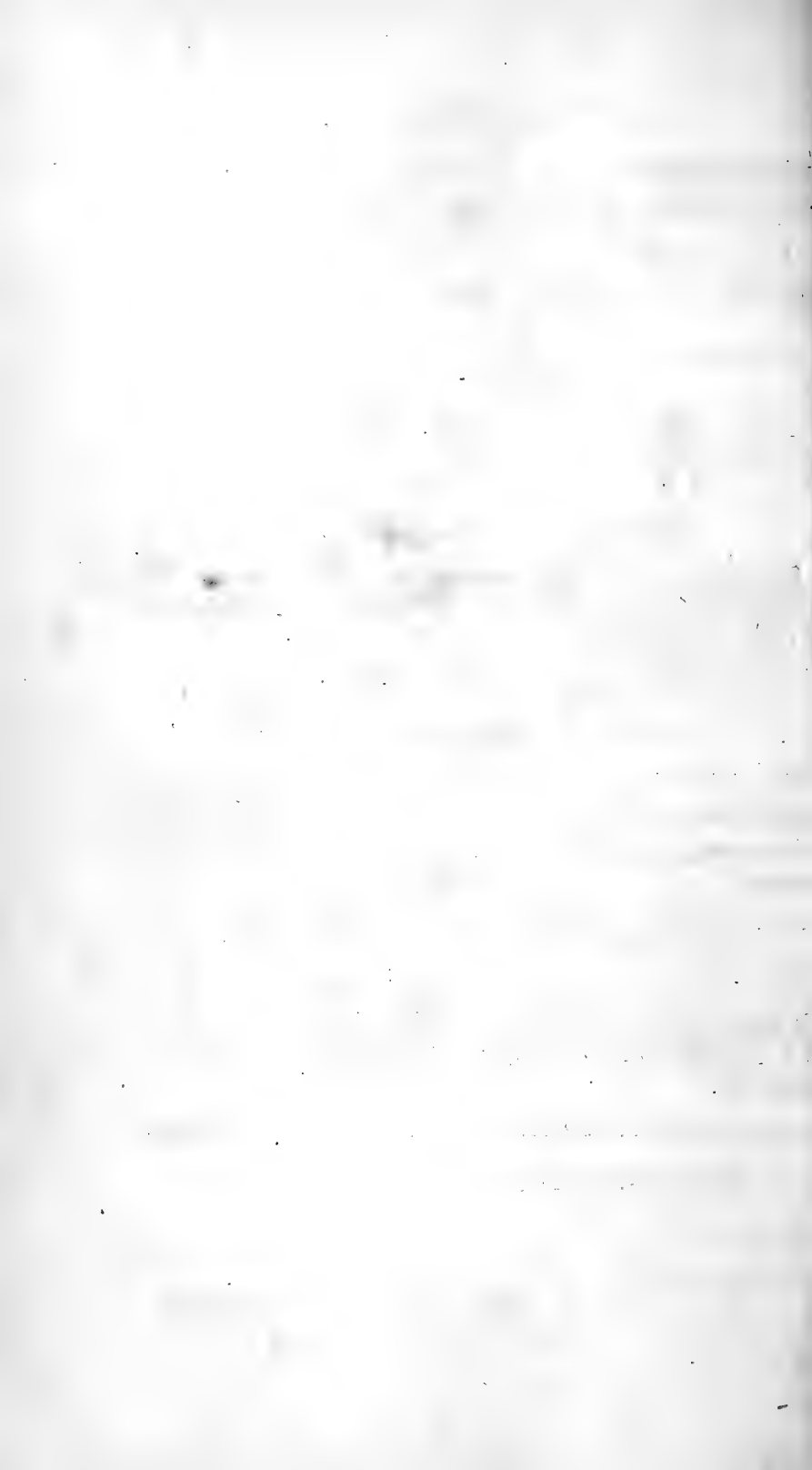
CURCULIO CAPRÆ. *Fab. Spec. Inf. I. 168. 39.*

This little Insect very much resembles *Curculio Salicis*, both in size and colours; but it is sufficiently distinguished from that species by its walking or running; as leaping is a particular character of that *Curculio*.

We have never met with more than one specimen; found on the Ozier in *June*.

It is a very beautiful subject for the Opaque Microscope; its magnified appearance is shewn at fig. 6.—The rostrum fig. 7.—Fig. 5. Natural size.

† Habitat in Pyri foliis, in Corrollis declaratus. *Linn.*



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P L A T E CXXII.

S P H I N X E L P E N O R .

ELEPHANT SPHINX, or HAWK-MOTH.

LEPIDOPTERA.

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

Antennæ thickest in the middle. Wings, when at rest, deflexed.
Fly slow, Morning and Evening.

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 .

Wings angular, entire; first wings striped transversely with greenish brown, and red. Second Wings red, with a white posterior margin; black at the base. Body red and brown.

SPHINX ELPENOR. Alis integris, viridi purpureoque variis, posticis rubris basi atris.

Fab. Spec. Inf. 2. 148. 43.

Syst. Ent. 543. 25.

Linn. Syst. Nat. 2. 801. 17.

Fn. Sv. 1049.

Sphinx spirilinguis, alis viridi purpureoque fasciatis, fasciis linearibus transversis. *Geof. Inf.* 2. 86. 10.

Roef. Inf. 1. *phal.* 2. *tab.* 33. *fig.* 73.

Petiv. Gazoph. *tab.* 40. *fig.* 11. 12. 17.

Frisch. Inf. 13. 4. *tab.* 2.

The Caterpillars of this very elegant Sphinx are generally found in marshy places in June and July. They feed on the Convolvulus, Vine,

Vine, and some other plants, but prefer white ladies bedstraw; they cast their skins several times, and when full fed are some green, and others of a brown colour. The Caterpillars of the female is a fine green elegantly marked with black, as represented in our plate; those of the male are varied with the same dark markings, but the colour is a dull brown inclining to black in those parts where the females are green.

It possesses a faculty peculiar to a very few Insects, it can protrude its head and three first joints to a tapering point; or entirely conceal the head and contract the first joints, by drawing them apparently into its body.

The Caterpillars form a white spinning among the leaves in *August*; remains in the pupa state during the winter; the Fly comes forth *May* following. They are frequently destroyed by an Ichneumon fly.

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P L A T E CXXIII.

CIMEX PRASINUS.

HEMIPTERA.

Shells, or Upper Wings semicruftaceous, not divided by a straight future, but incumbent on each other. Back curved downwards.

SPECIFIC CHARACTER,

AND

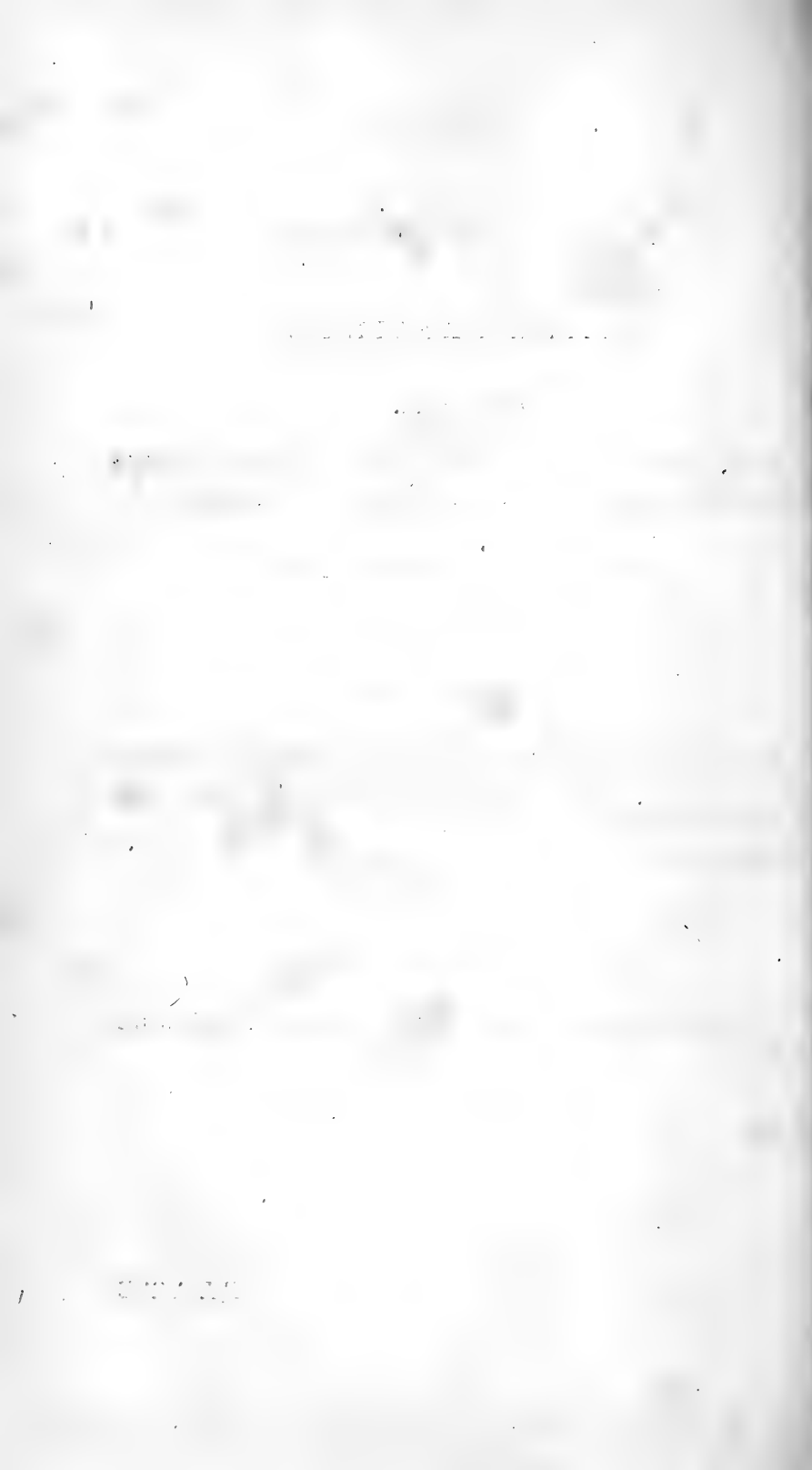
SYNONYMS.

Head, Corfelet and Shells green. Abdomen black above, with a yellow and black margin, beneath pale orange varied into green. Legs and Antennæ yellowish.

CIMEX PRASINUS. *Linn. Syst. Nat.* 2. 722. 49.

Fab. Spec. Inf. 2. 354. 96.

Not uncommon in the month of *August* in woods. Found on the Oak.



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P L A T E CXXIV.

P H A L Æ N A A N O S T O M O S I S.

SCARCE CHOCOLATE-TIP 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 deflexed when at rest. Fly by night.

B O M B Y X.

Antennæ feathered.

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

First wings greyish, with three tranverse stripes of dull white. Apex fine chocolate colour. Second wings and body pale brown.

P H A L Æ N A A N O S T O M O S I S. B. alis deflexis griseis, frigis tribus albidis subanaastomofantibus, thorace ferruginato. *Fab. Spec. Inf.* 2. 189. 85.

Linn. Syst. Nat. 2. 824. 53.

Fn. Sv. 1124.

Goed. Inf. 1. tab. 33.

A very rare species of Phalæna. In the perfect state it is seldom met with; and in the Caterpillar state few Collectors are acquainted with its haunts. It feeds on the fallow, willow, and poplar, and may be found sometimes by stripping off the bark of those trees.

H

Our

Our specimen was taken in the vicinity of Oak-of-Honor Hill, Surry. The Caterpillar was met with when it was ready to spin its web, in which state it is represented; its spinning was formed between the folds of a leaf in the month of October, the Moth came forth in May.

The Moth in the upper part of the plate is a small specimen of the female; it differs very little from the male, except that the antennæ of the latter is much feathered, as is shewn on the back of the leaf.

The species is more plentiful on the continent of Europe, and a variety of it is a native of some parts of North America.

A Collector of Insects in London met with a brood of this species last September, in the Caterpillar state, containing more than twenty; some were covered with a milk-white down, others inclining to grey, but in general they were like the specimen given in our plate. They changed their appearance frequently, and some were much larger than the rest. The Moths also differ very much both in size and colour; some are dingy, others have the chocolate colour much diffused; and in general, when the Insect is perfect, it is beautifully varied with a pale bloom of a purple hue.

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P L A T E CXXV.

MUSCA SEMINATIONIS.

D I P T E R A.

Wings 2.

GENERIC CHARACTER.

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

SPECIFIC CHARACTER.

Head and Thorax black-brown; Abdomen black, with very minute specks of white. Wings clouded and speckled with brown. A yellow streak on the under side of the abdomen.

MUSCA SEMINATIONIS. Antennis setariis, alis atris cinereo punctatis, abdomine basi fubtus flavo.
Fab. Spec. Inf. 2. 452. 90.

This species is sometimes met with in meadows, on plaitain, thistles, &c. in May and June.

It is a very pleasing object for the Microscope, particularly the wings, which are finely reticulated and spotted. Its magnified appearance is given with its natural size in our plate.



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P L A T E CXXVI.

P H A L Æ N A R U M I C I S.

B R A M B L E 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.

* N O C T U A.

Antennæ like a hair.

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

First wings grey, marked with pale black streaks and clouds, with an eye in the middle, and two white spots on the anterior margin. Second wings pale brown.

P H A L Æ N A R U M I C I S. N. cristata, alis deflexis cinereo fuscoque variis litura marginis tenuioris alba.—
Fab. Spec. Inf. 2. 238. 143.

P H A L Æ N A R U M I C I S. spirilinguis cristata, alis deflexis cinereo bimaculatis, litura marginis tenuioris alba. *Linn. Syst. Nat.* 2. 852. 164.—
Fn. Sv. 1200.

Merian. Europ. tab. 82.

Alb. Inf. tab. 32.

Wilk. pap. 26. *tab.* 3. *a.* 1.

Degeer Inf. 4. *tab.* 9. *fig.* 2.

The Caterpillar of this Moth are usually found on the Bramble, from which it has received its English name; it is not, however, wholly confined to that food, as we have fed it on grass and other plants indiscriminately put into its breeding-cage. It passes to the chrysalis state in September; the Fly appears in May.



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P L A T E CXXVII.

BUPRESTIS SALICIS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ taper, the length of the thorax: Head half concealed.

SPECIFIC CHARACTER.

Head and thorax fine blue. Shells upper half changeable green; lower part reddish purple.

BUPRESTIS SALICIS: elytris integerrimis viridis nitens, coleopteris aureis basi viridibus. *Fab. Gen. Inf. Mant. p. 237.*

Buprestis elegantula, Schrank. Inf. Austr. n. 365. p. 195.

Cucuius rubinus. Fourcroy. Ent. Paris. T. I. n. 4. p. 33.

Le Richard rubis. Geoff. Inf. Paris F. I. p. 126.

Geputzter Stinkkäfer. Weiden-Prachtkäfer. *Panz. Faun. Inf. Germ.*

This uncommonly beautiful Insect has been described as a native of Algiers in Africa, a figure of it is given in the work of *Olivier*, and another in *Panzer's* History of the Insects of Germany; we find it also described by *Fourcroy* and *Geoffroy* as a native of France, but cannot learn that it has been considered as an English species before this time.

We were not so fortunate as to take this Insect, it was communicated by a person on whose veracity we can rely: he found it on the bark of an old willow tree, between Dulwich Common and

Norwood, on, or about the 8th of June, 1794. As we know the precise spot where it was taken, we shall attend to it particularly next season, and the earliest intimation of success, shall be given through the medium of a future number.

When we consider how much the study of coleopterous Insects has been neglected in this country, even by those who have pursued with unremitting perseverance almost every other branch of Entomology, we cannot be much astonished that such a minute Insect as the *Buprestis Salicis* should have escaped notice; add to this, we can scarcely doubt that it is very rare in this country, and probably lives concealed in the crevices of the tree, or under the rotten part of the bark. The number of new Insects that have been discovered in this country within a few years *, renders it not improbable, that future English Entomologists, by extending their enquiries, may find many more of the species that are now met with in the northern, and perhaps even southern parts of Europe.

Fig. 1, natural size.

Fig. 2, its magnified appearance.

* Among the rarities met with last summer, we may particularly mention the *Phaena Delphinii*, *Pease Blossom Moth*. This very beautiful Insect was taken by a Gentleman at Chelsea; it was never ascertained before to be an English Insect.

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P L A T E CXXVIII.

EPHEMERA VULGATA.

COMMON EPHEMERA, or MAY-FLY.

NEUROPTERA.

Wings 4. Naked, transparent, reticulated with veins or nerves. Tail without a sting.

GENERIC CHARACTER.

Antennæ very short. Two protuberances before the eyes. Wings erect. Second pair small. Two or three tails like bristles. Short lived.

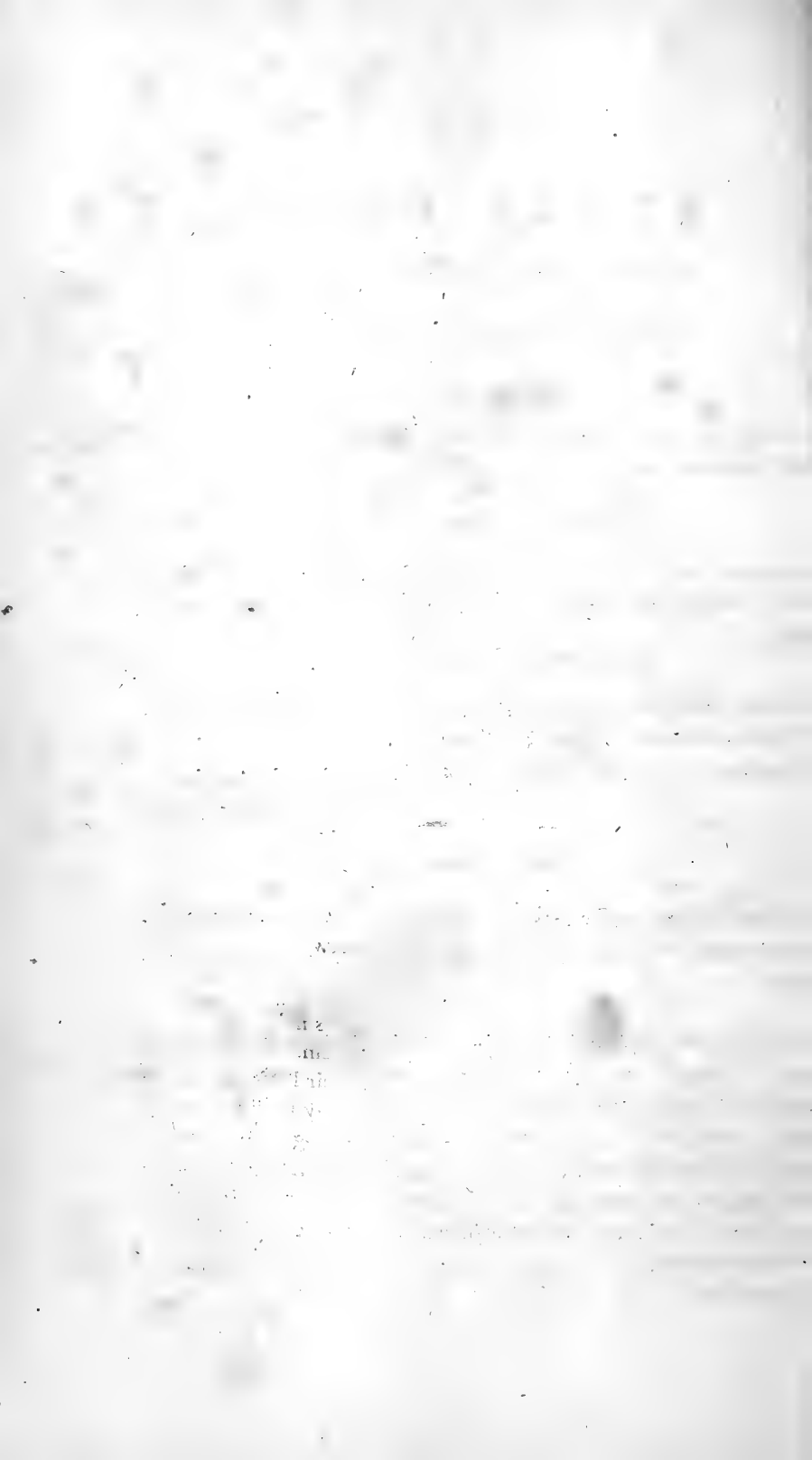
SPECIFIC CHARACTER.

Wings reticulated, brownish with five or six brown spots. Body yellowish, with black specks. Three tails.

EPHEMERA VULGATA: cauda trifeta, alis nebuloso maculatis.
Linn. Syst. Nat. 2. 906. 1. Fn. Sv. 1472.

In the larva and pupa state, this Insect is found under loose stones at the bottom of shallow pools; in the winged state it frequents the water.

We have several species of this genus in England. The Ephemera Vulgata, is the largest among them. A very distinguishing character of them is the shortness of their lives, which seldom exceeds a few hours. In the month of May these Insects are seen in great plenty on the water, where they are greedily devoured by the fish; anglers say, when the large Ephemera appears, the trout will snap at no other bait, than the artificial fly made after its form.— In some specimens the wings are more clouded, and the tails longer than in others.



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P L A T E CXXIX.

F I G. I, II, III.

P H A L Æ N A H A S T A T A.

ARGENT AND SABLE MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

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

* * G E O M E T R Æ.

SPECIFIC CHARACTER

AND

SYNONYMS.

White, beautifully marked and spotted with black.

PHALÆNA HASTATA: feticornis, alis omnibus nigris albo maculatis, fasciis duabus albis nigro punctatis hastata dentatis. *Linn. Syst. Nat.* 2. 870. 254. *Fn. Sv.* 1276.

Phalæna antennis filiformibus; alis latis albis fasciis undulatis maculisque hastatis nigris. *Degeer. Inf. Verf. Germ.* 2. 1. 334. 7. tab. 8. fig. 20.
Clerk. phal. tab. 1. fig. 9.
Kleman Inf. 1. tab. 44.

The Argent and Sable Moth is scarce in the Fly state: though its young caterpillars are not uncommon in some parts of Kent; we have

have met with several about the narrow lanes in Darent-wood, Dartford, in April, or early in the month of May. It is however very difficult to breed them; they generally die in the pupa state, or before they cast their last skin when caterpillars; from several specimens taken during the three last summers, we have only had one Moth produced, and that so crippled, as merely to enable us to ascertain the species.

The small Caterpillars are of a dark purplish colour, when nearly full fed they have a yellow under side marked with black, with the back purple; before they change to the pupa state, they become almost brown.

They remain only a month in the pupa state. The Moth appears about the middle of June.—Food, white-thorn and alder.

PHALÆNA ANASTOMOSIS.

FIG. IV.

Since the publication of the last Number, we have been favoured with a most beautiful specimen of the Moth figured in the 124th Plate of this Work, and present a figure of it to our subscribers, together with the several changes of the *Phalæna Haftata*; it will shew how very liable this Insect is to variation in its colours, size, &c.

We find also that though this Insect has been named *Phalæna Anastomosis* in the most scientific Cabinets in London, and always received as such by the best authority, it is not the Insect referred to by Fabricius in his *Species Insectorum* under that title; that Author, as well as Linnæus, refers under the specific name *Ph. Curtula* to the 43d Plate of the third Volume of Roefel's *Insecta*; in this Plate is figured a Moth which is certainly a species distinct from our Insect, and is well known by its Linnæan name *Curtula*, or English title *Chocolate Tip*; yet Fabricius gives an additional reference for the same species to the 11th Plate of Roefel's
fourth

fourth Volume of Insects, and in this we find the figure of a Moth whose markings and general appearance correspond with our specimen, though its colours are totally different, being a very pale grey with scarcely any dark colour near the apex of the wings; the larva much more resembles our figure, and induces us to conclude, that though the figure of this last Moth is so extremely different, it is probably intended for the same species as our Insect; and therefore that the two distinct species have been confounded together, by a false quotation of Linnæus's Amanuensis.

And we are partly confirmed in this supposition by the words of Linnæus himself; he says, *Pb. Anastomosis* is very like *Pb. Curtula*, but the Moth figured in Rœsel's plate, and referred to in the Synonyms under *Anastomosis*, does not bear the least resemblance to it;—our Insect on the contrary, though evidently a distinct species, is not unlike it.

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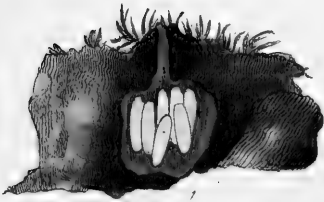
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P L A T E CXXX.

GRYLLUS VIRIDISSIMUS.

HEMIPTERA.

Shells, or upper Wings, femicrustaceous, not divided by a straight future, but incumbent on each other. Beak curved down.

GENERIC CHARACTER.

Head maxillous, and with palpi. Antennæ filiform. Wings folded. Hind Legs strong, for leaping.

SPECIFIC CHARACTER

AND

SYNONYMS.

Head, Thorax, and Wings green, without spots. Antennæ very long.

GRYLLUS VIRIDISSIMUS: thorace rotundato, alis viridibus immaculatis, antennis fetaceis longissimis.

Linn. Syst. Nat. v. 1. p. 430. 38.
edit. 10.

LOCUSTA VIRIDISSIMA: alis viridibus immaculatis, antennis longissimis. *Fab. Syst. Ent. 286. 22.—*

Spec. Inf. 1. 359. 23.

Locusta viridis cantatrix viridis immaculata, thorace rotundato, cauda feminæ ensifera recta. Degzer Inf. 3.
428.

Agrigoneus. List. Goed. 301. tab. 121.

This Insect is larger than the great green Grasshopper, (*Gryllus verrucivorus*) or any other species of the genus we have in this country; unless we notice the *Gryllus Magratorius*, which is well known for its depredations in many parts of the world, but is rarely met with in England.

The present species is perhaps not uncommon in many places, but it is very difficult to discover its hiding-places in the day-time; its chirp is sometimes heard in a calm Summer's evening, about sun-set, issuing from the bushes where it is concealed; and from which it seldom ventures till night; it continues its chirping at intervals till morning.

The female seems to prefer a warm, and rather moist situation, to deposit her eggs in, and this is commonly the side of a bank that is exposed to the sun; but is well covered with grass and other herbage to keep it moist. She is furnished with a sharp double edged sheath, like a *sword*, with which she opens the ground in a perpendicular direction; first scooping out a convenient cylindrical aperture, and then widening the lower part into a spacious apartment for the reception of the eggs. See Fig. I.

When the Insect bursts from the egg it is very minute, and without Wings; in this state it nips the tender shoots of grass, &c. It soon increases in size and assumes the pupa form; in which state though the Wings are not perfect, their rudiments appear next the Thorax: it continues in this state till it has nearly acquired its full size before the Wings burst open from the protuberances.

Our specimens were taken in Battersea Meadows; in the egg state early in April; winged state in June,

101



P L A T E CXXXI.

TABANUS CAECUTIENS.

DIPTERA.

Wings two.

GENERIC CHARACTER.

Antennæ conic, of four segments. Trunks fleshy, terminated by two lips. Palpi, one on each side of the Trunk.

SPECIFIC CHARACTER

A N D

SYNONYMS.

Eyes brilliant, green with black spots. Thorax brown with yellowish lines. Body bright yellow with triangular black marks, anterior margin, and center of the Wing black.

TABANUS CAECUTIENS: oculis viridibus nigro punctatis, alis maculatis. *Fab. Syst. Ent. n. 18. p. 790.*
Fab. Spec. Inf. 2. 27. p. 459.

TABANUS CAECUTIENS: oculis nigro-punctatis, alis maculatis.—
Linn. Syst. Nat. 17. p. 1001. ed. 13.
n. 17. p. 2885.
Faun. Suec. n. 1888.

Tabanus fuscus, abdominis lateribus pedibusque flavis, alis maculis fuscis. *Geoffr. Inf. 2. n. 8. p. 463.*

Tabanus nubulosus. *Harris Inf. Angl. tab. 7. fig. 5.*

Musca bipennis pulcra, alis maculis amplis albis pictis. *Rai. Inf. p. 272.*

Le Taon brun, à cotes du ventre jaunes, et ailes tachetées de noir. *Geoffr.*

Die buntaugichte Breme. *Panzer's Deutschlands Insecten, &c. — Faun. Inf. Germ.*

In the months of June and July, or earlier in forward seasons, this Insect is found in great plenty in the lanes and skirts of woods; and are very troublesome to persons or animals who pass through such places in the middle of the day: they conceal themselves in the crevices of the bark of trees, or among the foliage till about an hour before noon, when they come forth in great plenty, and fettle on the hands and face, or other thinly covered parts, and dart their sharp pointed trunks or proboscis into the flesh: we have observed the sting of this Insect to be most severe about mid-day, particularly when the sun shines bright, and emits much heat; a disagreeable sensation continues in the stung part for some time, and is generally succeeded by a large tumor, and a slight discharge of pungent fluid before it disappears entirely.

To explain more minutely the structure of the trunk, we have given a figure of its magnified appearance at Fig. III: the outer coat, or sheath, terminates at its extremity, in two lateral, moveable lips, and contains a longitudinal, horny, convex blade; the acute point of which is concealed between these lips: this interior tube, when examined with a Microscope, appears to consist of three others, exceedingly sharp at the points; and are used by the Insect as lancets to lacerate the flesh when it feeds, while it pumps, or sucks up the blood and moisture from the wound, through the capillary tubes with which several parts of the trunk are furnished.

It feeds in the same manner on Insects, but chiefly on those in the larva state.

The species is not uncommon in Germany, France, Italy, and most warm parts of Europe; also received from Georgia, in North America.

Fig. I. Natural Size. Fig. II. Front View of the Head magnified, with the Eyes and Proboscis; the former are most beautiful microscopical objects when the Insect is alive, but turn brown after it dies.

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P L A T E CXXXII.

P H A L Æ N A L U N A R I A.

BEAUTIFUL THORN-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 deflexed when at rest. Fly by night.

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

Antennæ feathered. Wings angulated, indented; a *lunar* spot near the center of each. General colour, pale red brown, clouded and speckled.

Kleman Inf. 3.

Fab. Spec. Inf. 2. 245. 18[?]

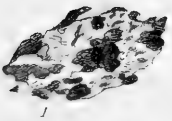
We have been furnished with the larva of this extremely rare Insect in a singular manner: a wasted specimen of the female was taken in the Summer of the year 1794, and deposited a quantity of eggs in the box in which it was stuck; these hatching some time after, a great number of young Caterpillars were produced; several of a full size, passed to the pupa state, (in a reddish web spun on the leaves) and four fine Moths came forth last Summer.

The eggs were very minute, perfectly globular, and of a pale greenish colour: the cluster consisted of more than seventy, and few of them proved abortive; but some of the largest Caterpillars devoured

voured the rest, and many others wandered from the food, and so perished. The Moths were far superior for the beauty and richness of their colours to any specimens we have seen before; but this is not remarkable, as most of the specimens preserved in Cabinets near London, have been taken in the winged state.

It feeds on the lime; is found in the Caterpillar state in August; the Moth appears in June. Is sometimes taken in the interior part of Darent-Wood, Dartford; and rarely elsewhere near London. It has been met with also at Feversham, in Kent, on the Elm.

Kleman, in the last volume of German Insects, lately published, has given three figures of this Moth; but has neither figured the Caterpillar nor Pupa. *Fabricius* is the only systematical Writer who appears to have noticed it.



P L A T E CXXXIII.

P H A L Æ N A P S I.

GREY DAGGER-MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

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

Nóctua, Antennæ fetaceous.

SPECIFIC CHARACTER

AND

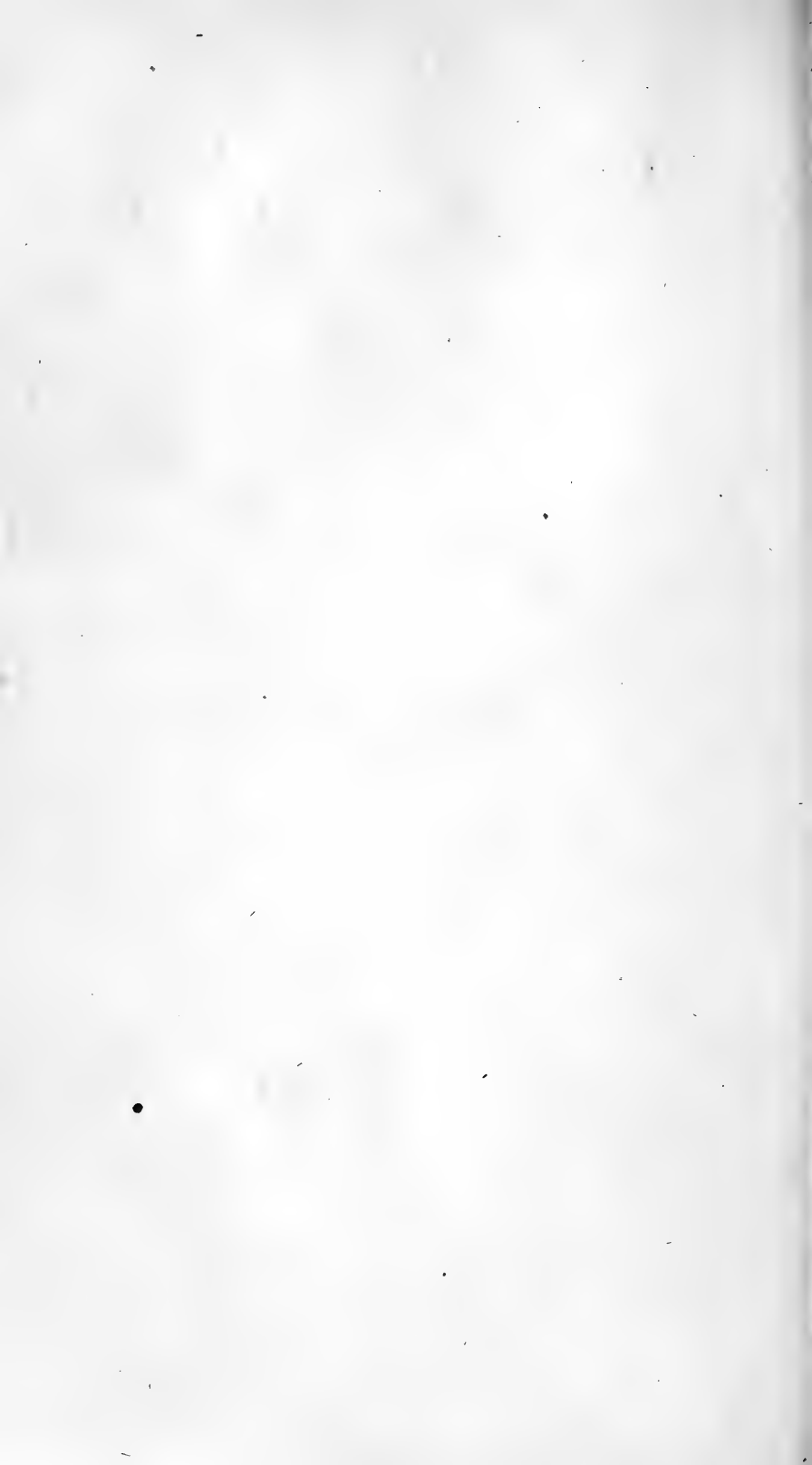
SYNONYMS.

First wings and body grey; on the former three or four black marks, in the form of a dagger*. Second wings pale brown, with a slightly scalloped margin.

PHALÆNA PSI: cristata, alis deflexis cinereis, anticis lineola bascos characteribusque nigris. *Syst. Ent.* 614. 104.—
Fab. Spec. Inf. 2. 235. 129.
Linn. Syst. Nat. 2. 846. 135.
Alb. Inf. tab. 26.

The Caterpillars of the Grey Dagger-Moth is frequently found on fruit trees; particularly on the cherry: it feeds also on the willow and poplar, and on almost all plants indiscriminately when confined in the breeding cage. It is not an uncommon Insect: the Caterpillars change in September, remain in the chrysalis state during winter, and the Moth appears late in May, or early in June.

* Or like the Greek (ψ) Psi; from which it receives its specific name.



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P L A T E CXXXIV.

P H A L Æ N A P L A N T A G I N I S .

S M A L L T I G E R .

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 deflexed when at rest. Fly by night.

Bombyx antennæ of the male pectinated or feathered.

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

First Wings yellow, second Wings orange colour; both clouded with black. Body orange and black.

P H A L Æ N A P L A N T A G I N I S elinguis. alis deflexis atris, rivulis flavis, inferioribus rubro maculatis. *Linn. Syst. Nat.* 2. 820. 42.—*Fn. Sv.* 1132. —

P H A L Æ N A pectinicornis elinguis, alis deflexis, superioribus fuscis, maculis luteis, inferioribus rubris, maculis quatuor nigris. *Geof. Inf.* 2. 109. 10.

Phalæna Alpicola. *Scop. carn.* 507.

Wilk. pap. 24. tab. 3. a. 5.

Roef. Inf. 4. tab. 24.

Fab. spec. Inf. 2. 196. 115.

L'Ecaille brune. *Geofr.*

Der Wegerichspinner. Die spanische Fahne. Die beschleierte Bärenphalene. *Panf. Fauz. Inf. Germ.*

This species feeds on nettles, chickweed, plantain, grafs, &c. The Caterpillars very much resemble those of the large *Garden Tiger* Moth*, except in size; they change into chrysalis about the middle of April, and appear in the winged state the latter end of May.

We have not found this Insect so plenty as the *Ruby Tiger* Moth†, and it is infinitely more scarce than the great *Garden Tiger* Moth, figured in the early part of this Work.

A variety of this species, with crimson under wings, is found in the East Indies and in America. The under wings of the female, in the European specimens, are much redder than in the male.

* Phal. Caja.

† Phal. Fuliginosa.

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4



3



1



2

P L A T E CXXXV.

CIMEX SPISSICORNIS.

HEMIPTERA.

GENERIC CHARACTER.

Antennæ longer than the thorax. Thorax margined. In each foot three joints.

SPECIFIC CHARACTER

AND

SYNONYMS.

Antennæ very large. Head, thorax, and shells, pale blackish brown. Feet yellow.

CIMEX SPISSICORNIS: oblongus niger, pedibus flavis, antennis incrassatis. *Fabri. Gen. Inf. Mant. p. 300.*—*Sp. Inf. 2. 207. p. 372.*

Die borstenhornige Wanze. *Panz. Inf. Germ.*

The singular structure of the antennæ of this minute Insect, recommends it to particular notice. They are nearly as long as the body, and in the thickest part are very bulky; hence it has received the specific name Spissicornis, or large horned Cimex.

It is not uncommon in summer; flies amongst bushes or low herbage in the day time: the lower wings are of a very beautiful purple colour, and give a blackish hue to the outer wings when folded

folded under them. The larva we suspect has not been figured, if noticed, before, and for this reason we have given it of the natural size at fig. 1. and its magnified appearance at fig. 2.—at fig. 3. the natural size of the perfect or winged insect; fig. 4. the same magnified.

Found in the larva state in May, was fed on grass, the winged Insect appeared June 19th.

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2



3

P L A T E CXXXVI,

P H A L Æ N A H E X A D A C T Y L A.

MANY-FEATHERED 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 deflexed when at rest. Fly by night.

* PTEROPHORUS.

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

Wings divided into Feathers, yellowish and grey, with brown Spots.

Phalæna Hexadactyla. *Linn. Syst. Nat.*

PHALÆNA HEXADACTYLUS, alis fissis cinereis, singulis sexpartitis.

Fab. Spec. Inf. 2. 312. 7.—Syst. Ent.

672. 7.

Reaum. Inf. I. tab. 19.—Fig. 19. 21.

Frisch. Inf. 7, tab. 73.

Among an almost endless variety of species, which the tribes of Insects present, few have a more singular appearance than the little creature we have selected for our present subject. It is perhaps one of the most curious pieces of natural mechanism (if we may be allowed the expression) that can be conceived, for of a most complicated fabric which the wings appear, every part, though separate,

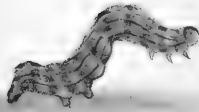
* *Fabricius.*

acts in perfect unison with the rest; in most winged Insects we find the tendons of each wing united by strong membranaceous webs, which prevent any one from acting without the others, but in this every tendon must perform a distinct part, and yet perfectly in conformity with the rest to assist the Insect in its flight. When the Insect rests the feathers fold over one another; but when it flies, they are thrown open, and resemble a full expanded fan.

The natural size of this singular creature is given at Fig. 1. and as a more correct figure than can be shewn in such a small compass was thought necessary, its magnified appearance is represented at Fig. 2.

The plumes of this Insect differs so much from those of other Moths, that we have also added, at Fig. 3, the appearance of the upper part of one, as seen by a very deep lens of the Microscope; by this the stem or quill is observed covered with scales of the form usually found on other Moths, but the sides are finely feathered with long hairs, in tufts, alternately of a light and dark colour, and which, owing to the minuteness of the Insect appear like patches of an uniform colour, before it is examined with the Microscope.

This Insect is not uncommon in Summer, it flies about hedges in the evening,



P L A T E CXXXVII.

P H A L Æ N A C H R Y S I T I S .

BURNISHED BRASS 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 deflexed when at rest. Fly by night.

NOCTUA.

Antennæ of both sexes filiform.

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 .

First Wings brown, with two transverse broad waves of greenish gold on each. Second Wings blackish grey. Wings margined.

PHALÆNA CHRYSITIS Linn. *Syst. Nat.* 2. 843. 126.

Noctua cristata, alis deflexis orichalceis, margine fasciaque griseis. *Syst. Ent.* 606. 69.—*Spec. Inf.* 2. p. 226. 91.
—*Fabricius.*

Phalæna feticornis spirilinguis, alis deflexis ferrugineo fuscis, fascia duplici transversa viridi aurea. *Geof. Inf.* 2. 149. 97.

Phalæna antennis filiformibus, dorso cristato, alis deflexis griseis, fasciis duabus aureo viridibus. *Degeer. Inf. Vers. Germ.* 2. 1. 311. 2.

Merian. Europ. tab. 39.

Albin Inf. tab. 71. fig. a. b. c. d.

Shæff. Icon. tab. 101. fig. 2. 3.

The pencil can produce but a feeble and inadequate imitation of the metallic splendour of this beautiful, yet common Insect. The upper Wings have the appearance of fine burnished brass, changeable in different directions of the light to green, brown, and rich golden hues; the under Wings are of a blackish colour, and serve as an admirable contrast to the more brilliant and varied tints of the upper Wings. The Thorax is crested.

Berkenhout has given a very false description of the Caterpillar of this Insect, he says it is "smooth, orange with white spots;" we think it necessary to note this error only as it may mislead young Collectors, who have no other assistant than his Synopsis, by which they can determine the Species, when in the Caterpillar state. It is astonishing how he could possibly be led into this error, when *Albin*, *Fabricius* *, and all preceding authors on Entomology, have described it so plainly.

It feeds on Nettles, and other Plants, growing among the low herbage by the side of banks; in fine seasons there are generally two broods of them from May, to June in the following year; the first are found early in May in the Caterpillar state, appear in June in the winged state; Caterpillars are full fed again in July, the Moths come forth in August.

* *Larva solitaria, gibbosa, viridis albo striata. Fabricius.*



P L A T E CXXXVIII:

F I G. I. II. III.

CASSIDA NOBILIS.

COLEOPTERA.

Wings two, covered by two shells, divided by a longitudinal suture.

GENERIC CHARACTER:

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

SPECIFIC CHARACTER.

Greyish Green; on the center of each Shell a streak of gold, which dies with the Insect. Body beneath black.

CASSIDA NOBILIS: grisea elytris linea cœrulea nitidissima,
Linn. Syst. Nat. 2. 575. 4.
Oliv. Inf. 97. tab. 2. fig. 24.
Raj. Inf. 107. 7.

This species is far less common than *Cassida Viridis*. It is a very beautiful Insect; but, like most other minute species, appears with infinitely more advantage in the Microscope for opaque objects; indeed, without such assistance, it is impossible to perceive the beauty of that part by which it is distinguished from every other species of the same genus we have in England, the lines of fine gold and blue, which are seen on the middle of the Shells.

When the Insect is alive, it is of a pale greenish colour, inclining to brownish grey, and along the middle of each Shell appears a splendid streak, or line of gold, margined with a fine pale sky blue, alternately varying into green, and gold. By the Microscope we
also

also discover many minute punctures, and several waved lines and streaks, which descend along the Shells from the base, and unite near the apex.

Its colours are more or less beautiful as the Insect is healthy or sickly; and as it dies, the colours gradually perish; the splendor of gold is no longer visible than life is retained, it changes to green; from green to a brown, which scarcely appears through a faint tinge of blue, and in a few hours it changes altogether to a rusty brown colour.

This Insect is admirably protected from external injury by the singular form of its Thorax and Shells, which are also so large as to conceal every other part when the Insect walks.

The natural size is shown at fig. 4, (upper side.) Fig. 2, under side. Fig. 3, upper side magnified.

F I G. IV.

CHRYSOMELA BANKII.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ knotted, enlarging towards the ends. Corselet margined.

SPECIFIC CHARACTER

Body oval. Head, Thorax and Shells, purplish olive colour, changeable, with a bronze appearance. Beneath, reddish brown, or testaceous.

CHRYSOMELA BANKII: ovata supra ænea subtus testacea. *Fab. Entomologia Systematica. T. I. 310. 16.*

This is a very rare Insect in England. It resembles *Chrysomela bicolor* in size, and colour of the Head, Thorax and Shells; but it may be readily distinguished from that species by the testaceous colour of the under side, that part being wholly of a violaceous colour in *C. bicolor*.

Found in May on a thistle.

F I G.

F I G. V. VI.

C I C A D A D I L A T A T A.

HEMIPTERA.

Shells or upper Wings, semi crustaceous, divided by an oblique future, and incumbent on each other. Beak bent down.

GENERIC CHARACTER.

Antennæ taper. Shells membraneous. In each foot three joints. Hind legs strong for leaping.

SPECIFIC CHARACTER.

Entirely brown, pale with faint whitish and dark lines, a small black spot on the center of each wing.

A figure of this Insect is given in Villers's Entomology as a native of France; in this he follows the authority of Fourcroy, who has a description of the same species in his Catalogue of Insects, found in the environs of Paris. This last author calls it *Le Cigale renflée*, from its puffed or swelled appearance. The name given by Villers is *Cicada dilatata*.

The confusion made by Fabricius, in his alterations of the *Linnaean genera*, renders it doubtful whether he has described this Insect, though, from its being commonly found in most parts of Europe, we must suppose he has not passed over it without notice: we have examined his last work, (*Entomologia Systematica, &c.*) and cannot find an Insect answering our species with any reference either to Fourcroy or Villers, we therefore prefer the specific name given by the latter author.

Is found in June; and is less common than any Insect of the same genus hitherto given in this work.



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P L A T E CXXXIX.

PHALÆNA METICULOSA.

ANGLE-SHADES MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

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

* *Noctua* antennæ like bristles in both sexes.

SPECIFIC CHARACTER

AND

SYNONYMS.

First Wings pale reddish colour, with a broad triangular brown spake in the middle. Second Wings palish, with dark waves; margin of both Wings indented.

Phalæna Meticulosa. *Linn. Syst. Nat.* 2. 845. 132.—*Fn. Sv.* 1164.

Phalæna Meticulosa: alis deflexis, eroso dentatis, pallidis, anticis basi incarnata, triangule fusco. *Fab. Syst. Ent.* 608. 78.

Phalæna feticornis spirilinguis, alis deflexis margine erosis cinereo fuscis, superioribus triangulo marginali fuscescente, incarnatum includente, thorace gibbo. *Geof. Inf.* 2. 151. 84.

Merian. Europ. tab. 24.

Albin Inf. tab. 13.

Roef. Inf. 4. tab. 9.

Degeer Inf. 1. tab. 5. fig. 14.

Goed, Inf. 1. tab. 56.

The *Phalæna Meticulosa* certainly exceeds many other Insects of the same tribe for elegance and simplicity: the variety of tints so delicately, indeed almost insensibly softened into one another, and neatness of the waves and lines interspersed over the whole, amply compensate for the defect of more gaudy colours. In the caterpillar state it is scarcely less deserving attention; the yellow specks on a beautiful, yet lucid green, have a very pleasing effect. The web it spins round its pupa is of a fine white colour, and silky texture; the pupa within of a blackish chocolate colour.

This species is sometimes met with in plenty, though less so in some seasons than in others; and not unfrequently is more abundant when the season appears most unfavourable. It feeds on nettles chiefly, but we have found it on several other plants; and once on a young oak, in Kent; the leaves of which we fed it on some time. In the caterpillar state it is found in April, changes to the pupa state in May, the Moth appears in June.

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P L A T E CXL.

SCARABÆUS FASCIATUS.

YELLOW BEETLE.

COLEOPTERA.

Wings two, covered by two shells, divided by a longitudinal future.

GENERIC CHARACTER.

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

SPECIFIC CHARACTER

AND

SYNONYMS.

Head, Body, Thorax, black : covered with long, yellowish hairs. Shells pale yellow, with three transverse black stripes on each. Abdomen longer than the Shells.

SCARABÆUS FASCIATUS scutellatus muticus niger tomentoso flavus, elytris fasciis duabus luteis coadunatis. *Linn. Syst. Nat.* 2. 556. 70. *Fn. Sv.* 395.

TRICHIUS *fasciatus*: niger tomentoso flavus, elytris fasciis tribus nigris abbreviatis. *Fab. Syst. Ent.* 40. 1. —*Spec. Inf.* 1. 48. N° 1.

Scarabæus niger hirsuto flavus, elytris luteis, fasciis tribus nigris interruptis. Geoff. Inf. 1. 80. 16.

Drury Inf. 1. tab. 36. fig. 2.

Degeer. Inf. 4. tab. 10. fig. 19.

Voet. Scar. tab. 5. fig. 43.

In Germany this Insect is not uncommon: we believe it is very rare in this country. Found generally on umbelliferous plants.

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P L A T E C X L I .

P H A L Æ N A D O M I N U L A .

S C A R L E T T I G E 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 .

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

Bombyx antennæ of Male feathered, Female setaceous.

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 .

First Wings black glossy green, with orange and white spots. Second Wings and Abdomen scarlet, with black spots.

Phalæna Dominula : alis incumbentibus atris, maculis albo flavescens, posticis rubris nigro maculatis.

Fab. Syst. Ent. 583. 93.—*Spec. Inf.* 2. 200. 130.

Phalæna Dominula. *Noctua spirilinguis lævis*, alis depressis nigris: superioribus cæruleo flavo alboque, inferioribus rubro maculatis. *Linn. Syst. Nat.* 2. 509. 68 edit. 10.

Formerly this beautiful Moth was found in great abundance at Charlton in Kent, but within the last two or three years most of the broods

broods have been wantonly destroyed, and they are now seldom met with. In the caterpillar state they feed on nettles and hound's-tongue*, changes to the pupa state about the middle of May, and in June the Moth comes forth.

* *Cynoglossum officinale.*

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3



2

P L A T E CXLII.

FIG. I.

MUSCA AURATA.

DIPTERA.

Wings two.

GENERIC CHARACTER.

A soft flexible trunk, with lateral lips at the end, no Palpi.

SPECIFIC CHARACTER

AND

SYNONYMS.

Head brown. Thorax polished, greenish, or brassy. Abdomen flat, obtuse, brownish gold-colour. Legs yellowish; Feet brown.

Musca aurata: *antennis fetariis nitida thorace æneo, abdomine obtuso aureo.* Fabricius. *Ent. Syst. Vol. VI. 335. 37.*—*Mantissa. Vol. II. p. 347. No. 63.*

This Insect has been only noticed in the latter writings of Fabricius. We have not found it uncommon in the summer upon the leaves of Fruit trees; and particularly on such as grow against a south wall: they fly briskly about noon, when the sun shines.

F I G. II. III.

MUSCA SEMI-ARGENTATA.

SPECIFIC CHARACTER.

Eyes brown. Thorax green; changeable to silver. Abdomen silvery, with shades of bright yellow, and grey, and some transverse streaks of black, very changeable.

Musca semi-argentata. *Marsham's MSS.*

We do not find that this rare and beautiful Insect has been described either by *Linnaeus* or *Fabricius*. It was taken a few years since in Epping Forest by Mr. Bentley, an eminent Collector of English Insects, and noticed by Thomas Marsham, Esq. Sec. L. S. in his Manuscript Notes, under the specific name *Semi-argentata*. Several specimens of it were taken last June in Epping Forest; except them, we have not heard of any being met with for some time.

Fig. 2. natural size.

Fig. 3. magnified.



P L A T E CXLIII.

PAPILIO ARGUS.

COMMON BLUE BUTTERFLY.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ knobbed at the end. Wings, when at rest, erect. Fly by day.

SPECIFIC CHARACTER.

Male upper side fine blue with white margins. Female dark brown, with a patch of blue on the middle of each wing. Under side of both sexes lightish brown, with black and red spots.

Papilio Argus: alis ecaudatis, posticis subtus limbo ferrugineo ocellis cœruleo argenteis. *Fab. Syst. Ent.* 525. 346.—
Lin. Syst. Nat. 2. 789. 232.
Fn. Sv. 1074.
Roef. Inf. 3. tab. 37. fig. 3—5.
De Geer Inf. 4. f. 14. 15.
Wilk. Pap. 63. t. 1. a. 1.
Merian. Europ. tab. 153.
Schæff. Icon. tab. 29. fig. 3. 4.

Though this beautiful Insect is very common in some places in the Butterfly state, we have never met with it's larva, nor with any account of it that appeared satisfactory. In that state it seems scarcely known. It is said, by some Collectors, to be a plain green Caterpillar, with very few hairs, bulky, and broadest across the middle. It certainly feeds very low among the thickest grass, or perhaps like

some larvæ of Moths, never comes above the surface of the ground, and lives on the roots of grafs.

The Male is of a fine blue colour on the upper fide, and elegantly marked on the under fide with white circles, having a black spot in the center of each: the wings are alfo bordered with fimilar spots, marked with a vermillion colour. The Female has very little appearance of the fine blue of the Male: the upper wings are of a dull brownifh black, with a bluiſh colour on parts, and marked with a few red and black ſpots: the underſide as in the Male.

They ſeem to delight in Meadows, and, like all other Butterflies, are on the wing only in the day time. The firſt brood appears in the Fly ſtate in June.



P L A T E CXLIV.

P H A L Æ N A V I R I D A N A.

SMALL GREEN OAK 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 deflexed when at rest. Fly by night.

** Tortrix. *Linn.*

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.

First Wings pea green. Second Wings dusky.

Phalæna viridana. *Pyralis.* *Alis rhombeis, anticis viridibus immaculatis.*—*Fabricius. Syst. Ent.* 656. 4.—*Linn. Syst. Nat.* 2. 875. 266.

Phalæna feticornis spirilinguis, humeris latis, antennis flavescens, alis dilute fuscis.—*Geof. Inf.* 2. 171. 123.
Reaum. Inf. 2. tab. 18. fig. 6. 7.
Roef. Inf. 1. phal. 4. tab. 1.
Frisch. Inf. 3. tab. 8.

Early in July we find this species flying about the narrow paths and lanes in woods where Oaks are plenty. It is observed to shelter itself in the day time, generally among such trees as have the foliage thick
 thick

thick and the bark covered with moss, &c. and very seldom among young trees. In the Caterpillar state it lives concealed in a fine silky web, spun up on the leaves. When it is disturbed it drops by a single thread from one branch to another, the glutinous substance of the thread adhering wherever it touches, so that if it is damaged in any part the Insect is in no danger of falling, unless the last fastening breaks off. The Caterpillar changes to the pupa state early in June: the first appearance of the Moth is commonly about the end of the same month.

In England we have another small Moth (*Phalæna Chlorana*) which at first sight may be mistaken for *Phalæna Viridana*. It differs from this Insect in several respects; the under Wings are whiter, and the stripe along the anterior margin of the upper Wings incline more to a cream colour than in our present species; the Caterpillar also is very different and feeds on the Willow.

L I N N Æ A N I N D E X

T O

V O L. I V.

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—— coccinea - - -	ib.	5. 6.
—— cerealis - - -	115	
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—— pyri - - -	ib.	3. 4.
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LEPIDOP.

I N D E X.

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* Not described before.

HYMEMOP-

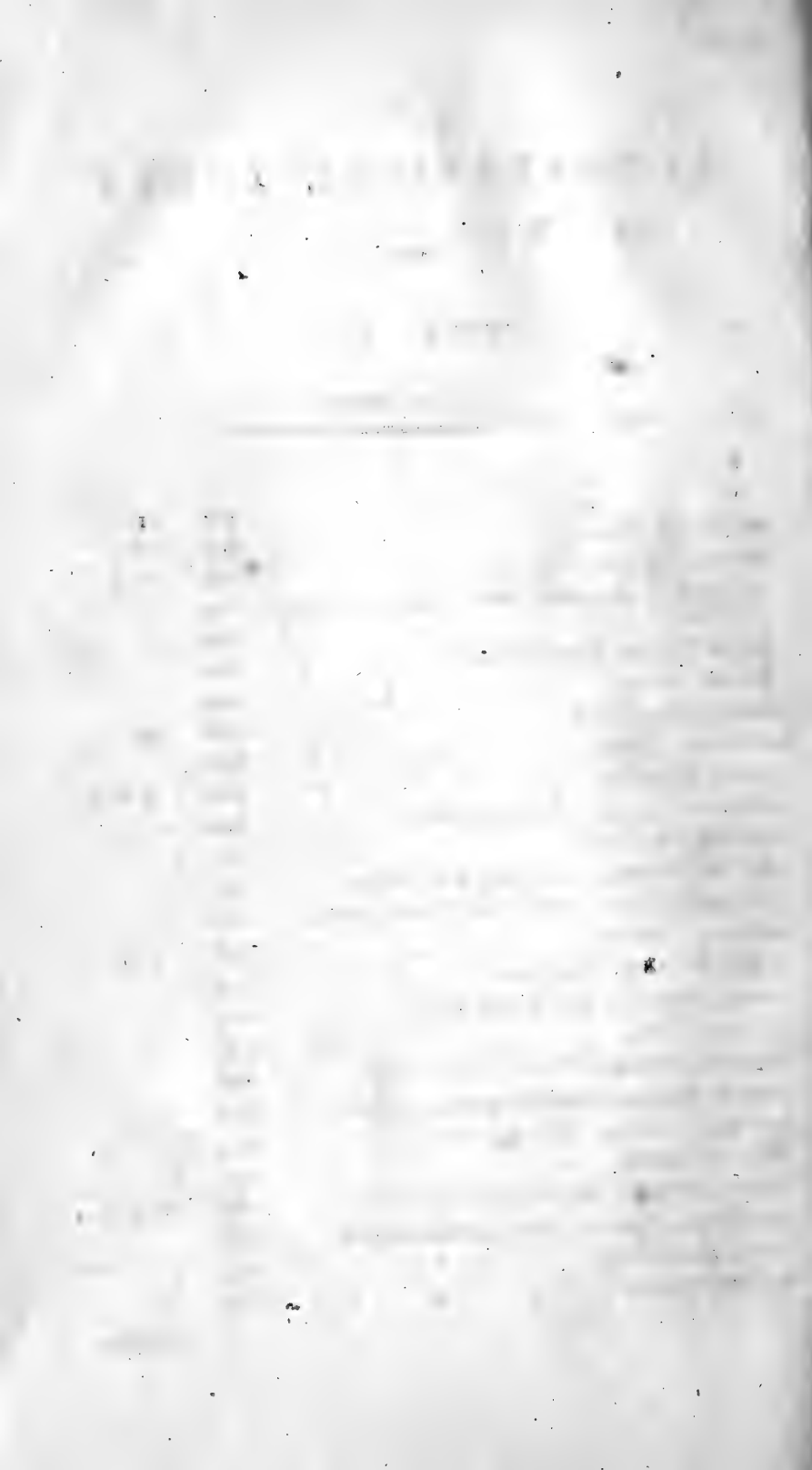
I N D E X.

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

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ERRATUM TO VOL. IV.

PLATE CXXIV. *for Phalæna Anoftomofis, read Phalæna Anaftomofis.*

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ERRATA to Vol. IV.

Page 100. Line 10. "The" should be "The".

Page 101. Line 20. "and" should be "and".

Page 102. Line 30. "of" should be "of".

Page 103. Line 40. "in" should be "in".

Page 104. Line 50. "at" should be "at".

Page 105. Line 60. "on" should be "on".

Page 106. Line 70. "by" should be "by".

Page 107. Line 80. "for" should be "for".

Page 108. Line 90. "to" should be "to".

Page 109. Line 100. "from" should be "from".

Page 110. Line 110. "with" should be "with".

Page 111. Line 120. "without" should be "without".

Page 112. Line 130. "against" should be "against".

Page 113. Line 140. "in favor of" should be "in favor of".

Page 114. Line 150. "in opposition to" should be "in opposition to".

Page 115. Line 160. "in support of" should be "in support of".

Page 116. Line 170. "in accordance with" should be "in accordance with".

Page 117. Line 180. "in conformity with" should be "in conformity with".

Page 118. Line 190. "in conformity with" should be "in conformity with".

Page 119. Line 200. "in conformity with" should be "in conformity with".

Page 120. Line 210. "in conformity with" should be "in conformity with".



