



Harry Soane, 1888.

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ILLUSTRATIONS
OF
BRITISH ENTOMOLOGY;

OR, A

Synopsis of Indigenous Insects:

CONTAINING

THEIR GENERIC AND SPECIFIC DISTINCTIONS;

WITH

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

BY JAMES FRANCIS STEPHENS, F.L.S.

MEMBER OF THE ZOOLOGICAL SOCIETY, ETC.

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

HAUSTELLATA.

VOL. I.

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

“Finis Creationis Telluris est gloria DEI, ex opera Naturæ, per Hominem
solum.”—*Linné.*

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ILLUSTRATIONS

BUTTERFLY ENTOMOLOGY

OF A

CLASS OF BUTTERFLY ENTOMOLOGY

CONTAINING

THEIR GENERIC AND SPECIFIC CHARACTERS

WITH

AN ACCOUNT OF THEIR METAMORPHOSIS FROM THE
EGG TO THE PUPA AND THE ADULT

BY JAMES FRANCIS STEPHENS, F.R.S.

MEMBER OF THE LONDON SOCIETY, &c.

INTERFERED WITH CORRECTING PROOF OF THE PRESS AND
MORE INTERESTING STORIES

HALF-BELATED

VOL. I.

"I have read with much interest the first part of your paper, and
I am glad to see that you have given a full and accurate
description of the life history of the butterfly, and
that you have also given a full and accurate description
of the life history of the pupa."

LONDON:

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AT THE CORNER OF ST. MARTIN'S LANE, AND

ST. MARTIN'S CHURCH, WHITEFRIARS.

LONDON:

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ILLUSTRATIONS
OF
BRITISH ENTOMOLOGY.

“ Say who can paint
Like Nature? Can imagination boast,
Amid her gay creation, hues like these?”

Thomson.

SUCH is the language of one whose works abound in imagery drawn from the beauties of the visible world, and peculiarly applicable to various insects belonging to the subclass upon whose description I am now entering; not, however, that I conceive the productions of these prolific isles to be of a particularly resplendent character; but what art can equal the brilliant silvery blue of the beautiful and lovely *Polyommatus Adonis*—the iridescent purple splendour of *Lycæna Chryseis*—the fiery and almost dazzling cupreous wings of *Lycænæ dispar* and *Virgaureæ*—the imperial purple plumes of *Apatura Iris*—the gorgeous silver spots, streaks, and fasciæ of the *Argynni*—or the elegant metallic cilia and markings of various groups of *Tinæidæ*? whose wings may truly be said to be

“ With silver fringed, and freckled o’er with gold.”

—Again, the fine and gaudy colouring of the tiger moths, as they are commonly called—and the singularly delicate pencilling on the under surface of the wings of *Cynthia Cardui*, and *Vanessa Atalanta*, and on the upper surface of those of many *Geometridæ*, are, equally with the more glittering colours, beyond the utmost reach of the pictorial art.

I shall now proceed with my descriptions of the

HAUSTELLATA, *Clairville*,

which, like the *Mandibulata*, I also consider divisible into seven orders; thus briefly characterized:

HAUSTELLATA, VOL. I. 1 JUNE, 1827.

B

<i>Alæ</i> quatuor,	$\left\{ \begin{array}{l} \text{haud squamosæ: } \textit{Corpus} \\ \text{squamæ imbricatæ:} \end{array} \right.$	$\left\{ \begin{array}{l} \text{depressum:} \\ \text{elevatum:} \end{array} \right.$	13. HEMIPTERA.
<i>Alæ</i> duo: <i>Caput</i>		$\left\{ \begin{array}{l} \text{discretum:} \\ \text{sessile:} \end{array} \right.$	14. HOMOPTERA. 8. LEPIDOPTERA. 9. DIPTERA.
<i>Alæ</i> nullæ: <i>Corpus</i>	$\left\{ \begin{array}{l} \text{compressum:} \\ \text{depressum:} \end{array} \right.$	10. HOMALOPTERA. 11. APHANIPTERA. 12. APTERA.	

These appear to be connected together in affinity as above disposed, and, like the Mandibulata, the series "returns into itself," though the actual point of union between the orders is not always very evident. I noticed, when speaking of insects in general, that the conterminous orders of the two subclasses possessed several characters in common, and that the Trichoptera were so closely allied to the Lepidoptera, from the imperfection of their oral organs, &c. that authors differed as to which of the subclasses the former absolutely belonged: now as the broad expansive wings of these insects are not only furnished with nervures, closely resembling in their branching those of the Lepidoptera, but are moreover clothed with hair or down, and as they have several other general characters, such as the location of the legs—the elongated coxæ—the calcaria, or spurs, I conclude that in a naturally arranged series we must pass directly from this group of mandibular insects to the beautiful

ORDER VIII.—LEPIDOPTERA.

Whose characters are, wings four*, membranaceous, more or less clothed with imbricated scales: mouth furnished with a spiral, filiform tongue: body hairy: prothorax adorned with a pair of tippets: metamorphosis obtected.

The larvæ of this order are generally known by the name of caterpillars: they are usually elongate, nearly cylindric, soft, of various colours, naked or clothed with hair, and sometimes armed with spines, or tubercles: the head is covered with a hard scaly skin, and is furnished with two very short conical antennæ, and two shining eyes: the mouth is provided with two strong mandibles and two maxillæ: a lip and four small palpi: the three first segments of the body bear each a pair of horny legs, which are the true legs, and correspond with those of the perfect insect: the false, or prolegs, are membranaceous, they vary in number from four to ten, but, with a few exceptions (as in *Cerura*, *Stauropus*, &c.) the last pair is situated on the anal segment of the body.

* The females of *Orgyia*, *Cheimatobia*, *Lampetia*, &c. are destitute of wings: in *Ægeria*, *Trochilum*, *Sesia*, *Nudaria*, &c. the wings are not fully clothed with scales. *Aglossa*, as its name implies, wants the tongue.

The principal nourishment of most caterpillars consists of the leaves of vegetables: others devour flowers, roots, seeds, buds, and even perforate and subsist on the solid wood of trees; many are exceedingly destructive to our domestic articles, and destroy skins and woollen stuffs, while some feed on leather, grease, lard, &c., and spare not even our honied stores: several live on one substance alone, while many attack various plants and substances, and even devour each other; but as a recompense for the destructive properties of some, others are kindly provided by the fostering hand of Providence with qualities whose produce gives employment to millions of human beings,—and some are kept within due bounds by the hosts of Ichneumonidæ and Chalcididæ.

Caterpillars usually change their skin four times previously to passing to their pupa or chrysalis state; and they are in general furnished with an apparatus for spinning silk, with which they either line the cells wherein they undergo their changes, or suspend themselves preparatory to that event: these cells are variously constructed in the different groups, and as I proceed I shall notice their diversified structure under their respective genera.

In the generic distribution of the contents of this truly elegant order of insects, I may confidently assert that I have hitherto laboured without other assistance than that derived from the still-incomplete work of the lamented Ochsenheimer, no one in this country, till recently, having devoted their attention to this department of the science beyond the mere capture and investigation of the species and their varieties. I consequently fear that my limited knowledge of exotic forms may occasionally betray me into the venial error of proposing genera upon characters, which may be so moderated by intervening extra-indigenous forms, as to be deemed of no importance when compared with their congeners;—but those individuals, who maintain that genera are unimportant, and lead to no practical use, when new species with connecting characters are discovered, might with equal propriety deny the presence of salt in the ocean, because the sources of rivers are fresh, and the actual point where the saline impregnation commences cannot be ascertained, owing to the very gradual manner in which it is incorporated with the water. I do not, however, here intend to advocate the expediency of adding to the vast numbers of modern genera, which it appears necessary to adopt; though, were I disposed to vindicate the propriety of forming them, or of adding to those of Linné,—

which the disciples of that truly celebrated man affirm are fully adequate to meet all our wants in *secula seculorum*!—I might adduce, as powerful arguments, the present overwhelming numbers of species which would be contained in several of his genera, agreeably to the principles of his followers; and as illustrations of my position, I might state that of the diurnal Lepidoptera, or Linné's genus *Papilio*, 2400 species are said to be actually preserved in the imperial cabinet at Vienna:—again, I should speak within compass were I to assert that the genus *Carabus* would consist of upwards of 1600 species,—*Curculio* of 2000,—*Scarabæus* 2000,—*Staphylinus* 1000, *Musca* 4000,—*Phalæna* considerably above 5000!!—*Ichneumon* probably as many, or even double the number, as the species of this group are known to attack several insects, besides Lepidoptera,—exclusively of the host of species which would be comprised in the three genera of *Chrysomela*, *Cimex*, and *Tipula*,—thus comprehending, in about a dozen genera, at least one-fourth of the insects reputed* at present to be preserved in collections, whose habits, structure, and metamorphoses present numerous discrepancies;—a procedure that nothing short of the most persevering apathy or inflexible prejudice can justify: but I rejoice to say that a more liberal spirit has recently sprung up, and that the opposition to the modern innovations, as the progress of natural science is illiberally styled, is rapidly subsiding, from the numerous important discoveries of late years, and the insufficiency of the Linnean classification to meet the wants of the student in his attempts to arrange his materials in conformity therewith.

The first division of the Lepidoptera, or the
DIURNA of Latreille,

Correspond with the genus *PAPILIO* of Linné, and are characterized by having the antennæ composed of very numerous articulations, approximating and slender at the base, towards the tip gradually incrassated and formed into a club, which is sometimes abruptly truncate, and occasionally somewhat setaceous, with the extreme tip hooked: the wings are generally placed erect when the insect is at rest: but in the *Hesperidæ* the hinder wings only are elevated. They all fly by day: their larvæ have invariably sixteen legs: the pupa, or chrysalis, is generally naked, frequently angulated, and always attached by its tail.

* Mr. MacLeay says, that 100,000 species are to be found in our cabinets.—*Horæ Entomologicæ*, v. 1. p. 469.—Mr. Kirby estimates the number of insects to exceed 400,000.—*Kirby and Spence's Introd. to Ent.* v. 4, p. 477.

It is perhaps futile to attempt a natural arrangement of this section of Lepidoptera, from the very scanty materials supplied by these islands; but as an approximation to the truth is doubtless better than positive confusion, I shall dispose my subjects in some measure agreeably to the classification proposed by Mr. Swainson, in the Philosophical Magazine for March last, as that is decidedly the most efficient published arrangement of this group of insects I have yet seen, and if my views of it be correct, the subordinate divisions do not materially differ from the method in which the indigenous species have been usually disposed: yet, as his principal characters are drawn from the metamorphoses—which evidently point out the most natural groups—I have not ventured to follow him, as they are frequently unknown to the naturalist, and it is my intention in this work to furnish the student with the means of ascertaining the nomenclature and history of all our insects, by an inspection of them in their final state; I have consequently used other characters for my primary divisions, and have considered those which are drawn from the larva, or pupa, as subsidiary.

<i>Pedes antici</i> haud abbreviati: <i>Antennæ</i>	{	apice abrupte uncinato: . . .	4. HESPERIDÆ.
<i>Pedes antici</i> plus minusve abbreviati: <i>Ungues</i>		haud apice uncinato: . . .	1. PAPILIONIDÆ.
	{	mediocres, bifidi: . . .	2. NYMPHALIDÆ. / 27
		minuti, simplices: . . .	3. LYCÆNIDÆ. / 74

FAMILY I.—PAPILIONIDÆ*.

Antennæ with a distinct club, varying in form and sometimes compressed, but never hooked at the extremity; *legs* in both sexes all formed for walking, and distinctly furnished with simple, or bifid, claws: *hinder tibiæ* with one pair of spurs at the tip only: *hinder wings* excised to admit the free motion of the abdomen, or grooved to receive it. *Larva* generally naked: *pupa* fastened by a transverse thread, or subfoliculated, angulated or smooth.

* In the following account of the papilionaceous insects of Britain, all the dubious species which have been introduced into our Fauna will be briefly enumerated in their respective locations, with the authorities for their introduction so far as I have ascertained them; and the characters of those genera of which no truly indigenous species occur are printed in italics in the tabular views. —It is also requisite to apprise the student that the brief primary characters, by which the minor divisions are separated in the tables, must be cautiously employed, as in the conterminous groups of a natural series they become so gradually blended into each other, as to apply without much difficulty to either.

Antennæ capitulo haud compresso: <i>Alæ posticæ</i>	{	angulatæ: <i>Antennæ</i>	{	elongatæ:	1. PAPILIO.
		rotundatæ: {		breves:	2. GONEPTERYX.
Antennæ capitulo compresso: <i>Alæ</i>	{	denudatæ:	}	squamis tectæ:	3. COLIAS.
				omnes {	denudatæ: . . . . .	7. DORITIS.
		squamis tectæ, primores	{	trigonæ:	4. PONTIA.
				subovales:	5. LEUCOPHASIA.
				6. PIERIS.	

GENUS I.—PAPILIO of Authors.

Antennæ with its capitulum somewhat arcuate, ovate-conic: *palpi* very short, scarcely reaching to the clypeus, not prominent; the two first joints of equal length; the third minute, nearly obsolete: *tarsi* with distinct and simple claws. *Anterior* wings subfalcate; *posterior* tailed; the inner margin cut out to receive the abdomen. Caterpillars fleshy, furnished on the neck with a furcate, retractile, organ. Chrysalis angulated, with two processes before, fastened by a transverse thread.

Sp. 1. Machaon. *Alis subdentatis, concoloribus flavis, margine nigro, limbo fusco lunulis flavis; posticis caudatis maculis sex cæruleis, ocelloque anali ferrugineo.* (Expansio alarum 3 unciaë —3 unc. 7½ liniaë.)

Papilio Machaon. Linné.—Lewin. pl. 34.—Steph. Catalogue.

This elegant and conspicuous insect varies considerably in size: its upper wings above are yellow, with four black spots, of which the outer one is nearly round and smaller, the two next transverse and parallel to each other, the fourth is of a triangular form and occupies the entire base of the wing, this last is irrorated or spotted with yellow: the costa itself and the nervures, which are much dilated, are black: the hinder margin is black irrorated with yellow, and adorned with eight lunulated spots of the same colour; the margin itself is a little dentated and yellow, interrupted with black. The under wings are strongly dentate and tailed: their ground colour is yellow, the inner margin is black sprinkled with yellow, the nervures are dilated, especially the one which forms the apical outline of the discoidal cell: the marginal fascia occupies above one-third of the wing, and is black irrorated with yellow, and ornamented with six subocellated cærulean spots, and outwardly with six broad yellow lunules, the four intermediate ones being the largest; the exterior margin is yellow interrupted with black: the anal angle bears a

Sp. 2. Podalirius. *Alis flavescentibus fasciis nigris; posticis caudatis apice nigro lunulis marginalibus cæruleis, subtus strigâ rufescente.* (Exp. alar. 3—3½ unc.)

Pap. Podalirius. Linné.—Don. IV. pl. 109.—Steph. Catal.

Anterior wings entire, above yellowish, with the costa and six transverse bands and the hinder margin black, the third and fifth of which are abbreviated,

round ferruginous spot, which is nearly surrounded with black, with a blue lunule towards the base of the wing, and an elongated, triangular yellow spot towards the tip: the tail is black, linear, and edged internally on each side with yellow. The under surface of the wings much resembles the upper, but is paler, and the lunules on the superior wings are converted to a continuous yellowish band; the marginal fascia is also so strongly irrorated with yellow as to appear entirely of that colour. The inferior wings have the blue spots narrower, more lunulated and distinct, and the fasciæ in which they are placed is, like that of the superior wings, nearly yellow; the four lunular spots of the upper surface on the edge exterior to the tail are replaced by others of a quadrate form: towards the centre of the wing are two or three, more or less evidently defined, triangular reddish spots, and one in the quadrate marginal spot near the anterior edge of the wing; the nervures are much more dilated than on the upper surface; but the ocellated anal spot and tail are nearly similar to those of the upper surface. The body is yellow, with two lines beneath, and the back black: the antennæ are black: the legs black, with yellow hairs.

The lunules on the margin of the inferior wings are frequently marked with red or fulvous; and there is often one or more round black spots placed between the dilated veins at the tip of the superior wings.

The caterpillar is smooth, green, with velvety black rings, alternately spotted with ferruginous: the organ with which it is armed on the top of the neck is of a red colour; it secretes an acrid liquor, which emits an unpleasant smell, particularly when the animal is irritated, by which it keeps the ichneumons at a distance. It feeds solitarily on umbelliferous plants, especially on the fennel and carrot, the flowers of which it prefers. About July it changes to the chrysalis, which is greenish, with a longitudinal black band on each side.

P. Machaon is not an uncommon English insect, especially in the fenny counties of Huntingdon and Cambridge, in some parts

and the fourth is sometimes partially divided by a pale dash. The posterior wings are much dentated, and have a long tail: yellowish on both sides, with two or three subparallel strigæ, of which the first is broadest, and occupies the inner or abdominal margin; the next is sometimes united thereto, and the last is placed in the middle: the margin on both sides is dusky, with four bluish and two yellow lunules, and at the anal angle is a fulvous spot, bearing a black patch and a bluish lunule: the wing beneath has four strigæ, with a reddish line between the second and third: the tail is black, with its inner edge and tip yellow: the abdomen is yellowish, with the back and a double row of spots beneath black: the antennæ are black.

The larva is solitary, and feeds on the various kinds of brassica; it is of a bright green, with a whitish dorsal line, and two others immediately above the legs, and on each side are oblique whitish lines, which commence from the second segment, and are spotted with red: the head is round, deeply immersed in

of which it occurs in the utmost profusion. It is generally supposed that there are two broods in the year, one in May, the other in August; but from the observations of my deceased friend, E. Blunt, Esq., I presume that supposition is inaccurate, as he informed me that he had taken the larvæ in all its stages at one time, and that the perfect insect continued to make its appearance with regularity from the end of May to the middle of August; but as these larvæ were taken at large, and in various places, it is probable that some fortuitous circumstances might have caused the appearance of some of them to be procrastinated. The perfect insect flies with rapidity, and is difficult to catch, unless in perfectly calm weather: it has sometimes been captured close to London, in Epping Forest, at Stepney, and near Peckham; and it was formerly abundant at Westerham, in Kent. Mr. Dale has frequently taken it at Glanville's Wooton, and in other parts of Dorsetshire: it also occurs as far north as Beverley, in Yorkshire, and west as Redlane, near Bristol, in Somersetshire.

GENUS II.—GONEPTERYX, *Leach*.

Antennæ short, stout, very gradually thickening into an obconic club: *palpi* short, much compressed, the terminal joint very short: *wings* angulated, large, the *posterior* grooved to receive the abdomen: *legs* alike in both sexes, short, stout; *claws* minute, bifid. Caterpillar naked. Chrysalis angulated, acuminate in front: fastened with a loose thread round its middle.

Sp. I. Rhamni. *Alis flavis seu virescenti-albidis; singulis puncto medio suprâ fulvo, subtus ocellari.* (Exp. alar. 2 unc. 3—6 lin.)

Papilio Rhamni. *Linné.—Don. V. pl. 145.—Steph. Catal.*

the neck, which bears a red tentacule with a yellow tip: the pupa is yellowish, dotted with brown, and slightly bidentate before.

This insect appears to have been introduced into the British Fauna upon the most loose and unsatisfactory authority. Its introduction by modern authors arose from the following words of the celebrated Ray: "Prope Libernam, portum in Etruria, invenimus, at etiam, *ni male memini, in Anglia.*"—*Ray. Ins. p. 111*: and from the expression of Berkenhout, who says, in his *Outlines*, that it is "rare in woods." Now, as the attention of entomologists has been so especially drawn towards the solution of this point for at least forty years, and no *authentic* instance of its capture is recorded, it seems absurd to consider it any longer as a British species; but, notwithstanding, there are several entomologists sanguine enough to expect that it may eventually occur in some of the unexplored parts of the country; although its highest northern range on the Continent appears to be about the latitude of Paris.

Above, the male is sulphur-yellow and the female greenish-white, with a dusky spot at the base of the wings, and an orange or fulvous spot in the centre, and obsolete ferruginous dots on the margin, especially on the anterior costa: beneath, the male is greenish, the female paler, and the discoidal spot on all the wings is whitish in the centre, with a ferruginous margin: the abdomen is black above and yellow beneath; its base and the thorax thickly clothed with long glossy white silken hairs: the legs are white: the antennæ are reddish; at the base of the latter is an elevated reddish tuft of scales.

† Var. β . With the wings clouded, and minutely dotted and streaked with orange or fulvous.—*Curtis*, iv. pl. 173. This variety is in the rich lepidopterous collection of Mr. Haworth.

The caterpillar is green, with a paler line on each side of the belly, and very small scale-like black dots on the back, which give that part a bluish aspect: the fore part of the body is thick and rounded, the hind part compressed. It feeds upon the *Rhamnus catharticus* (or buckthorn), and the *Rh. frangulus* (or berry-bearing alder); and is said to occupy three or four days in changing to the pupa state; the pupa, or chrysalis, is very gibbous in the middle, acuminate before, and green with a clearer line on each side, and a reddish or fulvous spot in the middle: it is vertically suspended on a perpendicular branch, with a loose silken thread round its middle:—the perfect insect is produced in about fifteen days.

This gay and lively-coloured insect is apparently double-brooded, the first brood appearing about June; the second in the autumn, and of the latter many individuals of both sexes remain throughout the winter, and make their reappearance on the first sunny day in spring. I have seen them sometimes so early as the middle of February: they frequent woods, commons, meadows, and lanes, and appear to be pretty generally diffused throughout the country; their flight is rather slow than otherwise.

GENUS III.—COLIAS, *Fabricius*.

Antennæ short, rather slender, filiform at the base, towards the tip gradually thickening into an obconic club: *palpi* short, much compressed, the terminal joint shortest: *anterior wings* somewhat trigonate, *posterior* rounded, with a groove to receive the abdomen: *legs* alike in both sexes, moderate, slender: *claws* small, weak, bifid. Caterpillar naked, tuberculated. Chrysalis subangulated, gibbous, slightly acuminate in front, fastened by a transverse thread.

Several papilionaceous insects are remarkable for their periodical or irregular appearance, and none more conspicuously so than the insects of this genus. The cause of this interesting phenomenon appears inexplicable: its solution has baffled the inquiries of entomologists, and several speculative opinions have been advanced

thereon. By some persons their sudden increase has been attributed to the previous failure of their natural enemies, the Ichneumons and the soft-billed birds—by others to an increased temperature; others again suppose that their eggs lie dormant till called into life and vigour by some extraordinary latent coincidences. But all these opinions are mere conjecture, and they do not sufficiently clear up the difficulty; which is rendered more obscure from the fact that several of the insects, especially *Cynthia Cardui*, appear constantly in some parts, and periodically in others. The *Coliades* are particularly gay and showy insects; they are eminently distinguished by the brilliant tints of orange and yellow with which their wings are adorned: they are of moderate size, and usually appear in their final state towards the autumn.

Sp. 1. Europome. PLATE I. * f. 1, ♂ — f. 2, 3, ♀.—*Alis supra sulphureo-flavis, limbo communi nigro* (in foem. *flavo maculato*); *anticis utrinque puncto medio nigro infra ocellari, posticis subtus puncto sesquialtero argenteo.* (Exp. alar. 2 unc.—2 unc. 2 lin.)

Papilio Europome. *Haworth.*—Co. Europome. *Steph. Catal.*

Both sexes of this fine insect—which greatly resembles Co. Philodoce (a Virginian species)—are of a fine sulphureous yellow above: the male has the hinder margins of both wings deeply edged with black, an ovate spot of that colour on the disc of the anterior, and an obsolete fulvous spot on that of the posterior; the border on the latter is irregularly sinuated within: beneath the anterior wings are paler, with the tips rather deeper, the discoidal spot is whiter, with a black or dusky iris; and parallel with the hinder margin is a very obsolete row of dusky spots: the posterior wings are of a deeper yellow, minutely irrorated with black, with a discoidal silvery ocellus, having a fulvescent iris, and a secondary silver spot adjacent; they have also an obsolete row of dusky spots parallel with the hinder margin, and forming a continuous series with those of the anterior wings, and a larger somewhat triangular fulvescent spot on the upper edge. The female differs in having the black border of the hinder margin of the anterior wings irregularly spotted with yellow, and in wanting the border to the posterior wings, having in its place some obsolete subtriangular dusky spots. Both sexes have the extreme edge, both above and below, and the cilia, rose colour.

Very few British cabinets contain this interesting species, which, till last summer, does not appear to have been captured in England for upwards of forty years. I have hitherto seen but five specimens, four of which were in the rich collection of the late Mr. Francillon, and one in that of the late Mr. Marsham: of these I have been fortunate enough to obtain three, two males and a

female, from which the accompanying figures have been taken. In *Lepidoptera Britannica* reference is also made to the collection of Mr. Swainson as possessing this species. The past season afforded no less than eight examples—thus illustrating the irregular appearance of the *Coliades*—four of which were captured between Brighton and Lewes, in Sussex; and a similar number in the vicinity of York, as I am informed by Mr. Cooper;—these last were found in September—the others in company with *Co. Hyale* and *Edusa*.

Since writing the above, I find, by the *Butterfly-Collector's Vade-Mecum*, that this species is said to occur, though rarely, in the meadows and road sides near Ipswich, in Suffolk, in the middle of August.

Sp. 2. *Chrysotheme*. PLATE II. * f. 1. ♂. f. 2. ♀.—*Alis supra fulvo-lutescentibus, limbo communi nigro* (in fœm. *flavo maculato*); *anticis utrinque puncto medio nigro infra ocellari, posticis subtus virescentibus puncto sesquialtero argenteo*. (Exp. alar. 1 unc. 8 lin.—1 unc. 10 lin.)

Papilio Chrysotheme. *Esper.*—*Co. Chrysotheme*. *Steph. Catal.*

Distinguished at first sight from the other indigenous species by its inferior size, and from *Co. Edusa* by its paler colour. Its resemblance to the latter insect is almost too close, but its constancy and locality appear to sanction the propriety of considering it as a distinct species: its chief differences from that insect consist in its smaller size, the rotundity of the hinder margin of the anterior wings, its paler colour, the dissimilar form of the marginal fascia, the expanded duskiess at the base of the wings, especially of the posterior, and the black discoidal spot on the under surface of the anterior wings being pale in the middle, as in *Co. Europome* §.

† Sp. 1. b. *Palæno*. *Alis flavis, apice nigris margineque fulvis: posticis subtus puncto argenteo*. Linné.

Pa. Palæno. Linné.—*Martyn*.

Wings yellowish, or white, with the exterior margins red; the superior above with a broad black apical margin, and on both surfaces with a black spot; the posterior wings beneath cinerascens, with a lunate silvery spot, and the base red.

According to Linné, this species feeds upon various kinds of fern (*Pteris*). The insect occurs in many parts of Europe, from Lapland to Switzerland, in July; its introduction into the British list originated with Martyn, who enumerates it in his *Aurelian's Vade-Mecum*, I imagine by mistake, for *Co. Hyale*, or one of the kindred species.

§ This last character is unfortunately omitted in some impressions of figure 2; which represents the under side of the female rather larger than nature.

The caterpillar and chrysalis of this species hitherto remain unknown: the male, from which the accompanying figure was taken, was captured in company with several other specimens by H. Sims, Esq. in September 1811, either in the county of Norfolk or near Epping in Essex: the female I obtained from some other, but unknown, source: there are specimens of this species in the collection at the British Museum, and in that of Mr. Haworth.

I believe the first notice of this insect as a species occurs in Bergstraesser's Nomenclature, where a figure is given; and subsequent continental lepidopterists have unhesitatingly described it as a distinct species from *Co. Edusa*, its nearest congener in Britain; and it is from a firm conviction of the accuracy of their views that I have followed their steps, and introduced a figure and description of it for the first time in an English dress:—but as I am fully aware of the laudable caution with which many entomologists of this country acknowledge the specific distinctions of insects which they have not had an opportunity of examining, I anticipate a difference of opinion upon this point.

Sp. 3. *Edusa*. *Alis suprâ fulvo-croceis, limbo communi nigro* (in foem. *flavo maculato*); *anticis utrinque puncto medio atro; posticis infrâ sub-virescentibus puncto sesquialtero argenteo.* (Exp. alar. 1 unc. 10 lin.—2 unc. 5 lin.)

Pa. *Edusa*. *Fabricius*.—*Don. vii. pl. 238, f. 2. ♀*.—Pa. *Hyale*. *Don. ii. pl. 43. ♂*.—*Co. Edusa*. *Steph. Catal.*

The male of this elegant insect has the anterior wings above deep bright fulvous-orange, with a broad black internally-waved band on their outer edge, and a large round deep black spot in the middle; beneath the disc is pale fulvous, with a black, ino-cellated dot, and the tip greenish: the posterior wings are fulvous above, with a narrow black border on the outer edge, a greenish tinge on the inner, and a deep fulvescent but obsolete spot in the middle: beneath, they are greenish with a subocellated silver spot in the middle, accompanied by a smaller one, both with a rust-coloured iris. The female differs in having a series of irregular yellow spots in the black margin of the anterior wings, and by having the border on the posterior wings very obsoletely defined internally. Both sexes have a row of spots parallel with the edge of the hinder margins of both wings, of which three or four of those on the anterior wings are deep black, and the rest ferruginous: the cilia are yellow above, interrupted with red-brown, and rose-coloured beneath: the body is yellowish-green, with the back dusky: the antennæ reddish, with the tip of the club reddish-yellow.

This insect varies much in the intensity of the colour of the marginal band: in

some specimens this is jet black, in others brownish, and in general the nervures which pass through it are yellow: the posterior wings are sometimes beautifully iridescent, and the ground colour of the anterior is occasionally of a yellowish tint.

Var. β . PLATE II.* f. 3. ♀.—This variety (which is the Pa. Helice, *Haworth*) differs from the female solely by having the ground-colour of the wings, as well as the series of irregular dots in the marginal band, yellowish-white.

Var. γ . Very small: with the anterior wings subfalcate, but coloured as in var. α . (Exp. alar. 1 unc. 8 lin.)

The caterpillar feeds on grasses: it is deep green with a longitudinal white stripe on each side, spotted with yellow and blue: the chrysalis is green, with a yellow line on each side, and black spots on the wing-cases.

Not uncommon during the autumn, in certain but indeterminate years, in the south of England; but apparently rare in Cambridgeshire and Norfolk, the southern parts of which counties it appears only to frequent. I have often taken it in Battersea-fields, and at Dover and Brighton: near the last place it appears to occur in the greatest plenty.

Sp. 4. Hyale. *Alis suprâ pallidè sulphureis, limbo communi nigro, flavo-maculato; anticis utrinque puncto medio nigro, posticis subtùs luteis, puncto sesquialtero argenteo.* (Exp. alar. 2 unc.—2 unc. 2 lin.)

Papilio Hyale. *Linné.*—*Don.* vii. pl. 238, f. 1. ♂.—Co. Hyale. *Steph. Catal.*

The upper surface of this interesting species is sulphur-yellow or whitish, with a deep black spot in the middle of the anterior wings, and a pale orange spot in the disc of the posterior: the anterior wings have a black border, widest towards the costa, and with an interrupted row of yellowish or whitish spots; the posterior wings are also bordered in the female, but in the male this border is replaced by one of yellow: the under surface of the anterior wings is whitish-yellow, but not bordered with black; the tip is orange-yellow, with its outer edge pale red, and a transverse row of dusky spots on its inner: in the centre is a round black spot: the posterior wings are entirely orange-yellow, with a row of dusky reddish spots, towards the margin, and with two silvery spots in the centre, which correspond with the spot in the upper surface, and are bordered with reddish: the wings are all ciliated with yellowish red: the body is yellow: the head and the front of the thorax and the legs are ferruginous: the back dusky: the antennæ reddish.

The female differs in being whitish. A variety is described by Lewin, in which the wings of the male are whitish, and of the female white.

The caterpillar is velvety-green, with two yellowish lateral lines, and black spots on the annuli: it feeds on papilionaceous plants: the chrysalis is green, with a yellow lateral line.

Of this rare British species I have seen very few specimens, and, until the last season, only three recent captures had come to my knowledge. The first of these was found in August, 1811, at Wrentham, in Suffolk, by the very ingenious and able artist to whose accurate pencil I am indebted for the figures with which this work is embellished, and is in his brother's collection; the second specimen was taken about eight years ago in Epping Forest, in June, and the third subsequently near Brighton: but last season many specimens were captured near the last named place by a person residing in that town. It is said to be double-brooded, and the first brood to appear in June, and the latter towards the autumn. It is found in meadows. The county of Kent has produced the greatest number of specimens: Lewin found them not uncommonly near Queenborough and Ospringe in the autumn. Mr. Haworth informs me, that it has been captured near Halvergate, in Norfolk.

GENUS IV.—PONTIA, *Fabricius*.

Antennæ with an abrupt, obconic, compressed club: *palpi* short, nearly cylindrical, three-jointed, the terminal joint slender, as long as the second, or shorter: *wings* opaque; *anterior* somewhat triangular, sometimes rounded at the tip; *posterior* rounded with a groove on the inner margin to receive the abdomen: *legs* alike in both sexes, rather slender: *claws* distinct, unidentate. Caterpillar cylindrical, downy, sometimes tuberculate. Chrysalis angulated, with an obtuse knob, or acuminate in front, supported by a transverse thread.

The species composing this genus, or at least the majority of them, are well known from frequenting our gardens in search of their mellifluous food, and their larvæ from the havoc they commit amongst the various kinds of cabbages, or brassicæ. From the simplicity of their colouring, and their common appearance, they have been unworthily neglected in this country by collectors; and in consequence we still remain unacquainted with the history and metamorphosis of some of the species, which evidently are far from uncommon. But surely the lover of nature is not to be captivated by the splendour of adventitious ornament alone: he should also delight in the contemplation of the minor beauties which she occasionally displays amongst the infinite profusion of her multifarious works.

The Pontiæ vary much, and in giving *P. Chariclea*, *Metra*, *Napææ*, and *Bryoniæ* as distinct species, I act solely from a conviction that I am not justified in uniting them with either of their congeners, though it is with diffidence, and not without repeated examination,

that I venture to propose them as novelties to British naturalists; but I trust that by so doing I shall incite some zealous entomologists to investigate this point, and endeavour to unravel the mystery which yet shrouds our views of the specific identity of these insects. So far as my feeble efforts permit me, I have attempted to elucidate this subject, although fully aware that there are many individuals who cordially despise the knowledge of species, and insist upon that of structure alone being useful, a point upon which I intend to dilate at a future period; for the present I shall content myself with remarking upon the discrepancy of form observable in this genus, by which the entomologist will see, that even in the most modern views, relative structure and habit of all the species in a genus is not invariably attended to, as upon a casual glance the most inexperienced eye would detect the dissimilarity of structure in this genus as at present constituted; for it contains not only two very dissimilar forms in the perfect state of the insect, but also in their transformations, though I have not detached them from their hitherto reputed congeners, as I do not choose to increase the number of genera already proposed: although the same principles which authorise the separation of *Gonepteryx* from *Colias*, or even of *Pieris* and *Leucophasia*, from *Pontia*, would fully justify me. Mr. Kirby, in the *Butterfly-Collector's Vade-Mecum*, observes, that *P. Cardamines* should be detached on account of its metamorphosis, and presumes that it ought to be united with *Colias*; but its organization in the perfect state will not allow of such an arrangement, as *Colias* evidently belongs to a different group of *Papilionidæ*, and the structure of the pupa of *P. Cardamines* is not materially dissimilar to that of *Leucophasia Sinapis* belonging to the present group. I shall therefore divide the genus into two sections, corresponding with the dissimilarity of form alluded to above: the first of which will embrace the true *Pontia*; and the second, those insects which, if necessary to create into a new genus, may, after Hübner, be termed *Mancipia*.

A. With the terminal joint of the palpi longer than the second: the apex of the anterior wings obtusely angled: the posterior wings not variegated beneath: the pupa strongly angulated, with a distinct short process in front, and projecting lateral appendages in front of the wing-cases. (PONTIA).

Sp. 1. Brassicæ. *Alis albis, anticis suprâ apice nigricante, subtus maculis duabus nigris, posticis subtus flavescentibus.* (Exp. alar. 2 unc. 6—9 lin.)

Pa. Brassicæ. *Linné.*—*Don.* xiii. *pl.* 446.—*Po.* Brassicæ. *Steph. Catal.*

Both sexes of this destructively common insect have the upper surface of all the wings white, with the tip of the anterior wings above black, the patch on its inner edge being indented, the points of the indentations following the direction of the nervures, and the extreme tip being slightly irrorated with white, with the cilia waved with black and yellowish: the female has also two roundish transverse spots on the disc, and an elongate triangular one on the thinner margin of the wing: the costa and base of the anterior wings are irrorated with dusky, and sometimes tinged with yellowish: and the posterior wings have a black costal spot: beneath, the under surface of the anterior wings in both sexes is similar; the tips being yellowish, the base slightly irrorated with dusky, and two transverse spots adorning the disc: the posterior wings are pale yellowish, with a very obsolete costal spot, and are rather thickly sprinkled with dusky, especially in the female: the body and antennæ are black above, and white beneath, the latter have an interrupted brown line from the base to the capitulum, which gives them the appearance of being annulated, the capitulum itself is yellowish at the tip.

Var. β . Male with a black spot on the disc of the anterior wings.

Var. γ . Female with the upper surface of the posterior wings yellowish.

The caterpillar is greenish with three yellow longitudinal lines, one placed on the back, the others on the sides; between these are several tubercular black spots, each bearing a pale hair: the tail is black: the chrysalis is greenish, spotted with black, with three yellow stripes.

This species makes its appearance about the middle of May, or earlier if the weather be favourable, and towards the end of the month it lays its eggs, which are obtuse and elevated vertically, in clusters on the under side of cabbage leaves. The caterpillars are hatched in a few days, and continue to feed together till the end of June; they then prepare to undergo their change, and search for a convenient place to attach themselves: when they have made choice of a situation they fasten their tail by a web, and carry a strong thread of silk round their body near the head, and after hanging a few hours, the chrysalis becomes perfectly formed; in about sixteen days the butterfly is produced;—but in the year 1818, when the various species of *Pontia* abounded so greatly near the metropolis as to attract the notice of the public journalists, I had a brood of this species, which was scarcely seven complete days in the pupa state:—the thermometer during the period varying from 70° to 80°. The caterpillars from this brood become full fed by the middle of September, and change to the pupa, in which state they continue throughout the winter, and put on their final change in the following spring about May.

Sp. 2. Chariclea. PLATE III.* F. 1. ♂,—F. 2. ♀.—*Alis albis, anticis supra cinerascente nebulis nigris ciliisque flavo-albidis, subtus maculis duabus nigris, posticis subtus lutescentibus, nigro valde irroratis.* (Exp. alar. 2. unc. 3—6 lin.)

Po. Chariclea. *Steph. Catal.*

This insect, which has hitherto either been confounded with the preceding, or unnoticed by entomologists, is considerably smaller than it: both sexes have the upper surface of all the wings white, with the tip of the anterior wings above ash-coloured, without any internal indentations, in the female deeply clouded within with black, and margined without in both sexes by immaculate yellowish-white cilia: the female, as in Po. Brassicæ, has also two round transverse deep black spots and a clavate one on the thinner edge of the wings: the costa in the male is dusky, or ash-coloured, and in the female yellowish: the posterior wings in both sexes have a small black costal spot—a character common to all the true indigenous Pontiæ: beneath, each sex has the tips of the anterior wings clear yellow, and two transverse black spots; and the posterior wings deep yellow, very thickly powdered throughout with minute dusky or black spots: the body is blackish above, with flavescent down, and white beneath; the antennæ resemble those of P. Brassicæ.

† Var. β. With the apical spot of the anterior wings unclouded, very pale, cinereous, and the female with two transverse and an obsolete clavate black spot above. In the collection of Mr. Haworth; who has distinguished it by the trivial name of præcox, from the early period of its appearance in the winged state.

The chief points of discrimination between this species and the preceding insect consist in its inferior size, the dissimilar colour of the apical spot on the anterior wings above, and the integrity of its inner edge, the pale cilia with which it is fringed, and the deeper colour, and more thickly irrorated under surface of the posterior wings: which characters, taken collectively, appear fully sufficient to warrant its separation as a species, exclusively of its period of flight. Now, if it be a vernal brood of Po. Brassicæ alone, by what process do the colour and the shape of the markings become changed? and whence its inferior size? The first question has been answered, at least so far as regards the colour, upon the supposition that the solar rays are not sufficiently powerful at the period when the insect is produced, to produce the intense hue so conspicuous in the supposed æstival brood, or Po. Brassicæ; but as this last species also occurs early in the month of May, that solution is not satisfactory, and I am of opinion that Po. Chariclea appears also a second time towards the end of June; at all events, that part of the question relative to the variation in the form of the markings remains unsolved, and upon a further investigation the stability of the other solution becomes questionable, as the under surface of the inferior wings are more deeply irrorated with black, and their ground colour is more intense than in Po. Brassicæ. With respect to the other question—the inferiority of size—that has been answered upon the presumption that the animal diminishes in bulk from the increased period that

it is supposed to continue in the pupa; that is, from September to April: whereas the æstival brood remains in that state a few days only.

Before I conclude this discussion, let me ask how we are to reconcile the anomalous alternating increase and diminution of size, if, as is alleged, this species and *Po. Brassicæ* are simply the vernal and æstival broods of the same insect? We know of no corresponding fact in any other department of zoology, unless *Po. Rapæ* and *Metra* (which are to each other, apparently, what the two species under investigation are) offer an example*, but these insects I presume are distinct, upon similar grounds to those which appear to separate the insects that have promoted these observations; and which, I trust, will stimulate some persevering entomologist to investigate the subject thoroughly; as it becomes a question of importance to ascertain whether *P. Chariclea* be really a distinct species, as it involves the curious physiological considerations above noticed, which every unprejudiced person must acknowledge are well worthy of attention, however he may inveigh against the nicety which appears requisite to attend to in the discrimination of species; though in this instance *locality* can have nothing to do with the point at issue, as the two species are found in the same fields at Hertford.

My attention was first called to an investigation of the *Pontia*, from observing many years since the specimens above alluded to in Mr. Haworth's collection, who hinted his suspicions that they might eventually prove distinct from *Brassicæ*. I now possess several specimens of var. *α*, all of which were taken by myself very early in April at Hertford: Mr. Haworth's specimens were taken in Derbyshire by the Rev. W. T. Bree, at the same period of the year. I have recently noticed var. *α* ♂ of this species in other collections, but confounded with *Po. Brassicæ*.

Sp. 3. *Rapæ*. *Alis albis vel flavescente-albidis, anticis suprâ apice fuscescente, basi paululum nigricante, subtus maculis duabus aut una nigris, posticis subtus læte flavescentibus basi nigro irroratis.*
—(Exp. alar. 1 unc. 7 lin.—2 unc. 6 lin.)

Pa. *Rapæ*. *Linné*.—*Lewin. pl.* 26.—*Po. Rapæ. Steph. Catal.*

Very similar at the first glance to the preceding species, but usually much smaller, and of a slightly dissimilar form and colour: the apex of the anterior wings bears only a very slight fuscous, dusky or black subtriangular, irregularly defined spot, which does not extend along the hinder margin of the wing: the male has also a conspicuous black spot, and the female two round, and an obsolete elongate-triangular dusky spot, on the upper surface of the

* *Geometræ illunaria* and *jularia* may probably be instanced, but they unfortunately afford another proof of our ignorance; and, unlike the *Pontia*, the specimens which continue the longest in the pupa state exceed the others in size; the latter insect, which is the least, if the produce of the first, undergoing all its changes in about three months.

superior wings; and both sexes have two black spots beneath them. The under surface of the posterior wings is of a brighter yellow than in *Po. Brassicæ*, with a deep orange streak on the costa, and it is usually much less speckled with minute black dots, the marginal cells being nearly immaculate: the cilia are white, slightly sprinkled with dusky at the tip of the anterior wings: the body and antennæ are coloured as in *Po. Chariclea*.

Var. β . Smaller: male with the apex of the anterior wings, and two spots on their upper surface black; female without the elongate-triangular spot on the thinner edge of the same wings.

Var. γ . Male with a very obsolete spot on the anterior wings: female with two obsolete spots above: both sexes with the second spot beneath nearly obliterated.

Var. δ . Male with the apex of the anterior wings scarcely clouded, the disc immaculate; one spot only on the under surface.

Var. ϵ . Male with a deep dusky triangular spot on the apex of the anterior wings, extending considerably along the hinder margin, and a cordated black one on the disc: two black spots beneath.

Exclusively of the above, there are several intermediate varieties in size, colour, and in the size and form of the spots. The female is usually yellowish-white in all the varieties, some of which approach to *Pa. Nelo* of Borkhausen.

The caterpillar is green, with a paler line on the back, and a whitish line, often punctured with yellow on each side: the chrysalis is greenish, spotted with black.

Like *Po. Brassicæ* this species abounds throughout the southern parts of the country, but its larvæ feed solitarily upon various kinds of brassica and reseda, upon which the parent insect deposits her eggs singly, and not in clusters, in the same manner as *Po. Brassicæ*: the first brood appears at the end of April; the second about the beginning of July.

Sp. 4. *Metra. Alis albis basi nigris, anticis suprâ apice subnebuloso, subtus maculis duabus, aut unâ, obsoletis nigris, vel immaculatis, posticis subtus flavescens nigro irroratis.* (Exp. alar. 1 unc. 8—11 lin.)

Pap. alba, minor, immaculata. *Petiver, pl. 1. f. 13, 14.*—*Pontia Metra. Steph. Catal.*

Very closely allied to var. δ of the last described species, but apparently distinct, for similar reasons with those stated in the observations appended to *Po. Chariclea*: the anterior wings above are very acute at the apex, they are white in both sexes, with the base black and the tip slightly clouded with dusky: the male has a single obsolete dusky spot, and the female two—the one at the anal angle being geminated; this sex has also the basal half of the wing much clouded with dusky: the posterior wings in both sexes are white, with the base black, and a dusky costal spot. Beneath, the sexes are similar; the

anterior wings are white, with the tip yellow, the base and two obsolete spots dusky: the posterior wings are bright yellow, with a pale orange streak on the costa, strongly irrorated throughout with dusky, the anterior half of the discoidal cell being least speckled. The antennæ, legs, and body resemble those of *Po. Rapæ*: the cilia are entirely clear white.

Var. β . Male with the wings above cream colour, the base of all deep black; the discoidal spot on the anterior, and the costal spot of the posterior nearly obsolete: beneath, the anterior wings have but a single obsolete discoidal spot, and the posterior have the hinder half of the discoidal cell so thickly irrorated with dusky as to appear streaked.

Var. γ . Male with all the wings above immaculate white, with the base black, and the apex of the anterior very obscurely clouded: beneath similar to var. β .

I am unacquainted with the larva of this species; but the chrysalis does not materially differ from that of *Po. Rapæ*. The insect occurs early in April, and a second time towards the end of June. I obtained specimens of the first brood at Hertford; and of the second I captured some this season, at Ripley, at the latter period.

Sp. 5. *Napi. Alis suprâ albis, subtus venis dilatatis fusco-virescentibus, anticis apice, posticis paginâ omni, flavescentibus.*—(Exp. alar. 1 unc. 4 lin.—2 unc.)

Pa. *Napi. Linné.—Don. viii. pl. 280. f. 1.—Po. Napi. Steph. Catal.*

Wings above white, with the tip of the anterior dusky: the male with a black spot between the middle and hinder margin of the anterior wings, the under surface of these wings has the nervures dusky, with the tips pale yellow, and two dusky spots towards the hinder margin: the posterior wings beneath are pale sulphur yellow, with the nervures much dilated and dusky-greenish; the nervure on the costal edge of the discoidal cell with a clear yellow dash. The female has the anterior wings more rounded than the male, with two large black spots placed transversely, and an obscure claviform dash towards the thinner edge: both sexes have a black costal spot on the posterior wings above: the body black, with its under part white: the antennæ white, annulated with black.

Var. β . With the base of all the wings in both sexes deep black.

Var. γ . Male with the anterior wings immaculate above, with one indistinct spot beneath: the base of all the wings above clear black.

Var. δ . Both sexes with the nervures of the posterior wings dilated at the base beneath.

Var. ϵ . Female with the wings yellowish above.

Var. ζ . Dilated nervures of the posterior wings beneath dusky in both sexes.

The caterpillar is green-brown, clearer on the sides, with the stigmata yellowish; it is covered with white tubercles, with black tips, bearing very delicate hairs; it feeds on the *Brassica Napus* (or *Navew*) and similar plants, like its con-

genera. The chrysalis is greenish-yellow, spotted on the head and back; with the anterior edge of the wing-cases strongly spined.

This pretty insect is not uncommon in all parts in the vicinity of the metropolis; but it affects woods and meadows in preference to gardens. Very great dissimilarity prevails amongst the varieties described above, which renders it difficult to place some of them to their proper locations; in fact, amongst them are several which closely approximate to *Po. Napææ* and *Sabellicæ*; but the wings are of dissimilar form.

Sp. 6. *Napææ*. *Alis lacteis, superioribus suprâ puncto apiceque nigro-maculatis, inferioribus pallidis, venis tribus primoribus dilatato-virescentibus.*—(Exp. alar. 1 unc. 10 lin.—2 unc. 2 lin.)

Pa. *Napææ*. *Esper.*—*Po. Napææ*. *Steph. Catal.*

Like its congeners this species varies considerably: the male has the upper surface of the wings milk-white, with the tip, a spot, and two or three triangular dashes on the hinder margin of the anterior black: beneath, the latter have slightly dilated greenish nervures, with two cinereous spots placed transversely, and a yellowish tip: the posterior wings are pale yellowish, with a deeper costal streak: the basal nervures above dilated and greenish. The female has the tip of the anterior wings, and three spots, one of which is subtriangular, and placed on the thinner edge of the wings, black or dusky, and the posterior wings are clearer yellow. The nervures on the under surface of the posterior wings are more or less dilated in different specimens.

Var. β . Female without the transverse cinereous spots beneath.

The larva and pupa are unknown to me; the perfect insect occurs in the metropolitan district, and probably in other parts of the country. I think, with Godart, that it may only be a very large variety of *Po. Napi*, but as it appears to have characters sufficient to constitute a distinct species, the determination of this point must be left for a future investigation.

Sp. 7. *Sabellicæ*. PLATE III. * f. 3, ♂.—f. 4, ♀.—*Alis suprâ albidis basi nigricante, utrinquè fuscescente-venosis; subtus anticis apice, posticis paginâ omni flavescens.* (Exp. alar. 1 unc. 7—10 lin.)

Pa. *Sabellicæ*. *Petiver, pl. 1. f. 17, 18, ♂.—f. 15, 16, ♀.*—*Po. Sabellicæ. Steph. Catal.*

Allied to *Po. Napi*, but dissimilar in form, the wings being shorter and more rounded; the anterior being nearly of the form of those of *Po. Cardamines*,—it has the upper surface of all the wings of a yellowish-white, with broad dusky irrorated nervures; broadest towards the hinder margin: the male has the base of the anterior wings and a single irregular spot in the fourth marginal cell dusky, and the female the base and tips of the same wings, a spot in the fourth and sixth marginal cells, and the inner edge of the wings of the same

colour: both sexes have a similarly coloured spot on the upper margin of the posterior wings above. Beneath, all the wings are adorned with very broad dusky nervures, resembling those in var. ζ of *Po. Napi*, but varying in different specimens; and the dilated nervure on the upper edge of the discoidal cell is destitute of the insulated yellow spot, which every specimen of *Po. Napi* that has passed under my examination possesses.

I have long had two specimens of this insect—which agree with the figures cited above, and with the *Bryoniæ* of Wallner; but *Petiver's* name having the priority, I have adopted it—the locality of which I unfortunately forget; but on the 4th of June last (1827) I had the good fortune to capture a third specimen in Highgate wood, agreeing precisely in its upper surface and in form—which is of far greater importance—with the specimen from which figure 2 was drawn, but differing a trifle by having the nervures beneath less dilated towards the tips of the wings. I have since taken other specimens at Ripley, and Mr. Haworth has recently captured it in Battersea Fields. There are also specimens in the British Museum.

B. With the terminal joint of the palpi shorter than the second: the anterior wings distinctly rounded at the tip; the posterior variegated beneath: the pupa angulated, with an elongated acute process, or beak, in front: lateral appendages wanting. (MANCIPIUM.)

Sp. 8. *Daplidice*. *Alis albis, anticis maculâ mediâ apiceque nigris, posticis subtus lutescente-viridibus, maculis strigâque angulatâ albis.* (Exp. alar. 1 unc. 10 lin.)

Pa. *Daplidice*. *Linné.*—*Po. Daplidice*. *Curtis*. i. pl. 48.—*Steph. Cat.*

This rare British insect is white above: the female has the anterior wings black at the tip, with four white spots; towards the middle a large quadrangular black patch, divided in the centre with a white line, and on the thinner margin towards the tip is a round black spot: the posterior wings are edged with black, the border being internally waved with white spots: beneath, the anterior wings are nearly similar to the upper surface, but the apical and central spots are greenish: the posterior wings are white, varied with yellowish green; the latter coloured part being finely irrorated with black. The male (of which I have not seen an indigenous specimen) has not the black spot on the thinner edge of the anterior wings above, and the posterior wings are immaculate: beneath both sexes resemble each other: the body is whitish, with the back black: the antennæ are whitish, annulated with black.

The caterpillar, according to the description of the continental entomologists, is dull blue, edged with yellow and spotted with black: the head is clear green, spotted with yellow and black. The chrysalis is greenish, or ash-coloured, according to its age. The larva feeds upon various kinds of cabbages, on the *Reseda lutea*, and, from Hübner's account, on the *Thlaspi*, of which it eats the seeds.

On the continent this insect is double-brooded, its first appearance being about the end of April or the beginning of May, and the second about the middle of August; but the rarity of this species in Britain has hitherto prevented entomologists from correctly ascertaining whether such be the case in this country, though it must be presumed that is the fact, as the only recently recorded examples were captured in May and August, the first by Dr. Abbott—as stated in *Lepidoptera Britannica*—and the last by myself, on the 14th of August, 1818, in the meadow behind Dover Castle; and, unless greatly deceived, other specimens were at that time previously observed by me, but mistaken for dark females of *Po. Napi*. At the period last-mentioned, Mr. Dale informs me that a specimen was taken near Bristol. It was taken, according to Ray, by Petiver, at Hampstead, and by Vernon at Gamlingay, in Cambridgeshire, and it has also occurred near Bath.

Sp. 9. *Cardamines*. *Alis albis, anticis utrinquè lunulâ mediâ nigrâ, maris ad apicem fulvis, posticis subtus luteo-viridi nebulosis.*
(Exp. alar. 1 unc. 4 lin.—2 unc. 1 lin.)

Pa. *Cardamines*. *Linné.*—*Lewin, pl. 30.*—*Po. Cardamines.*—*Steph. Catal.*

The upper surface of all the wings in both sexes is white, with the base dusky; the anterior with a black lunule, which is usually very small in the male, in which sex they are adorned with a deep fulvous spot, extending from the lunule to the tip; the tip itself is dusky, or black, its posterior edge interrupted with black and yellowish: the posterior wings have a few dusky spots on the edge: beneath, both sexes have the anterior wings white, with a white lunule in the centre, a few black dots on the costa, and the tip varied with greenish yellow: the male has the base slightly tinged with sulphur, and a deep fulvous spot towards the tip, corresponding with that on the upper surface: the posterior wings in both sexes are alike beneath; they are white, prettily marbled with green and yellowish, the latter colour predominating on the nervures: the body is black above and white beneath: the antennæ are white, annulated with brownish.

Var. β . Both sexes with a black spot on the upper surface of the posterior wings.

Var. γ . Both sexes with the black lunule on the upper surface of the anterior wings nearly obliterated.

Var. δ . Female with a V-shaped greenish-yellow spot on the under surface of the anterior wings, placed between the lunule and the thinner margin.

† Var. ϵ . Male? with the fulvous spot nearly obliterated. This variety, which is in Mr. Haworth's collection, is probably an hermaphrodite.

The caterpillar is green, with a white longitudinal stripe placed above the legs;

it feeds solitarily on the Cardamine impatiens, Turritis glabra, Brassica campestris, &c. preferring the seeds. The chrysalis is either green or brown, with a fulvous spot on the wing-cases in the male; the middle is swollen and conical, with the extremities much produced and fusiform.

A common and highly beautiful species, occurring at the end of May in lanes, meadows, and gardens.

(From the trifling attention which has hitherto been bestowed upon the Pontiaë, I fear my readers will hastily exclaim that I have been too diffuse in my descriptions, and that "all the species are merely varieties;" but I trust that such persons will cautiously investigate the subject—which I freely confess requires elucidation—before they prejudge the question. It may, however, be remarked, that the above observations originated solely from an examination of recent specimens, without my being aware that they corresponded with those of Petiver, whose work on the British Papiliones—in which the Pontiaë are subdivided as above, with the exception of *P. Chariclea* and *Napææ*—was published upwards of a century ago, though totally disregarded by subsequent writers!

GENUS V.—LEUCOPHASIA * *mihî*.

Antennæ with an abrupt, obconic, compressed club: *palpi* very short, depressed, three-jointed, the basal joint large, conic, the second small, quadrate, the terminal one minute, globose: *wings* opaque, suborbicular, the discoidal cell small, basal; posterior wings slightly grooved: *legs* alike in both sexes, moderate: *claws* distinct, bifid. Caterpillar cylindric, downy. Chrysalis angulated, fusiform, supported by a transverse thread.

The same principles which justify the separation of many of the well-established and incontroverted genera among the Coleoptera, authorize the disengagement of the present genus from Pontia; but although a strenuous advocate for the establishment of genera upon important variations of structure, it is not without reluctance that I add another generic name to the almost infinite number with which the pages of entomological works are necessarily filled, from the vast extent of the science; however, in this instance I feel less regret than I should otherwise have done, from my path having been traced out by Mr. Curtis, whose published characters are incorporated above, in his remarks upon the genus Pontia, although I had previously divided Leucophasia from that genus in my MS, but without a name.

Sp. 1. Sinapis. *Alis albis, immaculatis, anticis supra apice fuscis, posticis subtus cinerascete-nebulosis.* (Exp. alar. 1 unc. 4—10 lin.)

Pa. Sinapis. Linné.—Lewin, pl. 29. f. 4. 5.—LeSinapis. Steph. Cat.

* Λευκος, albus—φασις, apparitio.

Wings above milk-white, with a dusky, rounded, spot at the tip of the anterior, and the base of all a little irrorated with dusky: beneath the same, with the tip and base yellowish tinged with green, and thickly irrorated with cinereous, as the costa is also: the posterior wings are slightly tinged with yellowish, and thickly sprinkled with dusky irrorations disposed in clouds, having the appearance of transverse fasciæ, and leaving some patches of the ground colour quite clear: body cinereous above, white beneath: antennæ white, with black rings: the female differs in having the wings more rounded.

Var. β . With the spot at the apex of the anterior wings above deep black.

Var. γ . With the wings above immaculate white, or cream-colour.

Caterpillar green, with a deep yellow lateral line: it feeds on the Lotus corniculatus and Lathyrus pratensis, but not upon the cabbage, as stated in the Butterfly Collector's Vade-Mecum. The chrysalis is fusiform, resembling that of Po. Cardamines and Daplidice; it is greenish with a yellow streak on the sides, and white spots on the stigmata.

Not uncommon at the end of May and beginning of August at Coombe and Darenth Woods: it also occurs in other places.

GENUS VI.—PIERIS.

Antennæ with an abrupt, obconic, slightly compressed club: *palpi* short, three-jointed, the basal joint long, recurved, cylindrical; second about half the length of the first, the terminal one slender, about the length of the second, linear: *wings* sparingly covered with scales, subdiaphanous; the anterior subtriangular, the posterior suboval, with a groove to receive the abdomen: *legs* alike in both sexes: *claws* distinct, bifid. Caterpillars subfusiform, hairy, slightly tuberculated. Chrysalis angulated, head-case very obtuse, fastened transversely by a thread.

Latreille having adopted the term *Pieris* to designate the European *Pontia* and the genera which have recently been detached therefrom, and his *Pi. Cratægi* being placed as the type, I have here employed it in preference to coining a new name, being uncertain of

GENUS VII.—DORITIS, *Fabricius*.

Antennæ rather short, with an abrupt, nearly oval, straight club: *palpi* a little elevated above the head, distinctly three-jointed, cylindrical-conic: *wings* suboval, sparingly covered with scales: the posterior excised: *legs* similar in both sexes: *claws* simple; females with a strong carinated concave membrane on the posterior segment of the abdomen. Caterpillar with tentacula. Chrysalis oval, folliculated.

‡ Sp. 1. Apollo. *Alis albis; posticis ocellis supra quatuor, subtus sex, basique rubris.* Linné. (Exp. alar. 3 unc.)

Pa. Apollo. Linné.—Don. xiii. pl. 433.—Do. Apollo. Steph. Catal.

Wings white: the anterior wings with five black spots: the base and costa

the species which originally formed the type of the genus *Pieris* of Schrank,—which name I am, however, aware has been used by Mr. Swainson, in his *Zoological Illustrations*, for a group of South American white butterflies, but, in my opinion, improperly.

sprinkled with black dots, and the hinder margin nearly transparent and fuscous, a little irrorated with dusky, with an irregular waved dusky band parallel with the hinder margin, and sprinkled with white: the under surface is nearly similar, but the two black spots towards the tip are nearly evanescent, and are red in the centre: the posterior wings above have the base and inner edge dusky: an ocellus with a white pupil, surrounded by a red and black iris on the costa, and another similar one on the disc: these ocelli appear on the under surface, which is also adorned at the base with an interrupted red band externally bounded by black, and on the inner edge is an irregular dash of red, edged with black, tending towards the discal ocellus: the base of the wing is dusky, and there is a faint trace of a fascia of spots parallel with the hinder margin: the body is dusky, clothed with cinereous hairs: the antennæ white, with a black club.

Caterpillar velvety-black, clothed with short stiff black hairs; and adorned with two rows of deep orange spots, one dorsal, the other ventral; the margins of the segments are black, edged with blue: the head is small in proportion to the body, and the neck is furnished with a yellow, furcate, retractile, tentacule: it feeds on the saxifragæ. The chrysalis is black, powdered with blue; it is thick, short, oval, spotted with red on each side anteriorly: is usually accompanied by the exuviæ of the larva, and subfolliculated.

This elegant insect, which is a native of the Alps and the high mountains of Europe, is said by Donovan, from the vague notice given in the preface to *Lepidoptera Britannica*, p. 29, to be a native of the isle of Lewes, one of the Hebrides; but from information subsequently obtained from Professor Hooker, it appears that the specimen supposed to have been captured there, was in a box of insects belonging to Lord Seaforth, which had been sent from Norway, where *Do. Apollo* abounds.

‡ Sp. 2. *Mnemosyne*. *Alis albis, nigro nervosis; primoribus maculis duabus nigris marginalibus.* Linné. (Exp. alar. 2 unc. 4—6 lin.)

Pa. *Mnemosyne*. Linné.—Turton.—Do. *Mnemosyne*. *Steph. Catal.*

Similar to the foregoing, but less, and without the ocelli: wings white, with black nervures: the anterior on both surfaces, with the base, dusky; two black spots in the middle towards the costa; the hinder margin membranaceous, transparent, fuscous, with an obsolete white band composed of spots parallel with the margin: there is also a triangular fuscous spot between the marginal band and the posterior edge of the basal areolet*: the posterior wings

* The term areolet was used by Mr. Kirby prior to the generally adopted one of cell, or cellule, of Jurine and subsequent writers.—Vide *Kirby and Spence, Int. v. iii. p. 625.*

Sp. 1. Cratægi. *Alis ferè concoloribus albis, venis nigris.* (Exp. alar. 2 unc. 4—10 lin.)

Black-veined white

Pa. Cratægi. *Linné.—Lewin. pl. 24. f. 1—4.—Pi. Cratægi. Steph. Catal.*

An elegant insect: both surfaces of the wings are white, with black nervures, and nearly correspond; above, the anterior wings are margined on their outer edge with irregular triangular transparent dusky spots, the nervures being black, with the transverse one at the tip of the basal areolet very broad: the posterior wings are similarly bordered on their outer edges, but the nervures are less expanded on the disc: beneath, the anterior wings resemble the upper surfaces, but the nervures are more dilated; the posterior wings, on the contrary, have the nervures much stronger than on the upper surface, and are very thickly irrorated with dusky: both sexes have the wings very transparent, the female especially; and this sex has the nervures generally brownish.

Var. β . Without the black spots on the hinder margin of the anterior wings.

The caterpillar lives in society, beneath a silken web, during the earlier periods of its existence: it is at first black; it afterwards becomes furnished with very short yellow and white hairs, and three black, longitudinal lines, one dorsal, the other lateral: it feeds on the whitethorn. The chrysalis is yellow or white, with small stripes and spots of black: the perfect insect appears in about three weeks.

This elegant insect is somewhat periodical in its appearance, at least near London. In June, 1810, I saw it in plenty at Coombe-wood, and in the following year I captured several at Muswell-hill, since which time I have not seen any at large. Mr. Haworth informs me that it used to occur constantly at Chelsea, but he has not seen any of late. In the New Forest, near Brockenhurst, and near Herne-bay, in Kent, it abounds, and I believe regularly: it is also found near Enborne, Berks, and Glanville's-Wootton, Dorset, as I am informed by Mr. Dale.

FAMILY II.—NYMPHALIDÆ, *Swainson.*

Antennæ with a distinct club, sometimes much compressed and abruptly produced, or formed gradually and scarcely compressed; not hooked at the tip: *anterior legs* in both sexes more or less imperfect, intermediate and posterior perfect, furnished with moderate bifid claws, or simple with an unguiform appendage: *hinder tibiæ* with one pair of spurs only, or simple: *posterior wings* with a groove to receive the abdomen. *Larva* cylindric, spinose, or

are also similar on both surfaces: their inner edge is dusky, and there is an indistinct small dusky spot on the costa, and a black one towards the centre of the disc: the body is black, covered with cinereous down, and the antennæ are totally black.

Caterpillar and chrysalis unknown: the perfect insect is a native of the alpine countries of Europe, and has been incorrectly marked as an indigenous species by Dr. Turton.

tuberculated, sometimes downy and bimucronate behind: *pupa* angulated, not fastened transversely.

It has been justly observed by Mr. Swainson, that the insects of this family are conspicuous for their strength of body, rapidity of flight, superiority of size, and brilliancy of colouring; but these perfections are counterbalanced by the imbecility of their anterior legs, which are generally destitute of claws, and frequently so short as to be perfectly useless. In proof of these observations it will be sufficient to notice the powerful and daring evolutions of the beautiful *Vanessæ* and *Argynni*, the graceful flight of the *Limenites*, or the splendid iridescence of the “imperial purple plumes” of the *Apaturæ*, among the indigenous species.

The genera may be known by the following concise definitions:

<i>Antennæ</i> abruptè clavatæ: <i>Oculi</i>	}	nudi: <i>Palpi</i>	{	brevissimi:	8. NEMEOBIUS.
				capite longiùs, inferiores	pilosissimi: 9. MELITÆA.
	}	pubescentes:	{	vix hirsuti: 10. ARGYNNIS.	
				<i>Alæ anticae</i>	angulatæ: 11. VANESSA.
<i>Antennæ</i> extrorsùm gradatim crassiores, clavâ	}	rectâ: <i>Oculi</i>	{	haud angulatæ: 12. CYNTHIA.	
				nudi: 13. APATURA.	
				pubescentes: 14. LIMENITIS.	
		plus minùsve arcuatâ:		15. HIPPARCHIA.	

GENUS VIII.—NEMEOBIUS*.

Palpi horizontal, very short, hairy, three-jointed, basal joint minute, short, stouter than the following, which is elongate, nearly cylindrical, a little curved at the base, terminal joint truncate-conic, nearly half as long as the second: *antennæ* terminated by a short compressed club: *anterior wings* short, triangular; posterior suborbicular, denticulated: *anterior legs* imperfect, very hairy, in the male short, resembling the others in the female: *tarsi* with minute, simple claws: *posterior tibiæ* without spurs. *Larva* and *chrysalis* unknown.

It is surprising that the advocates for closely subdividing insects into genera agreeably to their structure, should have permitted the present anomalous genus to remain associated with *Melitæa*, Fabr. its *prima facie* appearance being so totally unlike the individuals of that genus, and its structure not only remarkably different from that of the other *Fritillaries*, as they are termed, but in many respects at variance with the characters of the family, as instanced in the simplicity of the claws and posterior *tibiæ*. Its extremely short palpi, and the different neuration and brevity of the wings, sufficiently point out the present genus from the two following.

* Νεμος, nemus; βίωω, vivo.

Sp. 1. *Lucina*. — *Alis denticulatis, suprâ fuscis, maculis fulvis, posticis subtus fasciis duabus macularibus albidis.* (Exp. alar. 1 unc.—1 unc. 4 lin.)

Pa. *Lucina*. Linn.—Don. vii. pl. 242. f. 2.—Me. *Lucina*. Steph. Catal.

The smallest indigenous species of this family: the upper surface of all the wings is obscure brown, with irregular spots of fulvous, disposed transversely, the base of the wings being immaculate, and the outer row of spots being adorned in the centre with a black dot: the anterior wings beneath are somewhat similar to the upper surface, but paler, with two ranges of fuscous spots towards the tip, which is also spotted with whitish; the posterior wings beneath are deep fulvous, with two rows of subquadrate white spots, and a marginal striga of black dots: the cilia on both surfaces are white, interrupted by fuscous: the upper part of the body and the antennæ are dusky.

Var. β . Both sexes with the upper surfaces of all the wings pale fulvescent, with paler spots.

The male has frequently the upper surface of the posterior wings nearly all fuscous, with a single marginal row of lunulated fulvous spots; and the female has often a whitish transverse band of spots on the centre of the upper surface of the same wings.

The caterpillar and chrysalis are unknown; the former is said by Stewart to feed on grasses.

Far from a rare species, though not very frequently met with, being local. I have taken it abundantly at Coombe-wood, and occasionally at Darenth, at the end of May. In Ray's time it was found at Boxhill and near Dulwich. Mr. Dale has taken it in the New Forest, and in Dorsetshire and Berkshire.

GENUS IX.—MELITÆA, *Fabricius*.

Pulpi ascending, long, divaricating, very hairy, three-jointed; basal joint moderate, a little bent, second elongate, cylindric, or subfusiform; terminal joint acicular, half the length of the preceding, or short and minute, sometimes ovate: *antennæ* with a short abrupt compressed club: *anterior wings* elongate triangular, *posterior* orbicular: *anterior legs* imperfect in the male, short in the female: *tarsi* with double nails, or with simple claws, furnished with an unguiform appendage. *Larva* pubescent, with fleshy tubercles, or spines. *Chrysalis* slightly angulated, head-case obtuse.

I may here reiterate the observations in page 15 concerning the dissimilarity of structure apparent in the contents of modern genera; but for similar reasons to those there stated, I shall retain the genus *Melitæa* without further change than the removal of *Nemeobius* therefrom: I shall therefore merely point out the sectional characters, previously remarking, that the species may be distinguished from the *Argynni* by their elongated anterior wings, and that the structure of the palpi and silvery patches on the inferior surface of

their posterior wings in the last section, beautifully exhibit the gradual manner in which nature leaves one conterminous group for another.

A. Palpi very slender, the second joint a little bent at the base, nearly cylindrical, the terminal acute, half as long as the preceding: wings fasciated with yellow, or ochraceous beneath.

Sp. 1. *Athalia*. *Alis supra nigris fulvo tessellatis, posticis subtus flavidis fasciis duabus fulvis posteriore lunulis nigris insignatâ.* (Exp. alar. 1 unc. 7—9. lin.)

Pa *Athalia*. *Esper.*—Pa. *Dictynna*. *Lewin. pl. 14, f. 5, 6.*—Me. *Athalia*. *Steph. Catal.* *Heath Dictynna*

Above black, tessellated transversely with fulvous: anterior wings beneath fulvous, with a few black dashes towards the costa, and some yellow spots at the tip: posterior wings with a fascia at the base composed of four nearly square yellowish spots, each edged with black: a brown band, in which is an oblong yellow spot also edged with black; succeeded by another band, of a yellow or ochraceous colour, formed of numerous united spots, each edged with black: then a band of brown lunules edged with black; and finally a third yellowish marginal band of six lunules, also edged with black: cilia yellowish, spotted with black.

Var. β . Wings black above, with alternate transverse rows of whitish and pubescent tessellations: the central band on the posterior wings beneath composed of one row of yellowish elongate spots.

Var. γ . Wings black above, with the two rows of fulvous tessellations towards the hinder margin of the anterior wings united.

Var. δ . Wings black above with very small fulvous spots, those on the outer margin wedge-shaped, and the bases of all the wings above nearly immaculate. Caterpillar black, shining, with two white dotted lines on each segment, and white tubercles on the side: it feeds on plantain. Chrysalis gray-brown, spotted with black on the wing cases, and with a series of black and reddish spots on the hinder part of the body.

A very variable species, and rather uncommon in the neighbourhood of London: it is, however, abundant in some parts of Devonshire, towards the end of May. According to Petiver, it was frequent in Cain-wood in his time.

This species is usually known by the name *M. Dictynna*, but the insect which accords with the Fabrician description has not been observed in Britain. I have therefore reverted to the original name proposed by Esper. I may here remark, that owing to the insufficiency of the original characters, much confusion has arisen in the nomenclature of the *Melitææ*, as many of the recently discovered species differ so slightly, that the same general description will apply to several.

† Sp. 2. Pyronia. PLATE IV. f. 1, 2.—*Alis fulvis lituris nigris, posticis nigris strigâ fulvâ, subtus fasciâ nigrâ venis fulvis, posticis fasciâ albidâ venis maculisque atris.*—Haw. (Exp. alar. 1 unc. 7 lin.)

Pa. Pyronia. Hübner.—Me. Pyronia. Steph. Catal.

Rather less than Me. Athalia: anterior wings above deep fulvous, with the base, the nervures, blotches in the middle, a waved streak and marginal band black: posterior black above, with a waved streak towards the middle, composed of six subquadrate fulvous spots: beneath, the anterior wings are fulvous, with two quadrate black spots at the base, a broad black band intersected by fulvous veins, a streak near the hinder margin composed of black confluent lunules, and a very narrow black marginal streak: posterior wings fulvous at the base, with about eight angulated contiguous black spots: in the middle a broad waved whitish band intersected by black veins, behind the band a streak of fulvous lunules, edged with black, then an undulated streak towards the hinder margin of black lunules, with ochraceous lunules adjoining, and finally a narrow marginal black streak: the cilia in all the wings are black and white.

This lovely insect, the Pa. Eos of Haworth, or the Pa. Pyronia of Hübner, was captured near London (I believe at Peckham), in June, 1803, and is by Ochsenheimer reputed to be a variety only of the preceding species, and I think not without reason, as its chief distinction appears to consist in the greater intensity of the black markings on the posterior wings above, and on the bases of both wings below, characters which frequently accompany the individuals of the group of Nymphalidæ called Fritillaries; but until connecting varieties are obtained, it is better to follow Mr. Haworth's views, and doubtingly to consider it distinct from Me. Athalia.

† Sp. 3. tessellata. PLATE V. f. 1, 2.—*Alis suprâ fulvis nigro tessellatis, posticis subtus stramineis fasciis tribus flavidis lunulisque nigris.* (Exp. alar. ex fig. Petiv. 1 unc. 8 lin.)

Pap. fritillaria tessellata serotina subtus straminea. Petiver, pl. 3. f. 11, 12.—
Me. tessellata. Steph. Catal.

Similar in size and shape to Me. Athalia, but evidently distinct: the wings are rather paler above: the anterior more fulvous beneath: the posterior are very dissimilar to those of the above insect, being entirely straw-coloured, with black nervures: at the base are three large square yellowish spots surrounded by black: an arcuated band in the middle composed of yellowish somewhat quadrate spots, which are nearly confluent, and placed in a double row, and edged with black: there is then a streak of black lunules pointing outwards: then a marginal band composed of yellowish spots encircled with black, each yellow spot being a black lunule: the cilia are white, intersected with black.

Through the kindness of my friend Mr. Westwood I am enabled

gratuitously to present my readers with fac-similes of this and another apparently lost species of Papilionaceous insects which are depicted in the rare "Papiliones Britanniae," &c. by Petiver. From the general accuracy which characterises this author's figures, there is no doubt of this insect being distinct from *M. Athalia*, which is figured by him as the *Pap. tessellata serotina subtus albidata*; and as his *Pa. tessellata serotina subtus straminea* has not been observed in modern times, I have, at the suggestion of Mr. Haworth, who kindly offered the use of his copy of the work for the purpose, republished Petiver's figures, tinted, in his rough style, and resembling the present appearance of the originals, in order to obtain some information relative to the existence of the species in these days. In Petiver's time it was, as he informs us, "pretty common in Cain-wood." From its close approximation to *Me. Athalia*, I have no hesitation in referring it to the present section.

B. Palpi incrassated, the second joint not cylindric, sometimes very broad and fusiform, the terminal joint minute, ovate.

a. Wings fasciated with yellow or ochraceous beneath.

Sp. 4. *Artemis*. *Alis supra fusco-nigris, fulvo flavidoque tessellatis, posticis subtus fulvis fasciis tribus ochraceis, strigâque punctorum subocellatorum utrinque.* (Exp. alar. 1 unc. 4 lin.—1 unc. 11 lin.)

Pa. *Artemis*. *Linné.—Don. vii. pl. 242, f. 1.—Me. Artemis. Steph. Catal.*

Wings above reddish-fulvous, undulated with black, and spotted with yellowish: the posterior with three distinct bands, of which the intermediate is fulvous, and bears a striga composed of from four to seven black dots: the under surface of the anterior wings is glossy, and is very obscurely marked as above, but the black is nearly obliterated, and at the tip are some ochraceous dashes: the posterior wings beneath are fulvous, with three transverse ochraceous yellow bands usually and slightly edged with black: the basal band is irregular and broken, the central bent and entire, the third marginal and composed of lunules: between the outer bands is a row of seven black dots, obsolete edged with ochraceous: the cilia are yellowish, interrupted on the anterior wings by dusky: the body and antennæ are dusky.

Var. β . With the base and posterior margin of all the wings brown-black: the anterior wings tessellated with fulvous and whitish.

Var. γ . With the wings similar to the last at the base: the anterior with three oblong fulvous spots near the costa, towards the middle: then a fulvous fascia composed of very narrow elongated longitudinal stripes: a waved band composed of quadrate fulvous spots, and a black marginal band bearing lunulated fulvous spots: beneath similar to the first described.

Var. δ . Posterior wings beneath, with the irregular basal band, totally obliterated, the central band not edged with black externally.

Var. 2. The posterior wings beneath, with the basal half fulvous, the exterior half ochraceous, with an obsolete row of black spots.

The caterpillar is black above and yellowish beneath, with a longitudinal row of small white dots on the back and on each side: the head and spines are black: the legs red-brown. It feeds on the devil's-bit scabious (*Scabiosa succisa*) and on various kinds of plantain; it makes its appearance in September, and the young brood keeps together under a web, in which it passes the winter; about the end of April the caterpillar is full grown, and changes to the chrysalis, which is of a greenish-white, spotted with black, with yellow tubercles at the extremity of the body; the butterfly is produced in about fifteen days.

A local species, rare near London, but particularly abundant near Brighton, and at Enborne in Berks: it also occurs near Norwich—in Clapham-park, Bedfordshire—in Dorsetshire—in Glamorganshire—at Eriswell and Mildenhall, in Suffolk—Dartmoor, in Devonshire—and at Beachamwell, in Norfolk, usually towards the end of May.

Sp. 5. *Cinxia*. *Alis supra fulvis, nigro-reticulatis, posticis subtus fasciis tribus flavescentibus, nigro-maculatis, strigâque punctorum subocellatorum utrinque.* (Exp. alar. 1 unc. 9—11 lin.)

Pa. *Cinxia*. Linné.—Lewin, pl. 14.—Me. *Cinxia*. Steph. Catal.

Wings above yellowish-fulvous, prettily reticulated with black; the posterior with four or five black dots, placed transversely, in each of the fulvous spots, towards the anal angle of the wing: the cilia above white, interrupted by black: beneath, the anterior wings are brighter than above, with a few black markings, the tip yellowish, with a double series of black dots, the inner one waved; posterior wings with three yellowish angulated bands, edged and spotted with black, and two irregular tawny-orange ones, the basal one very irregular, and the other with a row of ocellated spots, with a black pupil and

† Sp. 6. *Maturna*. *Alis purpurascens nigro-maculatis; subtus fasciis tribus flavis.* Linné.

Pa. *Maturna*. Linné.—Me. *Maturna*. Steph. Catal.

Wings above fulvous, tessellated with black and white; beneath saffron-red, with three yellow fasciæ, the first interrupted and composed of four or five irregular spots; the second with greenish spots; the third marginal, composed of lunules.

Caterpillar black, shining, with three spotted yellow lines, one dorsal, two lateral; it feeds on plantain, aspen, willow, beech, &c.; chrysalis whitish-green, spotted with black and yellow.

I have no doubt this insect has been erroneously introduced into our Fauna (by Stewart), in consequence of Linnæus referring to Wilkes's table 11. fig. 9. for a figure; as there is no authentic instance of *Me. Maturna* having been found in Britain: the insect figured by Wilkes being *Me. Athalia*.

yellowish iris, corresponding with the series on the upper surface; cilia yellowish, interrupted with black: body black above, yellowish beneath: antennæ brownish above, interrupted with whitish, which last colour predominates beneath.

Caterpillar black, spotted with white: the head and prolegs fulvous: the legs and spines black. Chrysalis stout, black, sprinkled on the ventral segments with grayish dots, and on the back with fulvous tubercles: the perfect insect appears in about a month. The caterpillar feeds on various kinds of plantain, on ribwort, speedwell, mouse-eared hawkweed, &c.; it is produced in the autumn, and lives throughout the winter in society, beneath a silken web, and in April it becomes full grown and changes to a pupa; it is much subject to the attacks of ichneumonidæ and muscidæ.

This is a very local species, and is found in meadows by the sides of woods: in Wilkes's time it was not uncommon in Tottenham-wood: recently the places where it has been chiefly observed have been near Ryde and the Sandrock hotel, Isle of Wight; in the latter place in plenty: also at Birch-wood, and near Dartford and Dover, and in a wood near Bedford. I believe it has been found in Yorkshire; and from Ray, p. 121, it would appear to have been abundant in Lincolnshire in his time. It generally flies in June.

b. Posterior wings more or less spotted with silver.

Sp. 8. Selene. *Alis fulvis, nigro-maculatis, posticis subtùs ferrugineo flavidoque variegatis, maculis argenteis ocelloque nigro pupillâ rufâ, strigâque posticâ e punctis atris.* (Exp. alar. 1 unc. 8—11 lin.)

Pa. Selene. *Fabricius.*—Pa. Euphrasia. *Lewin, pl. 13.*—Me. Selene. *Steph. Catal.*

Rather less than the next, which it closely resembles on the upper surface, but

‡ Sp. 7. Dia. *Alis fuscis, testaceo-maculatis; subtùs maculis quatuor ordinibusque punctorum duobus argenteis.* Linné. (Exp. alar. 1 unc.—10 lin.)

Pa. Dia. *Linné.*—*Stewart.*—Me. Dia. *Steph. Catal.*

Wings above fulvous, spotted with black; the base of the posterior nearly black; beneath, the latter are purplish, with six or seven small silvery spots at the base, intermixed with minute yellowish dots; a band composed of silvery and yellowish spots, then a purplish-white streak, in which is a series of circular spots, slightly pupillated; and finally, in the margin is a series of silvery lunules: the cilia are whitish, interrupted by brown.

Caterpillar black, the back griseous with a longitudinal line, the spines alternately white and reddish: it feeds on the *viola odorata*: chrysalis yellowish, varied with black.

Stewart appears to have introduced this species; but he does not give any authority for so doing. I have a reputed English specimen, but as I cannot vouch for its authenticity, it is better to remain silent. Like the other two species of this section, Me. Dia is double-brooded on the continent.

the under surface, especially of the posterior wings, is very dissimilar: their ground colour is ferruginous, with a brighter band at the base, which is bordered on each side with a row of irregular silver and yellow spots, forming two bands, and has in its centre a large black ocellus, with a rufous pupil; the rest of the wing is varied with ferruginous and yellowish, with about three silvery spots, placed transversely; on the inner and anterior margins a striga composed of black dots; and lastly six conical silver spots, edged internally with black: the cilia of all the wings are yellowish, interrupted with brown: the anterior wings are more distinctly varied with black than in *Me. Euphrosyne*, and the hinder margin is more strongly tipped with ferruginous or deep brown, and has a very distinct row of conical black spots, pointing inwards.

† Var. β. With the upper surface of the wings whitish.

Caterpillar black, with a clear lateral stripe; spines half yellow.

A very common and beautiful insect; occurring on heaths and in woods throughout the southern parts of Britain, being frequently met with so far west as Dartmoor, in Devon: the first brood appears in May, the second in August.

Sp. 9. *Euphrosyne*. *Alis fulvis, nigro-maculatis; posticis subtus rufo flavoque variegatis, maculis novem, harum septem marginales, argenteis, ad basin oculo flavo pupillâ nigrâ.* (Exp. alar. 1 unc. 9—11 lin.)

Pa. *Euphrosyne*. *Linné.—Don, xi. pl. 312.—Me. Euphrosyne. Steph. Catal.*

Wings above pale fulvous, irregularly spotted with black at the base, with a row of round black spots near the hinder margin, then a row of conical spots, the points inward, and finally, a marginal series of dusky spots, bounded by a slender black line: cilia yellowish, interrupted with black: the anterior wings beneath are rather brighter than above, and are spotted irregularly with black towards the middle; the tip is rather ferruginous, with yellowish patches: the posterior wings at the base are rusty-red, with one or more silvery, and some yellowish spots, and a yellowish ocellus with a black pupil; towards the centre is a bent fascia, composed of irregular yellow spots, and one longitudinal, somewhat wedge-shaped, silvery one in the middle, followed by a broad band, varied with ferruginous and yellowish, in which is an obsolete series of fuscous spots; finally, the posterior margin is ornamented with seven subconical silvery spots: cilia yellowish, interrupted by brown: body dusky above, grayish beneath: antennæ black, ringed with white, with the tip of the club fulvous.

Var. β. With the marginal fascia of silvery spots on the posterior wings wanting.

Var. γ. With the basal half of all the wings above black, spotted with fulvous; with large black spots on the anterior wings beneath.

† Var. δ. With the ground colour of all the wings, both above and below, pale fulvous yellow.

† Var. ε. PLATE IV. * f. 3.—Wings above pale fulvous, irregularly spotted with black: anterior beneath pale, varied with yellowish and ferruginous

towards the tips, with some obsolete black and dusky spots on the disc: posterior wings variegated with ferruginous, yellowish, and greenish, with the pupil of the ocellus very large, the discoidal silvery spot produced to the hinder margin, and the usual marginal spots lengthened inwardly; the usual fasciæ are obliterated, but the silvery spot at the base is somewhat apparent. Caterpillar black, with two dorsal spotted orange stripes: it feeds on the *viola montana*.

Like the preceding species, this is a very generally distributed insect, and is found throughout the southern parts of Britain; it also occurs in the neighbourhood of Edinburgh: the first brood appears towards the end of May, and the second towards the approach of autumn. I have no doubt of the varieties δ and ϵ belonging to this species, although others are of a contrary opinion: the latter is the Pa. *Thalia* of the Entomological Transactions, vol. ii. p. 333; but the Pa. *Thalia* of the continental writers is referred by Ochseneimer and Godart to Me. *Selene*.

GENUS X.—ARGYNNIS, *Fabricius*.

Palpi ascending, long, divaricating, hairy, three-jointed, basal joint moderate, curved upwards, second elongate, very broad, terminal very minute, slender, acicular: *antennæ* with a short, abrupt, compressed club: *anterior wings* triangular, *posterior* suborbicular; both somewhat dentate: *anterior legs* imperfect; *tarsi* with double nails. *Larva* spiny. *Chrysalis* subangular: generally with metallic spots.

The oral organs of the *Argynnes* greatly resemble those of the two last sections of the *Melitæa*; nevertheless the insects of this genus may be readily distinguished from those of the preceding by the superior breadth of the wings, as well as the dissimilar form of the terminal joint of the palpi when denuded. In the *Melitæa* this joint is of an ovate form, and rather obtuse, whereas in the *Argynnes* it is conical, slender, and acute; the proportions of all the joints are very similar, as well as the compressed form of the second: the palpi of Ar. *Lathonia* closely approximate to those of Me. *Euphrosyne*. Were the number sufficiently great, it would be advisable to divide the indigenous species into sections; but as there are four (or five) only, I shall simply observe that Ar. *Lathonia* differs from its congeners by the male being destitute of the dilated nervures so conspicuous in that sex of the other species, while in its habits it differs in being double-brooded, and in appearing periodically.

Sp. 1. *Lathonia*. *Alis fulvis, distinctè nigro-maculatis; posticis subtis maculis*

numerosis argenteis, strigâque ocellorum septem ferrugineorum pupillâ argenteâ. (Exp. alar. 1 unc. 10 lin.—2 unc. 1 lin.)

Pa. Lathonia. *Linné.—Don, iii. pl. 73.—Ar. Lathonia. Steph. Catal.*

Wings above tawny-orange, distinctly spotted with black, with the base powdered with greenish: anterior beneath spotted as above, but paler, with the tip brown and bearing seven or eight more or less distinct silvery spots: the posterior wings are yellowish, varied with brown beneath, with above twenty-two silver spots of a very unequal size and dissimilar form, of which about fifteen are placed between the base and the middle of the wings, and seven on the posterior margin: between these groups are seven ocellated spots of a dusky-brown, with silver pupils: cilia on all the wings above whitish-fulvous, interrupted with black; beneath fulvescent, with a few dusky spots.

Caterpillar gray-brown, with a white line down the back, and spotted with black, with two brownish-yellow lateral lines: the spines and legs pale yellow. Chrysalis anteriorly dull-brown, posteriorly greenish, sprinkled with gold and silver spots: a white streak at the end of the wing-cases:—the perfect insect appears in about fifteen days. The caterpillar feeds on the *Viola tricolor*, *Hedysarum onobrychis*, and *Anchusa officinalis*.

The effulgent metallic brilliancy of the silver spots which adorn the posterior wings of this beautiful insect beneath, renders it pre-eminently conspicuous in our collections; and its peculiar rarity contributes to the value of its acquisition. Previously to the year 1818, few cabinets possessed even a single specimen; and from the very few known instances of its capture (six only, according to Mr. Haworth), there is reason to believe that some of the specimens at that time placed in collections were foreign; but in the

‡ Sp. 2. Niobe. *Alis fulvis, nigro-maculatis, posticis subtus maculis pallidis, seu argenteis, strigâque ocellorum ferrugineorum pupillâ argenteâ.* (Exp. alar. 1 unc. 8 lin.)

Pa. Niobe. *Linné.—Stewart.—Ar. Niobe. Steph. Catal.*

Wings fulvous, spotted with black, with the base above dusky: beneath, the anterior wings are similar, but the spots are smaller, and the base clear; the posterior wings are buff-colour, variegated with ferruginous, with silvery or yellow spots, with a series of ferruginous ocelli, with silvery pupils.

Caterpillar brownish, with orange-brown head and legs, a white dorsal stripe powdered with black, a black lateral stripe, and a whitish triangular spot on the side: spines whitish and reddish alternately.

Stewart gives this as a British species, but without any authority: I may, however, add, that among the insects purchased by Mr. Dale, from the professed indigenous collection of the late Dr. Abbot, of Bedford, was a single specimen of this species, which was considered by the Doctor as a variety of *Ar. Adippe*; but there was no history attached to the specimen.

above remarkable year for the appearance of certain papilionaceous insects, this species occurred simultaneously in several, and very distant, parts, having been taken in August by Mr. Haworth at Halvergate, in Norfolk; by Mr. Vigors, in Battersea-fields; by myself at Dover, and during that and the following month near Colchester; Birch-wood, Kent; and Hertford in plenty by others. At the latter place I saw several specimens, but was not fortunate enough to secure any. In Petiver's time it was not very rare in Gamlingay-wood, Cambridgeshire, in May; but all the recently recorded British examples have occurred towards the autumn; whence it would appear to be double-brooded, a fact which is apparently corroborated by the captures of 1818. The first specimen (a female) I caught on the 12th of August, sporting at the foot of Shakspeare's Cliff, was in a very faded state, and had evidently been "winging its way" for many weeks: a pair which I took on the 14th, in the Castle-meadow, Dover, were also in a faded condition: whereas the specimens taken near Birch-wood, at the end of September, were remarkably fine. Godart, however, tells us, that the last autumnal specimens hibernate and reappear in the spring—an anomalous event amongst the Fritillaries, thereby approximating in habits to the Vanessæ.

Sp. 3. Adippe. *Alis fulvis nigro-maculatis, posticis subtus ferrugineo-flavidis maculis plurimis argenteis, strigâque ocellorum ferrugineorum, ter vel quatuor, pupillâ argenteâ.* (Exp. alar. 2 unc. 6—9 lin.)

Pa. Adippe. Linné.—Lewin, pl. 10.—Ar. Adippe.—Steph. Catal.

Wings above fine orange-tawny, with the base sprinkled with greenish, with one unequal zigzag black streak passing through the middle, followed posteriorly with a transverse row of round black spots, of very unequal sizes, and, in some specimens, one or more wanting; then a series of lunules of the same colour pointing outwards; the margin black, with a row of narrow fulvous dashes: on the costa of the anterior wings, towards the base, are four irregular dashes, resembling the figures 1358 (as rudely sculptured about that period of the christian era), and on the posterior wings is a horseshoe-shaped black dash, sometimes accompanied by a round spot placed internally: beneath, the anterior wings differ in being less brilliant, and in wanting the greenish base; the exterior black border is wanting, and at the tip are a few silvery spots: the posterior wings are ferruginous, varied with yellowish, with six or seven different shaped dispersed silver spots near the base; then a zigzag band of seven square silver spots, the central one smallest, followed by a streak of about seven rusty-red round spots, some of which have silver pupils; lastly, a marginal band of seven rather conical silver spots, entirely edged with ferruginous: the costa at the base, the abdominal areolet, and the tip of the fol-

lowing, are also silver: beyond the marginal band of lunules the wing is pale fulvous: the cilia above fulvous, interrupted by black, beneath buff-colour, spotted with ferruginous: body dusky above, yellowish-white beneath: antennæ brownish, with the tip of the club tawny. The male is usually lighter in colour, and is distinguished by two dilated discoidal nervures on the anterior wings.

Var. β . The silver spots on the tip of the anterior wings, and the lunulated spots on the margin of the posterior, replaced by buff-colour.

† Var. γ . The anterior wings on both surfaces with a large black patch in the centre, formed by the confluence of the black spots.

Caterpillar fine red or olive-green, with a white dorsal line, edged with black dots: it feeds on the *Viola odorata* and *V. tricolor*. Chrysalis reddish, spotted with silver:—the perfect insect appears in about fifteen days.

Not quite so abundant as *Ar. Aglaia*, but frequently met with in the woods near London, at the end of June and throughout July. It is also found in Essex, Suffolk, Norfolk, Bedfordshire, Berks, Dorset, Devon, and Hants; in the latter county very commonly in the New Forest.

Sp. 4. *Aglaia*. *Alis fulvis, nigro-maculatis, posticis subtùs virescenti-flavidis maculis plurimis argenteis.* (Exp. alar. 2 unc. 4–10 lin.)

Pa. *Aglaia*. *Linné.—Lewin, pl. 11.—Ar. Aglaia.—Steph. Catal.*

Very similar to *Ar. Adippe* above, but rather paler, with the marginal band on the wings more distinct: anterior wings beneath also resembling those of the preceding insect, with the tips greenish, and bearing more silver spots on the hinder margin: posterior wings green, with the anterior margin of the costal areolet, the marginal half of the inner abdominal areolet, and the tip of the following one, silver; at the base of the wing are six or seven silver spots, of which the three basal ones are smallest; behind these, and parallel with the hinder margin, is a bent band, composed of seven unequal silver spots; and on the margin is another band of seven equal silver spots, the latter edged with green, the former with a narrow black line on their anterior margin: between the two rows of silver spots there is a clear yellowish-buff fascia, and a spot of the same colour towards the centre of the wing: body and antennæ as in *Adippe*: the male has also two dilated nervures on the anterior wings, and the female is distinguished by being darker, and having a row of yellowish spots on the marginal band of the wings.

† Var. β . Similar to var. α , except that one of the numeral characters on the costa of the anterior wings on both surfaces is obliterated by its confluence with the next; and the six basal silver spots on the under side of the posterior wings are united into three larger ones.

† Var. γ . Similar to the last beneath; but each spot of the series of round spots, which run parallel with the hinder margins of both wings, is united with the corresponding marginal lunule, giving the appearance of a series of busts on the edge of the wings.

Caterpillar dusky, with a pale line down the back, and a row of eight square red spots along each side: it feeds solitarily on the *Viola canina* (dog's violet).
Chrysalis red, varied with brown.

A common species throughout the south of Britain, which I have received from Devonshire, and captured in plenty at Dover, and in several intermediate places. It affects woods, meadows, heaths, and downs, and is found in July and August. The varieties β and γ are both referable to the Pa. Charlotta of Haworth; the former being the description of the typical variety, the latter that of an evident variety of Ar. Aglaia, beautifully exhibiting the variable nature of this species and the insufficiency of the mere confluence or absence of spots or lines to constitute a specific difference.

Sp. 5. Paphia. *Alis fulvis, nigro-maculatis, posticis subtis virescentibus fasciis quatuor argenteis.* (Exp. alar. 2 unc. 8 lin.—3 unc.)

Pa. Paphia. *Linné.—Lewin, pl. 9.—Ar. Paphia. Steph. Catal.*

Wings above fulvous in the male, virescent in the female, with numerous longitudinal and transverse black lines and bars, and a triple series of marginal black spots: anterior wings beneath paler and less spotted, particularly at the tips, which are greenish; the posterior wings are greenish beneath, with four irregular narrow pale-silvery waved bands, the first and second of which are anteriorly abbreviated, the third below the middle, reaching to the anal angle of the wing, the fourth marginal: between the two last bands is a series of ocelli, with a green iris and pale pupil, and on the margin is a row of green crescents: the cilia of all the wings above are fulvous interrupted by black, beneath paler, interrupted by ferruginous: the body is fulvous above, grayish beneath: the antennæ are brownish, with the club black, tipped with fulvous.

† Var. β . Female with the wings above deep virescent, with some whitish spots at the tips of the anterior.

The male has four dilated longitudinal nervures on the anterior, and two on the posterior wings: the female is greenish above, and the spots are usually larger than in the male.

Caterpillar brownish, with a longitudinal line of yellow spots on the back:—it feeds solitarily on the *Viola canina* (dog's violet), *Rubus idæus* (raspberry), and *Urtica dioica* (nettle). The chrysalis is grayish, with golden protuberances.

An abundant species in woods and meadows, and generally distributed throughout the south. It delights in settling on bramble-blossoms.

GENUS XI.—VANESSA, *Fabricius.*

Palpi contiguous, porrected obliquely, terminated gradually in a point, and

resembling a beak, thickly clothed with scales and hair, three jointed, the basal joint short, curved upwards, second long, attenuated at the apex, third as long as the basal, somewhat acicular: *antennæ* with an abrupt, subcylindric, short club: *wings* more or less angulated at the hinder margin: *posterior* very hairy above, towards the inner edge: *anterior legs* imperfect, very hairy, resembling a tippet: *tarsi* apparently with large double nails, or furnished with an unguiform process in addition to the claws: eyes very pubescent. Caterpillar with long dentate spines, the first segment unarmed. Chrysalis very angular, with the head strongly bituberculated; usually adorned with metallic spots.

The genus *Vanessa* contains the most vigorous and active of the British papilionaceous insects, which are no less distinguished by their boldness than by their superior size and the gaiety of their colours:—their angulated anterior wings at once distinguish the typical species from the *Cynthiæ*, but the form of the club of the antennæ, and the difference in the structure of the palpi, as well as the dissimilar armature of the larvæ, and more angular form of the pupæ, appear to demand the separation of the latter genus from the present. It is with reluctance that I retain *C. album* and *Atalanta* in the genus, as the structure of their palpi and the form of their wings are decidedly unlike that of the typical species, and their habits are slightly dissimilar; but, for reasons formerly related, I shall consider them merely as constituting sections. All the species hibernate.

(*Pa. Levana*, Linné, evidently belongs to a genus distinct either from *Vanessa* or *Cynthia*: but from the rotundity of the anterior wings, combined with the anastomosing colouring of all the wings beneath, I have placed it in the latter genus, notwithstanding the armed neck and gregarious habits of the larva. I may here remark that the attention of entomologists does not appear sufficiently alive to the advantages resulting from the valuable subsidiary character derived from colour, which the recent observations of zoologists have satisfactorily proved is of more importance in pointing out groups than usually supposed*. I do not, however, wish to lay too much stress upon such a precarious diagnostic, but merely throw out the hint that future observers may pronounce upon its merits, previously observing, that a very transient glimpse of a naturally arranged collection of lepidopterous insects clearly exhibits the prevalence of particular colours in each group, and the gradual manner in which they are blended in the conterminous genera.)

A. Anterior wings narrow, irregularly sinuated; posterior dentate, with a short tail: palpi densely clothed with scales, with a few short hairs. Caterpillar with the head bituberculate, gregarious.

* Vide Vigor's Obs. on *Psittacus*. *Zool. Journ.* v. ii. p. 48, &c
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Sp. 1. *C. album*. *Alis supra fulvis, nigro-maculatis, posticis subtus C. albo notatis*. (Exp. alar. 1 unc. 9 lin.—2 unc. 1 lin.)

Pa. *C. album*. *Linné.—Lewin, pl. 5.—Va. C. album. Steph. Catal.*

Wings above fulvous, or dark orange, spotted with black and brown, with a brown posterior margin; black spots on the anterior wings, in form, shape, number, and disposition similar to those on the following species: beneath, the anterior wings are dusky-brown, with a broad, irregular, green-marbled, pale band near the posterior margin: posterior wings very similar, with a reversed snowy-white C in the middle: near the posterior margin of all the wings is an irregular series of spurious ocelli, with a black pupil and green iris: body above dusky, with greenish hairs on the thorax: antennæ black above, brown annulated with white beneath, with the tip of the club yellowish.

Var. β . With the wings beneath uniformly dusky, without the pale band near the posterior margin.

Var. γ . All the wings beneath brown, with ochraceous bands beneath.

All the varieties have a white C beneath, which is more or less attenuated, and angulated, in different specimens.

The caterpillar is red-brown, with the back anteriorly yellow, posteriorly white: it feeds chiefly on the hop, and also on elm, willow, nettle, gooseberry, currant, hazle, and honeysuckle. The chrysalis is flesh-coloured, contracted in the middle, and spotted with gold: when viewed laterally the anterior part bears a rude resemblance to the human face in profile, or rather, as observed by Latreille, to that of a satyr as fabled by the mythologists.

This species has become somewhat scarce every where within these few years. Prior to 1813 I used to find it very abundantly near Hertford, but since that period I have not seen it;—it has, however, occurred during the last and present seasons in several parts of the country; and it appears to be generally distributed over the southern half of the kingdom*, frequenting woods, thickets, and gardens. There are two broods in the year; the first appearing towards the end of June, the latter about the middle of September.

B. All the wings angulated, posterior with a short tail; colours beneath sombre: palpi clothed with hair, with a few scales intermixed. Caterpillars with simple heads, gregarious.

Sp. 2. *Polychloros*. *Alis supra fulvis, nigro-maculatis, posticis margine postico nigro, lunulis cæruleis; alis omnibus subtus cinereis nigro-fasciatis*. (Exp. alar. 2 unc. 4 lin.—3 unc.) *The next Tortoise-like*

Pa. *Polychloros*. *Linné.—Lewin, pl. 2.—Va. Polychloros. Steph. Catal.*

Wings above dark orange, with the base dusky, and furnished with greenish hairs: the anterior with two transverse abbreviated costal fasciæ, separated by yellow ochre; between which and the base is a somewhat ovate black spot: on the disc are two roundish spots, and near the interior margin two

* Mr. Backhouse informs me that it is abundant near York.

other larger spots: the hinder margin is black, with a series of pale crescents: the posterior wings dusky at the base, with a large black costal spot; adjoining which is a yellowish patch: the margin is black, with obscure bluish crescents; the margin itself is brown, with two parallel pale lines, as in all the wings of *Va. Urticæ*: interiorly the wings are furnished with long tawny or greenish hairs: beneath, all the wings are clouded with black, with a broad, common, ash-coloured, clouded fascia behind, in which is a series of obscure bluish lunules: the anterior wings have three pale equidistant spots on the costa, and the posterior a white discoidal dot: the body is dusky, clothed with tawny hairs: the antennæ black, with the tip yellowish.

Var. β . The anterior wings with a long black dash on the interior (or thinner) edge, as in the female of *Pontia Brassicæ*.

Var. γ . The spot at the base of the wing divided in two.

Var. δ . Similar to the last; but the posterior wings with a series of round black spots, within, and parallel with, the marginal fimbria.

The caterpillar is bluish or brownish, with a yellow lateral stripe, with the spines slightly branched and yellowish. It feeds chiefly on the elm; and while young, the brood continues under a silken web, dispersing after the first change. The chrysalis is flesh-coloured, with golden spots on the neck.

This insect is also one of those which occasionally appear in profusion: during the past season it has been particularly abundant near London, occurring in plenty in Copenhagen-fields, and near Ripley, in Surry, last July. I captured in April last some faded specimens at the latter place, which had been produced in the preceding year: near Ramsgate, Deal, and other parts of Kent, and also in the vicinity of Hastings, and in the New Forest, it likewise occurred during the past summer. It usually frequents woody places and lanes where elms abound. There is but one brood, which appears about the middle of July.

Sp. 3. *Urticæ*. *Alis supra testaceo-fulvis, nigro-maculatis; basi nigro, marginique postico nigro, lunulis cæruleis.* (Exp. alar. 1 unc. 10 lin.—2 unc. 4 lin.)

Pa. *Urticæ*. *Linné.—Lewin, pl. 3.—Va. Urticæ. Steph. Catal.*

Wings above orange-tawny, with the base, and the hinder margin throughout, black, the latter with a series of blue crescents; the margin itself is brown, with two parallel pale lines: the anterior wings above have the costal areolet mottled with black and tawny: on the costa are two large subquadrate black spots; at the base two others, placed obliquely; and posteriorly, on the disc, two small round ones: between the two large costal spots and the anterior basal one are two yellow spots, and between the second basal spot and the anal angle is a third: towards the tip of the wing adjoining the posterior costal spot is a white one: the posterior wings are black at the base, powdered with tawny, and covered with long tawny hairs: beneath, the anterior wings are pale, variegated with black, with the tip sprinkled with brown, and the hinder margin with black lunules: the posterior wings are black at

the base, with a minute whitish discoidal spot, and a pale band marbled with brown, in which, towards the margin, is a series of angular black spots: the body is dusky, with a greenish pubescence: the antennæ are annulated with black and white, with the tip of the club ochraceous.

Var. β . With the two round discoidal black spots on the anterior wings obliterated. The caterpillar is dusky, with two greenish-yellow lines on the back, and one on each side: it feeds when young in society, but generally disperses after the first change. The chrysalis is grayish, with golden spots on the neck, sometimes entirely golden.

This elegant and very common species occurs throughout the kingdom in gardens, lanes, &c. and is produced twice in the season, about the end of June and beginning of September.

Sp. 4. Io. *Alis supra brunneo-rubris, singulis ocello cæruleo, anticis maculis duabus costalibus nigris, omnibus subtus atro-nebulosis.* (Exp. alar. 2 unc. 6 lin.—3 unc.)

Pa. Io. *Linné.—Lewin, pl. 4.—Va. Io. Steph. Catal.*

Wings above red-brown, or purplish, with the base and hinder margin dusky-ash: costal areolet black, with transverse pale-yellow streaks: anterior margin with two large triangular black spots, with a yellow one between, and a large ocelliform spot adjoining the posterior edge of the one towards the apex of the wing; this ocellus is anteriorly yellow, posteriorly blue, streaked with three bluish-white dots, and has for a pupil a large reddish-brown spot, darker anteriorly: there are also two other bluish-white spots, forming a continuous series parallel with the hinder margin, with the three which are placed in the ocellus: the posterior wings have towards the margin a large ocelliform spot, with a large black pupil spotted with blue, and a gray iris, terminated interiorly with a black crescent: beneath all the wings are glossy brown, marbled, banded, and spotted with black; the anterior with five minute white dots, corresponding with those on the upper surface, and the posterior with a single discoidal spot: the body is dusky, with rusty down: the antennæ black above, brown beneath, with the tip yellowish: the legs are ochraceous.

The caterpillar is glossy black, spotted with white, with the hinder legs ferruginous: it feeds on the *Urtica urens* and *dioica*. The chrysalis is green dotted with gold: the butterfly appears in about a fortnight.

Va. Io is a very abundant and highly beautiful species, occurring in plenty in lanes, commons, woods, and fields, where nettles and thistles abound, throughout the southern portion of the kingdom about the end of July, and continuing till the following spring. Haworth states in his useful *Lepidoptera Britannica*, that only two instances of its capture had occurred in Yorkshire. I am, however, informed by Mr. Giles that it is plentiful in the New Walk, York; and by Mr. Backhouse that it is very abundant in the vicinity of that city.

Sp. 5. Antiopa. *Alis utrinque nigris, limbo posteriori maculisque duabus posticis ad costam albidis seu flavidis.* (Exp. alar. 2 unc. 10 lin.—3 unc. 2 lin.)

Pa. Antiopa. *Linn. ii. 776.—Lewin, pl. 1.—Va. Antiopa.—Steph. Catal.*

Wings above reddish-black, or purplish, with a broad, velvety-black, posterior band, in which is a series of violet-blue spots (seven or eight on each wing); followed by a broad pale border, usually whitish or pale straw-colour; this border is waved internally, and minutely speckled with black dots, particularly on the prominent angles of the wing: the anterior wings above have the costal areolet marked with white, with two large white spots near the tip: beneath all the wings are obscure black, with darker waves, with a whitish discoidal spot in the centre of each, and a broad white border on the outer margin: the body and antennæ are brown-black, with the tip of the club rust-coloured: the legs are ochraceous.

Var. β . With the border of the wings deep yellowish.

Caterpillar black, with a row of square dorsal spots, and the eight anterior prolegs red. It feeds on willows, birch, and poplar. The chrysalis is dusky, speckled with bluish, and spotted with tawny. The butterfly appears in about fifteen days.

No insect is more remarkable for the irregularity of its appearance* than this. Till about the middle of the last century few specimens had been observed; but about sixty years since it appeared in such prodigious numbers throughout the kingdom, that the entomologists of that day gave it the appellation of the Grand Surprise. Of late it has again become unfrequent; the last times, according to Donovan, that it occurred in plenty being 1789 and 1803, a few only having been captured subsequently. At the present day it still appears to occur occasionally throughout England, as Mr. Backhouse informs me that it has been found repeatedly near Seaton, Durham—and often floating on the river Tees—and it has been taken also in the counties of Suffolk, Worcestershire, Surry, Norfolk, Essex, Berkshire, Oxford, Kent, and Cambridge, and I once saw one on a willow near Hertford.

I have adhered to the name proposed by Linné, as his orthography is not only sanctioned by high classical authorities, but it is detrimental to the progress of science to alter a name without powerful reasons.

C. Anterior wings angulated, posterior rounded and indented: palpi densely

* In reference to this subject may be noticed the appearance, during the past season, of *Thecla Pruni* in *countless myriads* near Ripley, in Surry, where in the course of a few minutes I caught nearly two hundred specimens! Another fact worthy of recording is, the recent capture of a specimen of the rare *Catocala Fraxini* in the neighbourhood of London.

covered with scales, with a few hairs. Caterpillars solitary, with a smooth head; feed chiefly upon seeds.

Sp. 6. *Atalanta*. *Alis supra nigris lunulis albis marginatis, anticis fasciâ rubrâ transversâ subinterruptâ utrinque, posticis marginali nigro-maculatâ.*
(Exp. alar. 2 unc. 6 lin.—3 unc.)

Pa. *Atalanta*. *Linné.—Lewin, pl. 7.—Va. Atalanta. Steph. Catal.*

Wings above intense deep silken-black: the anterior with a central bent, somewhat interrupted, orange-red band, sometimes bearing a round white spot towards the anal angle of the wing: between this band and the tip is a group of six white spots and dots, the largest of which is on the costa: between these and the margin is a slight bluish wave: the posterior wings have a broad orange-red border, with a transverse series of distinct black triangular dots, and some black spots on the cilia; the tip of the inner areolet is varied with bluish, and the black dot in the following areolet is also, in fine specimens, externally edged with blue: beneath, the anterior wings have the central band interrupted, whitish towards the anal angle of the wing, and towards the base throwing off a slender waved branch, between which and the base is a blue streak: between the band and the apex of the wing are other blue streaks; beyond these, the three larger spots of the upper surface are depicted; in the place of two others are two imperfect ocelli, with a white pupil and black and gray iris, and in lieu of the sixth is an irregular ochraceous lunule; the costal areolet is black, marbled with blue: the posterior wings are most beautifully varied and mottled with black, brown, and pale fulvous, or tawny, with a pale triangular spot in the middle at the anterior margin, a band of obsolete obscure ocelli parallel with the hinder margin, and a streak of silken blue between this and the margin: all the wings, both above and below, are fringed with white, interrupted at the nervures with black: the body is black above, grayish beneath; the antennæ are black, annulated with white, with the tip yellowish: the palpi are black above, white at the sides, and yellowish beneath.

The caterpillar is greenish, or dusky, with a yellowish spotted line on each side: it feeds on the *Urtica urens* and *U. dioica*, preferring the seeds. The chrysalis is grayish, or dusky, with gold dots.

This common species is one of the most splendid of the British butterflies; the intense black of the upper surface of the wings being beautifully relieved by the red fascia and pure white spots, and beneath, the marmoration of the posterior wings defies the efforts of the finest pencil. It frequents lanes where nettles abound, throughout the southern part of Britain, appearing about the middle of August. It is said to be very destructive to cherries and other fruits. Mr. Haworth informs me that he once met with them so abundant, that above a dozen might be taken within the compass of two or three square yards.

GENUS XII.—CYNTHIA, *Fabricius*.

Palpi long, contiguous, porrected, terminated gradually in an acute point, pointing downwards, and resembling a beak, thickly clothed with scales and short hair, three-jointed; the basal joint short, curved upwards; second long, compressed, attenuated at the apex; third longer than the basal, acicular: *antennæ* with an abrupt, compressed, very short club: *wings* scalloped; anterior triangular, subfalcate; *posterior* somewhat ovate, clothed with long hairs on their upper surface within: *anterior legs* imperfect, very hairy, resembling a tippet: *tarsi* with small nails, apparently bifid, or with an unguiform appendage: *eyes* very pubescent. Caterpillar spiny. Chrysalis angular, with the head bituberculated, with metallic spots.

This genus chiefly differs from *Vanessa* in the form of the wings, connected with the slightly dissimilar proportion and structure of the joints of the palpi, and of the antennæ, which latter have a different club, and appear to possess a few more articulations: the larva is less spinose, and the pupa less angular. The species figured by Petiver I have introduced in this genus, as its form is more analogous thereto, than to that of the *Hipparchiæ*, with which it has been recently arranged.

Sp. 1. *Cardui*. *Alis fulvo-roseis albo nigroque variegatis, posticis infrà marmoratis ocellis quatuor.* (Exp. alar. 2 unc. 4.—8 lin.)

Pa. *Cardui*. *Linné.—Lewin, pl. 6.—Cy. Cardui. Steph. Catal.*

Anterior wings above tawny-brown at the base and their inner margin; the middle fulvous, tinged with orange and red, with an irregular, angulated, transverse band, composed of three unequal black spots: the tip black, with five dissimilar white spots, of which the basal one is largest, and is placed transversely; the other four are ranged parallel with the hinder margin, in a bow, the two central being smallest and nearly round: between them and the edge is an obsolete series of white lunules: the margin is black, with brown and white dashes: the posterior wings above are tawny-brown at the base, sometimes with a paler spot, the posterior margin tawny-orange, with a triple parallel series of black spots, of which the central is composed of oblong ones; the interior of round (usually five in number), and the marginal of irregular spots: the cilia are white interrupted by black: the second areolet has at the tip a slight bluish spot: beneath, the anterior wings somewhat resemble the upper surface, but in recent specimens they are adorned with a rich carmine tint, and the base is whitish, and a white bar adjoins the black interrupted band on the anterior margin: the costal areolet is transversely streaked with black and white, and the tip is light greenish-brown, with five white spots corresponding with those on the upper surface, the two smallest of which are somewhat ocellated, having a black margin, which is broadest interiorly: the posterior wings are prettily clouded and marbled

with pale olive-brown, yellowish, and white, intersected with white veins, with four or five ocelli, corresponding with the round spots on the upper surface; the external one being usually spurious and oblong; the second and fifth the largest, with a purple pupil, and yellow iris edged with black; the two central ones with a blue pupil, edged with yellow and white: beyond these is a grayish streak, bearing a series of bluish lunules; the margin is brownish-yellow; the cilia of all the wings are white, interrupted by black: body reddish-brown above, whitish beneath; the abdomen with black rings: the antennæ are black, annulated with white, with an ochraceous tip to the club.

Var. β . With the anal areolet of the anterior wings above deep fuscous, and an additional white spot in the chaplet.

Var. γ . With the anterior wings similar above; the posterior with two distinct round spots only (pupillated with blue) in the inner series, the other three being confluent, and forming a transverse abbreviated fascia.

Var. δ . With the anal areolet of the anterior wings above bright fulvous, the transverse black band more regularly defined: the posterior wings fulvous, varied, and slightly, but irregularly, spotted with black.

The caterpillar is brownish or gray, with yellow interrupted lateral lines: it feeds solitarily beneath a silken tissue on various kinds of thistles, and also on the nettle, millfoil, mallow, and artichoke. The chrysalis is grayish, with golden dots, and whitish brown longitudinal streaks.

Cy. *Cardui* is eminently conspicuous for the irregularity of its appearance in particular districts of the country: in the metropolitan district it occurs about every third or fourth year most copiously, breeding even in the metropolis itself; during the season of 1826 it was very abundant, and a few appeared last spring; and so late as the middle of June I saw several at Ripley in a very damaged condition. Dr. Leach informed me that he used constantly to see this insect in Devonshire; and Mr. Dale that he took it in the Isle of Bute, and on Arthur's Seat near Edinburgh. It usually appears about the beginning of August, and remains throughout the winter in the various states of egg, pupa, and imago.

† Sp. 2. *Hampstediensis*. PLATE V. f. 3, 4. *Alis supra fuscis, strigâ marginali flavâ, anticis maculis quinque flavis, omnibus ocellis duobus nigris pupillâ albâ.*
(Exp. alar. (ex. fig. Petiv.) 2 unc.)

Papilio oculatus Hampstediensis ex aureo fuscus. *Pet. Pap. ii. pl. 5. f. 2. b.*—
Cy. *Hampstediensis.* *Steph. Catal.*

Size and form of *Hipparchia Ægeria*: anterior wings above brown, with three spots near the costa, two spots behind, and marginal streak yellow: two large posterior ocelli, the one near the anal angle of the wing appearing on both sides, all with the pupils white with broad black irides: the posterior wings

also brown, darkest at the base, with a marginal yellow streak, and two large posterior ocelli with white pupils and black irides: beneath, the anterior wings are yellowish, clouded with dark brown, with an obsolete streak on the hinder margin composed of brown lunules: posterior wings yellowish, somewhat clouded with brown at the base, with a small nearly obliterated black ocellus, with a white pupil; at the anal angle four minute dark brown spots, between which and the hinder margin is a streak composed of dark brown crescents turned forwards.

There is something wonderful in the total disappearance of so large an insect as the above, which has been seen but once, and that upwards of a century ago: entomologists are indebted to the persevering industry of Petiver for a coloured figure, of which I have introduced a copy, in his rough, though evidently correct, style, in order to excite the attention of those of the present day to the fact of its existence or not at this period. Petiver thus notices it:—"Albin's Hampstead Eye, where it was caught by this curious person, and is the only one I have yet seen."

GENUS XIII.—APATURA, *Fabricius*.

Palpi longer than the head, contiguous, compressed, the points closely approximating and acute, forming a conical beak, chiefly clothed with hair, three-jointed, the basal joint short, rather stout, bent, the second slender, very long, slightly angulated interiorly, and a little bent at the base, terminal about as long as the basal, subcylindrical, obtuse: *antennæ* rather long, with an elongate, obconic, thickened club, terminating in a lateral point: *eyes* naked: *wings* nearly as in *Cynthia*, with the *basal areolet* of the posterior open behind: *anterior legs* very short in both sexes, the rest furnished with bifid *claws*. Caterpillar fusiform, spiny, with two horns on the head. Chrysalis rather angular, compressed, gibbous, head-case beaked.

‡ Sp. 3. *Levana*. *Alis suprâ fulvis, nigro flavoque maculatis, subtùs reticulatis, anticis suprâ maculis aliquot albis.* (Exp. alar. 1 unc. 6 lin.)

Pa. *Levana*. *Linné.—Turton.—Cy? Levana. Steph. Catal.*

Wings above tawny, spotted with black and yellow; the anterior with two or three white spots: beneath all the wings are prettily reticulated with whitish yellow, and variegated with fulvous, brown, and yellowish, with a violaceous patch towards the centre of the hinder margin, in which are a few white spots. Caterpillar deep black, with red legs: head bituberculated; neck with two long spines: it lives in small societies of ten or twelve on nettles. Chrysalis dusky, with the breast pale yellow.

This insect is indicated as British by Turton, and in Rees' Cyclopaedia (article *Papilio*) it is considered as a native of Britain: but no indigenous specimen exists.

In form this genus much resembles the last described; the anterior wings being exactly similar in shape, and the posterior differing but a trifle: the chief distinctions are to be found in the structure of the club of the antennæ and palpi, the former being much thickened and elongated, and the latter more slender, as well as slightly dissimilar in form; and in their natural state the tips are more closely applied to each other: the larva and pupa are, however, widely different, as are also the habits of the perfect insect.

Sp. 1. Iris. *Alis nigris cæruleo-micantibus, aut fuscis, fasciâ communi utrinque albâ interruptâ, posticis suprâ uniozellatis.* (Exp. alar. 2 unc. 6 lin.—3 unc. 3 lin.)

The Purple Emperor

Pa. Iris. *Linné.—Lewin, pl. 16.—Ap. Iris. Steph. Catal.*

Male with the wings above black, changing according to the light to a splendid mazarine blue: the anterior with ten white spots, disposed in a triple series, the first towards the inner margin, composed of three spots, the central one being lunate; the second series reaches from beyond the middle of the costa to the anal angle, and is composed of five spots, of which the three towards the costa are united and form a crescent, pointing inwards; the other series is composed of two small spots, of which the posterior is minute: the posterior wings have a white angular band, placed in continuity with the first series of spots on the anterior wings; and an ocellus at the anal angle with a narrow tawny iris, and black pupil; parallel with the hinder margin is a pale tawny streak: beneath, the anterior wings are variegated with brown, tawny, black and white, the latter colour corresponding with that of the upper surface, and the posterior margin is cinereous; between the disc and the hinder margin is an ocellus with a black iris and a bluish pupil: the posterior wings have an oblique broad white band, attenuated towards the inner margin, and with a conical tooth in the centre of its external edge; this band is bordered on each side with reddish brown, shaded into cinereous at the base and hinder margin: near the anal angle is a small ocellus, corresponding in colour with the one on the upper surface: the body is black above, cinereous beneath; the legs are of the latter colour, and the antennæ black. The female differs in being considerably larger, and in having the upper surface of the wings brown where the male is black, and is destitute of the brilliant blue reflection of the male: there are two additional minute white spots at the tip of the anterior wings.

The caterpillar is of a beautiful green, with reddish bristles at the tail, and greenish-yellow horns: it feeds on the willow: the chrysalis is of a delicate pale green.

This splendid insect justly claims the chief attention of the collectors of indigenous Lepidoptera, "the varying lustres of its purple plumes" giving it a proud pre-eminence above its fellows. Like several other butterflies, it has become unfrequent near the

metropolis within these few years. About ten years ago I saw it in plenty at Coombe-wood, in July, and a number of specimens were then taken; since that period I have not seen the insect at large near London; it has, however, been taken occasionally at Darent-wood. It was formerly not uncommon in Epping-forest, though it is evidently very local. I am informed by Mr. Dale that it occurs in Clapham-park-wood, Beds., Brinsop-copse, Herefords., Enborne-copse, Berks, near Warminster, Wilts, and Christchurch, Hants:—it is also found in several parts of Essex and Suffolk. An interesting notice of the habits is given in *Lepidoptera Britannica*, to which I must refer the reader on account of its length.

GENUS XIV.—LIMENITIS, *Fabricius*.

Palpi longer than the head, not contiguous, parallel, clothed with scales, and slightly hairy, three-jointed, basal joint small, oval, second long, cylindrical, slightly bent, terminal longer than the basal, elongate, ovate: *antennæ* long, with a gradually produced slender, elongated, obconic club: *wings* somewhat triangular, the *posterior* slightly scalloped, with the *basal areolet* open behind: *eyes* pubescent: *anterior legs* short in both sexes, slender, with a minute claw; *posterior* long, furnished with claws and unguiform appendages. Caterpillar elongate, with obtuse spines on the back, and bundles of hair on the sides. Chrysalis subangular, gibbous beneath, head-case beaked.

Limenitis somewhat resembles *Apatura* in appearance, but may be discriminated by the rotundity of the hinder margin of the anterior wings and pubescence of the eyes and palpi, the latter being distant without approximating points; the club of the antennæ is more slender than in *Apatura*, and not arcuate and sub-compressed, as in *Hipparchia*.

‡ Sp. 1. Populi. *Alis fuscis albo fasciatis maculatisque; subtis luteis albo fasciatis, maculis cærulescentibus.*—Linné. (Exp. alar. 2 unc. 10 lin.)

Pa. Populi. Linné.—*Stewart*, ii. 125. Li. Populi. *Steph. Catal.*

Wings nearly concolorous, above dusky, beneath testaceous: the anterior with a few scattered white spots on both surfaces; the posterior above with an obscure interrupted white band composed of spots, behind which is a series of red lunules, bordered externally with black; beneath with a marginal row of black lunules in a bluish border, and a central interrupted bluish-white band. Caterpillar spiny, head and tail orange-coloured: feeds on the aspen. Chrysalis yellowish, with black spots.

I am at a loss to account for the introduction of this fine species into our Fauna, unless it originated from the false reference to Ray by Linnæus, in

Sp. 2. Camilla. *Alis suprà fusco-nigris fasciâ maculari punctisque albis utrinque, angulo ani rufescente.* (Exp. alar. 2 unc.—2—6 lin.)

Pa. Camilla. *Linné.*—Li. Camilla. *Curtis, iii. pl. 124.*—*Steph. Catal.*

Wings above brownish-black, obscurely spotted with black: anterior with a bent interrupted central white band, intersected with black veins; a cinereous discoidal crescent between it and the base, and three or four small white dots, two of which are at the anterior margin near the tip, one near the middle at the posterior margin, a fourth in the interruption of the central fascia; parallel with the posterior margin is a series of obscure black spots: the posterior wings are very similar, with an oblique straight central white band intersected with black veins, and terminating acutely near the anal angle, which bears an obscure reddish spot, in which are two black dots: between the fascia and the margin is a double parallel series of obscure black spots: beneath, the anterior wings are brown, clouded with fulvous; the central areolet marked with zigzag black lines, and a white spot: across the disc is a band, resembling in form that on the upper surface; and there are also white spots corresponding with those on the upper side, with a few additional

the Systema Naturæ. Stewart, in the place above quoted, gives it as British, and states that it is found in July, and is not common.

‡ Sp. 3. Sibilla. *Alis fuscis, concoloribus fasciâ albâ, subtus lutescentibus.*—*Linné.* (Exp. alar. 2 unc. 5 lin.)

Pa. Sibilla. *Linné.*—Li. Sibilla. *Steph. Catal.*—Pa. Camilla. *Stewart, ii. 127.*

Very similar to Li. Camilla: wings above deep fuscous, the anterior with five large and four small white spots: one of the former nearly central, the remaining four, with two of the lesser, forming an interrupted bent fascia across the wing: the other two spots are on the costa near the apex: a bluish spot near the base, and a series of spots of the same colour, each with an adjoining interior black one parallel with the hinder margin: the posterior wings have an oblique central white fascia, intersected with black veins, and a series of blue and black spots parallel with the hinder margin; beneath, the anterior wings are bright orange-tawny anteriorly, fuscous posteriorly, spotted with white as above, with a row of black spots parallel with the hinder margin: the posterior wings have the basal half white, tinged with bluish-green at the base and inner edge, with a fulvous-orange streak reaching from the anterior margin to the centre of the wing; the hinder portion of the wing is fuscous, with two rows of large orange-tawny spots, having a series of distinct black spots between them.—Caterpillar yellowish-green, with white hairs and red spines; a red head with two white stripes, and a lateral white stripe on the body: feeds on honeysuckles. Chrysalis green, spotted on the head and breast with silver.

Said by Stewart to be a native of Britain, no doubt by mistake, owing to the unaccountable confusion into which Fabricius has thrown the nomenclature of this and the preceding species, the two insects being so obviously discriminated by Linnæus, though his synonyma are incorrect.

ones at the hinder margin: the posterior wings at the base are internally bluish-gray, then tawny-orange, with several black zigzag lines and dots, a white band, as in the upper surface; then brownish orange with a double series of black spots, between which and the margin in the middle are some white dots: the cilia, both above and below, are white, interrupted with brown: the abdomen is dusky-black above, white beneath: antennæ black above, tawny beneath and at the tip.

Caterpillar green, with the head, legs, and tubercles reddish; it feeds on the various species of honeysuckle: the chrysalis is green spotted with gold, forked in front.

“The graceful elegance displayed by this charming species, when sailing on the wing, is greater, perhaps, than can be found in any other we have in Britain,” says Mr. Haworth,—a fact to which I can bear testimony, having frequently taken the insect at Coombe-wood in July, previously to the year 1813, since which period I have not seen it alive; a few, however, were taken near Peterborough last season, and I believe, also, near Ipswich: during the intermediate time specimens have occurred near Rye, Sussex; Hartley-wood, Essex; New Forest, Hants;—in Enborne Copse, Berks, by Mr. Dale, and at Billingbear, in the same county, by Mr. Hanson. It was formerly very abundant at Betstile-wood, near Finchley, and at Birch-wood, Kent; but has not been captured at either place for many years.—It delights in settling on bramble blossoms.

GENUS XV.—HIPPARCHIA, *Fabricius*.

Palpi various, rather longer than the head, more or less hairy, curving downward at the tip; three-jointed, the basal joints short, the second very much longer than the basal, compressed, the third mostly acicular, sometimes obovate: *antennæ* moderate or short, with a somewhat fusiform, bent, slender club: *eyes* pubescent, or naked: *wings* various; *anterior* usually triangular, *posterior* somewhat orbiculate-triangular, sometimes scalloped, with a groove to receive the abdomen; *basal areolet* closed: *anterior legs* shortest, generally hairy; *posterior* furnished apparently with double claws.—Caterpillar downy, subfusiform, tuberculated, tail bifid: chrysalis subangulated, with the head-case bifid.

Hipparchia is an extensive genus, and, as at present constituted, contains a most heterogeneous assemblage of objects, no less distinguished by their dissimilarities, than by the variations to which nearly all the species are subject:—about 80 European species are described, of which 20 are said to inhabit Britain,—but of these three or four are doubtful; they may be discriminated from the other Nymphalidæ by the structure of the club of the antennæ,

which is slender, attenuated at both ends, and distinctly curved, though in *H. Semele* and *Mæra* the form is somewhat different, the club being abruptly produced, broad and abbreviated, yet bent.

The genus may be advantageously subdivided into sections—nay, the dissimilitude of some of the species is so great that the genus itself requires to be curtailed, and some of the species consequently to be formed into distinct genera; but the time is not sufficiently mature for me to venture upon such a procedure.—I shall therefore merely observe, that the structure of the palpi varies considerably; in some species the basal joint is short and stout, in others short but slender;—again, in some the terminal joint is about one-fourth the length of the second and obtuse, while a few have it upwards of half the length of the preceding, very slender and acute:—the form and texture of the wings also vary considerably, as well as the length of the tibial spurs; and the habits of the insects differ greatly; several affecting meadows, pastures, heaths, commons, and lanes, while some frequent woods, others dry chalky hills, or grassy places on mountain tops, or the lowest boggy valleys and marshes; but all these discrepancies of habit are severally peculiar to the respective groups of which the genus is composed. The larvæ of all the species feed upon grasses.

A. Eyes pubescent: wings, especially the posterior, more or less denticulated: palpi moderately hairy:—frequent woods, lanes, and highways.

Sp. 1. *Ægeria*. *Alis fuscis luteo maculatis, anticis utrinque ocello unico, posticis supra tribus.* (Exp. alar. 1 unc. 6 lin.—2 unc.) *Speckled Wood*

Pa. *Ægeria*. *Linné.—Lewin, pl. 19.—Hi. Ægeria. Steph. Catal.*

Anterior wings obsoletely falcate, brown on both surfaces, with about ten yellowish spots, and an ocellus towards the tip, with a white pupil and black iris: posterior wings above brown, with one or more yellowish spots, with a series of spots, of which the three inner ones are ocellated, having a white pupil with a black iris, and surrounded by a yellowish circle; beneath they are clouded with brown, with irregular angulated brown bands, the hinder margin (in fine specimens) purplish, with a series of white dots in lieu of the ocelli of the upper surface: the cilia are yellowish, interrupted with brown: the abdomen brown above, pale beneath: the antennæ brownish above, slightly interrupted with ochraceous, of which colour the under surface is. The female is generally more spotted than the male, and the spots are larger.

This insect varies much in the intensity of its colours, particularly on the inferior surface; in some specimens the posterior wings are nearly plain griseous; in others they have a distinct broad, very irregular, darker central band; and bear 4—6 white dots on the posterior margin.

Caterpillar green with white longitudinal lines: it feeds on couch grass. Chrysalis short, green.

I presume that this, which is not an inelegant, species is found throughout Britain, as I have received it from several distant places, and I am informed by G. Wailes, Esq. that it occurs near Belford,

in Northumberland, and Hawthornden, near Edinburgh:—there are several broods in the year, the first the beginning of April, the second in June, the last in August.

Sp. 2. Megæra. *Alis fulvis, fusco-fasciatis utrinque, anticis sesquicello, posticis suprâ ter, quatuor, vel quinque, subtus sex.* (Exp. alar. 1 unc. 6—11 lin.)

Pa. Megæra. Linné.—Lewin. pl. 21.—Hi. Megæra. Steph. Catal. *The Brit. Mus.*

Anterior wings above orange-tawny, with the hinder margin and four bands, two of which are abbreviated, brown; with an ocellus having a white pupil and black iris on both sides towards the tip, generally with one or more minute ones adjoining it, the larger ocellus frequently bipupillated: posterior wings dull brown at the base, posteriorly orange-tawny, with a brown band and margin, between which is a series of black ocelli, with white pupils, varying from three to five in number, the lateral ones often blind: beneath, the anterior wings are rather paler, with four brown bands, the intermediate ones abbreviated, the exterior one frequently very much angulated; at the hinder margin is a slightly waved band, in which are often darker angular marks: the posterior wings are darkest at the base, they are clouded with cinereous, with two angular bars, the hinder of which divides the dark portion of the wing, and between it and the hinder margin is a series of six ocelli, the inner one (or sixth) being double, the pupil white, with a black iris, placed in a double gray circle; behind this is a scolloped, pale, or orange-coloured band: the cilia are white above, interrupted with brown,

‡ Sp. 3. Mæra. *Alis fuscis, utrinque primoribus sesquicello, posticis ocellis suprâ tribus.*—Linné. (Exp. alar. 1 unc. 11 lin.)

Pa. Mæra. Linné.—Stewart.—Hi. Mæra. Steph. Catal.

Wings above brown, the anterior with a fulvous cloud, near the apex, in which is a large ocellus with a white pupil and black iris, accompanied by a similarly coloured minute one placed between it and the tip of the wing: posterior with two or three ocelli parallel with the hinder margin, and each placed in a fulvous spot: beneath, the anterior wings are brown at the base, fulvous on the disc, with a large black ocellus, corresponding with that above, surrounded by an ochraceous ring, and accompanied with a minute ochraceous ocellus, with a darker pupil, towards the tip of the wing; the hinder margin with three dusky parallel streaks: the posterior wings are brown, prettily streaked with darker zigzags, and having towards the margin a series of six ocelli, of which the first, fourth, and fifth have a white pupil and black iris, surrounded by two flavescent and two brown rings, of which colours the other three are composed; between these and the margin is an irregular pale waved band. Caterpillar bright green, with a whitish lateral stripe, or darkish dorsal line, and five whitish hairs. Chrysalis dusky.

Most probably introduced into the indigenous list by Stewart, in consequence of the Linnean references to Merret and Wilkes, by mistake for the preceding; or from Berkenhout having erroneously applied the trivial name Mæra to the common species.

beneath gray with dusky spots: the body is dusky above, paler beneath: the antennæ are brown, annulated with white; club rather abrupt. The male has a broad transverse oblique brown fascia across the centre of the anterior wings.
 Var. β . With the wings nearly transparent, the scales being sparingly distributed over the surface, but all the usual markings visible.

Caterpillar slender, light green, with dark stripes on the back and sides. Chrysalis dusky.

Abundant everywhere in woods, lanes, and way-sides, in April, July, and August.

B. Eyes naked: wings, especially the posterior, more or less dentated: palpi moderately hairy:—frequent heaths, commons, and meadows.

a. *Antennæ with a short, abrupt club.*

Sp. 4. Semele. *Alis fulvo nigroque nebulosis, anticis ocellis utrinque duobus, posticis suprâ unico.* (Exp. alar. 2 unc. 3—7 lin.) *The Gray*

Pa. Semele. *Linné.—Lewin, pl. 17.—Hi. Semele. Steph. Catal.*

Anterior wings above dull brown, with a posterior fulvescent, interrupted, irregular band, in which are two ocelli, having a small white pupil and broad black iris: the posterior wings are anteriorly brown above, with a broad transverse paler clouded band, in which is a small ocellus, with a minute white pupil and black iris, and surrounded with dull fulvous; posterior margin dusky: beneath, the anterior wings have the basal half tawny, the apical flavescent, with two ocelli; the posterior margin clouded with brown and

b. *Antennæ moderate; club slender, fusiform.*

‡ Sp. 5. Phædra. *Alis fuscis concoloribus, primoribus ocellis duobus.—Linné.* (Exp. alar. 2 unc. 6 lin.)

Pa. Phædra. *Linné.—Turton.—Hi. Phædra. Steph. Catal.*

Wings above deep uniform brown: the anterior with two large ocelli on each surface, parallel with the hinder margin, composed of a large bluish-white pupil and black iris; posterior with a minute ocellus near the anal angle on the upper surface, and a corresponding spot on the lower: the wings beneath are rather paler, the anterior with a pale circle round the ocelli, and the posterior with a whitish irregular band across the centre, and an obsolete striga of dusky clouds between it and the hinder margin. Caterpillar ash-coloured, with two rows of elongate black spots on the back.

Indicated as British by Turton, but I believe without sufficient authority.

† Sp. 6. Alcyone. *Alis fuscis fasciâ albidâ, anticis utrinque ocellis duobus, posticis infrâ unico.*

Pa. Alcyone. *Esper.—Stewart.—Hi. Alcyone. Steph. Catal.*

Wings brown, with a whitish band, the anterior with two ocelli on both sides; the posterior underneath marbled with brown and black, and having a white angular band, and a single ocellus.

Stewart, in the second edition of his Elements of Natural History, gives this insect as an inhabitant of Scotland, having erroneously referred a female of Hi. Blandina to Pa. Alcyone of Esper.

white; the costa is marked with small black and white streaks: posterior wings beneath clouded with white, brown, and black, the base darkest: towards the anal angle is a minute ocellus, with a white pupil and black iris: the cilia are brownish, interrupted with dusky: the body is brown above, grayish beneath: the antennæ brown above, with the under part ochraceous. The female is generally paler than the male, and has larger ocelli.

The intensity of its colouring varies greatly: in some specimens the upper surface is nearly black; in others the marginal band is flavescent, with a few brownish clouds: beneath, the anterior wings are frequently very deep brown at the base, with a dusky bar across the centre, and the hinder margin of the same colour: and the posterior wings are occasionally marked with a zigzag, irregular central ochraceous band. The ocelli, in all the wings, both above and below, also vary much in size. Caterpillar green: chrysalis dusky.

A common, but rather local species, frequenting heaths and woody places in July. The Rev. L. Jenyns informs me that it is extremely abundant on Newmarket and Gamlingay heaths, Cambridgeshire; and Mr. Wailes, that it frequents the sea-coast, where the magnesian-limestone occurs, at Marsden, near South Shields, while on the rocky shore of the opposite banks of the Tyne (where there is no limestone), it is not found. Mr. Ingpen took it in plenty on Salisbury Plain, and Mr. Backhouse finds it on the sea-coast, near Scarborough.

c. *Antennæ elongate; club slender, fusiform; palpi, when denuded, with attenuated joints.*

Sp. 7. Galathea. *Alis flavicantibus nigro maculatis; subtus anticis ocello unico, posticis quinque sesquialtero.* (Exp. alar. 2 unc.—2 unc. 3 lin.)

Pa. Galathea. *Linné.—Lewin, pl. 28.—Hi. Galathea. Steph. Catal.*

Wings yellowish spotted with black; anterior with a series of yellowish dots parallel with the hinder margin above, and the under surface nearly similar, but paler, with a small ocellus near the tip: the posterior wings above have also a series of marginal dots or lunules, with an irregular broad patch of yellowish through the centre, and a large spot of the same colour at the base: towards the hinder margin are some obsolete ocelli; beneath, the base and an irregular angular band are dusky, thickly irrorated with yellowish, and edged with black: on the anterior margin are two ocelli, and towards the interior edge are three others, the inner of which is double: the body is black, yellowish beneath: the antennæ black, annulated with white, the tip reddish beneath. The female has the lower surface of the posterior wings of a deeper yellow than the male.

Var. β . The maculations of the wings resembling the above in form, but the ground colour of a yellowish buff, with pale yellowish brown markings in lieu of black.

Caterpillar bright green, with obscure dorsal and lateral lines: head brownish.

It feeds on the cat's-tail grass. Chrysalis yellowish.

Few insects are more decidedly local than this; yet it is found in several places throughout the country: var. β I received from Devonshire, where it was captured by Captain Blomer, who presented me with the specimen, accompanied with the information that the insect was not uncommon in the neighbourhood of Teignmouth. Mr. Dale takes it near Glanvilles' Wootton, Dorsetshire; Mr. Hanson in Shirley-wood, near Billingbear, Berks; the Rev. L. Jenyns at Fen Stanton and Rampton, Cambridgeshire, but says that it is rare in the county. Mr. Wailes acquaints me that it occurred in plenty during the past season near York, but that it has not hitherto been seen near Northumberland; and the Rev. G. T. Rudd, that it "occurs (sparingly) on the north-eastern rampart of the 'Hill' at Amesbury, and is so local there as seldom to pass round the corner, or to be found in any other part of the Hill;" and that he found three or four specimens in Collingbourne-wood, Wilts. I have caught it very abundantly in a heathy copse adjoining the north end of Darenth-wood, and also near Dover; but I am not aware of a nearer habitat to London than the former, although Petiver informs us, in a scarce little tract*, "that he had observed it in a wood near Hampstead, in June and July;" and Mr. Witherington tells me that he has formerly taken it in plenty in the lane leading from Peckham Rye to Oak of Honour-wood. In Ray's time it was abundant near Braintree, in Essex.

d. *Antennæ short; club elongate, fusiform.*

1. Anterior wings somewhat triangular; posterior strongly dentated.

Sp. 8. Tithonus. *Alis disco luteo-fulvis, anticis ocello bipupillato, posticis punctis duobus albis.* (Exp. alar. 1 unc. 5—10 lin.) *The Gate-keeper*

Pa. Tithonus. *Linné.—Lewin, pl. 14, f. 3, 4.—Hi. Tithonus. Steph. Catal.*

Above, the anterior wings are tawny-yellowish, with the base, anterior and posterior margins, brown, with a bipupillated ocellus towards the apex on both sides; beneath similar, but paler, especially on the hinder margin: posterior wings brown, with a tawny-orange disc, and an obsolete ocellus towards the anal angle; beneath, the basal half tawny-brown, followed by an irregular cinerascens central band, and terminated by tawny-brown clouds, in which are from three to five minute white points: cilia brown, interrupted by dusky: abdomen brown above, paler beneath: antennæ tawny-brown. The male differs in being more brilliant in colour, and in having an oblique dusky patch on the disc of the anterior wings above.

Var. β . Both sexes with a single black spot on the hinder margin of both surfaces of the anterior wings, between the ocellus and the anal angle.

* *Musæi Petiveriani centuria prima, &c.* London, 1695.

Var. γ . Both sexes with two additional spots placed as above, the hinder one generally pupillated.

Var. δ . Both sexes with two ocelli on the posterior wings above, and the white spots beneath surrounded by a deep black ring.

Caterpillar greenish, streaked with white: head brown: feeds on the annual meadow grass, and, according to some authors, on the hieracium pilosellæ.

Chrysalis green.

Found copiously in meadows and grassy lanes during the month of July, throughout the metropolitan district. It was remarkably plentiful during the past season in some lanes near Ripley, abounding with brambles, on the blossoms of which it reposed, in company with *Hi. Janira* and *Hyperanthus*, and *Thecla Pruni*: it is probably found throughout the country; being common in Yorkshire and Northumberland.

Sp. 9. *Janira*. *Alis fuscis (feminis maculâ fulvâ) anticis utrinque uniocellatis, posticis subtus griseis fasciâ cinereâ.* (Exp. alar. 1 unc. 6 lin.—2 unc.)

Pa. *Janira et Jurtina*. Linné.—Lewin, pl. 18.—*Hi. Janira*. Steph. Catal. *The Meadows*

Wings fuscous, or nearly black: the male with the anterior usually immaculate above, having near the tip on each surface a black ocellus surrounded by fulvous, with a white pupil, sometimes with a yellowish patch beneath the ocellus above; beneath fulvous, with the hinder margin grayish-brown: posterior wings beneath tawny-brown at the base, terminating in an obsolete angular line; beyond this ashy-brown, with from one to three minute dusky spots. Female generally with a large irregular tawny-orange blotch on the anterior wings above, in which is an ocellus, as in the male; between the blotch and the base the disc is obscurely tawny; beneath tawny-orange, with a paler band towards the hinder margin, the latter brownish; the posterior wings above have mostly a tawny patch on the disc, beneath tawny-brown at the base, terminating in a very distinct angular line, beyond which is a pale cinereous band, in which are one or more black eye-like spots; the hinder margin griseous, or brownish.

In some specimens of the male there is a deep black patch on the disc of the anterior wings, and the same wings in the female are occasionally nearly immaculate above; the ocellus is frequently blind, sometimes bipupillated, and often accompanied by a secondary ocellus above, and a black spot or two beneath: the band on the inferior surface of the posterior wings is frequently immaculate. In some specimens one or more large, irregular, and undefined pure white blotches occur, on various parts of the wings.

Var. β . Wings very pale ochraceous tinged with coppery, with a dusky patch at the base; the markings as usual.

Caterpillar green, with a white lateral line, thickly clothed with hair: it feeds on meadow grass: the chrysalis is yellowish-green, with dusky streaks on the head and wing-cases.

This is probably the most common species of papilionaceous insect found in Britain. It abounds in every meadow and lane near the metropolis, during the month of July; and is abundant in the north of Britain.

2. Anterior wings somewhat rounded; posterior obsolete denticulated.

Sp. 10. Hyperanthus. *Alis fuscis, anticis subtus ocellis uno—tribus, posticis subtus sæpissimè quinque, aut rarissimè omninò obliteratedis.* (Exp. alar. 1 unc. 6—11 lin.)

Pa. Hyperanthus. *Linné.—Lewin, pl. 20.—Hi. Hyperanthus. Steph. Catal.*

Anterior wings above plain brown, frequently with one or more black faintly ocellated spots, especially in the females: beneath generally with three ocelli towards the hinder margin, the inner one usually smallest: the posterior wings above also brown, with two or more obsolete ocelli, near the hinder margin: beneath with two approximating ocelli behind the middle of the anterior margin, and three parallel with the hinder margin, of which the one towards the anal angle is smallest: all the wings are paler beneath, and edged with a whitish fringe: the body is fuscous, paler beneath: the antennæ brown, annulated with whitish, with the tip of the club fulvous.

Var. β . Anterior wings beneath with three very large ocelli, posterior with five; several on all the wings sesquialterous, or having smaller ocelli attached.

Var. γ . Wings ocellated as in var. α , but the ocelli large and conjoined.

Var. δ . Wings ocellated as in the last, but the ocelli very minute.

Var. ϵ . Ocelli in number as before; the smaller or hinder ocellus on the anterior wings bipupillate, the inner one on the posterior wings nearly obsolete.

Var. ζ . Ocelli entirely obliterated; in lieu thereof three snow-white spots on the anterior wings beneath, and five on the posterior.

Var. η . Anterior wings with three ocelli beneath; posterior with four, the one at the anal angle being obliterated.

Var. θ . Anterior wings beneath with three ocelli; posterior with four white spots.

Var. ι . Anterior wings with three ocelli beneath; posterior as in var. α .

Var. κ . Anterior wings as in the last; posterior with four ocelli, the inner one being obliterated.

Var. λ . Ocelli in number as in the last; the anterior costal one on the posterior wings wanting.

Var. μ . Anterior wings with two ocelli beneath; posterior with three; the costal and anal ones wanting.

Var. ν . Ocelli obliterated: anterior wings beneath with two white dots; posterior with four.

Var. ξ . Anterior wings with a single ocellus beneath; posterior with five.

Var. \omicron . Anterior wings as in var. ξ ; posterior with four ocelli, the anal one obliterated.

Var. π . Anterior wings as in the two last varieties; posterior with three ocelli as in var. μ .

Var. ρ . Ocelli obliterated; anterior with a single minute white dot beneath; posterior with four.

Var. *c*. Ocelli obliterated; anterior wings immaculate; posterior with three minute white spots.

Exclusively of the above, there are numerous intermediate varieties in the magnitude of the respective ocelli; and the wings are frequently differently ocellated on the left and right sides. There are, no doubt, several other varieties extant, but the above are all that I possess, and have had an opportunity of examining.

Caterpillar whitish-grey or dusky, with a black line behind; it subsists chiefly on the annual meadow grass, at the roots of which it resides: the chrysalis is bright brown, with obscure streaks and shades.

An abundant species in damp grassy woods and lanes throughout Britain; some of the varieties are, however, rare.

C. Eyes naked: anterior wings entire, rounded: posterior dentated: palpi hairy: terminal joint short, obtuse. Frequent mountainous districts, or swampy heaths.

Sp. 11. *Ligea*.—PLATE 6. f. 1. ♂ f. 2, 3. ♀.—*Alis fuscis, fasciâ rufâ, anticis utrinque ocellis quatuor, posticis tribus, his subtus fasciâ abbreviatâ albâ.* (Exp. alar. 1 unc. 10 lin.—2 unc.)

Pa. *Ligea*. *Linné*.—*Sowerby*, i. pl. 2.—*Hi. Ligea. Steph. Catal.*

Wings above brown, with a rufous fascia towards the hinder margin, in which on the anterior are four black ocelli with white pupils, the latter obsolete in the male, and the two apical ocelli united; the band on the posterior wings above bears also three black ocelli, differing as above in the sexes: beneath, all the wings are paler, and the anterior resemble their upper surface, but the red fascia is more distinct; the posterior are adorned with an abbreviated, irregular, sinuated white fascia, placed nearly parallel with the hinder margin, and reaching almost to the anal angle of the wing; between this and the hinder margin are three black ocelli, with white pupils, and cinctured with red: the cilia of all the wings, above and below, are white interrupted with brown: the body is deep brown above, paler beneath: the antennæ dusky above, white beneath.

Caterpillar green, with a black dorsal stripe, and several whitish longitudinal ones: the head reddish yellow.

Few cabinets contain this insect, which is more to be esteemed from its apparent rarity than for its beauty. The only indigenous specimens which have come to my knowledge were captured in the Isle of Arran, I believe by Sir Patrick Walker and A. Mac Leay, Esq.; but I am not aware of the true locality, or of the period of the year, which is probably about July or August. It is readily distinguished from the following (fine females of which have sometimes been mistaken for it) by the white fascia on the inferior surface of the posterior wings, and by the fringe, or cilia, being

white interrupted by brown. There are several other manifest characters which may easily be recognised by comparing the description of *Hi. Blandina* with the accompanying plate, which has been executed from a fine pair of the insect in my collection.

Linnæus has erroneously referred to Albins' plate 5. f. 1. for a figure of this insect, an error which Fabricius, in his attempts to amend, has materially increased by striking it out from the Linnean species, and inserting it as a synonym to his *Pa. Medusa*; whereas the figure in question correctly represents *Thecla Betulæ*.

Sp. 12. *Blandina. Alis fuscis, fasciâ posticâ rufâ, punctis ocellaribus nigris, posticis subtus fasciâ cinereâ.* (Exp. alar. 1 unc. 10 lin.—2 unc.)

Pa. *Blandina. Fabricius.—Don, xii. pl. 426.—Hi. Blandina. Steph. Catal.*

Wings above brown, with a rufous band towards the hinder margin, in which on the anterior are four black ocelli with white pupils, the two anterior united as in *Hi. Ligea*: the band on the posterior wings is somewhat obsolete, interrupted at each nervure, abbreviated, and bearing usually three black ocelli with white pupils, and a black dot: beneath, the anterior wings are rather paler, but banded and ocellated as above; the posterior wings have rather more than the basal half deep fuscous, obsoletely terminating in a sinuated line, and followed by a bluish-ash fascia, posteriorly tinted with red, in which are one or more minute ocelli: cilia brownish, interrupted with dusky. The female differs in having the ocelli more distinct both above and below, the under surface of the wings much paler, especially the posterior, which are pale cinereous at the base and hinder margin, with a broad intermediate brown band; the cilia are also more distinctly interrupted, being whitish, with brown spots. The body and antennæ as in *Hi. Ligea*.

Var. β . Both sexes with the third ocellus from the apex of the anterior wings blind; posterior wings as above.

Var. γ . Both sexes with the third ocellus obliterated.

Var. δ . Female with five ocelli on the band of the anterior wings.

Var. ϵ . As in var. β , but the posterior wings with two ocelli only above.

Var. ζ . As in var. γ , but two ocelli only on the posterior wings.

Var. η . Ocelli as in var. γ , but very small; the posterior wings beneath with four very distinct bands; the first, at the base, pale dusky, the second broad, bent, deep reddish-brown; the next attenuated at each end, bluish-ash, sprinkled with white, with three minute ocelli, and terminating at the anal angle of the wing; the hinder one occupying the posterior margin, and bright rufous brown.

Discovered many years since, at the beginning of August, in the Isle of Arran, by Dr. Walker, and, subsequently, taken there by Sir Patrick Walker and Dr. Leach, and in profusion by Messrs. Curtis and Dale, the latter of whom supplied me with a fine series of both sexes. It has recently been found not uncommonly near

Castle Eden Dean, in Durham; but the English specimens, which were sent to me by Mr. Backhouse, appear to differ considerably from the Scotch. I have described them under var. η ; the other varieties are all from the original habitat. It is probable that there are several other distinct varieties in ocellation than those mentioned above; but the impossibility of my seeing the collection in which they may be contained obliges me to be silent.

D. Eyes naked: wings elongate, pilose, entire: palpi very hairy. Frequent mountainous districts.

Sp. 13. Cassiope.—PLATE 8. f. 1, 3. ♂ f. 2. ♀.—*Alis sericeo-fuscis, fasciâ rufâ, sæpè punctis subocellaribus nigris ornatâ, posticis subtùs punctis solis.* (Exp. alar. 1 unc. 3—5 lin.)

Pa. Cassiope. *Fabricius*.—Hi. Cassiope. *Steph. Catal.*

Wings of a silken-brown, the anterior with a red fascia behind, in which are usually four obsoletely subocellated black spots, the third the least; the posterior have also a red band, abbreviated at each end, and bearing three subocellated black spots: beneath, the anterior wings are pale metallic brown, with an irregular red band near the hinder margin, attenuated in the middle, and bearing four black spots; the posterior wings are pale coppery-brown, with three black spots, obsoletely cinctured with fulvous, placed opposite to the ocelli of the upper surface: the cilia are brown above, whitish beneath: the body and antennæ are dusky, the latter nearly white on the under side.

—*Fig. 2.*

Var. β . The fascia on the anterior wings, above and below, with three ocelli-form spots, the third being obliterated: posterior wings as before.—*Fig. 3.*

Var. γ . The fascia on the anterior wings on both surfaces with two ocelliform spots, the third and fourth being obliterated; posterior wings as before.

† Sp. 14. Mnestra. *Alis nigro fuscis, anticis suprâ fasciâ latâ rufâ, punctis aut ocellis duobus nigris, posticis fasciâ angustâ abbreviatâ rufâ, in feminis tri-ocellatis.*

Pa. Mnestra. *Hubner*.—Hi. Mnestra. *Steph. Catal.*

Wings black-brown, anterior above with a broad red band, with two black dots; beneath, with the disc red immaculate: posterior wings above with an abbreviated red band, beneath without spots, with an obliterated band before the posterior margin. Female with two ocelli in the band of the anterior wings on both sides; and three minute ones on that of the posterior.

Allied to var γ . of the preceding insect, and admitted into our Fauna by mistake upon the examination of the Museum specimen of Hi. Cassiope, which was so dissimilar to the other specimens of that insect formerly contained in collections, and appeared to agree with Pa. Mnestra of Hubner, that it was considered as distinct, and referred to the last named insect.

- Var. δ . The fascia on the anterior wings with the apical ocellar spot only; posterior wings as before.
- Var. ϵ . The fascia on the anterior wings unspotted; the posterior wings with three circular red spots, the one at the anal angle with a black dot.—*Fig. 1.*
- Var. ζ . Anterior wings with four round red spots, with a black dot in each; the posterior with three, in lieu of the fascia.
- Var. η . Anterior wings with four minute red spots; posterior with two.
- Var. θ . Anterior wings with three very obsolete minute red spots, slightly pupillated; posterior with two.
- Var. ι . With the fascia on the anterior wings, spreading towards the base, and forming an irregular patch occupying the greater portion of the disc of the wing; posterior wings as in var. ζ .

Var. η is the *Papilio Mnemon* of the Entomological Transactions, p. 332, in which it was described by Mr. Haworth, about fifteen years since, from specimens in the collection of the late Mr. Francillon, to whom they were presented by T. Stothard, Esq. R. A., their captor, and reputed discoverer of the insect in Britain; but, however, a single specimen was previously obtained by Dr. Leach from the cabinet of the late Dr. Lettsom, which was said by the latter to have been taken in Cumberland. From the circumstance of so many years having "rolled on" without other specimens of the insect occurring, its native origin began to be questioned; but the past season has undeniably set the question at rest, through the instrumentality and industry of Mr. Dale, who was furnished with its locality from Mr. Stothard, and, accompanied by Mr. Curtis, procured many specimens of the male from the grassy sides of the mountains in the vicinity of Ambleside. The discovery of the female is, however, due to an indefatigable collector—and one who disposes of the insects he collects—Mr. Weaver, of Birmingham*, who found several of each sex, and the chief of the varieties described above from the same and different localities in the counties of Westmoreland and Cumberland, during the month of July.

E. Eyes naked: wings entire: palpi slender, moderately hairy, the terminal joint very long, acute: frequent boggy heaths and marshy places in mountain districts.

Sp. 15. *Iphis*. PLATE VII. f. 1, 2.—*Alis supra griseo-fulvis sæpè immaculatis, anticis subtùs ocello uno alterore, posticis 2-5 obsoletis, rarissimè obliterated.*
(Exp. alar. I unc. 6-8 lin.)

Hi. *Iphis*. *Ochsenheimer*.—*Steph. Catal.*

Pearce Heath

* No. 28, Weaman-street.

Above, usually deep immaculate rusty-tawny, the anterior wings slightly tinged with brownish on the hinder margin, and clouded at the base with dusky; the posterior wings are of a deeper hue, especially towards the base, which is clouded with dusky; all the wings have a whitish edge: beneath, the anterior wings are dusky at the base, the disc is dull ferruginous-tawny, with an abbreviated irregular white stripe towards, and parallel with, the hinder margin, which is usually bordered on the inner edge with dusky, or black; between this stripe and the margin are generally two black ocelli, with white pupils, surrounded by a whitish circle; the tip of the wings and a narrow slip along the hinder margin is greenish ash-colour: the posterior wings have more than the basal half deep greenish-brown, followed by an interrupted, irregular, sinuated white band, on the anterior margin of which is a single ocellus, coloured as before; this band is followed posteriorly in the female with a fulvous cloud, but in the male with a patch uniform with the base of the wing, in which are usually five whitish circles, in the third and fourth of which is a black ocellus with a white pupil, in the second a black dot, and in the fifth or anal one a rather obsolete ocellus, which is frequently double: the edge of the wing is ash-coloured: the cilia of all the wings above are whitish-brown, beneath whitish-ash: the body above dusky, tinged with greenish-ash; beneath, of the latter colour: the antennæ are dusky, annulated with white, the tip of the club tawny.

Var. β . With the white band on the under surface of the posterior wings scarcely interrupted: the ocellation various.

Var. γ . Anterior wings beneath with four ocelli, the posterior with five.

Var. δ . Anterior wings beneath with three ocelli, the posterior with four.

Var. ϵ . Anterior wings as above, the posterior with three ocelli.

Var. ζ . Anterior wings with two ocelli, the posterior as in var. γ .

Var. η . Anterior wings as in the last, posterior as in var. δ .

Var. θ . Anterior wings with two ocelli, posterior with one ocellus.

Var. ι . Anterior wings with one ocellus, posterior with one or more ocelli.

Var. κ . All the wings inoCELLATED.

The varieties of this species are almost interminable; the above are all I consider worthy of a distinct notice: specimens sometimes occur with a greater number of ocelli in both wings: I have some with five on the anterior wings and seven on the posterior: the obliteration of the ocelli also varies much; in some individuals they are replaced by pale fulvescent or whitish spots, and in others they are totally obsolete. Again, many specimens have the upper surface bearing very distinct ocelli, which vary in number. The females have, in addition to the tawny cloud in the under surface of the posterior wings, the wings usually much paler than in the male, with a paler blotch on the upper surface of the anterior behind the middle of the disc anteriorly, and a similar patch on the posterior above; the ocelli are also generally more distinct than in the male.

The caterpillar is dark green, with a bluish head, and a slender dark dorsal stripe: the chrysalis is dark green.

The first notice of this insect as indigenous is given in *Lepi-HAUSTELLATA*. VOL. I. 1ST FEBRUARY, 1828. K

doptera Britannica, from two specimens captured by P. W. Watson, Esq. near Beverley, Yorkshire. Many years, however, passed away without other specimens occurring, and the London cabinets were destitute of this species until the learned author of the above work discovered it in profusion in a marshy situation near Cottingham, in the above county, and supplied his friends therewith. It has of late years been found in Scotland and Wales, and appears to be not uncommon in some parts of Cumberland; and I am assured by Mr. Wailes that it occurs in plenty on damp heaths, in Northumberland, in the beginning of July, varying from my figure 1, to figure 3: in fact, it appears to be not an uncommon northern species.

Sp. 16. Polydama.—PLATE 7, f. 3.—*Alis fulvis, anticis subtus ocellis duobus vel quatuor, posticis 6 albo cinctis, quarum 3 dimidiatis.* (Exp. alar. 1 unc. 6—8 lin.)

Pa. Polydama. *Haworth.*—Hi. Polydama. *Steph. Catal.*

Anterior wings griseous-tawny, with two blind ocelli towards the tip; posterior brown, with a broad whitish stripe on the inner edge, and a minute blind ocellus towards the anal angle: beneath, the anterior wings are tawny-brown, with the base brown, ash-coloured at the tips, with an abbreviated transverse whitish band posteriorly, between which and the hinder margin are two remote ocelli, with an obsolete white pupil and black iris, and cinctured with white: the posterior wings at the base are dusky, externally dentate, and terminated by an irregular whitish fascia, behind which they are cinereous, with six ocelli, of which three are very small and nearly obliterated, and all are surrounded by a white circle.

Var. β .* With the white fascia on the posterior wings beneath scarcely continuous.

Mr. Haworth, with his wonted acumen, ventured to describe this insect as distinct from the former, upon the examination of three specimens only of the two supposed species; for such alone can I imagine them to be, notwithstanding I have separated them above—the chief distinction, according to Mr. Haworth, consisting in the uninterrupted white fascia on the under surface of the posterior wings, and which, if allowed to constitute the diagnostic of the

* This, the preceding, and the following insects vary similarly in the presence and obliteration of the ocelli. I shall, therefore, merely notice (under Hi. Polydama and Davus) such varieties as appear peculiar to the respective species, observing that the former insect has usually larger and more distinct ocelli than Hi. Iphis.

species, would equally separate var. β of *Hi. Davus* from the other varieties of that insect; but Mr. Haworth lays much stress upon the localities of the two presumed species, he having taken of *Hi. Iphis* nearly fourscore specimens, in a marsh near Cottingham (as previously noticed), without a single individual of *Hi. Polydama* amongst them; whereas the Rev. W. T. Bree informs me, that he took the latter in great abundance (and kindly supplied me with specimens) on the mountains between Bala and Festiniog, Merionethshire, though amongst them was a single specimen of *Hi. Iphis*. Again, Mr. Weaver took the latter insect in great plenty in Cumberland last season, but unaccompanied by *Hi. Polydama*, although he captured that insect somewhat plentifully in North Wales nearly one month earlier: yet from the communications of Mr. Wailes both kinds appear to occur in his neighbourhood, as noticed under *Hi. Iphis*.

The name of this (supposed) species has been changed in the Butterfly Collector's Vade Mecum without sufficient investigation: the *Polymeda* of Scopoli being the *Hyperanthus* of Linné, and not the insect described by Mr. Haworth by the accidental term of *Polydama*.

Sp. 17. *Davus*. *Alis fulvo-fuscis, anticis subtus ocellis duobus sesquialtero interjecto, posticis sex sesquialtero fulvo cinctis.* (Exp. alar. 1 unc. 4—9 lin.)

Pa. *Davus*. *Fabricius*.—*Hi. Davus*. *Steph. Catal.*—Pa. *Hero*. *Don*, vi. pl. 186.

Anterior wings above brownish-tawny, with one or more obsolete ocelli towards the hinder margin: the posterior wings are similar, with whitish cilia, with from one to four blind ocelli with a tawny iris. Beneath, the anterior wings are somewhat paler than above, with a posterior abbreviated whitish band; between which and the hinder margin are usually two ocelli, having a black iris and white pupil, and one or more spots or obsolete ocelli, which are cinctured with tawny: the hinder margin is whitish, with whitish cilia: the posterior wings at the base are greenish-brown, terminating somewhat in a wave, and followed by an interrupted irregular whitish angular band; beyond which the posterior margin of the wings is brownish, and adorned usually with six ocelli, having a whitish iris, a large black pupil, and a central silvery dot; the margin itself is whitish, and the cilia brownish: the body is of the colour of the wings above; the antennæ annulated with tawny and whitish.

Var. β . The ocellations as above; but the fascia, on the posterior wings beneath, uninterrupted.

Var. γ . With the basal half of the posterior wings beneath brown, clouded with white, and terminated by a continuous white band, as in var. β .

Var. δ . The anterior wings with five distinct ocelli beneath; the posterior with

six, very large, the anal one especially, which is usually double; and at the apex of the abdominal areolet is an additional ovate blind ocellus placed at the termination of the white band.

Obs. I have not seen a specimen of this insect with the ocelli totally obliterated, and it may be remarked that they are usually largest in this species.

“*Incidit in Scyllam qui vult vitare Charybdim,*” is more applicable to the entomologist, who endeavours to unravel the intricacies of specific differences, than to any other class of naturalists; as it frequently happens that a character which appears important in one species cannot be relied on in the neighbouring ones, and, consequently, in his endeavours to draw the line of demarcation between kindred species, he not unfrequently oversteps the just boundaries of nature, and, in avoiding the error of describing species as varieties, he sometimes gives varieties as species: such, I fear, has been the case in the present genus with respect to the three last-mentioned insects, because, should *Polydama* be truly distinct from *Iphis*, the same characters would separate var. β of this insect from the other varieties; and I cannot for a moment imagine that such can be the case, as all the above-described varieties were captured, several in profusion, in the same marshes, between Stockport and Ashton, near Manchester, and at the same period of the year (July). Mr. Backhouse informs me that it frequents Shorn-moor, Yorkshire; and Professor Hooker, I believe, once captured a specimen in Norfolk.

‡ Sp. 18. Hero. *Alis fuscis, subtus primoribus ocellis duobus, posticis senis.*
(Exp. alar. 1 unc. 6? lin.)

Pa. Hero. *Linné.*—Hi. Hero. *Steph. Catal.*

Anterior wings above fuscous, with a blind ferruginous ocellus towards the apex; beneath fuscous, with a whitish band towards the tip, beyond which is a silvery line, and the margin is luteous; between the margin and the whitish band are two ocelli, of which the exterior has a black iris and snowy pupil, the interior is blind, with a luteous iris and black dot. Posterior wings above also fuscous, with six blind ocelli, with a luteous iris and black pupil: beneath fuscous, with a posterior white band, followed by a silvery line, and a luteous margin; between the white fascia and the margin are six ocelli, having a luteous iris, the middle deep black, with a snowy pupil: antennæ black, annulated with white.

There was a specimen of this species, and also one of the following, in the collection of Mr. Plastead; the former said to have been taken near Wythyham, on the borders of Ashdown Forest,

Sussex; but being unable to examine the originals, I have merely given the Linnean definition.

‡ Sp. 19. Arcanius? *Alis ferrugineis, subtus primoribus ocello unico, posticis quinis.* (Exp. alar. 1 unc. 6 lin.)

Pa. Arcanius. *Linné?*—Hi. Arcanius? *Steph. Catal.*

Anterior wings above ferruginous, with the hinder margin dusky, edged with whitish; beneath ferruginous, with a very minute ocellus towards the apex: posterior wings above fuscous, with a whitish edge; beneath griseous, with a silver line behind, a broad white band in the middle, a black ocellus on the outer margin anterior to the band, four ocelli behind the band, with a silvery pupil, the two anal ocelli largest.

Caterpillar green with a red mouth; dark green dorsal line, with a yellowish-white lateral line, and a yellow one over the legs.

The locality of this insect is unknown to me; the only reputed indigenous specimen was in Mr. Plastead's collection.

Sp. 20. Pamphilus. *Alis fulvis, anticis subtus ocello unico, posticis fasciâ albâ punctisque quatuor obsoletis.* (Exp. alar. 1 unc. 2—6 lin.)

Pa. Pamphilus. *Linné.*—*Lewin, pl. 23. f. 3, 4.*—Hi. Pamphilus. *Steph. Catal.*

Wings pale tawny above; the anterior with the margins dusky, with an ocellus towards the tip on each surface, which is sometimes blind, and frequently accompanied by a secondary one, or one or more black spots: the posterior wings have the margins also rather dusky, and an obsolete ocellus towards the anal angle: beneath, the anterior wings are cinereous at the base and tip, with the ocellus at the tip rather large, black, with a white pupil and whitish edge; the posterior wings are greenish-brown at the base, with an irregular abbreviated pale ash-coloured band in the middle, in which, towards the margin, are several minute indistinct ocelli; the margin itself is greenish-brown: the body is deep-fulvous or tawny-brown: the antennæ tawny, annulated with whitish.

The male is usually of a deeper hue, and the wings are more distinctly edged with dusky above.

Var. β . With the apical ocellus on the anterior wings totally obliterated.

Var. γ . With the posterior wings beneath of a uniform greenish-brown, the band and ocelli being obliterated.

The caterpillar is greenish, with white dorsal lines: it prefers the crested dog's-tail grass. The chrysalis is green.

An abundant species on every grassy heath and common throughout the kingdom; appearing in June, and again in September.

The extreme discrepancy of structure and diversity of habits among the insects referred to this genus induces me to add a few remarks upon the importance and utility of the study and investigation of *species*, as many naturalists assert, that the sole

object which should employ the attention of the student of nature is the form, or structure, with which she has endowed her multifarious productions, and that an intimate acquaintance with the species of which they are composed is not only useless, but ridiculous.

In opposition, however, to such assertions, I maintain, that an attentive examination of species, *nay even of varieties*, is of more *real utility* to mankind, than those researches which are carried on solely for the purpose of ascertaining the actual structure of animals, especially when conducted, as is frequently the case, without reference to their economy. What advantage, beyond the mere matter of fact, as scientific truths, can result from knowing that one kind of gnat is distinguished from another* by the comparative length of the palpi (or feelers), the habits of the two being similar; that one genus of predaceous beetles has a notch or two more in its mandibles (or jaws) than another; or that the 1st, 2d, 3d, &c., articulation of the antennæ (or horns), in some of the last group, is either longest or shortest? The knowledge of such facts, though highly important, as exhibiting the method in which the series of affinities is preserved, indisputably conduces less to the interests of society than an acquaintance with the habits of species, or, as before observed, even of varieties; a point readily illustrated by inferences drawn from the higher animals, in which classes it will be no difficult task to find examples which show that the greatest benefit arises to mankind from an attention to the *varieties*. Look at our domestic animals, for instance; at the very important services peculiarly rendered by each variety; and how various are those furnished by the most faithful of all, the dog? Are not the several instincts of the different varieties of that animal the special objects of our care, and do we not employ them accordingly? Who would follow the pleasures of the chase, accompanied by the mastiff or turnspit? or consign the guardianship of his property to the greyhound or beagle? Again, the different qualities of horses, oxen, and sheep, might be advantageously pointed out, so far as their *real utility* is concerned †, if such a sordid consideration alone is to influence the

* E. g. *Culex* and *Anopheles*.

† What advantage has accrued to mankind by the incomparably accurate investigations of the learned author of *Monographia Apum Angliæ*? a work in which all the species, known at the period it was written, are arranged in con-

views of the lover of nature. To refer to objects more legitimately within the scope of the entomologist's observation, let him examine the organization of the four indigenous species of *true* Vanessa, and it will be found as exactly correspondent in all as in any kindred species throughout the creation, though their habits cannot be said to be similar; two of them, for example, Va. Io and Urticæ, ovipositing upon nettles, upon which their larvæ feed gregariously; whereas the other two, Va. Polychloros and Antiopa, oviposit respectively upon elms and willows, which afford pabulum to their progeny. V. Urticæ has two or more broods in the year, the other species one brood only, which arrives at perfection towards the end of summer; the last-named insect and Io appear with regularity, while the other two (Antiopa especially) occur with irregularity; the only points in which all agree being in their powerful flight, and the faculty they possess of hibernating.

The reverend author of the Introduction to Entomology says, "the knowledge of species is indeed indispensable for the registry of facts and other practical purposes*;" and we learn from the highest authority that when the ALMIGHTY CREATOR rested from His labours, He pronounced *every thing* which He had created to be *very good*. Are we, therefore, to assume that only a certain portion of His works is *worthy of the attention* of mankind? Are not the various species of Monas individually of as much importance in the economy of nature, as the mighty Leviathan of the deep? And is the presumed limit of the animal creation, the purely microscopic Monas Termo (of which some recent speculative physiologists attempt to demonstrate the divine structure of man, as well as that of all other animated beings, is composed), to be despised on account of its apparent insignificance? I conceive that no unprejudiced person can deny the first, nor affirm the last, assumption; and consequently it follows, that *all* created beings are objects of our attention. But where is the mind that is capacious enough to comprehend the attributes of all the various species of the animal creation?—amounting probably to the prodigious number

formity to their generic structure, accompanied with detailed figures and descriptions of the latter, whose accuracy will enable the veriest tyro to ascertain the generic identity of the honey-bee; but has it contributed to increase the cottager's store of honey?

* Kirby and Spence. Introduction to Entomology, v. iv. p. 547.

of half a million!—400,000 of which are the peculiar objects of the entomologist's research, according to the calculations in the volume already referred to*.—It is therefore obviously necessary for the student to limit his desires, though at the same time his investigations ought not to be ridiculed because he thinks proper to proceed to a greater extent than others, who choose to confine their observations to any particular branch of study, whether that of organization alone, or of the affinities of particular groups.

But the advocates for generic investigation assert, that the discovery of a new species is of no importance, that it leads to no useful result, and, finally, that a close examination of species is ridiculous and useless; thus sacrificing every principle of true science by assertions that are readily disproved by the dissimilarities of structure apparent in every extensive genus, which they without hesitation adopt. As an example, the genus to which these remarks are appended may suffice; its contents being so manifestly dissimilar as to strike every person with surprise that all are at this time included under one generic name. Who, upon an examination of *H. Semele* alone, would surmise that *H. Cassiope*, or *Pamphilus* and its congeners, were placed in the same genus? And it is evident, that to acquire a knowledge of the real structure of the species in a genus, *all* must be obtained and examined, otherwise the structure of *some* must be presumed, and we must remain in comparative ignorance of *their* organization, by confining our investigations to the contemplation of genera alone. It is therefore clear that a rigid examination of species cannot be ridiculous, but is *absolutely necessary*, in order to obtain *correct* views of affinity; and the more rigidly we proceed, the greater beauties present themselves to our notice, and much additional light is thrown upon our knowledge of the harmonies of nature; and surely we cannot sufficiently admire those productions which “are the work of a BEING infinite in power, in wisdom, and in goodness,” whose beneficence is extended to every object of the creation, and who

“Has the great whole into perfection touched.”

I should have entered somewhat into the question of the distinction of species, were it not that I have treated at some length upon that subject in the Introduction to my Systematic Catalogue. I shall therefore merely add, that the approximation of kindred species

* K. and Sp. Int. v. iv. p. 477.

is sometimes so close, that the most experienced eye can scarcely detect the difference between them; that in some cases it is almost impossible to separate the individuals of such species, when variable, unless guided by experience of their habits and localities; and that it is sometimes impracticable by any form of words to convey an adequate idea of their relative distinctions to another person; in fact, as Mr. Bicheno has well observed, those species can only be detected by that tact which he has termed empirical;—yet, regardless of the continually repeated instances of such occurrences, there are not wanting individuals who assert that every newly discovered species is a mere variety of its nearest congener, unless they happen either to capture it, or to possess specimens; thereby sacrificing two important considerations: first, that it is he alone who is capable of giving the requisite examination to the specimens who has them in possession; and, secondly, their want of experience, when they have neither captured nor seen the insects at large. Why do not these entomologists, who thus dogmatically controvert the discoveries of others, inform their brethren, if the love of science be their ultimate aim, in what the essence of a species consists? and how they are able thus decisively to determine instantly upon the specific identity of every specimen? They will probably answer these first in the words of Mr. Kirby, who truly says, “A species is a natural object, whose differences from those nearly related to it had their origin when it came from the hands of its CREATOR; while those that characterise a variety have been produced since that event*.” But by what means they are enabled *unerringly* (as they assume) to discover those characteristics, which distinguish the species from the variety, I am totally at a loss to conjecture: though as their opposition is frequently excited on account of the close approximation of the species, need they be reminded that the highest of all sciences, mathematics, requires the greatest degree of exactness, and yet a rigid attention to its utmost minutæ is absolutely indispensable? It is therefore not surprising, that in the examination of zoological subjects a closer inspection than a mere *primâ facie* view should be necessary before we become thoroughly acquainted with them.

I have thought fit thus to combat the above points, and to extend these remarks, as, in consequence of venturing to add to the number

* Kirby and Sp. Int. v. iv. p. 396.

of species in the genus *Pontia*, it has been assumed that nearly half of the species described in these volumes are mere varieties, since I so absurdly *make*, as it is said, nine species out of five* in the genus alluded to above; but the unprejudiced reader does not require his attention to be drawn to the observations subjoined to the characters of that genus in page 14, in which it is distinctly stated that I have diffidently ventured to call the attention of entomologists to a subject that appeared to have been greatly neglected, and to add one or two apparently distinct species to the number previously, or rather lately, described.

FAMILY III.—LYCÆNIDÆ †, *Leach*.

Antennæ with a distinct club, which is sometimes compressed and furnished with a rudimentary hook at the tip: *anterior legs* slightly abbreviated, or imperfect; all the legs bearing minute simple *claws*: *hinder tibiæ* with one pair of spurs only at the apex: *posterior wings* with a groove to receive the abdomen. *Larva* oval, depressed; *pupa* short, contracted, obtuse at both extremities, smooth; fastened by a transverse thread.

The individuals of this family are known by their inferior size, and the delicacy of their form: the indigenous species are severally characterized by tints of dusky, copper, or blue, according to the

* Every writer upon species has erred in this particular, from the time of Linné to the *present* period:—refer to Linné's genera *Coccinella* and *Cicada*, as examples—to the labours of our compatriots, Messrs. Donovan, Haworth, Kirby, and Marsham—or to those of Gyllenhal, Sturm, and De Jean. Have not they occasionally (from necessity) described varieties as species, and vice versâ? Have not recent genera been enriched with species whose validity is doubtful? I consequently am liable to similar misconceptions; but it shall be my endeavour to guard against them as far as possible during the prosecution of this work, bearing in mind the just remark of Seneca, that although “much remains for us to do, much will remain for those who come after us;”—as no individual can attain perfection.

† In adopting this term, I beg distinctly to be understood that it is not with any intention of oppugning the nomenclature of Mr. Swainson, who calls this family by the name *Polyommata*, in his remarks upon the *Papilionidæ*, but solely with a view of acting consistently, inasmuch as I have already employed it in page 5, in accordance with the nomenclature of Dr. Leach, who gave the term here used to the whole of Latrielle's second division of the *Diurna*: though, as the name of the family should unquestionably be derived from that of the typical group, I shall not attempt, from my limited knowledge of exotic forms, to decide which of the two ought to be retained.

respective genera to which they belong; and although many of them are distinguished by resplendent hues, the superior brilliancy of some of the exotic species surpasses that of almost any other object of the creation: their flight is feeble and slow.

Three genera alone inhabit Britain, which may be thus discriminated:—

<i>Antennæ</i>	{ capitulo haud compresso: <i>Oculi</i>	{	pubescentes: . . .	16. THECLA.
			nudi: . . .	17. LYCÆNA.
	capitulo compresso: . . .	. . .	18. POLYOMMATUS.	

GENUS XVI.—THECLA, *Fabricius*.

Palpi rather longer than the head, three-jointed; the basal short, bent; the second elongate; the third short, scaly, rather acute: the two basal joints scaly, with a few hairs beneath: *antennæ* short, thickening gradually from the base to the apex, which is a little attenuated; the club elongate, cylindrical: *eyes* pubescent: *legs* alike in both sexes, *anterior* rather short; all furnished with very minute simple *claws*, nearly concealed by the foot-cushions, which are large: *wings*, *anterior* triangular, entire, *posterior* with short tails, or denticulated.

The genus *Thecla* may be distinguished by its sombre tints above, and the pale streaks with which the wings are adorned below; by the pubescence of the eyes, the abbreviated triangular anterior wings, and the ovate-triangular posterior ones, which are usually furnished near the anal angle with one or more short linear tails, or are strongly denticulated on that part. The larvæ feed upon trees and shrubs, and the perfect insects usually frequent hedges and flowers, fly but little at a time, and then generally among the foliage.

Sp. 1. *Betulæ*. *Alis supra fuscis, subtus luteis fasciâ fulvâ albo marginatâ, ciliis albis.* (Exp. alar. 1 unc. 4—7 lin.)

Pa. *Betulæ*. *Linné*.—*Lewin*, pl. 42. Th. *Betulæ*. *Steph. Catal.*

Wings above fuscous, or dark-brown: the anterior with a transverse black streak at the apex of the basal areolet, beyond which, in the male, is a slight fulvous cloud, and in the female a large kidney-shaped orange spot, tending towards the hinder margin; the posterior are similar in both sexes, and have a tawny spot on the inner angle, and a streak of the same colour on the tail: beneath, the sexes resemble each other, but the colours are more vivid in the female; all the wings are orange-tawny, with a bright orange margin: the primary have a central transverse dusky spot, corresponding with the black one on the upper surface, edged with white; between which and the hinder margin on the costa is a deep orange acute-angled triangular spot, edged with dusky internally, and white externally; the posterior wings have an oblique

slightly waved elongate orange band, margined with black internally and white externally: the anal angle is spotted with black, and the cilia on the anal areolets have a fuscous stripe: the body is brown above, cinereous beneath: the antennæ black, annulated with white.

Var. β . Male with the anterior wings above without a fulvous cloud.

Caterpillar green, with oblique yellowish streaks on the sides, and two yellow dorsal lines: it feeds on the birch and black-thorn: the chrysalis is reddish-brown, with paler streaks.

Inhabits birch-woods about the middle of August: Coombe and Darenth woods are its chief residences near London, though it is occasionally found near Hornsey: it occurs also in Raydon-wood, near Ipswich; in Berkshire, Dorsetshire, Devonshire, and near Andover; but it cannot be esteemed a common species any where, though about twelve years ago I took many specimens in Coombe-wood, both in the larva and imago states.

Sp. 2. Quercus. *Alis suprâ nigricantibus disco cæruleo, subtus cinereis strigâ undatâ albâ punctoque ani gemino fulvo.* (Exp. alar. 1 unc. 3—6 lin.)

Pa. Quercus. Linné.—Lewin, pl. 43.—Th. Quercus. Steph. Catal.

Wings above dusky black: the male with the disc of the anterior deep glossy blue, formed of an oblong patch, covering the basal areolet, and extending posteriorly towards the anal angle: the female with the entire disc purple, with a dusky posterior margin: the posterior wings with an obsolete fulvous dot: beneath, both sexes are similar; the anterior wings are cinereous, with an abbreviated white streak on the costa towards the apex; between which and the posterior margin the wing is paler, with a few fulvescent or whitish spots, clouded internally with dusky: the posterior wings are similar at the base, and have a strong undulated white streak, slightly edged internally with dusky; beyond this the margin of the wing is paler, and bears two rows of obsolete whitish crescents, with a fulvous spot at the anal angle, and an ocellus with a fulvous iris and black pupil; the tail is black: the body is black above, cinereous beneath: the antennæ black, obsoletely annulated with cinereous, with the club fulvescent beneath.

The purple blotch on the anterior wings of the male varies greatly in size; and the wings of the female are sometimes so slightly purpurascens as to appear brown.

Caterpillar flesh-coloured or brownish, with three rows of green dots; it feeds on the oak. Chrysalis rust-coloured, with three rows of brown dots.

A very common species throughout the south of Britain during the middle of July, frequenting the tops of lofty oaks and ash-trees: it is, however, somewhat rare in the north, as I am informed by Mr. Wailes that it occurred for the first time at Gibside, near Newcastle, in August last; but Mr. Backhouse acquaints me that it is common at Overton-wood, near York.

Sp. 3. Pruni. *Alis suprâ nigro-fuscis, subtis pallidioribus strigâ communi undatâ albâ, posticis fasciâ marginali rubro-fulvâ nigro marginatâ.* (Exp. alar. 1 unc. 2—7 lin.)

Pa. Pruni. *Linné.*—*Lewin, pl. 44.*—Th. Pruni. *Steph. Catal.*

Wings above deep black or brown, immaculate: beneath paler, especially in the females; anterior with a transverse abbreviated white streak on the costa towards the apex, slender and nearly straight in the male, broader and much waved, especially towards the inner edge, in the female: posterior wings with a similar streak, which becomes of a zigzag form, and attenuated towards the inner margin: beyond this is an irregular deep rufous-orange marginal band, edged internally with black, and, in very fine specimens, accompanied by a narrow white streak—spotted externally with the former colour, and also occasionally accompanied by a white streak towards the margin; the tailed appendages (which are longest in the females) are black, tipped with white: the body is black above, drab-colour beneath; the legs bluish, the tarsi annulated with dusky: the antennæ black, with white rings and an orange tip.

The male is further distinguished by an ovate glabrous spot at the apex of the basal areolet of the anterior wings.

Caterpillar dusky-green, with whitish lateral lines; the back dentated. It feeds on the black-thorn. Chrysalis dusky-brown, with a white head.

This species is usually esteemed a scarce insect in the neighbourhood of London, and previously to the last season I never saw it alive; but the boundless profusion with which the hedges, for miles, in the vicinity of Ripley, were enlivened by the myriads that hovered over every flower and bramble-blossom, last July, exceeded any thing of the kind I have ever witnessed: some notion of their numbers may be formed, when I mention that I captured, without moving from the spot, nearly 200 specimens in less than half an hour, as they successively approached the bramble-bush where I had taken up my position. How to account for their prodigious numbers I am perfectly unable, as the same fields and hedges had been carefully explored by me at the same and different periods of the year for several preceding seasons, without the occurrence of a single specimen in either of its stages; and it is worthy of remark, that the hedges to the north and north-west of the village were perfectly free, although the brambles, &c., were in plenty. A few specimens were also taken near Windsor, and in Cambridgeshire, and, I believe, near Ipswich, during the past season. The entomologists of this last town, Mr. Kirby informs me, do not esteem it a scarce insect: its usual time of appearance is the end of June, and it continues till the middle of July.

† Sp. 4. Spini. *Alis suprà fuscis, subtùs cinereis; lunulis marginalibus fulvis maculâque anali cœrulescente.*—Fabr. (Exp. alar. 1 unc. 4 lin.)

He. Spini. *Fabricius.*—Th. Spini. *Steph. Catal.*

Allied to the last: the wings above brown, with several reddish spots towards the apex posteriorly; the posterior, with the tip of the tail, white; beneath cinereous with a white stripe, a little angulated at the anal angle: towards the hinder margin several tawny crescents, dotted with black, and a large bluish spot at the anal angle, terminating in a black dot. Male with a discoidal spot, as in the last.

Caterpillar green, or reddish, with yellow dorsal lines, and a black head: it feeds on the black-thorn. Chrysalis above brown, beneath cinereous.

I have hitherto seen one specimen only of this insect, which is in Mr. Haworth's collection. I am not aware of its locality; but last July a second specimen was captured in Norfolk, by Mr. J. Sparshall, F. L. S., &c.

Sp. 5. Rubi. *Alis suprà fuscis, subtùs viridibus, posticis sæpe strigâ punctorum alborum ornatis.* (Exp. alar. 1 unc.—1 unc. 4 lin.) *The Green Tort*

Pa. Rubi. *Linné.*—*Lewin. pl. 44.*—Th. Rubi. *Steph. Catal.*

Above dusky-brown, with the nervures blackish: beneath green, the anterior wings usually immaculate; with the thinner margin pale dusky-brown: the posterior wings not tailed, but denticulated on the hinder margin, with an interrupted series of white dots, which is sometimes nearly obliterated: the cilia, both above and below, are brown, dotted with black on the posterior wings; the body is deep brown above and pale beneath.

The male is discriminated, as in Th. Pruni and Spini, by an opaque spot on the disc of the anterior wings near the costa.

Var. β . The anterior wings with a row of white dots beneath on the costa; the posterior with a strong continuous series, forming a streak.

Caterpillar green, variegated with yellow, with the head black: it feeds on the bramble, dyer's-weed, saint-foin, and broom. Chrysalis brown.

A pretty and not very abundant species, frequenting hedges and brambles, upon the buds of which last shrub the larvæ also feed, thus slightly receding from the habits of the genus, from which it is also somewhat removed by the form of its antennæ and of the posterior wings, and by the circumstance of its being double-brooded; the first brood appearing at the end of May or beginning of June, and the second at the beginning of August. It is found at Coombe and Darenth woods, near London; Bromley-thicket, Essex; in Dorsetshire, Devonshire, and near Andover, Hants.

GENUS XVII.—LYCÆNA, *Fabricius*.

Palpi longer than the head, somewhat divergent at the tips, three-jointed, the two first clothed with scales and hair, the terminal with scales only, and attenuated; the basal joint bent, the second very long, slightly curved at the base: *antennæ* with an abrupt obtuse club: *eyes* naked: *legs* alike in both sexes: *anterior* scarcely shorter than the rest: all furnished with small simple *claws* projecting beyond the foot-cushions, which are rather large: *wings* nearly entire; *posterior* denticulated at the anal angle.

The indigenous Lycænæ are known by the brilliant coppery tints which adorn the greater portion of the disc of the upper surface of the wings: they are at once discriminated from the Theclæ by their naked eyes, and by the want of the tail-like appendages to their posterior wings; and from the Polyommati by the form of the club of the antennæ, the more evidently denticulated posterior wings, and the superior size of the pulvilli or foot-cushions. They usually frequent marshy places, and their larvæ feed upon docks and herbs, but not on trees or shrubs. Ly. Phlæas differs a little from the other species in structure, in the sexes being similar, and in breeding several times in the year.

Sp. 1. Phlæas. *Alis anticis igneo-cupreis nigro-maculatis, posticis nigris fasciâ marginali cupreâ, subtus cinerascentibus strigâ posticâ fulvâ.* (Exp. alar. 1 unc.—1 unc. 5 lin.)

Pa. Phlæus. *Linné.—Lewin. pl. 41.—Ly. Phlæas. Steph. Catal.*

Anterior wings above brilliant fiery copper-colour, with the posterior margin and eight discoidal spots black; the two basal ones placed longitudinally, the rest transversely, forming an irregular zigzag band near the hinder margin; the costa is rather dusky: the posterior wings above brownish-black, with a copper band on the hinder margin, which is more or less denticulated externally, and a black line and some dots on the disc: beneath, the anterior wings somewhat resemble the upper surface, but the colour is paler and not glossy, and there are ten distinct black spots on the disc, of which three are placed longitudinally, the rest transversely, as above; the hinder margin is drab-colour, with three or more black crescents internally; the posterior wings are drab-coloured, tinged with copper, sprinkled with numerous obsolete blackish dots, and marked on the hinder margin with an obscure tawny band: the cilia are black at the base, and rose-coloured at the tip: the body is black, with fulvescent hairs above, drab-coloured beneath; the antennæ are black annulated with white.—The female resembles the male.

Var. β . The anterior wings above of a deep dusky copper, with very large, nearly confluent, spots; the posterior wings with a very narrow waved band.

Var. γ . The anterior wings above pale rufous-copper, with the spots very small, and several of the inner ones obliterated.

Var. δ . The posterior wings above more or less spotted with blue, towards the coppery band.

Var. ϵ . The posterior wings above with faint radiating coppery lines, as in the female of *Ly. dispar*.

† Var. ζ . With the posterior wings above totally of a dusky colour, without the cupreous marginal fascia.

† Var. η . With the disc of the wings pure white, the wings spotted and bordered as usual.

Caterpillar green, with a yellow dorsal stripe: it feeds on the sorrel.

A very abundant insect throughout Britain, frequenting commons, pastures, road-sides, and heathy and marshy places: there are three broods in the year; the first appears in April, the second in June, the third in August. Var. ζ . was taken about seventeen years since on Wimbledon-common in April; and var. η . has been taken at Birch-wood, and near Ipswich; a specimen is in the Rev. W. Kirby's cabinet, and a second, I believe, in that of Mr. J. Hatchett, F. L. S.

Sp. 2. *Chryseis*. *Alis supra igneo-cupreis puncto nigro, marginibus fusco-purpurascensibus, subtus canescentibus punctis ocellaribus numerosis.* (Exp. alar. 1 unc. 5—6 lin.)

He. *Chryseis*. *Fabricius*.—Pa. *Chryseis*. *Sowerby*, *B. M. i. pl. 13.*—*Ly. Chryseis*. *Steph. Catal.*

Wings above bright copper, with the margin and base brown, glossed with brilliant purple: an elongate black dot in the centre of each: the posterior have also nearly half the disc purple: beneath, the anterior wings have the anterior margin cinereous, the disc orange, with about seventeen ocellated dots, with a black pupil and white iris, of which three are placed longitudinally towards the base, seven behind the middle, forming a waved band, and seven rather obsolete towards the hinder margin: the posterior wings are cinereous, with the base bluish, and upwards of thirty scattered ocellated dots, of which ten are irregularly diffused over the basal half of the wings, and the rest form three nearly parallel bands on the hinder margin, which has a strong fulvous band, in some specimens a little interrupted: the cilia on both surfaces are brown at the base, white at the tip: the body is black, with grayish hairs: the antennæ black, annulated with white.

† The female has the wings above brown, glossed with fulvous: the anterior with several obscure spots, the posterior with a fulvous band spotted with black; beneath similar to the male.

The colour of the under surface varies much: I have one specimen with the anterior wings beneath entirely cinereous tinged with fulvous, and having eight ocellated dots only.

An insect of great rarity, especially the female, arising, most probably, from its locality being unknown; notwithstanding it occurs

within twenty-one miles of the metropolis, I believe in the vicinity of Epping, whence Dr. Leach received fine and recent specimens for several successive seasons, and from whom I obtained those which are contained in my cabinet. The insect has also been taken in Ashdown Forest. It appears in August and September.

Sp. 3. dispar. *Alis suprâ igneo-cupreis puncto margineque nigris, posticis subtus pallidè cæruleis punctis numerosis, margineque cupreo.* Haw. (Exp. alar. 1 unc. 6 lin. —2 unc. 1 lin.)

Pa. dispar. *Haworth.*—Ly. dispar. *Curtis, i. pl. 12.*—*Steph. Catal.*

Male with the wings above of a splendid bright fiery copper colour, with an obscure row of spots towards the tip, the anterior with a central semilunar spot, and an adjacent small round one, placed longitudinally, the costal and posterior margins, and a patch at the base, black; the posterior with a slender oblong discoidal line, and the margins black; the colour of the margin more or less indented with that of the disc: beneath, the anterior wings are pale fulvous orange, with ten distinct ocelli, with a large black pupil and slender white iris; the three first are placed longitudinally towards the base of the anterior margin (as in Ly. Phlæas), the rest in a slightly arcuated transverse band, which is followed posteriorly by a series of black dots, of dissimilar sizes and shapes, and terminated by an ash-coloured margin and dusky cilia: the posterior wings are bluish, with an elongate discoidal streak, and numerous rather obsolete ocelli, with a black pupil and pale bluish iris; of these five are irregularly scattered towards the base, and nine are arranged in a waved band towards the margin; the hinder margin is deep orange, except at its union with the anterior, margined internally with a series of distinct black inocellated spots, and externally with a more or less evident series of dots; the margin itself is cinereous, the cilia dusky, with a blackish line at the base, as in the anterior wings.

The female is similar to the male beneath; but above, the anterior wings are divested of the gloss so conspicuous in the male, and have nine or ten black spots, of which two or three are placed longitudinally, near the base of the costal margin, the rest in an arcuated band towards the tip: the posterior margin is less intense in colour than the male, but the band is considerably broader; the base of the wings and the inner margin are dusky, sprinkled with coppery: the posterior wings are dusky-brown, with the nervures, and a denticulated hinder band copper-coloured: there is also a strong discoidal black spot, and frequently several, towards the hinder margin, placed transversely; and sometimes the entire wing is irrorated with coppery.

The ocellated spots vary considerably in size in both sexes.

The caterpillar is somewhat hairy, bright green, with innumerable white dots: it feeds upon a kind of dock. The chrysalis is at first green, then pale ash-coloured, with a dark dorsal line, and two abbreviated white ones on each side; and, lastly, sometimes deep brown.

This splendid insect appears to be confined to the fenny counties of Cambridge and Huntingdon, with the neighbouring ones of Suffolk and Norfolk, unless the account of its capture in Wales by Hudson be admitted; but this may probably be the following species, which may, moreover, eventually prove synonymous with *Ly. dispar*. In the two first localities it appears to occur in great profusion, as several hundred specimens have been captured within these last ten years by the London collectors, who have visited Whittlesea and Yaxley Meres during the month of July, for the sole purpose of obtaining specimens of this insect, which is also stated to occur on the coast of Suffolk, at Benacre; but that locality may, however, belong to the next insect.

Sp. 4. Hippothoë. *Alis suprâ fulvis subtùs cinerascentibus, punctis ocellaribus numerosis.* (Exp. alar. 1 unc. 5—6 lin.)

Pa. Hippothoë. *Linné?*—*Ly. Hippothoë. Steph. Catal.*

Size of *Ly. Virgaureæ*: wings above entirely immaculate fulvous; beneath, luteous ash-colour: the anterior beneath with black spots, with a white iris, of which the three largest are placed near the outer (or costal) margin, seven lesser nearly transversely, and six very minute towards the hinder margin: the posterior are ash-coloured beneath, with about seventeen ocellated spots, and a fulvous band on the hinder margin, anteriorly spotted with black. The female differs from that of *Ly. dispar*, in having the spots on the upper surface of the anterior wings smaller, and in having the entire disc of the posterior wings above dusky, clouded with deeper spots, and without the fulvous nervures; the under surface resembles that of the male, and, like it, has fewer and smaller spots than *Ly. dispar*.

The inferior size of the above insect (which corresponds with the magnitude stated by Linnæus) as well as the differences in the number and size of the ocellated spots on the lower surface of the wings, and the colour of the upper surface of the inferior ones of the female, combined with the circumstance, that, amongst several hundreds of *Ly. dispar* which have been taken at Whittlesea Mere, not one specimen occurred agreeing with the above definition, seem to point out the present insect as a different species.

The male which I possess was in the late Mr. Beckwith's collection, and the female is in that of Mr. Haworth, who informs me that he obtained it many years since from an old cabinet that was formed by a gentleman residing in Kent, and which contained scarcely any insect that was not the production of that county, thence called "the Kentish Cabinet," which renders it probable,

as Mr. Haworth surmises, that the true locality of this insect is in Kent.

Sp. 5. Virgaureæ. PLATE IX, f. 1, 2, ♂.—f. 3, ♀. *Alis supra fulvis margine atro, subtus punctis nigris, posticis aliquot albis.* (Exp. alar. 1 unc. 5—6 lin.)

Pa. Virgaureæ. Linné.—Ly. Virgaureæ. Steph. Catal.

Size of Ly. Hippothoë: male with the wings above of a beautifully resplendent fiery copper; the anterior immaculate, with a black border; the posterior with a row of six black spots attached to the hinder margin, which is also black: beneath, the anterior wings are pale tawny, with ten or eleven ino-cellated black spots, of which the three largest are placed longitudinally, parallel with the costa, as in the other species, and seven or eight in an undulated transverse band, the spots on the inner edge being more or less obliterated, and sometimes geminated; the hinder margin is clouded with dusky: the posterior wings are tawny, with the base somewhat dusky, and have about twelve black spots, of which five are irregularly scattered towards the base, and the rest form an irregular band across the wing, and are each surmounted by a spot of white posteriorly; near the anal angle are a few orange spots, and the angle itself is rather acute, and has a deep notch adjoining. The female differs considerably, and is more obscure in colour: the anterior wings are spotted above, somewhat like those of Ly. dispar; but they have, in addition, a marginal series of six sub-confluent dusky spots, and are slightly clouded with fuscous: the posterior wings are brown, with the nervures, a large sub-quadrate discoidal spot, and two transverse bands of an obscure fulvous, giving a reticulated appearance to the wing, the brown interstitial spots being nearly quadrate: in other respects the sexes are similar: the body is dusky above, with greenish hairs: the antennæ are black, annulated with fulvous.

The marginal band on the upper surface of the wings of the male varies considerably in width.

The caterpillar is dull green, with a yellow dorsal and yellowish-green lateral stripe, black head and legs. It feeds on the golden-rod (*Solidago virgaurea*), and sharp-dock (*Rumex acuta*). The chrysalis is brownish-yellow, with dusky-red wing-cases.

The proper locality of this splendid insect does not appear to be well known, and I believe no specimens have occurred within these twenty years: it is said to inhabit the marshes in the Isle of Ely and Huntingdonshire, and to be found on the flowers of the golden-rod at the end of August.

GENUS XVIII.—POLYOMMATUS, *Latreille*.

Palpi longer than the head, nearly parallel, three-jointed, the two basal joints clothed with scales and hair, the terminal one with scales only, and acute; the basal joint short, arcuate, the second very long, the terminal as long as the first: *antennæ* rather short, with an abrupt compressed club, terminating

in a lateral point: *eyes* pubescent or naked: *legs* alike in both sexes: *tarsi* furnished with very minute, simple *claws*, projecting beyond the foot-cushions, which are very short, or obsolete: *wings* entire; the posterior scarcely, or not at all, denticulated at the anal angle.

There is considerable diversity of habit and form* amongst the species of this beautiful genus. Nevertheless most of the species may be known from the *Lycænæ* by the rich blue tints with which their wings are adorned, and all by the compressed knob of the antennæ, the obsoletely denticulated posterior wings, and the minute pulvilli. Many of the species frequent chalky districts; others, however, affect fields, pastures, and commons, where the grass is high. The larvæ, as far as known, subsist upon herbs and grasses.

Were the species more numerous, it would be advantageous to divide the genus into sections, but from their paucity in Britain I shall merely observe, that *Po. Argiolus* differs from its indigenous congeners by the form and texture of its wings; that *Po. Alsus*, *Agestis*, and *Artaxerxes* are characterized by an uniformity of colouring in both sexes, while the remaining species are distinguished (in general) by the males being blue above and the females brown, excepting *Po. Arion* and *Alcon*, in which the latter sex is known by a predominance of brown above, and by having the disc considerably spotted with dusky or black; and that the five first species are destitute of a marginal fascia beneath, which is, however, rudi-

* With reference to the observations on this subject at the end of the genus *Hipparchia*, it is necessary to apprise the reader that they originated from those contained in the *Philosophical Magazine*, (vol. lxxiii. p. 58 and 219, and vol. lxxvii. p. 60); in Mr. Mac Leay's invaluable *Horæ Entomologicæ*, (p. 85, &c.); in the fourth vol. of the interesting *Introduction to Entomology*, (p. 547, &c.); and in the latter pages of Mr. Bicheno's *Address to the Zoological Club of the Linnean Society*; in each of which the investigation of groups, or forms, is more or less insisted on, almost to the total exclusion of that of species; and in some remarks upon Professor Kidd's anatomy of the mole-cricket (*Gryllotalpa vulgaris*) in the *Panoramic Miscellany* for February, 1826, such and similar investigations are considered ridiculous, puerile, and contemptible! I, therefore, as a student of species, warmly advocated the cause, which I have perhaps too ardently espoused; and in order to prevent my remarks being misconstrued I here introduce the chief passages which induced me to pen them, which it is perhaps needless to observe were adduced in favour of the investigation of *things* and not of *names*, the latter being subsidiary, though indispensable, to the former.

mentary in the two last-mentioned insects. Again, some few of the species have the eyes pubescent, while others have them naked.

Sp. 1. Argiolus. *Alis lætè cœruleis apice nigris, subtùs canis punctis oblongis difformibus nigris.* (Exp. alar. 1 unc. 2—6 lin.) *Th. Wym.*

Pa. Argiolus. *Linné.*—*Lewin, pl. 36. f. 4—6.*—Po. Argiolus. *Steph. Catal.*

Male above of a beautiful light blue, tinged with lilac: the anterior wings with a narrow black or dusky streak on the hinder margin, and a black and white fringe: the posterior with a delicate black marginal line and white fringe: beneath light gray; the anterior wings with a central slender lunulated spot, and six transverse black streaks, the costal one being placed by itself, and that towards the anal angle frequently geminated, sometimes obliterated, the fringe white: the posterior wings with about twelve scattered black dots, with the base fine blue: on the hinder margin of all the wings is an obsolete series of inverted crescents: the body is dusky above, with bluish hairs, gray beneath: the antennæ are black, annulated with white.

The female differs in being of a paler colour above, with the anterior wings broadly margined with dusky or black, leaving only a large subtriangular discoidal blue patch, reaching to the thinner edge: the posterior have the costa dusky, and an obsolete row of blackish dots on the hinder margin; beneath she resembles the male.

This species varies considerably in size, and in the width of the dusky margin of the wings in the female; in some specimens the latter occupies nearly half of the anterior wing, and the posterior one has but a small subtriangular discoidal blue patch; and the anterior wings are also frequently marked above with a strong transverse black line.

Both sexes also vary much in the number and strength of the black dots beneath; in some the transverse row on the anterior wings is composed of such large dots as almost to form a continuous line, while others have nearly imperceptible points, varying in number from four to seven; the central line is sometimes nearly straight; the posterior wings have sometimes a bent line in the centre, and the dots vary in number, and are more or less obliterated or confluent.

The caterpillar is hairy, yellowish-green, with a bright green line down the back, and black head and wings; it feeds on the buckthorn (*Rhamnus frangula*) and holly (*Ilex europæus*). The chrysalis is smooth, brown and green, with a black dorsal line.

This variable insect occurs in several places near the metropolis; I have taken it repeatedly on Epping Forest, and near Ripley, where the holly abounds, and also near Dartford. It is also found in Norfolk, Suffolk, Hants, and Devonshire; and appears twice in the year, about the middle of May for the first time, and towards the end of August for the latter.

Sp. 2. Alsus. *Alis suprâ fuscis cœruleo-micantibus, subtùs cinereis strigâ unicâ punctorum ocellatorum.* (Exp. alar. 10 lin.—1 unc. 1 lin.)

He. Alsus. *Fabricius.*—Pa. Alsus. *Lewin, pl. 39. f. 3, 4.*—Po. Alsus. *Steph. Catal.*

Bedford Blue

All the wings above dusky-brown with a blue gloss, especially at the base: the anterior beneath ash-coloured, with a discoidal black lunule, edged with whitish, and six or seven ocellated dots, with a white iris, placed transversely near the hinder margin: the posterior have a discoidal streak, about seven or eight ocelli, forming a transverse band in continuation of that on the anterior wings near the hinder margin, and four or five scattered ocelli towards the base; all the ocelli are coloured as before: the cilia of all the wings are white: the body is dusky, with bluish hairs: the antennæ are dusky, annulated with gray. The female is very similar, but rather more obscure.

The number of ocellated dots varies considerably; I have a specimen with only four on the transverse streak of the posterior wings.

The caterpillar and chrysalis are not known.

Not a very abundant species: it occurs in fields and woody places, and has been captured at South Creek, Norfolk; Brandon Warren, Suffolk; Dartmouth, Devonshire; near Andover, Hants; Birchwood and Darent-wood, Kent; and near Hertford: at the latter place I have taken it myself. It appears at the end of May and the beginning of July.

Sp. 3. Acis. *Alis suprâ cœruleis (aut fuscis) margine nigro, subtùs cinereis strigâ unicâ communi punctorum ocellatorum.* (Exp. alar. 1 unc. 2—4 lin.)

Pa. Acis. *Wien. Verz. teste Ochsenheimer.*—Po. Acis. *Steph. Catal.*—Pa. Cymon. *Lewin, pl. 38. f. 6.*

Male with the wings above deep blue, with a narrow black line on the hinder margin, and dusky nervures; the cilia pure white: beneath cinereous; the anterior wings, with the base bluish, a central black dot cinctured with white, between which and the hinder margin is a transverse bent series of six round black ocellated dots with white pupils: the posterior wings have also a central spot, and an irregular broken series of ocellated dots between it and the hinder margin, and frequently one or more ocelli towards the base, which is bluish: the cilia are white: the body is dusky with blue pubescence: the antennæ dusky, annulated with gray. The female is brown above.

The ocellated dots, as usual in this variable genus, are more or less obliterated; a character which in this species has been erroneously assigned as a sexual difference: in some specimens the transverse series on the anterior wings is composed of four ocelli only, the costal one, and that near the anal angle, being obsolete; others have five, and I possess one with seven, the anal one being geminated: the continuous band on the posterior wings also varies by the obliteration or confluence of the ocelli, which are sometimes nearly all

wanting; I have one specimen with the three central dots of the series alone, while in a second the dots are all so large as to become united: the discoidal streak and the basal ocelli on the posterior wings beneath vary also, without reference to sex.

Ochsenheimer refers Lewin's figures, above quoted, to *Po. Argiolus*, notwithstanding they correctly represent the present insect, and Lewin has figured *Po. Argiolus* as also quoted by that author.

A scarce, or rather a local species: found in chalky districts in Norfolk, Cambridge, Yorkshire, and Dorsetshire; also near Brockenhurst and Amesbury, Hants; and on Windlesham-heath, Surrey, towards the end of May and of July.

Sp. 4. *Arion*. *Alis suprâ fuscis, disco cæruleo maculisque atris, subtùs canescen-*
tibus punctis ocellaribus. (Exp. alar. 1 unc. 6—8 lin.)

Pa. *Arion*. Linné.—Lewin, pl. 37.—*Po. Arion*. Steph. Catal. *Arion*

Wings above brown with a blue disc, or blue with a brown margin posteriorly; anterior with a central transverse black spot, behind which is an undulated row of elongate or ovate black bars, the bars disposed longitudinally, and varying in number from two to seven, the middle ones being largest, and those towards the costa least; the posterior wings have some obsolete ocelli towards the hinder margin: beneath, dusky ash-colour; the anterior wings with eight or nine ocelli, two in the centre, the one towards the base usually minute, and about seven forming an undulated band between them and the hinder margin, all with a black pupil and white iris: on the hinder margin are two rows of black wedge-shaped spots, or lunules, with a faint pale or whitish dot attached to each; the cilia white, with brown bars beneath: the posterior wings with the base blue-green, and having an angulated row of four ocellated dots, followed by a transverse discoidal crescent, and then by an interrupted angulated and waved band, composed of eight distinct ocelli, the inner but one being frequently double; beyond this, on the margin, are two rows of lunulated dots as in the anterior wings: cilia as in the anterior wings: body dusky, with bluish hairs above, hoary beneath: antennæ black, annulated with white. Female with the wings more dusky, and the discoidal spots larger.

Var. β . Wings nearly immaculate above.

Var. γ . Female with all the wings bearing large black dashes on the upper surface; the anterior beneath with eleven large ocellated spots, three central, the rest forming the usual band; the posterior below with thirteen very large ocelli, four basal, eight in the waved band, and one adjoining the discoidal streak; all the wings with the two hinder rows of wedge-shaped dots.

An insect of great rarity, found on commons and pastures in the beginning of July; it was taken by the late Dr. Abbott near Bedford, in the Mouse's Pasture, where Mr. Dale caught a single specimen in 1819: it has also been caught near the signal-house

on Dover-cliffs, and on bramble blossoms, in rocky situations, in North Wales: several specimens were taken in Kent during the past season, I believe in the vicinity of Deal: it is said to have occurred near Winchester in plenty; and Lewin tells us that it is found on Marlborough-downs, Wilts, on hills near Bath, and near Clifden, in Bucks; but the last locality probably belongs to *Po. Alcon*, which may prove to be an extraordinary variety only of *Po. Arion*.

† Sp. 5. *Alcon*. *Alis suprâ cæruleis (aut fuscis) immaculatis, margine fusco, subtùs fusco-cinereis serie duplici punctorum ocellatorum.* (Exp. alar. 1 unc. 6 lin.)

Ha. *Alcon*. *Fabricius*.—*Po. Alcon*. *Steph. Catal.*

Wings above, in the male, resembling var. β . of the preceding species; beneath brownish-ash, the anterior with ocellated black dots, as in the preceding, and a series towards the hinder margin, which has not the lunulated spots, as in *Po. Arion*: the posterior wings also bear ocelli, as in the last-named insect, and a series behind, but the hinder margin is nearly immaculate. The female is nearly all brown above, with some obsolete dots, but resembles the male beneath.

Of this insect I have seen but one specimen, which is in the rich lepidopterous collection of Mr. Haworth: it was captured by the late Mr. Jones, known by his paper on the neuration of the wings of the Linnæan Papiliones, in Buckinghamshire, many years since.

Sp. 6. *Corydon*. *Alis suprâ argenteo-cæruleis (aut fuscis) fasciâ marginali atrâ, subtùs fusco-cinereis punctis ocellaribus numerosis; ciliis suprâ atro punctatis.* (Exp. alar. 1 unc. 4—7 lin.) *Chall. pl. 36.*

He. *Corydon*. *Fabricius*.—*Pa. Corydon*. *Lewin, pl. 36.*—*Po. Corydon*. *Steph. Catal.*

Male above of a rich pale silvery-blue, with the hinder margin and nervures black or dusky, with the cilia white, interrupted by dusky; the posterior wings with five sub-ocellated spots in the hinder margin: beneath the anterior wings are whitish, ocellated nearly as in *Po. Arion*, but usually with two or three additional spots towards the base of the wing; and beyond the undulated band of ocelli is an interrupted brown streak, between which and the hinder margin is a series of sub-ocellated round dots, with a whitish circle: the cilia white, interrupted with brownish at the tip: posterior wings cinereous, greenish-blue at the base, with about twelve ocellated spots, four at the base, and eight forming an angulated band behind the middle; the pupils black with a white iris; in the centre of the wing, between the bands is a white sub-triangular spot, which is sometimes immaculate, and sometimes bears a dusky or black dot in its centre; on the hinder margin is a series of ocellated black spots, with a white iris, marked internally with orange, and tipped with a black angulated line pointing inwards; this series is connected by a pure white oblong patch to the external ocellated band: cilia white. Female above

brown, with a pale discoidal dot on each wing, that of the anterior generally with an elongate black pupil; the hinder margin of the anterior wings with an undulated whitish streak; the posterior have also a similar band, and not unfrequently a series of bright ocelli, internally fulvous, externally whitish, with black pupils: beneath all the wings are griseous, the posterior deepest, and ocellated, as in the male; the ocelli are, however, more distinct, from the contrast of the whitish circle with the griseous ground; the fulvous-orange spots on the hinder margin of all the wings are more distinct than in the male, and the cilia are browner.

Var. β . *Steph. Catal.* Above brown, with a blue disc, and a whitish discoidal dot with a black pupil: beneath, the posterior wings have a discoidal white cinctured crescent, with a waved band of seven undulated spots towards the hinder margin; the fringe as in var. α .

Var. γ . Male with the hinder margins of all the wings above with a very deep blackish fimbria; the ocelli on the posterior wings very strong.

Var. δ . With the humeral spots beneath the anterior wings obliterated.

Var. ϵ . All the wings beneath with the central discoidal spot alone; the margins with faint rudiments of ocelli.

Var. ζ . With the spots more or less confluent beneath; sometimes prolonged into dashes: the colour of the upper surface of the wings in both sexes varies much; the female has been found with the disc fine rich blue.

Decidedly a local species, affecting chalky districts, about the middle of July, but occurring in the utmost profusion where found, especially on the downs, and under the cliffs, near Dover; also near Newport, in the Isle of Wight, and Shoreham, in Sussex: it formerly appeared in tolerable abundance near Darent-wood, but I have not observed it there for many years. "Little Blakenham, Moulton, and Eriswell, Suffolk."—*Miss Jermyn*. "Puddle-Hinton-downs, and Hodd-hill, Dorset; Old Sarum in plenty; Grymes' Dyke, Oxon, and stone-quarries near Peterborough."—*J. C. Dale, Esq.* "Abundant on the Devil's Ditch, in July; also in Hinton chalk-pits: the females appear later than the males, and much less frequent."—*Rev. L. Jenyns*.

Sp. 7. Adonis. *Alis cæruleo-argenteis, aut fuscis, strigâ marginali atrâ, subtus cinereis punctis ocellaribus numerosis, ciliis utrinque albo nigroque maculatis.*
(Exp. alar. 1 unc. 3—6 lin.)

The Clifden Blue

He. Adonis. *Fabricius*.—Pa. Adonis. *Lewin, pl. 36. f. 2.*—Po. Adonis. *Steph. Catal.*

Male above of a most beautiful azure or shining silvery blue, varying in lustre according to the view, and sometimes tinged with greenish or lilac, the hinder margin of all the wings with a slender black line, the cilia white, interrupted by brown: beneath greatly resembling the preceding insect, but the spots more distinctly ocellated; the margin with the fulvous ocelli of a deeper hue,

and somewhat larger, and the ground-colour deeper. Female deep brown, with a black discoidal spot, the disc frequently bluish; the hinder margin of the posterior wings with a slightly ocellated fulvous streak, and sometimes a dash of a similar colour towards the anal angle of the anterior wings; in other respects similar to the male, but the colour beneath much darker, and the ocelli more distinct; the hinder margin of the posterior wings grayish.

Var. β . With the ocelli beneath more or less confluent.

Var. γ . With the fulvous band on the hinder margin of all the wings obliterated.

Var. δ . With the humeral spots of the anterior wings beneath obliterated.

Var. ϵ . With all the ocellated dots beneath very small, and several of them deficient.

Var. ζ . With the central discoidal spot alone remaining, the marginal fascia merely indicated by a few indistinct dusky lunules.

The varieties in ocellation (as in the other species) are endless: some have the ocelli nearly round, others more or less elongate: some very large, others extremely small: the white blotch on the posterior wings beneath also varies much in size and form.

Caterpillar green, with dorsal rows of fulvous spots: it feeds on clover. The chrysalis is green or brown.

This truly beautiful and splendid insect is, like the preceding, extremely local, but more generally distributed; and there are two broods annually, the first towards the end of May, the other about the middle of August. I have taken it in every place where I have met with that species, at Dover, Newport, the Sussex downs, and near Darenth: at Coombe-wood, Dover, it is in greater profusion than any other of the genus; it is also very plentiful on all the downs between Hastings and Brighton. "Moulton and Dalham, Suffolk."—*Miss Jermyn*. "Amesbury-hill."—*Rev. G. T. Rudd*. "Puddle-Hinton-downs, Hodd-hill, and Knowle-hill, Dorset."—*J. C. Dale, Esq.* "Near Birmingham."—*Mr. Weaver*.

Sp. 8. *Dorylas?* *Alis cyaneis aut fuscis, subtus cinereis, maculâ mediâ strigâ punctorum ocellatorum posticâ margineque albicante.* (Exp. alar. 1 unc. 4 lin.)

Pa. *Dorylas.* *Wien. Verz.* teste *Ochsenheimer*.—Po. *Dorylas?* *Steph. Catal.*

The indigenous specimens which are presumed to be synonymous with the above insect, and which, according to Ochsenheimer, have been figured by Lewin, in his plate 38, f. 1 and 3, I do not think sufficiently distinct from my var. γ of Po. Adonis; nevertheless, as I am not positive of their identity, I shall for the present consider them as distinct. The male is of a bright blue above, and has a slender black marginal line as in Po. Adonis, but the cilia are immaculate: beneath, the anterior wings are pale cinereous, and have a central transverse black streak on the disc, followed by a waved row of black dots faintly cinctured with whitish; there is then a delicate interrupted band

of fulvous, terminated with a whitish margin: the posterior wings resemble those of *Po. Adonis*, but they are without the black streak in the centre of the triangular discoidal spot; the ocelli are fewer in number, and the margin has a few fulvous spots, and is banded with whitish; the cilia are immaculate. The female is brown above; in other respects she resembles the male.

Taken with the foregoing insect, at Darent, in June, 1812, but not met with afterwards.

† Sp. 9. *Icarius*. *Alis cæruleis aut fuscis, nigro marginatis, subtus cinereis, serie arcuatâ punctorum ocellarium maculisque marginalibus fulvis.* (Exp. alar. 1. unc. 4 lin.)

Pa. Icarius. *Ochsenheimer?*—*Po. Icarius.* *Steph. Catal.*

Above rich pale blue, with a broad posterior black margin to all the wings, the cilia whitish, obscurely dotted with dusky, beneath deep cinereous; the anterior wings with a central discoidal dot, and a bent series of four or five ocelli between it and the margin; posterior wings with a central bent streak, followed posteriorly with an irregular band of black subocellated dots, then a fulvescent streak and a few marginal spots.

This insect is given in the Entomological Transactions, by Mr. Haworth, as the *Pa. Amandus* of Hübner; a name changed by Ochsenheimer, from its being an adjective, to the one above used, which was imposed by Esper. It approximates so very closely to the following species, that I conceive it will eventually prove a mere variety of that insect; and how far it may really be synonymous with the *Pa. Icarius* of Esper, or the *Pa. Amandus* of Hübner, I will not venture any opinion, as I do not possess the insect.

“Taken in Kent.”—*A. H. Haworth, Esq.*, who has two specimens.

Sp. 10. *Alexis*. *Alis cæruleis immaculatis, aut fuscis, strigâ marginali atrâ, subtus cinerascens, punctis numerosis ocellaribus fasciâque ad marginem maculari fulvâ, ciliis albis.* (Exp. alar. 1 unc. 1—5 lin.)

Pa. Alexis. *Hübner.*—*Po. Alexis.* *Steph. Catal.*

Male above of a bright lilac blue, with the costa of the anterior wings white, and a slender marginal black line to all the wings; the fringe usually white, immaculate: beneath very similar to *Po. Adonis*, but the colour of all the wings rather deeper, with the hinder fulvous spot on the anterior more distinct, and of the posterior forming a continuous band: as in *Po. Adonis* the anterior wings have two ocelli placed transversely towards the base of the wing, then an ovate central spot with a transverse black streak, followed by a regularly curved transverse series of ocelli, seven in number, between which and the hinder margin are, first, a row of dusky lunules pointing outwards, and edged externally with fulvous, and, secondly, a series of dusky spots on a whitish ground; the extreme margin is black: the posterior wings also greatly resemble those of *Po. Adonis*, the base is usually bluish, with four ocelli placed obliquely towards the inner margin; the disc has a triangular white spot, which has most frequently a black centre, behind this is a waved

series of eight or nine ocelli, followed by a row of black lunules pointing outwards, and externally bordered with a fulvous patch, with a black spot at the edge, on a white or cream ground, the extreme edge black; a white blotch connects the fulvous band with the waved series of ocelli. Female above brown, with the disc more or less blue, with a fulvous band at the hinder margin more or less distinct in different individuals; that of the posterior wings subocellated; the centre of each lunule of which the fascia is composed bearing a black spot: beneath, all the wings are deep ash-colour or drab, with the ocelli very distinct and large: the fringe above and below in both sexes is white, with the base dusky or brown, particularly in the female.

Var. β . *Steph. Catal.* With the two transverse ocelli towards the base of the anterior wings beneath obliterated.

Var. γ . *Steph. Catal.* The wings very pale lilac-blue above, and the fulvous band on the hinder margin of all beneath very obsolete.

Var. δ . *Steph. Catal.* With the anterior wings beneath with a large kidney-shaped blackish spot cinctured obscurely with white, the concave side turned towards the interior margin; the posterior wings with the spot next the costal margin kidney-shaped, the concave side towards the disc: the number of ocelli in all the wings varies considerably, and the kidney-shaped spot is sometimes interrupted.

Var. ϵ . All the wings beneath with a triangular discoidal spot only, the hinder margin of the anterior with a few indistinct dusky marks, and of the posterior with a fulvous band terminated internally with a series of black wedge-shaped spots, and externally with black dots on a white ground.

The varieties of this species are innumerable, both in size, form, and colour, some of the females having the anterior wings very much rounded at the tip, others somewhat acute; the hinder margin of the anterior wings is frequently spotted with white, and the disc sometimes has a round white dot with a central black spot. Some specimens are remarkably clear, and so transparent that the inferior ocelli are plainly observable on the upper surface of the wings. I have several females with the fringe entirely brown, and a few quite white: others with the upper surface of the wings nearly as blue as that of the males, with a central black spot, while some are plain brown, without the least vestige of blue. The number of ocelli varies greatly, and several of them are frequently blind.

Caterpillar slightly hairy, bright green, with a dark dorsal line, and triangular yellow spots adjoining: it feeds upon grasses, the wild liquorice (*Astragalus glysyphyllos*) and wild strawberry (*Fragaria vesca*). The chrysalis is dark brown.

The commonest of our blue butterflies, occurring in meadows, pastures, by the sides of grassy lanes, and in marshy places, in all parts of the kingdom: there are two broods in the year, the first appearing towards the end of May, the second about the middle of August. I cannot but suspect that some of the reputed varieties of this insect are really distinct species.

Sp. 11. Eros. *Alis pallidè cyaneis immaculatis, aut fuscis, subtùs cinereis, punctis numerosis ocellaribus, posticis fasciâ marginali flavâ obliterated.* (Exp. alar. 1 unc. 2 lin.)

Pa. Eros. *Ochsenheimer.*—Po. Eros. *Steph. Catal.*

The male above very pale greenish-blue, with a narrow marginal black streak, the posterior wings with a few blackish spots on the margin; the cilia white: beneath greatly resembling the preceding insect, brownish-gray, with the base of the wings greenish, the ocelli nearly as in Po. Alexis, but the margin with a faint yellowish (instead of fulvous) band. The female (according to Ochsenheimer) is brown above, as in the common species.

Var. ? β . Colour of the upper surface rather more intense, the inferior ocellated nearly as in Po. Alexis, but destitute of a fulvous marginal fascia, in lieu of which it has a series of ocelli with minute black irides, cinctured with white, faintly tinted with yellowish towards the inner side. This variety is probably synonymous with the Pa. Labienus of the first edition of the Butterfly Collector's Vade Mecum, unless var. γ of the preceding insect be the kind intended.

This is probably a distinct species, and may be known by the peculiarly pale silvery or greenish-blue colour of its upper surface; but the inferior side is far too similar to that of Po. Alexis to constitute a specific difference. Mr. Haworth's specimen was found, I believe, in Kent; and mine, which I have characterized by the var. β , I took in July 1826, in a grassy lane near Ripley, Surry.

Sp. 12. Argus. *Alis saturatè cæruleis nigro marginatis, aut fuscis subtùs lætè canis, punctis ocellaribus fasciâque fulvâ, posticis ad marginem ocellis cæruleo-argenteis.* (Exp. alar. 1 unc. 2—4 lin.) *Silver spotted Blue*

Pa. Argus. *Linné.*—*Lewin, pl. 39. f. 5—7.*—Po. Argus. *Steph. Catal.*

Male with the wings above deep blue, tinged with lilac, the hinder margin broad and black, the costa white; beneath grayish-blue, the latter colour predominating at the base: anterior wings with a central ocellus, behind which is a bent series of ocelli, usually composed of six; the third, fourth, and fifth from the costa being largest, and generally elongated; the sixth frequently double; the hinder margin with a double band of black spots, frequently adorned with a blush of fulvous: posterior wings with three ocelli at the base placed obliquely; a somewhat triangular discoidal spot, with a large black central dot; behind this a waved series of ocelli, about eight in number, followed by an articulate band of orange tawny, containing several brilliant silvery blue spots on a black ground, and bordered internally with a series of black crescents, and externally with whitish; the external margin of all the wings black: cilia white, sometimes with a few black dashes at the base. Female above brown, the disc sometimes bright blue, with, or without, a marginal tawny band, which is usually most obsolete in the anterior wings; beneath grayish, with the ocelli larger and more distinct than in the male, and a dentated white band traversing all the wings, between the ocelli and the fulvous band: cilia brown.

Var. β . Smaller, the wings narrower, blue above with a broad black margin to all the wings; the under side of the male of a deep grayish or drab colour; the ocelli very distinct as in the female, and the oblique series on the posterior wing consisting of four.

† Var. γ . With the ocelli united into longitudinal streaks. In Mr. Haworth's cabinet.

† Var. δ . The upper surface of all the wings of a pale fulvous tawny; the exact colour of that of *Hipparchia Pamphilus*. In Mr. Hatchett's collection. Caterpillar green, hairy, with whitish tubercles, with a reddish brown dorsal line, edged with white, another on the sides, and some oblique stripes of the same; head and true legs brown: it feeds on common broom (*Spartium scoparium*), common melilot (*Trifolium melilotus*), and saint-foin (*Hedysarum Onobrychis*). Chrysalis at first green, afterwards brown.

Also a local species, but occurring in tolerable plenty on Ripley-green, and about the Sheep Leas in Surry, about the middle of July; it also occurs near Coombe and Darenth woods; its usual haunts are commons, fields, and marshy places; it does not appear to be partial to chalky districts. "Woodhay-common, Hants, near Newberry, Hordwell-cliff, Hants; Collhill, near Wimborne, and Parley-heath, Dorset; Whitewood, near Gamlingay, Cambridgeshire."—*J. C. Dale, Esq.* "Near York, in the autumn of 1827."—*G. Wailes, Esq.* "Bixley Decoy, Nacton, Suffolk."—*Miss Jermyn.* Var. γ . "Salt Marsh, near Holt, Norfolk."—*A. H. Haworth, Esq.* Var. δ . "Coombe wood."—*Mr. Hatchett.*

Sp. 13. *Agestis. Alis fuscis, fasciâ utrinque maculari rufâ, subtùs canescentibus, punctis ocellaribus numerosis, alis anticis suprâ puncto discoidali nigro.* (Exp. alar. 1 unc. 1—3 lin.)

Pa. *Agestis.* *Wien. Verz.,* teste *Ochsenheimer.*—Po. *Agestis.* *Steph. Catal.*—Pa. *Idas.* *Lewin, pl. 39. f. 1, 2.*

Wings above in both sexes of a beautiful silken brown, with a black spot in the centre of the anterior, and with an orange macular band at the posterior margin of all the wings: costa of the anterior wings white; fringe white, varied with brown; beneath brownish ash-colour: anterior wings nearly as in Po. *Argus*, but the ocelli fewer, and the marginal fulvous band very broad and brilliant in colour: posterior wings with the ocelli nearly as in the last-named insect; but in lieu of the dentated white band between the undulated series of ocelli and the fulvous band, a white discoidal blotch, as in Po. *Adonis* and *Alexis*: fringe white, varied with brown. Female differs in being rather lighter coloured above, with the hinder macular band very broad, and reaching to the costa of the anterior wings, and spotted with black on the posterior.

The number of ocelli, on the wings beneath, varies exceedingly; as does also the breadth and splendour of the marginal fulvous band; the latter being nearly obliterated in some specimens.

More abundant and more generally diffused than the preceding species, appearing about the beginning of June, and again towards the middle of August, at Ripley, Oak of Honour Wood, Peckham, near Dover, Brighton, Hertford, &c. "Near Norwich, Little Blakenham, Bixley Decoy, Race-ground, Ipswich, on the shore near Languard Fort, Suffolk, and Wrabness, Essex."—*Miss Jermy*. "Seaham Dean, near Sunderland."—*W. C. Hewitson, Esq.* "Grymes' Dyke and Glanville's Wootton, Dorset, and Old Sarum." *J. C. Dale, Esq.* "Devil's Ditch, in tolerable plenty; occurs also near Ely."—*Rev. L. Jenyns.*

Sp. 14. *Artaxerxes*. *Alis fuscis, anticis utrinque maculâ discoidali albâ, posticis lunulis rufis, subtùs margine albo rufo punctato.* (Exp. alar. 1 unc.—1 unc. 2 lin.)

He. *Artaxerxes*. *Fabricius*.—Pa. *Artaxerxes*. *Lewin, pl. 39. f. 8, 9.*—Po. *Artaxerxes*. *Steph. Catal.*

Wings above in both sexes black brown, with a discoidal white spot on the anterior and sometimes on the posterior; and like the preceding species all the wings have an orange-coloured band, but considerably more obsolete than in the male of that insect: fringe white, brown at the base: beneath the anterior wings have a central white spot, between which and the posterior margin is a curved series of five similar spots, followed by a broad orange-coloured band, terminating interiorly in a series of black and white crescents, and externally in a white spot with a black pupil: this band is continued on the margin of the posterior wings, and has a large white blotch on its interior edge; between which and the base of the wing are several scattered white spots, placed like the ocelli in *Po. Agestis*.

Var. β . The white spots on the under surface of all the wings with minute black pupils.

As in its congeners this insect varies much in the number and disposition of the white spots on the inferior surface of the wings, as well as in the width and obliteration of the orange marginal fascia.

† Sp. 15. *Titus*. "*Alis fuscis immaculatis, posticis subtùs ocellatis strigâque posticâ maculari fulvâ.*"—*Fabricius*.

He. *Titus*. *Fabricius (!)*—Po. *Titus*. *Steph. Catal.*

All the wings above brown, without spots; beneath also brown; the anterior with a hinder band consisting of white and black lines; posterior with a discoidal narrow spot, and a band consisting of black spots cinctured with white: towards the margin there are red spots marked with a black dot.

Inhabits England; Mr. Drury. The above description and locality are from *Fabricius*; but I know of no indigenous insect which will agree with the former, which it is possible may have been drawn from some most extraordinary variety of one of the preceding species.

A very local species, and hitherto supposed to be peculiar to Scotland, but it has lately been taken in the north of England; it frequents meadows and grassy places, like its congeners, appearing first about the middle of June, and secondly in August, and is most abundant at the foot of Arthur's-seat, near Edinburgh. "Salisbury-craigs, King's-park, and near Duddingstone-loch, Pentland-hills, Lord Roseberry's park near Queensferry and Rosslyn castle, Scotland."—*J. C. Dale, Esq.* "Jardine-hall, Dinwoodie-green near Lockerby, Dumfriesshire."—*Sir W. Jardine, Bart.* "Seaham-dean near Sunderland."—*W. C. Hewitson, Esq.* "A few specimens taken on the coast of Durham near Sunderland."—*G. Wailes, Esq.* "I once observed it on Dartmoor, 23d August, 1823."—*Dr. Leach.*

FAMILY IV.—HESPERIIDÆ, *Swainson.*

Antennæ with a distinct fusiform club, generally furnished at its extremity with a hook: abdomen robust: legs in both sexes perfect, all formed for walking; *hinder tibiæ* with two pair of spurs, one pair placed at the apex, the other towards the middle, as in the *Crepuscularia* and *Nocturna Latr.*: *claws* minute, bifid: *posterior wings* with a groove to receive the abdomen. *Larva* pubescent or naked, fusiform, with a large head: *pupa* short, smooth, enclosed in a web, with a slender transverse thread.

The Hesperiidæ are distinguished from the other Diurna by having two pairs of spurs to their posterior tibiæ, and a hook at the extremity of their antennæ. They are small insects, but their body is very robust, and they fly with rapidity and strength, frequently resting on leaves and branches, and elevating their posterior wings above during their repose, the anterior being kept horizontally displayed. Their flight is very short, and performed with frequent jerks; whence they have obtained the appellation of *Skip-pers*. The prevalent colour is brown or dusky, with pale whitish, yellow, or transparent spots.

I have merely distinguished two British genera, which may be thus discriminated:

<i>Antennæ capitulo</i>	{	incurvato:	19. THYMELE.
		recto, aut vix curvato:	20. PAMPHILA*.

* Pa. Bucephalus apparently belongs to a different genus; but my objection to multiply genera without powerful reasons has induced me to consider it as belonging to a section of the genus Pamphila.

GENUS XIX.—THYMELE, *Fabricius*.

Palpi rather long, thickly clothed with hair; the terminal joint somewhat obtuse, projecting rather beyond the hirsuties. *Antennæ* a little elongate, with a curved fusiform club, not terminating in an acute hook: *anterior wings* short, broad, triangular, rounded posteriorly; *posterior* broad, rounded-triangular, entire, or slightly denticulated. *Larva* naked. *Chrysalis* with the head-case notched.

Thymele differs from Pamphila by the comparative brevity of its wings, and their rotund form: the antennæ are considerably more elongate, and their capitulum is incurved, and not furnished at its extremity with a hook: the palpi are longer and more hairy: the costa of the anterior wings is rounded at the base, and in the males it has a longitudinal fold, as in many of the Tortricidæ. The species are generally distinguished by tints of black or dusky, spotted more or less with white, or pale colours.

Sp. 1. Alveolus. *Alis nigris albo maculatis punctatisque, posticis subtus virescentibus, maculis punctisque albis, ciliis albis nigrisque.* (Exp. alar. 10—14 lin.)

Pa. Alveolus. *Hübner*.—Pa. Malvæ. *Lewin*, pl. 46. f. 8, 9.—Th. Alveolus. *Steph. Catal.*

Swingle B

Above black or dusky, with numerous white or cream-coloured quadrangular notched spots, the black ground thickly irrorated with whitish; the posterior wings with the white spots in the centre, forming an interrupted band: all the wings with a white or cream-coloured fringe barred with black: beneath, the anterior wings are pale greenish-gray, with white spots, as above; the posterior wings are yellowish or grayish-green, with the nervures paler, and spotted as above, but the spots rather larger: fringe with the black bars narrower than on the upper surface.

Var. β . *Steph. Catal.* With an oblong white or cream-coloured blotch on both sides in the centre of the anterior wings towards the anterior margin, which is frequently doubled by the confluence of two contiguous spots; the rest of the white spots on the anterior wings are more oblong and larger than in var. α .

Both the above varieties are subject to still other variations: the first frequently occurs with all the spots on the anterior wings very minute, while those of the posterior are remarkably large, and vice versa. Again, var. β occurs with the upper wings nearly all whitish or cream-coloured, with a single whitish spot alone in the centre of the posterior, while others have a central and marginal fascia of spots. It may be added that var. β has been considered as a distinct species, and is apparently synonymous with the *Hesperia Lavateræ* of Fabricius; but I have most satisfactory proofs of the insect in question being a mere variety of Th. Malvæ, one of my specimens having the character of var. α on one anterior wing, and of var. β on the other; and I possess a series gradually varying from the confluent to the simple spots on all the wings.

Caterpillar unknown, that of Th. Malvæ having been given in lieu of the proper one.

An elegant, variable, and far from uncommon insect; frequenting woods, commons, dry banks, and meadows, about the end of May: it is plentiful on Hertford-heath, near Bickendon and Bengoe, Herts, in Coombe-wood, at Ripley, Darenth, Epping-forest, &c. "In plenty near York."—*W. C. Hewitson, Esq.* "Near Newcastle, common."—*G. Wailes, Esq.* "Collingbourne-wood, Wilts."—*Rev. G. T. Rudd.* "Hartly-wood, Essex."—*Miss Jermyn.* "In the fens of Cambridgeshire, plentifully."—*Rev. L. Jenyns.*

Sp. 3. Tages. *Alis denticulatis fuscis subtus griseis, punctis albidis albisque numerosis obsoletis utrinque.* (Exp. alar. 1 unc. 1—4 lin.) *Lings*
 Pa. Tages. *Linné.*—*Lewin, pl. 45. f. 3, 4.*—Th. Tages. *Steph. Catal.*

All the wings above brown, more or less obsoletely clouded with ashy-gray, with several obsolete scattered whitish dots, and a marginal series of white spots: cilia brown, with the base gray: beneath griseous, with a few very obscure whitish dots towards the hinder margin. Male of a deeper colour than the female.

In fine specimens the gray markings on the anterior wings above are disposed in bands of zigzags, and are very distinctly marked: the costa has also a bright white spot towards the tip, anterior to the band of zigzags.

Caterpillar bright green, with a brown head, and yellow dorsal and lateral stripes dotted with black: it feeds on the Field eryngo (*Eryngium campestre*), and Bird's-foot lotus (*Lotus corniculatus*).—The chrysalis has the anterior part dull green, the posterior reddish.

Not a very abundant species, frequenting dry banks, wastes, commons, heaths, and woods, about the end of May and the middle

‡ Sp. 2. Malvæ. *Alis dentatis fuscis, cinereo undatis; anticis punctis fenestratis, posticis subtus punctis albis.* (Exp. alar. 1 unc. 4 lin.)

Pa. Malvæ. *Fabricius.*—*Stewart.*—*Don, xvi. pl. 567.*—Th. Malvæ. *Steph. Catal.*

Th. Malvæ has considerable resemblance to Th. Tages, but is easily known by its dentated wings: its upper surface is brown, with waving cinereous lines, and six transparent spots on the anterior wings: beneath, the posterior wings are dotted with white.

Caterpillar gray: head black, with four sulphur-coloured spots on the neck: it feeds on the common mallow (*Malva sylvestris*), and Marsh-mallow (*Althea rosea*).—Chrysalis bluish.

This species has doubtless been introduced into the indigenous Fauna by Stewart, owing to the unfortunate misappropriation of the Linnean name of Pa. Malvæ to Th. Alveolus by his predecessors: of the true Pa. Malvæ I have not seen an indigenous example, and therefore do not believe that it has ever been captured in England.

of July: rather plentiful on Hertford-heath, and at Darent, and abundant at Coombe-wood, near Dover. "At Hintelsham, Suffolk, in Norfolk and Dartmoor, Devon."—*Miss Jermyn*. "Plentiful near York."—*W. C. Hewitson, Esq.* "Near Carlisle."—*T. C. Heysham, Esq.* "Ashdown-Copse, Wilts."—*Rev. G. T. Rudd*. "Glanvilles Wootton."—*J. C. Dale, Esq.* "On the Devil's Ditch, sparingly."—*Rev. L. Jenyns*. "Common on heaths, near Newcastle, in June."—*G. Wailes, Esq.* "Dorking."—*Mr. Waterhouse*.

GENUS XX.—PAMPHILA, *Fabricius*.

Palpi short, compressed, very densely clothed with scales and short rigid hairs, or expanded and densely covered with scales only, the terminal joint slightly projecting beyond the hirsuties: *antennæ* not very long, with an abrupt fusiform club, varying slightly in form, and terminated generally in a hook: *head* rather large: *anterior wings* nearly triangular, slightly elongate, *posterior* rather ovate-triangular, with an obsolete emargination on the hinder margin, and sometimes a rudiment of a tail at the anal angle. *Larva* pubescent. *Chrysalis* with the front acuminate.

Fabricius having restricted his genus *Hesperia*, in the *Systema Glossatorum*, to a very different group of this family, I have adopted the name that he has there applied to the indigenous species, in preference to that of *Hesperia*, which is more generally employed in this country. The species may be known from those of the genus *Thymele* by the incrassated straight club to the *antennæ*, the superior robustness of the thorax and abdomen, the more acute anterior wings, and by the rather obsolete rudimentary tail at the anal angle of the posterior wings: their colours are tawny brown, with spots of a paler hue. There is considerable diversity of structure

† Sp. 4. *Oileus*? *Alis nigro alboque variis, posticis subtus cinereis, lineis nigris undulatis.*

Pa. Oileus. Gmelin?—*Haworth*.—*Th. Oileus. Steph. Catal.*

Wings rounded; anterior varied with black and white; posterior beneath cinereous, with waved black streaks: *antennæ* black: the club cinereous beneath. "Has been caught in Bedfordshire by the Rev. Dr. Abbott; and is in Lemans' ancient English cabinet, now in the possession of Lee Philips, Esq. Manchester."—*Mr. Haworth*, in page 334 of the *Entomological Transactions*: according to whom the insects in question are identical with a species he possesses from Georgia, in America: but may not the reputed indigenous specimens, which I have not seen, be rather identical with the *Pa. Fritillum*, *Hüb. pl. 92. f. 461—465?*

amongst the few which I have still retained in the genus, but as no material advantage would be gained by separating them into genera, I shall merely divide the genus into sections.

A. With the palpi very hairy: the antennæ rather long: head moderately large.

a. *The club of the antennæ moderately stout, straight, no hook at the tip.*

Sp. 1. Paniscus. *Alis supra nigro-fuscis fulvo maculatis, posticis subtus fulvis maculis flavescentibus.* (Exp. alar. 1 unc. 2—3 lin.) *Elegantissima*

He. Paniscus. *Fabricius.*—Pap. Paniscus. *Don. viii. pl. 254. f. 1.*—Pam. Paniscus. *Steph. Catal.*

Wings above black-brown, spotted with tawny: anterior with a central blotch, followed by an interrupted band, intersected with black veins, with two smaller posterior spots, and a marginal band of tawny dots: posterior wings with three discoidal spots, and a row of dots, varying in number, parallel with the hinder margin, all tawny: fringe tawny, black at the base: beneath, the anterior wings are yellowish, with three discoidal spots, then four or five smaller posterior ones, and the nervures at the hinder margin brownish; the posterior wings yellowish-brown, with seven larger spots, five of which are on the disc, and five smaller on the hinder margin, all of a paler hue; on the hinder margin is a pale yellowish streak.

The colour and size of the spots vary greatly; and some specimens have the whole of the dusky-brown thickly irrorated with yellowish, both above and below: the sexes differ but little in colour.

‡ Sp. 2. Sylvius. *Alis anticis flavis nigro maculatis, posticis fuscis flavo maculatis.* (Exp. alar. 1 unc. 2 lin.)

Pap. Sylvius. *Knoch.*—Pam. Sylvius. *Steph. Catal.*

Anterior wings above fulvous yellow, with four discoidal spots, and seven or eight parallel with the hinder margin black; the hinder margin dusky, with a brownish fringe: posterior wings brown, with four discoidal spots, and about five towards the outer margin yellow; the outer margin brown, with a yellowish fringe: beneath, the wings are nearly concolorous, but the hinder margin of the anterior has a chain-like series of brown spots, united by a black line on each nervure with the margin; the posterior wings have a similar terminal band, but the discoidal spots are the same as on the upper surface; the brown ground is irrorated with yellow; the fringe is yellowish.

I imagine that the present insect was formerly placed in British cabinets, in lieu of the Pam. Paniscus, which, until recently, was with difficulty procured by the entomologists of this country: I have a specimen which I obtained from an old collection, in which it was called by the name just mentioned, and in that of G. Milne, Esq. F.L.S. are other specimens, but beyond these I have not sufficient authority for introducing this insect into our Fauna. Mr. Milne gave no further account of his insects than that he believed them to be Pam. Paniscus, but knew not their origin; of my specimen the authority is equally unsatisfactory.

Caterpillar dark brown on the back, with the sides paler, with two yellow longitudinal stripes; black head, and an orange-coloured ring round the neck: it feeds on the Great plantain (*Plantago major*.)

Generally reputed a scarce, but merely a very local, species; it occurs in great plenty in several parts of Northamptonshire and Bedfordshire at the end of May. "Clapham-park Wood, Bedfordshire, and Whitewood, Gamlingay, Cambridgeshire; near Luton, Bedfordshire; the Hanglands and another wood, at Milton in Northamptonshire, near Peterborough."—*J. C. Dale, Esq.* "Between Woodstock and Enstone, Oxon."—*Rev. W. T. Bree.* "Near Dartmoor, Devon."—*Miss Jermyn.*

Sp. 3. Linea. *Alis fulvis, margine nigro, fæminæ immaculatis, maris lineolâ nigrâ crassiore, posticis subtùs griseis.* (Exp. alar. 1 unc. 1—3 lin.)

He. Linea. *Fabricius.*—Pap. Thaum. *Lewin, pl. 45. f. 5—7.*—Pam. Linea. *Steph. Catal.* *Linn. Skinn.*

Wings above tawny orange, immaculate, the nervures dusky, and the margin with a black streak; beneath, the anterior are paler, with the base brown and tip grayish; the posterior are tawny ash-colour, with a large tawny spot at the anal angle: fringe above rather tawny, with the base brown, beneath ash-colour. The male differs from the female in having an oblique black line in the centre of the anterior wings; which line is surrounded by a series of elongate rugose scales.

Less common than the Pam. Sylvanus, but nevertheless pretty abundant; it frequents the borders of woods and shrubby places, towards the end of July; at Coombe, Darenth, Highgate, and Peckham woods, and near Ripley, Hertford, Dover, and Hastings. "In plenty near York."—*W. C. Hewitson, Esq.* "Glanvilles Wootton."—*J. C. Dale, Esq.* "On the Devil's Ditch, Cambridgeshire, but not frequent."—*Rev. L. Jenyns.*

b. *With the club of the antennæ very robust, abrupt, the tip with an acute hook.*

Sp. 4. Sylvanus. *Alis griseo fulvis, maculis quadratis suprâ flavis, subtùs a'bido-flavescentibus.* (Exp. alar. 1 unc. 2—5 lin.) *Linn. Skinn.*

He. Sylvanus. *Fabricius.*—Pap. Sylvanus. *Lewin, pl. 46. f. 1—3.* Pam. Sylvanus. *Steph. Catal.*

Wings above bright fulvous, with the hinder margin and the nervures brown, the margin itself with a strong black line; the anterior wings are obsoletely spotted with fulvous, the spots being disposed as in Pam. Comma: the posterior wings are also similar to those of the last-named insect, but the spots are more indistinct; beneath fulvous, with the tip of the anterior wings slightly tinted with greenish, and an oblong black patch at the base; posterior wings obscure greenish, faintly spotted with yellowish-white, with a very slender

black marginal line: cilia fulvous. The male has a black line on the disc of the superior wings, and the nervures and marginal streak are broader and of a deeper black than in the female, in which sex the spots are more distinct on both surfaces of the wings. The black line on the disc of the anterior wings of the male is bordered towards the base with elongate scales resembling hair, and externally with rugose scales.

A very common species, chiefly found on the borders of woods; in plenty at Coombe and Darenth woods, and on Hertford-heath, about the end of May and again in July; not uncommon in the woody lanes about Ripley and on Clandon-common. "On Dartmoor, Devon."—*Miss Jermyn*. "Plentiful near York."—*W. C. Hewitson, Esq.* "Glanvilles Wootton."—*J. C. Dale, Esq.* "Ely, Bottisham, and elsewhere, in Cambridgeshire."—*Rev. L. Jenyns*. "Not yet found near Newcastle."—*G. Wailes, Esq.*

Sp. 5. Comma. *Alis fulvis aut griseis, fulvo aut albido maculatis, posticis subtus griseo-virescentibus maculis quadratis albis.* (Exp. alar. 1 unc. 2—5 lin.)

Pap. Comma. *Linné*.—*Lewin, pl. 45. f. 1, 2.*—Pam. Comma. *Steph. Catal.*

Anterior wings of the male above fulvous, with a central linear black blotch interiorly denuded, and of a silvery hue, the scales between which and the anal

Red Sky

B. With the palpi short, densely clothed with scales, not hairy: antennæ very short, the club abruptly thickened, with a distinct hook: head very large.

† Sp. 6. Bucephalus. PLATE X. f. 1, 2. *Alis supra fuscis fulvo maculatis, subtus fulvis fusco maculatis.* (Exp. alar. 1 unc. 3 lin.)

Pam. Bucephalus. *Steph. Catal.*

Wings above brown, spotted with tawny: anterior with the costa pale tawny at the base, the colour gradually deepening to the apex, which is of a tawny brown; near the centre of the wing is an irregular tawny spot, and towards the tip near the costa a quadrate spot of the same hue; between these and the hinder margin is an oblique series of tawny spots, emarginate exteriorly, the spots becoming longitudinally elongated as they approach the thinner edge of the wing; the hinder margin is tawny-brown: cilia the same, but lighter at the anal angle of the wing: posterior with two longitudinal tawny streaks, one of them reaching to the hinder margin, the disc between with a series of elongate tawny spots, and a single one anterior to the abbreviated longitudinal streak; the cilia pale tawny-brown; a deep notch on the hinder margin of the wing towards the anal angle: beneath the anterior wings have a large dusky spot at the base, and a row of similar-coloured subovate spots towards the hinder margin, largest at the anal angle: the posterior wings are pale luteous-tawny, speckled with dusky or brownish spots, and towards the anal angle with a broad longitudinal streak of the same colour, bordered anteriorly with pale tawny; cilia of all the wings as above.

angle are rather elongated, and form a rugose velvet-like patch; the hinder margin brown, with an undulated band of whitish spots towards the apex: the posterior wings are clouded with brown, and have several obscure fulvous spots, towards the hinder margin, which is of a deep brown: fringe on all the wings yellowish, with the base brown: beneath with the base and apex greenish, the latter with an undulated band of square pale spots, corresponding with those on the upper surface, and of a paler colour; posterior wings greenish, with about nine white spots, of which three are placed towards the base, and the rest behind the middle, forming an incurved chain-like band: the fringe below whitish, spotted with brown at the base. Female larger, without the discoidal blotch on the anterior wings above: colour above more obscure, but the spots towards the apex of the anterior wings whiter than in the male: beneath with the disc of the anterior wings dusky, and an irregular band of whitish subquadrate spots towards the apex; posterior wings as in the male,

“Taken in the neighbourhood of Barnstaple in Devonshire.”—*W. Raddon, Esq.*, who possessed two specimens of the insect, which he assures me were captured by himself in the above locality several years since. I have therefore on his testimony admitted the species; but I cannot avoid surmising that its origin is questionable, and that the specimens above alluded to were probably imported in one of their earlier states, among the timber or other stores which Mr. Raddon acquaints me came direct from the North American continent to Barnstaple. I am induced to say thus much from the circumstance of the section of the *genus* to which this insect belongs being without any other exception exclusively found in America; but it is nevertheless possible that the eastern limit of the group may extend to the west of Europe; at all events it is necessary for me to notice the communication; and I have also, through the kindness of Mr. Raddon, given a figure of the insect, as it appears to be a nondescript, in order to enable others to recognise it, should they be fortunate enough to ascertain any thing further relative to the real origin of the species; but for my sentiments respecting the admission of similar species into the Fauna of any country, I must refer to the observations subjoined to *Deilephila Celerio*, and here express my opinion that the present insect is an imported species and not an aboriginal native of Britain.

† Sp. 7. *Vitellius*. *Alis fulvis, anticis maculâ mediâ margineque posticis limbo fuscis.*

He. *Vitellius*. *Fabricius*.—Pam. *Vitellius*. *Steph. Catal.*

Size of He. Comma: anterior wings fulvous, with a spot in the middle, and the hinder margin black: posterior fulvous, with the entire margin black; beneath all the wings fulvous immaculate.

In page 334 of the 1st vol. of the Entomological Transactions, this is given as an English species, in the following terms: “Has been caught in Bedfordshire by the Rev. Dr. Abbott.”—*Mr. Haworth*: but I believe the insect in question to be a native of North America alone. See upon this subject the observations appended to the preceding species.

but greener, and the spots more distinct and whiter, more or less edged with black, and emarginate externally.

Var. β . The wings above of a pale greenish ochraceous; the maculations as usual.

The peculiar character possessed by the male of this species, and which is mentioned by Ochsenheimer, but by no English writer, admirably identifies it with the Pa. Comma of Linné, who, in his description of the anterior wings, says, "*Litura nigra linearis. margine nudâ subargenteâ in medio pagine superioris.*"

Caterpillar dirty green with a dorsal and lateral row of black dots, mixed with red: head black, with a white collar:—it feeds on the *Coronilla varia*, according to the authors of the *Weiner Verzeichnis*.

A local species occurring in plenty on Riddlesdown near Croydon, and on the chalky downs of Sussex, especially near Lewes. It used formerly to be taken on Hanwell-common, Middlesex, but I have not heard of any recent captures near that place: it appears towards the end of August. "Discovered in considerable abundance towards the middle of August, 1825, on the Devil's Ditch, between the running gap and the turnpike; the specimens remarkably large and fine."—*Rev. L. Jenyns*. "Old Sarum, Wilts, July, 1826."—*J. C. Dale, Esq.*

The second division of the Lepidoptera consists of the

CREPUSCULARIA, *Latreille* :

Which are characterised by having the *antennæ* various, but gradually produced into a prismatic or fusiform club, with the apex frequently terminating in a fascicle of hairs: *wings*, when at rest, horizontal or a little inclined; the posterior with a rigid setiform process at the base, passing through a hook beneath and retaining the anterior; they are frequently transparent; the anterior larger than the posterior, and generally much elongated: *body* cylindrical or conical, sometimes furnished with a large tuft of scales or hair at the apex. The larvæ have sixteen legs, six pectoral, eight abdominal, and two anal; the last segment is frequently armed with a horny process; and the pupæ are smooth, sometimes furnished with spines, either buried in the earth or foliculated. The perfect insects of the typical family generally fly in the evening or at day-break, the others in the morning and afternoon, and live for a short period only.

This division corresponds with the genus *Sphinx* of Linné and his followers; but it may be readily and most advantageously separated into the following families by the subjoined characters:

Palpi	{ breves: <i>Abdomen</i>	{	ano imberbi: . . .	2.	SPHINGIDÆ.
			ano barbato: . . .	3.	SESIIDÆ.
	{ elongatæ: <i>Alæ</i>	{	sæpissimè hyalinæ: . . .	4.	ÆGERIIDÆ.
			squamis tectæ: . . .	1.	ZYGÆNIDÆ.

FAMILY I.—ZYGÆNIDÆ, *Leach.*

Antennæ fusiform, sometimes bipectinated, without a fascicle of scales at the apex: *head* smooth: *palpi* short or elongate, clothed with long scales or porrected hair, the terminal joint elongated: *abdomen* cylindrical, with a slight tuft at the apex: *wings* in the indigenous species covered with scales, deflexed during repose. *Larva* exposed, fusiform, slightly villose, not tailed, legs minute: *pupa* folliculated: posterior *tibiæ* with short spurs.

The insects of this family are of a gregarious nature, and, unlike the Sphingidæ, they fly chiefly by day; their flight is very heavy and slow: their caterpillars subsist upon the leaves of divers plants, and they form a silken web in which they change to pupæ; some of them are hatched in the autumn, and remain concealed during the winter, coming out on the approach of spring, and undergoing their final metamorphosis in May or June.

Antennæ { bipectinatæ aut simplices, haud curvatæ: 21. INO.
 { abruptè flexuoso-clavatæ: 22. ANTHROCERA.

GENUS XXI.—INO, *Leach.*

Antennæ gradually thickening from the base to near the apex, straight, bipectinated, or simple, with the interior edge subserrated: *palpi* short, not reaching beyond the clypeus, densely clothed with scales: *head*, *thorax*, *abdomen*, and *femora* thickly covered with scales, rather elongate on the former. *Larva* scaly, depressed, head small: *pupa* with long wing-cases.

The genus Ino was established by Fabricius by the name Procris, but that having been preoccupied, Dr. Leach changed its appellation to the one it now bears; the species are known from the Anthrocerae by the form of the antennæ, which are not curved, but nearly straight, and become gradually thicker as they approach the tip, which is again slightly attenuated; the males have this part bipectinated, and the females simple, but serrated beneath; the species (of which there are several on the continent) are all of rich tints of light green, blue, or brownish, and immaculate.

Sp. 1. *Statice*. *Alis anticis viridi-cæruleis subtùs fuscis, posticis fuscis, antennis pectinatis, apice subclavatis.* (Exp. alar. 1 unc.—1 unc. 4 lin.)

Sp. *Statice*. *Linné.*—*Don.* vi. pl. 204. f. 2.—*Ino Statice*. *Steph. Catal.*

Anterior wings, thorax, and abdomen of a rich glossy silken blue-green; the former beneath and posterior wings on both sides brown: all the wings, especially the posterior, somewhat transparent: cilia greenish or brown.

Var. β . With the abdomen, and sometimes the thorax, of a brilliant rufous-copper, with a silken gloss.

The colour of the anterior wings varies greatly, being occasionally found of a pale yellowish green, or of a rich blue and slightly tinted with green. Caterpillar dusky, with two dorsal lines of whitish crescents;—it feeds on the common sorrel (*Rumex acetosa*). The chrysalis is dusky.

Not very abundant, but local, in woods and meadows: I have taken it occasionally at Coombe and Darenth woods, near Hertford, Ripley, on Epping-forest, and at Colney Hatch, about the middle of June; it flies heavily. “Abundant in Kensington-gardens.”—*Mr. Waterhouse*. “Near Ely.”—*Rev. L. Jenyns*. “In great plenty near York, but very local, and confined to one meadow.”—*W. C. Hewitson, Esq.* “Near Newcastle.”—*G. Wailes, Esq.* “Common in Littleton-copse, Kimpton.”—*Rev. G. T. Rudd*.

GENUS XXII.—ANTHROCERA, *Scopoli*.

Antennæ slender at the base, thickening into an abrupt bent fusiform club, with the apex simple; in the males robust: *palpi* reaching beyond the clypeus, cylindrical-conic, acuminate, densely clothed with hair: *head, thorax, and abdomen* thickly clothed with short silken hairs, with a few scales intermixed. *Larva* villose, fusiform, generally spotted with black, on a pale ground; *head* small: *pupa* elongate.

Zygæna having been employed by the ancients to designate a fish*, the Hammer-headed Shark, that name is, consequently, improper to be used for a genus of insects: I have therefore reverted to the one applied by Scopoli, to prevent the inevitable confusion which must arise if different classes of beings are called by similar names. The species of Anthrocera are all extremely beautiful, and

† Sp. 2. Globulariæ. *Alis anticis cæruleo-viridibus, posticis fuscis, antennis omnino pectinatis, apice cuspidatis.* (Exp. alar. 1 unc. 4 lin.)

Zy. Globulariæ. *Hübner*.—Ino Globulariæ. *Steph. Catal.*

The anterior wings of a blue-green, the posterior brown: the antennæ pectinated, with the apex simple.

A variety of the foregoing insect having been considered as the Zy. globulariæ of Hübner, as such I recorded it, but having subsequently examined the specimen, I find that it is referable to Ino Statices, var. β . Ino Globulariæ must therefore be removed from the list; but I conceive that it is extremely probable for it to occur in England.

* Dascillus, Liparis, Phycis, Colocasia, Staphylinus, &c., have all been improperly applied to genera in entomology, and should be discarded.

the indigenous ones are characterized by their anterior wings being brilliant green or bluish-green, more or less spotted with red, and their posterior wings of the latter colour, with a dusky or bluish border. They are gregarious, and inhabit fields and meadows, and may be known from the species of the preceding genus by their elongate simple antennæ, which have a curved fusiform club, terminating in an acute point. Owing to their uniformity of appearance, they have been much neglected in this country; but there are evidently several species which I have attempted to discriminate, but unfortunately I am unable to give so complete an account of the history of all as I wish, from my former ignorance of their distinctness; and I conceive that it would be a dereliction from those principles which have hitherto guided me, were I to pass them over in silence as mere varieties, their distinctions not resting upon the authority of one, but of several specimens, which generally vary considerably amongst each other, each, however, retaining its proper character.

Sp. 1. Meliloti. *Alis anticis nigro-virescentibus, aut virescenti-cyaneis, subdiaphanis, maculis quinque rubris; posticis rubris margine tenuè nigro-virescente.*
(Exp. alar. 1 unc. 3—4 lin.)

Zy. Meliloti. *Ochsenheimer.*—An. Meliloti. *Steph. Catal.*

Distinguished from the other indigenous species by the transparency, elongation, and slenderness of its wings, and their markings: the anterior are of a deep-greenish or greenish-blue, with a large obscurely duplex red spot at the base, two others placed rather obliquely on the disc, frequently united, and a fifth towards the apex near the costa: the inferior are red, with a very slender dusky-greenish margin.

Var. β . With all the red spots on the anterior wings united into an irregular longitudinal streak.

The antennæ are much shorter and more slender in this than in either of the following insects.

Caterpillar (according to Esper) greenish, with the head and anterior legs black, the rest green: a whitish stripe on the back, and a row of black spots on the sides: it feeds on Trefoil (*Trifolium*). The chrysalis is yellowish-white, with dusky back and wing-cases.—Albin seems to have figured the larva of this insect as that of An. Filipendulæ.

I was fortunate enough to meet with this species in great plenty the latter end of June, 1826, in West Horsley-park, Surry: it has not been noticed as a native of Britain; and were it not from the circumstance of my possessing an extensive series of specimens, taken in the above locality, all agreeing in material points with

each other, I might yet have passed it over, as I have hitherto the only specimen which was placed in my cabinet, as a mere wasted variety of the following insect. In Mr. Vigors' collection is also a specimen taken in a different locality.

Sp. 3. Trifolii. *Alis anticis cyaneis maculis quinque rubris, duabus mediis sæpè coadunatis, subtùs concoloribus; posticis rubris, margine latiori cyaneo.* (Exp. alar. 11 lin.—1 unc. 2—3 lin.)

Sp. Trifolii. *Esper.*—An. Trifolii. *Steph. Catal.*

Anterior wings deep greenish-blue, with two distinct red spots at the base, two others placed obliquely on the disc, the anterior smallest, and a single round one towards the apex, near the costa: posterior wings deep red, with a very broad, slightly waved deep bluish-black marginal fascia.

Var. β . With the two oblique discoidal spots on the anterior wings confluent.

Var. γ . As in var. β , but the discoidal spots united by a narrow line with the one at the apex.

Var. δ . The basal and discoidal spots confluent, and united by a streak of red.

Var. ϵ . All the spots longitudinally confluent, forming a broad irregular flame-like blotch.

Caterpillar dusky-yellow, with four rows of black spots; two on the back, and two on each side: it feeds on Trefoil. Chrysalis black.

Found abundantly in several parts of the country, towards the end of May, or beginning of June, particularly in Devonshire, and near Brockenhurst, in the New-forest; also in a field near Highgate, and at Colney-hatch: it has generally been considered, by English collectors, as the *Zy. Loti* of Fabricius, but that insect is considerably larger, and is subsequently noticed. "Horningsea-fen, near Cambridge."—*Professor Henslow*. "Common near Newcastle."—*G. Wailes, Esq.*: this information furnished on the knowledge of one five-spotted species alone; it is, therefore, doubtful to which it strictly applies, as I have not seen a northern specimen.

† Sp. 2. Scabiosæ. *Alis anticis viridibus, maculis oblongis approximatis sanguineis, posticis rubris.* (Exp. alar. 1 unc, 5 lin.)

Zy. scabiose.—*Fabricius.*—*Haworth, 74.*—An. Scabiosæ. *Steph. Catal.*

Anterior wings dusky-green, with three elongate narrow red streaks, two at the base, and one towards the apex; posterior red, the margin dusky-blue: antennæ slender, but slightly clavate, bluish-black: body dark-coloured.

Said by Mr. Haworth to have been taken near London by Captain Lindegren: I have not seen an indigenous specimen, and as var. ϵ of An. Trifolii has been usually referred in this country to the *Zy. Scabiosæ* of Fabricius, I suspect the insect mentioned by Mr. Haworth may have been merely a variety of that species.

Sp. 4. Loti. *Alis anticis nigro-cyaneis maculis quinque rubris, subtus concoloribus, posticis rubris, limbo lato sinuato nigro-cyaneo.* (Exp. alar. 1 unc. 4—6 lin.)

Zy. Loti. *Fabricius.*—*Don. ix. pl. 319?*—An. Loti. *Steph. Catal.*

Considerably larger than the foregoing, which it greatly resembles: the anterior wings are deep blue, with five large red spots, two at the base, two placed obliquely on the disc, and one at the apex towards the costa: the posterior wings are deep red, with a broad waved black-blue margin.

Var. β . With the basal and discoidal spots united.

Var. γ . With the discoidal and apical spots confluent.

The superior size of this species, and the comparatively narrow margin to the posterior wings, distinguish it from An. Trifolii.

Caterpillar pale green, with a row of black spots on the back, and one on each side, the latter (in the females) with a bright yellow streak beneath: it feeds on various kinds of Trefoil (*Trifolium*). The chrysalis is yellowish, with black wing-sheaths.

Of this insect I have three specimens only, all different, one of which I found in June, in a field near Eltham, Kent, several years ago, and the others were captured near London; but their locality is unknown to me, though, as I obtained them from dealers who principally collect in the above county, it is probable they were taken in the same place with the other specimen.

Sp. 5. Hippocrepidis. *Alis anticis nigro-cyaneis, maculis sex rubris, subtus omninò confluentibus, posticis rubris margine sinuato viridi-cyaneo, abdomine immaculato.* (Exp. alar. 1 unc. 1—7 lin.)

Zy. Hippocrepidis. *Ochsenheimer.*—An. Hippocrepidis. *Steph. Catal.*

This varies in size like An. Filipendulæ, which it greatly resembles; but the border of the posterior wings is considerably more distinct than in that insect, and undulated internally: the sixth spot on the anterior wings (the one towards the anal angle) is generally small, with a coloured nervure passing through it; the under surface of the anterior wings with the disc entirely red, and the maculations not defined. Above, the anterior wings are blue-black, with six red spots, disposed as in An. Filipendulæ, and the posterior red, with an undulated greenish-blue margin: the abdomen immaculate.

Var. β . The anterior wings above of a pale yellowish-green, with six pale lemon-yellow spots: the posterior wings of the latter colour, with a bluish-green border. Like An. Filipendulæ this varies considerably from the spots being more or less confluent, or obliterated.

Caterpillar greenish, with a broad yellowish stripe on each side, and a row of black spots: the head black varied with white, the anterior legs brown, the following yellow, the rest black: it feeds on the Wild Liquorice (*Astragalus glycyphyllos*). The chrysalis is dusky-brown, with the abdomen greenish spotted with black.

I have captured this insect in the vicinity of London; first in a field near Coombe-wood, on the 20th June, 1810, and subsequently near Darent-wood: of var. β , I have seen three specimens only, which were reared from larvæ taken in the latter habitat, where the Wild Liquorice abounds.

Sp. 6. Filipendulæ. *Alis anticis viridi-cyaneis fusco-ciliatis, maculis sex rubris, posticis rubris margine tenuè nigro, abdomine atro immaculato.* (Exp. alar. 1 unc.—1 unc. 6—7 lin.)

Sp. Filipendulæ. *Linné.*—*Don.* 1 pl. 6.—*An.* Filipendulæ. *Steph. Catal.*

Anterior wings of a green-blue, with six red spots: two at the base, two placed obliquely across the disc, and two nearly parallel with the last, at the apex; underside similar: posterior deep red, with a very narrow blue-black marginal band: cilia of all the wings brownish glossed with green.

Var. β . With the two discoidal spots of the anterior wings united.

Var. γ . The two apical spots alone united.

Var. δ . The same as var. β , and with the two apical spots also united, forming two oblique red bars.

Var. ϵ . The four basal spots united longitudinally by a narrow red streak.

Var. ζ . All the spots united into a narrow flame-like red dash.

Caterpillar yellow, with three rows of larger black spots on the back, and a row of smaller ones on each side: head and anterior legs black, the rest yellow. It feeds on the Plantain (*Plantago*), Trefoil (*Trifolium*), Dandelion (*Leontodon Taraxacum*), Mouse-ear Hawkweed (*Hieracium Pilosellæ*), Quake grass (*Briza minor*), &c. The chrysalis is yellow, with the head, wing-sheaths, and tip black.

An insect of general occurrence, being found equally abundant in the North, in Devonshire, South Wales, &c. as in the metropolitan district: its time of appearance is towards the end of June, or the beginning of July, and it affects fields and meadows by the sides of woods.

FAMILY II.—SPHINGIDÆ, *Leach.*

Antennæ prismatic, sometimes serrated towards the middle, ciliated slightly in the males, terminated by a scaly seta, or naked filiform appendage: *palpi* short, three-jointed, densely clothed with hair or scales, the terminal joint minute: *abdomen* conical, not tufted at the apex. *Larvæ* exposed, cylindrical or attenuated anteriorly, with a horn on the last segment, naked, sometimes granulated, the sides frequently with oblique or longitudinal stripes: *pupa* subterranean, or subfolliculated.

This family embraces some of the largest of the European Lepidoptera, which are no less distinguished by their immense bulk than by the beauty and agreeableness of their colours, which, although

usually of sombre tints, are nevertheless exceedingly gay in several of the species. They fly with great rapidity (whence they have obtained the name of Hawk-moths) towards sunset, and early in the morning, when they may be observed hovering over flowers, without settling upon them, and extracting their nectareous juices by means of their long spiral tongue. Their larvæ are very conspicuous, and generally while at rest they assume the attitude of the Sphinx, whence their name: they mostly change into a pupa beneath the ground, and it is not unusual for several of one brood to remain two, three, or more seasons, before they effect their final metamorphosis—a wise provision of nature to prevent their destruction, which the great size and conspicuity of the larvæ tend to promote: in ordinary cases, however, the larvæ retire under-ground, or form a loose cocoon among dead leaves on the surface, in the autumn, and undergo their change, and the imago is produced in the beginning of summer; the enormous larvæ of *Acherontia Atropos* forming an exception, as they generally change to pupæ in August, and the insect bursts forth in the following October: and in fine seasons other species will have two broods, as hereafter mentioned.

The indigenous genera may be thus distinguished:

<i>Alæ</i> {	{ plus minusve angulatæ:	<i>Maxillæ</i> {	{ breves:	{	23. SMERINTHUS.	
					{ elongatæ; <i>An-</i>	24. ACHERONTIA.
						{ tennæ: . . . . .	25. SPHINX.

GENUS XXIII.—SMERINTHUS, *Latreille*.

Antennæ gradually incrassated, serrated, especially in the males, somewhat prismatic; the apex generally incurved and attenuated: *palpi* contiguous: *maxillæ* very short: *head* small: *anterior wings* more or less angulated or dentated. *Larva* very much granulated, head conical, last segment with a conical recurved horn: *pupa* slightly rugose, acute, and pointed at the apex, subterranean.

The genus *Smerinthus* differs from the rest of this family by the amazing brevity of the *maxillæ*, and by the angulated or notched wings; unlike the other *Sphingidæ*, they settle upon flowers, and take their food in that position, owing to the shortness of their proboscis; they exist but a very short period, and scarcely fly; their flight is very awkward, and they are very dull and heavy insects. Their larvæ subsist upon the leaves of trees, not upon low herbage, and during repose the posterior wings are generally produced

beyond the costa of the anterior, as in many of the Bombycidæ: the serrated antennæ of the males also serves to distinguish that sex with facility from the other genera.

Sp. 1. Ocellatus. *Alis subangulatis, anticis rubicundo, brunneo fuscoque variegatis, posticis roseis, ocello cæruleo.* (Exp. alar. ♂ 2 unc. 9 lin.—3 unc. ♀ 3 unc. 6—8 lin.)

Sph. Ocellata. *Linné.—Don. viii. pl. 269.—Sm. Ocellatus. Steph. Catal.*

Anterior wings angulated, of a rosy-ash, with a clouded, oblique, central, interrupted band, several undulated strigæ, and the hinder margin irregularly brown; a central discoidal pale sublunate transverse streak; and midway between it and the hinder margin a blackish-brown spot, and frequently two or three similar maculations at the anal angle; posterior wings rosy at the base, the anterior edge cinereous, with paler clouds, and the posterior rosy-griseous; towards the anal angle is a large ocellus, having the pupil of great size, of a bluish-brown, the iris blue, and an outer circle of black, the latter colour often reaching to the anal angle, which is generally dusky: fringe of all the wings brown, edged with white near the anal angle of the posterior, which have a slight emargination: head and thorax pale cinereous, the latter with a deep brown patch; abdomen dark immaculate cinereous.

Caterpillar very rugose, of a beautiful green, with oblique white lateral stripes, and whitish ocellated spots, the anterior legs and stigmata rosy:—it feeds on the various species of willow (*Salix*), poplar (*Populus*), apple (*Pyrus Malus*), and sloe (*Prunus spinosa*), and appears in the autumn, changing in September to a brown pupa with a black back.

The imago is produced towards the end of May, and is found in tolerable plenty in several places near London, especially on Epping Forest, near Wanstead, where there is a profusion of aspen trees, and in the marshes about Limehouse, Bow, and Stratford; also in Battersea Fields; at Hertford, Ripley, &c. “Not uncommon near Spitchweek, Exeter, and near Ashburton, Devon.”—*Dr. Leach.* “In great abundance near York.”—*W. C. Hewitson, Esq.*—“Near Carlisle.”—*T. C. Heysham, Esq.* “Occasionally met with at Bottisham and Cambridge, but not common.”—*Rev. L. Jenyns.* Harris mentions, in his Aurelian, that he once found a specimen of this species in whose abdomen several specimens of a *Dermestes* had taken up their abode while the insect was yet alive.

Sp. 2. Populi. *Alis dentatis griseis fasciis obscurioribus, anticis puncto medio albo, posticis basi ferrugineis.* (Exp. alar. ♂ 3 unc.—3 unc. 6 lin.: ♀ 3 unc. 6 lin.—4 unc. 4 lin.)

Sph. Populi. *Linné.—Don. viii. pl. 241.—Sm. Populi. Steph. Catal.*

Anterior wings irregularly dentate, the dentations proportionably deeper in the female; griseous, clouded on the hinder margin, and obscurely streaked and

banded with glaucous, with a white lunule, and frequently a broad transverse cinereous fascia in the middle: the posterior wings are less dentated, and are also griseous, with deeper obscure waved streaks, a pale central lunule, and a large rust-coloured patch at the base: the fringe is cinereous, clouded with griseous: the thorax and abdomen pale unspotted cinereous.

This insect varies much in size and colour; the male is usually darker than the female, but I have several very pale specimens, with deep cinereous strigæ, and of the female I have one of immense bulk, and of a deep cinereous: others of this latter sex are very pale.

One of my specimens is very remarkable: the right side (antennæ, legs, wings, &c.) being that of the male, and the left that of the female: it was reared from the larva last June, and the individual who presented me with the specimen (Mr. Weaver) also bred a similar one the preceding year.

The caterpillar also varies much; it is very rugose, and is usually green, with a yellowish line on each side of the anterior segments, and an oblique transverse stripe of a similar colour on the rest, the last terminating on the tail; the stigmata are rosy; and frequently each segment bears a large red spot, and the lateral lines are of a more brilliant cast: it feeds chiefly upon the poplar, but also eats willows and aspen; is full grown towards the end of September, and changes beneath the earth to a dull brown pupa.

The perfect insect appears towards the end of June, and is very common in the south of England; a larva which was brought to me in July last, at Ripley, underwent all its changes, and arrived at maturity at the beginning of September. "In plenty in Devonshire."—*Dr. Leach*. "Near Carlisle."—*T. C. Heysham, Esq.* "In Northumberland."—*W. C. Hewitson, Esq.* "Very abundant in the neighbourhood of Ely."—*Rev. L. Jenyns*.

Sp. 3. Tiliæ. *Alis anticis virescenti nebulosis, fasciâ fractâ mediâ fimbriâque saturatoribus, posticis griseis, fasciâ obscurâ fuscescente.* (Exp. alar. ♂ 2 unc. 2—8 lin.: ♀ 2 unc. 4 lin.—3 unc.)

Sph. Tiliæ. *Linné.*—*Don. x. pl. 325.*—*Sm. Tiliæ. Steph. Catal.*

Anterior wings somewhat trilobate, griseous, clouded with greenish, or rosy-griseous, sometimes ferruginous, especially in the female, with an interrupted transverse central oblique band, composed of two large subquadrate olive-brown spots, a broad marginal band of greenish on the hinder margin, and a white or whitish patch at the tip of the costa: the posterior wings griseous, with an obscure brownish band, placed obliquely, and terminating in dusky at the anal angle, which is slightly emarginate: thorax whitish, with three olivaceous bands united in front: abdomen cinereous or greenish.

Var. β. Of a deep rusty griseous, with the subinterrupted fascia and tips of the anterior wings of a livid hue.

Var. γ. Anterior wings with a small round central dot, in lieu of the fascia.

Var. δ. Anterior wings with the central fascia unbroken.

Some specimens have a dot on one wing and a fascia on the other: in colour they vary greatly.

Caterpillar variable, rugose: slender anteriorly, green or brown with oblique red or yellow streaks on its sides: it feeds on the lime (*Tilia europæa*), elm (*Ulmus campestris*), alder (*Betula Alnus*), birch (*Betula alba*), and oak (*Quercus Robur*). The pupa is dirty brown.

Not a very abundant species; occurring, however, tolerably frequent near Hertford, Fulham, Richmond, Coombe-wood, on Epping-forest, &c. It usually makes its appearance towards the end of May; but I once took a remarkably fine specimen on the 19th July, and last August I bred one that was taken in the larva state in July previous near Ripley. "Near Exeter, Ashburton, and Spithweek, Devon."—*Dr. Leach*. "Plentiful at Bottisham."—*Rev. L. Jenyns*. "Once near York."—*W. C. Hewitson, Esq.* "Kimpton in May last."—*Rev. G. T. Rudd*.

GENUS XXIV.—ACHERONTIA, *Ochsenheimer*.

Antennæ short, very gradually and slightly thickened from the base nearly to the apex, uncinated, the hook terminating in a long hairy seta: *palpi* not contiguous, applied close to the head, naked inwardly, densely clothed with hair outwardly: *maxillæ* very short, robust: *head* large: *wings* entire, the posterior slightly emarginated: *cilia* very short: *body* obtuse, densely clothed with short velvety pile. *Caterpillar* naked, with oblique lateral stripes, the anal horn tuberculated, deflexed, curved at the tip: *pupa* smooth, subterraneous.

Acherontia has very short robust *maxillæ*, but nevertheless considerably longer than those of the preceding genus, from which it is instantly known by the integrity of its wings; from *Sphinx* and *Deilephila* the former character separates it, as well as the superior robustness of its body—which is densely clothed with a velvety pile—and the brevity and stoutness of its *antennæ*. The larva also differs considerably from that of the other genera, especially in the caudal appendage.

Sp. 1. *Atropos*. *Alis anticis fuscis, nigro luteoque variis, puncto centrali albido, posticis luteis, fasciis duabus nigris, abdomine luteo cingulis lineaque dorsali atris.* (Exp. alar. ♂ 4 unc. 4—8 lin.: ♀ 4 unc. 10 lin.—5 unc. 1 lin.)

Sp. *Atropos*. *Linné*.—Ac. *Atropos*. *Curtis*, iv. pl. 147.—*Steph. Catal.*

This magnificent insect is unquestionably the largest of the European Lepidoptera: its anterior wings are brown, varied with black and luteous, with some ferruginous dashes towards the tip, and a central whitish spot; they are thickly irrorated throughout with whitish: the posterior wings are luteous, with two black, or deep brown, bands, the outer one broadest, and emarginate

on both sides: head black: thorax bluish-black, with a large central yellow or whitish patch, rounded anteriorly and expanded posteriorly, having two small deep black spots, and two larger, of the colour of the thorax, behind: abdomen luteous, with the margins of the segments black, and with an interrupted dorsal line, and the greater portion of the terminal segment bluish: antennæ black with a white tip.

Caterpillar in its first state dirty red, finally yellow, with the back granulated and speckled with black; the transverse lateral lines united on the back, anteriorly blue, posteriorly white, with a purple dash in the centre of each on the sides: it feeds on the potato (*Solanum tuberosum*), jasmine (*Jasminum officinale*), thornapple (*Datura Stramonium*), spindle tree (*Euonymus europæus*), hemp (*Cannabis sativa*), elder (*Sambucus nigra*), woody nightshade (*Solanum Dulcamara*), &c.; the former is, however, their favourite pabulum. The pupa is bright red-brown.

Notwithstanding the immense size of the larva, which is sometimes four or five inches in length, and of the thickness of a man's finger, they are not very frequently observed, from the circumstance of their not venturing out during the day-time, unless when seeking for a convenient spot to undergo their change, their usual time for feeding being in the evening: they have, however, occasionally been met with in considerable plenty, and the public journals, for the year 1826 especially, abounded with almost miraculous accounts of the immense bulk both of the larva and imago, and of their appearance in all parts of the kingdom, especially on all the coasts. The unsuccessful attempts formerly made by persons to rear them to the perfect state has induced many to suppose that there was great difficulty attendant thereon; but of late years the insect has been reared in tolerable plenty by several individuals, and a fair proportion of the imago has been produced; the larvæ are usually full grown about the middle of August, when they retire under ground and form an oval cell, in which they change to the pupa. Towards the end of September or the beginning of October the imago is produced, and, like the rest of the group, flies morning and evening only. The conspicuous patch on the back of its thorax, which has considerable resemblance to a cranium, or Death's head, combined with the feeble cry of the insect, which closely resembles the noise caused by the creaking of a cork, more than the plaintive squeaking of a mouse, has caused the insect to be looked upon by superstitious persons as the "harbinger of death, disease, and famine," and their sudden appearance in Bretagne, as we are informed by Latreille, during a season while the inhabitants were

suffering from an epidemic disease, tended to confirm the notions of the superstitious in that district, and the disease was attributed by them entirely to the visitations of these hapless insects!

Considerable diversity of opinion prevails amongst naturalists respecting the organ which enables the insect to make the noise above alluded to; and common as the insect is, the point remains undecided. Reaumur and Roësel attribute it to the friction of its maxillæ against its palpi, an opinion which has been followed by many, and apparently with justice, as the structure of the latter organs seems calculated for the purpose; but Engramelle informs us that M. de Johet plucked out the maxillæ and cut off the palpi of one of these insects, and yet the noise was produced when the wings were agitated; he, consequently, imagined that the instrument causing the noise was connected with these latter appendages; and, upon an examination of them, he detected two concave scales (the petagiæ? common to all Lepidoptera) at their base, which he infers were the objects in question; for by depriving a second specimen thereof, the insect became mute: according to M. de Johet, therefore, the noise is occasioned by the air being suddenly propelled against these scales by the action of the wings. Again, M. Lorrey states that it arises from the air escaping rapidly from peculiar cavities communicating with the spiracles, and furnished with a fine tuft of hairs on the sides of the abdomen. In the number of the *Annales des Sciences Naturelles*, &c. for March last, is a note by M. Duponchel, relative to the observations of M. Passerini on this subject. After alluding to the opinions of MM. Reaumur, Roësel, and Lorrey, M. Duponchel tells us, that he (M. P.) controverts them, by stating that the noise is produced from the interior of the head, in which is a cavity in communication with the trunk or maxillæ, and between which are placed the requisite muscles for its elevation and depression: he also notes, that having cut off the abdomen the noise continued, as was also the case when the tongue was extirpated; and although it ceased when the muscles above-mentioned were paralyzed, it was reproduced upon passing a strong pin sharply and vertically into the head. He further remarks, with reference to the opinion of M. Lorrey, that although both sexes utter the cry in question, one of them alone is furnished with the apparatus mentioned by him, an apparatus likewise found in other *Crepuscularia*, especially *Macroglossa*, which are mute. M. Duponchel also observes that a membrane exists betwixt the eyes, which does

not seem likely to be connected with the point in question, inasmuch as it is likewise found in *Sphinx Convolvuli*; and, in conclusion, he acquaints us, that M. Passerini invites the attention of naturalists to the subject, as it is his intention to furnish them with the result of his observations, accompanied by dissections.

I regret being unable to reconcile these various opinions, from never having been fortunate enough to possess a living specimen of the insect, although I once had an opportunity of hearing the noise, through the kindness of Mr. Raddon.

Another remarkable property imputed to this insect is its propensity to rob the honey-bee of its mellifluous stores, a fact that has been noted by Kuhn, Hüber, and others, and which has obtained for it the name of the Bee-tiger Moth.

Upon its entrance into life this singular insect also offers a peculiarity; the wings and members, upon its disengagement from the pupa, being enveloped in a fine thin membrane, which, rapidly drying and opening, liberates the captive prisoner, and its wings become speedily enlarged, and the insect capable of performing all the functions for which it is called into existence.

Although of unusual occurrence generally, this species cannot be esteemed scarce, as it is found annually in some parts of the country, and in certain seasons, as above-mentioned, it abounds; but unless diligently sought after in the larva state is not easily detected. In the potato-fields, near Ham, in Essex, nearly a bushel of pupæ were obtained in the course of a few weeks, by a gentleman, from the labourers some years since; and two years ago Mr. Raddon procured a considerable number of larvæ from the neighbourhood of Twickenham. In the same season many were taken in Devonshire by Captain Blomer, who kindly supplied me with specimens; others were found near Hastings, Brighton, Worcester, Birmingham, &c. and many of the imago in the autumn: the latter has frequently been observed at sea. I have heard of a specimen having flown into a vessel when sailing midway between the Glamorgan and Devonshire coasts, and of several having been taken three or four miles from land; this circumstance has induced some persons to imagine that the insect was not truly indigenous, but its simultaneous appearance in different parts of the country satisfactorily confutes that theory.

“In the summer of 1825 the larva was frequently taken near Carlisle.”—*T. C. Heysham, Esq.* “In profusion near York, as well

as the imago, in the autumn; since which it has been very scarce: also taken in Northumberland and Scotland."—*W. C. Hewitson, Esq.* "Once near Bottisham in the winged state, and occasionally in the larva state, near Cambridge."—*Rev. L. Jenyns.* "Not uncommon in Durham; once taken four miles at sea; a second buzzing about a bee-hive."—*Mr. J. O. Backhouse.*

GENUS XXV.—SPHINX *Auctorum.*

Antennæ rather elongate, gradually, but slightly increasing in thickness from the base nearly to the apex, especially in the females; the apex attenuated, uncinated, and terminated by a scaly seta: *palpi* contiguous at their apex, densely clothed with hair: *maxillæ* very long: *head* large, subtrigonal: *wings* entire: *body* thickly clothed with hair. Caterpillar smooth generally, with oblique lateral stripes, the horn smooth, incurved: *pupa* smooth, the sheath of the *maxillæ* always prominent, and detached.

Sphinx differs from Acherontia by the superior length of its *maxillæ* and *antennæ*, and by the comparative slenderness of its body and wings; the species are usually of great bulk, and have the abdomen generally fasciated with brilliant colours, while the wings are of sombre hues of brown and black, varied with cinereous or white, and sometimes tinted with rosy: from Deilephila they may be known by the same characters, and by the scaly setaceous apex of their *antennæ*.

Sp. 1. Carolina. *Alis fusco cinereoque variis, posticis fasciis 3—4 fuscis, exterioribus argutè dentatis, abdomine maculis luteis decem aut duodecim.* (Exp. alar. unc. 4—8 lin.)

Sp. Carolina. *Linné.*—*Curtis, v. pl. 197.*—*Steph. Catal.*

Anterior wings brown, varied with cinereous, with several dark brown zigzag and undulated strigæ, and a whitish one towards the hinder margin; in the centre of the disc, towards the costa, is a white spot edged with black: the posterior wings are pale fuscous, with three or four darker bands, the outer one strongly dentated, and the space between it and the margin sometimes of a deep brown: *cilia* of all the wings brown, spotted with whitish: thorax yellowish brown, transversely strigated with black anteriorly, with a black spot on each side behind: abdomen brown, with five or six orange spots edged with dark brown on each side, the spots diminishing to the apex.

Caterpillar, according to Abbot, green, with white lateral stripes and a pink tail: it feeds on potato, tobacco, &c. Although this fine insect has been repeatedly taken in England, it unquestionably cannot be considered as indigenous, and ought to be rigidly excluded from our cabinets, otherwise the most perplexing consequences must inevitably arise, to the total confusion of

Sp. 3. Convolvuli. *Alis cinereis, anticis fusco nigroque nebulosis, posticis nigro fasciatis, abdomine cingulis atris rubrisque albo marginatis.* (Exp. alar. ♂ 4 unc. 4—6 lin. ♀ 4 unc. 6—8 lin.)

Sp. Convolvuli. *Linné.—Don. vii. pl. 228, 229.—Steph. Catal.*

Anterior wings cinereous clouded with fuscous and black, with several straight and zigzag streaks of the latter colour, the fringe white, interrupted with brown: posterior wings with four irregular black bands, the basal one short and oblique, the others nearly parallel with each other, and with the hinder margin: the fringe as before: head ash-coloured: thorax deep ash, with obsolete dark lines: behind with an ovate bluish spot, posteriorly edged with black, and a red spot adjoining: abdomen deep cinereous, with about five segments white at the base, then red, and margined with black, giving the appearance of five tricoloured belts, interrupted on the back.

our inquiries into the geographical distribution of insects. If this be admitted, as well might the “noble monarch of the forest,” because a captive lioness which had escaped from her prison was retaken on Salisbury Plain.

Of Sp. Carolina a single specimen, called Sp. 5—maculatus in Mr. Wilkin’s Catalogue, is now in Mr. Vigers’ cabinet, and two in that of Mr. Curtis, which were taken in England; and I also possess a pair. Its true locality is North America.

Sp. 2. Quinquemaculatus. *Alis cinereo fuscoque nebulosis, posticis fasciis 3—4 fuscis, extimâ integrâ, abdomine maculis luteis decem.* (Exp. alar. 4 unc. 8 lin.)

Sp. Quinquemaculatus. *Haworth.—Steph. Catal. Sp. Carolina. Donovan, xi. pl. 361.*

Anterior wings clouded with cinereous and brown, with several undulated black strigæ, a broader flexuous one on the hinder margin, between which and the margin is a broad pale cinereous fascia, gradually shaded into the brown at the apex of the wing; the margin itself is brown: posterior pale cinereous, with three or four brown fasciæ, of which the outer is broadest and entire, and the inner dentated; the hinder margin is also brown; abdomen pale cinereous, with five orange spots edged with black on each side.

The native place of this insect is also North America, and I believe that it is the second species which feeds on the potato, tobacco, &c. alluded to by Abbot, who, in his remarks upon Sp. Carolina, says, “There is reason to suspect two species of this fly; at least a great variety of colours is observable in both sexes.” Four, if not more, specimens have been found in England: the first was taken at Chelsea, and was in Mr. Drury’s cabinet, now in the possession of Mr. Donovan; a second in Mr. Haworth’s collection, taken near the same place; one in Mr. Atkinson’s cabinet, found in the caterpillar state at Leeds, and the fourth in my own; but no doubt all were imported; and the simple fact of Mr. Atkinson’s specimen having been reared from the larva is not indicative of the native origin of the species.

The female has the anterior wings less clouded, and the posterior of a deeper colour.

Caterpillar very variable, green spotted with black, or brown, with the back darkest, generally with dark ochraceous yellow oblique lateral stripes; the stigmata sometimes black, at others pink; horn dusky or brown: it feeds on the greater and lesser bindweed (*Convolvuli sepium et arvensis*); changes to a rich shining brown pupa, with a long recurved sheath for its proboscis, about July, and the imago appears about the middle of September.

Sp. *Convolvuli* has hitherto been esteemed a rare insect in Britain, but it occurs in every part of the country, specimens having been captured at Caithness, Dover, Margate, Brighton, Penzance, Kingsbridge, South Wales, Norfolk, and in several of the inland counties; its appearance near London cannot be considered uncommon, and last September several were captured at Walworth, Camberwell, and near Hammersmith; some years since I had a specimen brought to me which was taken on a lamp-post in

Sp. 4. *Druræi*. *Alis cinereo fuscoque nebulosis, anticis lineolis duabus mediis strigisque aliquot nigris, posticis roseis fasciis tribus nigris; abdomine cinereo fasciis lateralibus roseis nigrisque alternis.* (Exp. alar. 3 unc. 11 lin.—4 unc. 4 lin.)

Sph. *Druræi*. *Donovan, xiv. pl. 469. Steph. Catal.*

A beautiful insect, at first sight resembling Sp. *Convolvuli* or *Ligustri*: the anterior wings cinereous clouded with brown, with several undulated black strigæ disposed in pairs, an irregular zigzag streak at the apex, and two strong longitudinal lines on the disc, of the same colour: on the disc, between the two black lines and the costa, is a black circle, anterior to which, towards the apex, is an open lunule of the same colour: the posterior wings are bright rosy at the base, gradually shading off to cinereous on the hinder margin; they have three black fascia, the outer one slightly emarginate on each side, and the anterior divided towards the anal angle, where it takes a bend to the margin: the cilia of all the wings brown interrupted with white: thorax cinereous, with one lateral and several anterior black strigæ, and a tuft of the same colour at the base: abdomen with the back cinereous, the sides alternately banded with bright rose colour and black.

Caterpillar feeds on the Spanish potato (*Convolvulus batatas*).

Again, we have a transatlantic species, which has been captured at large no less than four times in England: the first was taken about fifty years since near London, and carried alive to the late Mr. Drury: and in September, 1826, a fine and beautiful specimen was taken in a nursery ground near the Kent Road: Mr. Newman has a third; and I possess a fourth, which were also captured near London, several years since: but doubtless all these were imported. It is the Sp. *Convolvuli* of Smith and Abbot.

Holborn. I have seen many which were found at Richmond and near Teddington; and I possess a remarkably fine example of the pupa, which was taken in the larva state near Fulham. "Three specimens caught near Cambridge, in September, 1827."—*Rev. L. Jenyns*. "Taken in September, 1824, near Carlisle."—*T. C. Heysham, Esq.* "Near Darlington and Newcastle."—*Mr. J. O. Backhouse*. "Near York."—*W. C. Hewitson, Esq.* "At Fulham."—*C. J. Thompson, Esq.* "A few specimens have been met with near Newcastle."—*G. Wailes, Esq.*

Sp. 5. *Ligustri*. *Alis anticis grisescentibus, fusco nigroque tinctis, posticis roseis, fasciis tribus nigris, abdomine rubro-purpureo cingulis nigris, dorso cinereo interruptis.*—(Exp. alar. ♂ 3 unc. 6 lin.—4 unc. 3 lin. ♀ 4 unc. 2—10 lin.)

Sp. *Ligustri*. *Linné.*—*Don*, viii. pl. 248. *Steph. Catal.*

Anterior wings cinerascens, tinged with rosy, the base pale, with a broad dusky fascia extending longitudinally from the thinner margin nearly to the apex, intersected by several deep black lines, placed obliquely on the disc, and bordered posteriorly with an undulated black and cinereous line, between which and the hinder margin are two other cinereous streaks on a griseous ground: the posterior wings are rosy, with three black faciæ; the basal one pale, short, and placed obliquely, the others deep-coloured, and parallel with the hinder margin: cilia plain griseous, with a rosy tinge: head and sides of the thorax cinereous; disc of the latter black, posteriorly varied with cinereous: abdomen of a purple red, with black rings, interrupted on the back with cinereous, with a black longitudinal dorsal line.

Caterpillar rugose when young, smooth at the last moult, light green; the lateral streaks purple anteriorly, white posteriorly: horn black above, yellow beneath: stigmata orange: a few days previously to its change the latter are obliterated, and the colour of the body becomes of a dirty reddish-green: it feeds upon the privet (*Ligustrum vulgare*), common and Persian lilac (*Syringæ vulgaris et persica*), elder (*Sambucus nigra*), ash (*Fraxinus excelsor*), &c.: the pupa is of a glossy red-brown, with the apex slightly bifid; the sheath of the proboscis straight, but prominent.

This beautiful insect is far from uncommon in the south of England: I have taken it plentifully in the larva state in gardens at Hertford and Ripley, and have repeatedly captured the imago at Darenth, about the end of June and beginning of July. "Common everywhere in Cambridgeshire."—*Rev. L. Jenyns*. "Near Carlisle."—*T. C. Heysham, Esq.* "Rare near York."—*W. C. Hewitson, Esq.* "At Kimpton."—*Rev. G. T. Rudd*.

Sp. 6. *Pinastri*. *Alis cinereis, anticis lineolis tribus confertis nigris, abdomine fusco cingulis atris supra albo marginatis, dorso interruptis.*—(Exp. alar. 3 unc. 2—5 lin.)

Sp. *Pinastri*. *Linné*.—*Don*, ix. pl. 296. *Steph. Catal.*

Wings cinereous, anterior obsolete undulated with brownish, with three unequal diverging black lines on the disc, and an oblique, slightly bent, dusky one at the apex; posterior immaculate, the base rather paler than the margin; the fringe of all the wings white, clouded with cinereous: sides of the head and thorax white, the former dusky at the top, the collar united to a furcate dash of the same hue passing to the hinder part of the thorax, interior to the white edge: abdomen with a narrow black dorsal line, and the sides with alternate spots of black and white.

Caterpillar in its first skin entirely yellow; the second green, with yellow stripes; third deeper green, with three longitudinal lemon-yellow lines on each side; and finally of a rich green, with a brown dorsal line; the sides with two deep yellow ones: the anterior legs and the first segment of the body are yellow, the latter spotted with black; the horn, which was previously straight, becomes curved and black: it feeds on various species of pine, such as the *Pini Abies*, *sylvestris*, *Strobus*, &c. The chrysalis is gray brown, changing to maroon: the tongue-sheath is short.

Evidently a rare insect in the south, but more frequent in Scotland; one specimen was taken in June, near Colney Hatch Wood, about thirty years ago, and a second in the neighbourhood of Esher; which are the only English specimens that have come to my knowledge. "In Rivelston-wood, near Edinburgh, once taken by myself, and several times by Mr. Wilson of the College."—*Dr. Leach*.

Sp. 7. *plebeia*. *Alis griseis, puncto medio albo, abdominis lateribus albis nigro marginatis*.—*Fab.* (Exp. alar. 3 unc. 1 lin.)

Sp. *plebeia*. *Fabricius*. *Steph. Catal.*

Anterior wings griseous, with several indistinct black lines, and a central white spot; posterior obsolete fasciated with fuscous upon a lighter ground: the fringe of all white spotted with brown: abdomen above griseous, with a black dorsal line, the sides white margined with black; beneath white, with a row of fuscous dots.

Dr. Leach obtained a specimen of this insect (which is now in the British Museum) from *Dr. Lettsom's* cabinet, and I procured a second from another old collection, reputed to contain indigenous productions only; but as the species is American, I think it highly probable that both the above were placed in the respective cabinets in lieu of *Sp. Pinastri*, in accordance with the bad practice to which I have so frequently been compelled to allude, and the evil tendency of which I have more particularly pointed out in my observations subjoined to the following species.

† Sp. 8. *pœcila*. *Alis subacutis, canis, fusco-nebulosis, anticis puncto medio albo, lineolisque aliquot nigris, posticis fuscis fasciâ latâ pallidâ, abdominis lateribus nigro maculatis*. (Exp. alar. 2 unc. 9 lin.)

GENUS XXVI.—DEILEPHILA, *Ochsenheimer*.

Antennæ short, gradually but distinctly clubbed, especially in the males, the club attenuated at the apex and uncinated, with a naked subulated appendage

Sp. *pœcila*. *Steph. Catal.*

Smaller than the foregoing: anterior wings rather acute, hoary, clouded with brown, with several longitudinal and oblique black lines, and a zigzag one of the same colour at the apex, a conspicuous white spot on the disc, near the costa, and towards the hinder margin an undulated hoary streak, margined externally with brown; the cilia white, spotted with brown: posterior wings brown, with a broad pale central band; the cilia pure immaculate white: head and sides of the thorax hoary; disc of the latter brown, changing to hoary posteriorly: abdomen hoary ash, with an obsolete brownish line down the back, and a row of undefined black spots down each side.

Of this apparently nondescript species, a single example, in fine condition, is in Mr. Vigers's cabinet as an indigenous insect; but its authenticity is questionable, from the circumstance of *three species alone* of true Sphinx, Sp. *Convulvi*, *Ligustri*, et *Pinastri*, having been hitherto detected in Europe, and from the following information furnished to me by Mr. Vigers: "This insect and another (Sp. *plebeia*) were placed in Mr. Wilkin's cabinet as Sp. *Pinastri*, accompanied by a memorandum that one of the two was foreign, the other British." Now, as neither of Mr. Vigers's specimens occur in other parts of Europe, and as Sp. *Pinastri* is not in his collection (although included in the printed list of the rarer British species contained in that of Mr. Wilkin), it is not only manifestly impossible from the tenor of the memorandum to ascertain which of the above was actually found in England, but it is obvious that *both* were confounded with Sp. *Pinastri*, thus affording another practical and forcible example of the injury to science which has arisen from the very execrable practice of placing foreign specimens in British cabinets: a practice which, I lament to add, is *still followed* by some collectors of the present day, and which, I repeat, is fraught with the most perplexing and mischievous consequences, being no less detrimental to the progress of knowledge than subversive of those very principles such collectors profess to follow; for if their collections be declared to consist of the productions of a local district, they are evidently not so when they are composed of the produce of other regions, and which is undeniably the case when foreign specimens are placed therein, in lieu of such as are otherwise unattainable from their rarity in the given spot. And the simple facts of the apparent indigenous contents of this genus having been so improperly extended, by the introduction of *exotic* specimens, and the species themselves so glaringly confounded, although composed of the largest and most conspicuous Lepidoptera, imperiously demand the abandonment of the vicious practice *in toto*. But as it is essential to obtain such foreign specimens for the sake of illustration, let them not be

terminating in two slender hairs: *palpi* contiguous above the *maxillæ*, which are rather elongated: *head* moderate subovate: *wings* entire, the posterior slightly produced at the anal angle: *body* very acute, with a small tuft at the apex. *Caterpillar* various; head small; body smooth, with lateral spots, generally of lively colours; the anterior segments incapable of being withdrawn or expanded: or, without lateral spots, colours dull, the anterior portion of the body capable of elongation, and with lateral ocelli: *pupa* smooth, sheath of the *maxillæ* not exerted; changes in a loose leafy cell on the ground; or subterranean.

Deilephila at first sight offers many points of resemblance to *Sphinx*; but the species are usually much smaller, the abdomen shorter and more suddenly attenuated, the *maxillæ* abbreviated, and the antennæ more distinctly clavate, and terminating in a naked subulated appendage: they differ amongst each other in the form of their wings, &c.; but those discrepancies are constant with the difference in the structure of the larvæ, and in the habits of the pupa. I shall therefore subdivide them into two sections, corresponding with their diversities of habit and structure: the larvæ of the second division have the power of elongating or contracting the anterior portions of their body; thence called *Elephant Sphinxes*; a term which has been applied to all the species, though improperly.

A. Anterior wings not subfalcate, hinder margin rounded towards the apex: abdomen transversely banded: antennæ distinctly clavate. Larva maculated; anterior segments not retractile: caudal horn rugose: pupa superficially buried.

Sp. 1. *Euphorbiæ*. *Alis anticis virescentibus, vittâ latâ lividâ, maculâque disci virescente, posticis nigris, fasciâ margineque exteriori rubris, antennis niveis.* (Exp. alar. ♂ 2 unc. 10 lin.: ♀ 3 unc. 1 lin.)

Sph. *Euphorbiæ*. *Linné*.—*De Euphorbiæ*. *Curtis*, i. pl. 3.—*Steph. Catal.*

Anterior wings greenish, with a broad, irregular, livid, or rosy longitudinal streak, reaching obliquely from the thinner edge to the apex, and the hinder margin also irregularly bordered with dusky-rosy; the disc with a greenish spot, and the base with a white one; posterior wings rosy-red, with the base and a fascia near the hinder margin black; a spot towards the inner edge, and the cilia white: head and thorax greenish-brown, with a lateral white stripe; the latter

commingled with the rest of the collection, but placed by themselves, with their proper locality attached, in a distinct receptacle; and thus confusion will be avoided, the cause of science will remain uninjured, the collection itself will become more valuable and classical; and, when "the flow of time" occasions it to fall into other hands, the student will not be perplexed nor led into error should he detect any extraordinary species therein.

with two oblique pale central ones, united anteriorly on the disc with each other, and posteriorly with the lateral stripe: abdomen above greenish-brown; the margins of the segments white on the sides; the two first with deep black spots: antennæ white.

The colour of the wings varies much; in some specimens the rosy tint is remarkably vivid and powerful, in others it is somewhat obscure: the marginal fascia on the posterior wings also varies; it is sometimes entire, at others deeply indented on each side; and occasionally very narrow or very broad.

Caterpillar at first deep black; it afterwards becomes spotted with red; and in its last skin it is black, with slightly elevated whitish points; with the head, a dorsal line, the base of the tail, a large spot upon each segment beneath the stigmata, and the prolegs bright red; each segment has also a large circular cream-coloured spot, and a lesser one near the stigmata; the tip of the horn and the true legs are black: it feeds upon various kinds of spurge (*Euphorbia*). The chrysalis is of a light ochraceous-brown, with the wing-sheaths rather lengthened.

Although this beautiful insect has been known to inhabit England for a very long period, the present race of entomologists are indebted to the exertions of my friend Mr. Raddon for the major portion of the specimens which adorn their cabinets; he having detected the larva in some considerable abundance on the sea spurge, which grows in plenty on the extensive sand-hills in the neighbourhood of Barnstaple, during his residence in that part of the country: they are full-grown about the middle of September, when they retire a little beneath the surface of the sand, and effect their change into the pupa; reappearing in their final state the following year at the beginning of June. "Three caterpillars taken near Coventry in 1827."—*Mr. Mercer.*

Sp. 2. Galii. PLATE 12. f. 2.—*Alis anticis virescentibus, vittâ longitudinali albidâ, posticis nigris fasciâ pallidâ rubro nebulatâ, antennis fuscis apice albis, dorso albo punctato.* (Exp. alar. 2 unc. 10 lin.—3 unc.)

Sp. Galii. *Hübner.*—*De. Galii. Steph. Catal.*

Anterior wings of an olive-brown, with a narrow longitudinal whitish vitta, extending obliquely from the inner base nearly to its apex, its hinder edge slightly waved, the anterior a little irregular; the hinder margin is bordered with ashy-brown, with cilia of the same colour; the base has a white spot with an adjoining black one, bordered again with white, as in *De. Euphorbiæ*, and in the centre of the disc is a small patch of elongate whitish hairs: the posterior wings are black at the base, and have a fascia of the same colour near the hinder margin, placed upon a pale or reddish ground, with deeper clouds of the latter colour; the fringe is pale: the head and thorax are olive-brown, margined laterally with white: the abdomen also olive-brown, with a dorsal

row of minute white dots, and several large spots of the same on its sides, with two black ones at the base: antennæ brown, with the tip white.

Caterpillar olive-green with a yellowish dorsal line, and on each segment, on both sides, a large pear-shaped spot of light yellow edged with black; the stigmata are also yellow bordered with black, and below them is a yellowish line: the legs are black, the prolegs and tail of a rosy hue: it feeds on the yellow lady's bedstraw (*Galium verum*), wild madder (*Galium mollugo*), and dyer's madder (*Rubia tinctorium*). The chrysalis is dark brown.

De. Galii has been occasionally found in the neighbourhood of London. About twelve years since I saw a living specimen, which was taken in the beginning of June on some palings in the City-road, and a second was detected near the same spot a year or two back. M. Harris once found the caterpillar at Barnsclay, near Crayford, Kent, but mistook it for that of De. Euphorbiæ, not being aware of the existence of De. Galii. It has several times occurred in the west of England. "Near Penzance in Cornwall, and Kingsbridge, Devonshire."—*Dr. Leach*.

Sp. 3. lineata. PLATE 12. f. 1.—*Alis anticis virescentibus, fasciâ longitudinali subundulatâ, striisque obliquis albidis, posticis nigris fasciâ latâ rubrâ nebulosâ.* (Exp. alar. 3 unc. 3 lin.)

Sp. lineata. *Fabricius*.—De. lineata. *Steph. Catal.*

This species bears some resemblance to the last, upon a transient view; but its distinction is sufficiently evident: the anterior wings are pale olive-brown, with a narrow slightly-undulated ochraceous longitudinal vitta placed obliquely from the inner margin to the apex, intersected obliquely with a series of whitish lines following the direction of the nervures, and a subtriangular

Sp. 4. Daucus. *Alis anticis fusco-cinereis, fasciâ longitudinali rectâ ochraceâ, striisque obliquis albis, posticis nigris fasciâ angustâ rubrâ.* (Exp. alar. ♂ 2 unc. 5 lin.: ♀ 2 unc. 9 lin.)

Sp. Daucus. *Cramer*.—De. Daucus. *Steph. Catal.*—Sp. lineata. *Don, vi. pl. 204. f. 1.*

Allied to, and hitherto confounded by English writers (except Dr. Leach, who noticed the fact in the Edinburgh Encyclopedia) with the preceding insect, but very distinct therefrom: the anterior wings are plain cinereous brown, with a longitudinal straight ochraceous streak reaching nearly from the inner base to the apex, which is obliquely cut by several slender white lines on the nervures; on the disc is a small whitish dot; the hinder margin is of an ashy-gray: the posterior wings black, the base and a broad hinder margin being of that colour, with a narrow uniformly-coloured red central fascia: head and thorax ashy-brown, with a white lateral line on each side; the latter with four other longitudinal white lines on its disc, the two inner with an abbreviated

whiter spot on the disc; the hinder margin is ash-coloured; the cilia pale ashy-brown: the posterior wings are black at the base, with the rest of the wing pale clouded rosy, and having a narrow black band near the hinder margin; the cilia whitish: the head and thorax are olive-brown, margined laterally with white; the latter with two dorsal lines of the same colour: abdomen pale olive-brown, with a longitudinal row of white spots, bordered with black on the back, and another on each side of a larger size, diminishing to the apex, and with a row of black spots in the middle: antennæ brown, with the tip white.

Caterpillar above pale olive-green, beneath pure white; a dorsal line, the tail, two large circular spots on both sides of each segment, and the head rose-coloured; on each side is a longitudinal yellowish line, and on each segment on both sides a black dot above the upper rosy one: it feeds also on the yellow lady's bedstraw and on the vine. The chrysalis is of a rosy-brown.

De. lineata is unquestionably rare in England, and few collectors can boast the possession of specimens: it has however been captured in distant parts: the Rev. T. Skrimshire possesses a specimen which I believe was caught in Norfolk, and Mr. Dale has one which he obtained from Dr. Abbott's cabinet, also found eastward; in June, 1824, a beautiful and perfect specimen was taken off the mast of the Ramsgate steam-vessel at Billingsgate, and last year a wasted one was found near Bethnal-green: in addition to the above, three specimens were formerly taken near Kingsbridge in Devonshire, one of which I possess through the kindness of Dr. Leach, and have caused the accompanying figure to be taken therefrom. The above are the only indigenious examples I have seen; all the remainder which are placed in collections for this species being *De. Daucus*, hereunder described.

one placed anteriorly between them, and uniting them, as it were, to the head: abdomen reddish-brown, with a strong white dorsal line, bordered on each side with black spots; the sides each with an alternate series of large black and white spots, diminishing in size to the apex.

De. Daucus is a native of North America, and I have seen about eight specimens in the various English collections which have passed beneath my notice; but of these the history of one alone has come to my knowledge, and that I understand was taken near Lynn in Norfolk; the rest have probably been introduced in lieu of *De. lineata*, which was formerly known to inhabit Cornwall: a pair in my collection are reputed to have been found in England; I believe Mr. Haworth has another; and two were obtained by Mr. Vigors from the cabinet of Mr. Wilkin. "The Sphinx *lineata* of Donovan, which is said to be a doubtful inhabitant of England, was caught near Sunderland in June, 1823."—*Mr. J. O. Backhouse.*

B. Anterior wings very acute, subfalcate, the hinder margin having an emargination towards the apex: abdomen longitudinally striated: antennæ obscurely clavate. Larvæ not spotted, some of the anterior segments with a single large ocellus on each, and retractile; caudal horn smooth, sometimes nearly obliterated: pupa enclosed in a cocoon of leaves on the ground.

Sp. 5. Celerio. *Alis anticis griseis, strigis albis nigrisque, fasciâ argenteâ nitente, posticis fuscis basi maculisque sex rubris.* (Exp. alar. ♂ 2 unc. 10 lin.: ♀ 3 unc. 1 lin.)

Sp. Celerio. *Linné.*—*Harris' English Insects, pl. 28. f. 1.*—*De. Celerio. Steph. Catal.*

Anterior wings griseous with black lines, and an incurved whitish streak from the apex, almost to the base of the thinner margin; the anterior edge white, bordered with black; between this and the posterior margin is a second white streak acutely bent towards the former at the anal angle, where there is a blackish spot; the margin of the wing is pale griseous, and on the disc is a black spot edged with ochraceous: posterior wings brown, with the base and six marginal spots rosy; the hinder margin pale griseous: head cinereous, with two whitish-ash streaks, in which the antennæ are inserted, from the palpi, passing over the eyes, to the base of the wings: thorax deep cinereous, with a whitish-ash streak on each side, and another of a rich golden-yellow: abdomen gray-brown, with a silvery-white continuous dorsal line, and a streak of spots on each side.

Caterpillar brown, with a series of lunules passing over the stigmata on each side, and a lateral line terminating at the tail, yellowish; the fourth and fifth segments with a large ocellus, having a black pupil and yellowish iris: it feeds on the common vine (*Vitis vinifera*). The chrysalis is reddish-brown, with the head and wing-cases dusky.

The admission of this insect into the British Fauna has been the subject of dispute with many persons, and its indigenous origin is still questionable, as the only pabulum which has been hitherto observed to afford sustenance to the larvæ is the common vine, which is not an aboriginal native of this country: nevertheless, I think it probable that it may subsist upon other plants, as we find that many species which were formerly supposed to devour one plant alone are now known to feed upon several. The first recorded specimen of the perfect insect was taken flying in Bunhill-fields burying-ground, so long ago as July, 1779; and the specimen now exists in a high state of preservation in Mr. Haworth's collection, having been purchased by him at the dispersion of that of Mr. Francillon. Subsequently to the above capture the larvæ have been found several times in Cambridgeshire—first, by Mr. F. Skrimshire, near Wisbeach, and afterwards by a friend of the Rev. L. Jenyns, in the Isle of Ely: two or three were also taken about

fifteen or sixteen years since in a garden at Norwich, and were kept until they changed to pupæ; but unfortunately, in that state, their metamorphosis ended: one of these pupæ I have in my collection. Of late, however, the perfect insect has occurred more than once, and in a totally different part of the country: three specimens, as I am informed by the Rev. F. W. Hope, were taken near Oxford several years ago. In August, 1826, an injured one was found resting on a wall near Birmingham; and last summer a second was secured not far distant from the same locality; the latter I have in my possession. Again, Mr. Marshall informed me in March last, that, in his way through Manchester, he met with an individual who possessed upwards of a dozen living pupæ, which were procured from larvæ found in that neighbourhood during last season.

How far the above facts may induce a belief that the insect is truly indigenous, I shall leave to the judgment and discrimination of those who are far better qualified to judge of the geographical distribution of insects in general than myself, merely observing that the species in question inhabits various parts of the south of Europe, and that, by admitting it into our Fauna, no very erroneous conclusions are likely to result therefrom, in an attempt to investigate the natural distribution of the Sphingidæ; which must be the case, to the detriment of science, when such transatlantic species as *Sp. Druræi*, &c. are thrown into the scale as natural productions of this our "favoured island." The mere circumstance of specimens of such insects as those above alluded to having been caught at large, either in the perfect or previous states, is no argument in favour of their being indigenous, to a commercial country at least: and the naturalist, who regards the knowledge of truth as superior to the false pride which generally fills the breast of the mere collector, whose utmost ambition is gratified by the sole possession of objects that others cannot obtain, will pause ere he swell the list of the productions of any given locality with creatures which have been probably introduced by the aid of commerce*. Such productions it is, in fact, highly essential should be

* Amongst nearly *fifty* species of *tropical and transatlantic insects*, which have been taken at large in the West India Docks, by Messrs. Beck, may be instanced three specimens of the huge *Mygale avicularia*; one of which must have existed nearly a year in this country, as the pile of South American wood

regarded with suspicion, and their true locality, if possible, pointed out; otherwise we must continue in wilful ignorance to the end of time, and truths that might shine forth as brilliantly as the orb of day will be for ever shrouded in the obscurity of impenetrable darkness. An earnest desire to give the insects of this country free from such admixture has induced me to express my doubts upon the origin of particular species by placing them in a note, when I had not oral or other testimony for admitting them into the body of the page; and even in the latter cases to give my suspicions when there has been cause for doubt; and I may here observe, that as the descriptions of the insects herein are all corrected and compared with the objects

† Sp. 6. argentata. *Alis anticis griseis immaculatis, strigâ rectâ obliquâ albidâ strigisque obsoletoribus fuscis, posticis fuscis ad angulum ani fasciâ pallidâ.*
(Exp. alar. 2 unc. 10 lin.)

Sp. argentata. *Haworth.*—*De. argentata.* *Steph. Catal.*

Somewhat allied to the last: anterior wings plain griseous, with an oblique, straight whitish streak from the apex to nearly the base of the thinner margin, accompanied anteriorly with two dusky streaks, and posteriorly with about four more obsolete ones of the same colour, the hinder margin itself slightly rosy; the disc with a single black spot: posterior wings brown, rather deepest at the base, with a pale ochraceous streak towards the anal angle, which is still paler: head as in *De. Celerio*: thorax slightly olivaceous, with a faint dorsal, and a whitish-ash lateral line, and a pale luteous one between, on each side; abdomen with a broad faint dorsal silvery-white streak, and an obsolete golden one on each side.

Dr. Leach also obtained a specimen of this insect, which is in all probability synonymous with the *Sph. Celæno* of Esper, from Dr. Lettsom's cabinet, and a second was obtained by myself from an old collection which was broken up about fifteen years since; but I am decidedly of opinion that neither of them have any claim to be considered natives of Britain.

in which it was found had been unshipped and packed about eleven months! yet it cannot be considered indigenous, any more than the *Blattæ gigantea*, *Americana*, *Maderæ*, *orientalis*, &c., which occur in Britain (the latter especially, abounding in the lower apartments of most houses throughout the metropolis). The *Prionus accentifer*, *Oliv.*, (*Acrocinus*, *Illig.*) I have seen at large more than once, and various other exotic species, such as *Callidia fulminans et fasciatum*, *Lamia dentator*, *Stenochori quadridentatus et spinicornis*, *Tetraopes tornator*, &c.; as well as a fine Chinese *Conocephalus*, which subsisted upon tea, and continued alive nearly four months in my possession; but neither of the above can be considered indigenous, and doubtless the *Cerambyx litteratus* of Donovan has no pretensions to such origin.

themselves, unless when mentioned to the contrary, a mere error in nomenclature; in any instance, cannot affect the question at issue, as in such case the insect *described*, not the one *named*, is the species which inhabits the British isles.

Sp. 7. Elpenor. *Alis anticis olivaceis fasciis tribus obliquis purpureis, posticis rubris, basi atris.* (Exp. alar. 2 unc. 6—8 lin.)

Sp. Elpenor. *Linné.*—*Don*, iv. pl. 122.—*Dé. Elpenor.* *Steph. Catal.*

Anterior wings olivaceous, with the costa, a spot at the base, two oblique fasciæ—the first abbreviated anteriorly, the second reaching from the thinner margin to the apex—the hinder margin and the cilia of a fine reddish-purple, varying in different individuals; a minute discoidal dot, and the thinner margin of the wings, pure white: posterior wings black at the base, the hinder margin reddish-purple, more or less brilliant, and sometimes with a transverse olivaceous streak: the cilia pure white: head, thorax, and abdomen above olivaceous; palpi, superciliary line, four subarcuated lines on the thorax—the two inner united anteriorly—the sides, two spots at the base, and a streak on the back of the abdomen reddish-purple: sides of the thorax, and sometimes a row of spots, varying in number, on those of the abdomen, white; a spot at the base of the anterior wings, and another at the base of the abdomen, black.

Caterpillar, when young, green; which tint is not uncommonly preserved throughout; but some individuals, at the third moult, become varied with yellow, or of a plain dusky-brown; the former have a black dorsal line, and some spots of a similar colour, varied with yellow, round the stigmata: in both, the third segment has two parallel black streaks on each side, and the two following, a large ocellus with a bluish pupil and black iris: the legs are yellow. It is found in the autumn, and feeds on the yellow lady's bedstraw (*Galium verum*), hairy willow-herb (*Epilobium hirsutum*), loose-strife, or willow-herb (*Lythrum salicariæ*), common vine (*Vitis vinifera*), &c. The pupa is dull griseous, posteriorly brown, with the stigmata obscure.

The most abundant species of the Sphingidæ in the south of England: the larva occurring chiefly in damp and marshy situations, particularly near Hackney and Battersea; also in the neighbourhood of Hertford and Ripley; but the imago usually frequenting gardens towards the end of June. "Frequent in Devonshire."—*Dr. Leach.* "Far from uncommon at Netley, Salop."—*Rev. F. W. Hope.* "Very common in the winged state everywhere in Cambridgeshire."—*Rev. L. Jenyns.* "Near York, not common."—*W. C. Hewitson, Esq.* "A single specimen taken near Newcastle."—*G. Wailes, Esq.*

Sp. 8. Porcellus. *Alis anticis flavescenti purpureoque variis, posticis basi fuscis, fasciâ flavescente margineque purpureo, abdomine subtus albo punctato.* (Exp. alar. 1 unc. 10 lin.—2 unc. 1 lin.)

Sp. Porcellus. *Linné.*—*Don*, ix. pl. 314.—*De. Porcellus.* *Steph. Catal.*

Similar to the last, but considerably smaller: the anterior wings are of an ochraceous yellow, with various irregular purple clouds on the costa, and a broad, internally notched, purple margin; two obsolete dusky lines cross the disc obliquely, and the fringe is purplish spotted with white towards the anal angle; the posterior wings are dusky-black at the base, and purplish at the hinder margin, the intermediate space being more or less ochraceous-yellow: the cilia white, spotted irregularly with purplish: head, thorax, and abdomen sometimes entirely of a rich reddish purple; at others with the disc of each yellowish: at the base of the anterior wings is a tuft of whitish hairs.

Caterpillar with a very minute caudal appendage: brown or green, with a large blue ocellated spot on each side of the fourth, fifth, and sixth segments, and a narrow paler lateral streak: its food is similar to that of *De. Elpenor*. The chrysalis is pale brown, with the head and wing-cases dusky.

Found occasionally near London, at Croydon, Birch and Coombe-woods, on Wandsworth-common, &c. in the beginning of June. "Netley, Salop."—*Rev. F. W. Hope*. "Bred abundantly by the collectors at Birmingham."—*Rev. W. T. Bree*. "One taken near York."—*W. C. Hewitson, Esq.* "Near Gussage, Dorset; and very common at Winterslow, near Salisbury."—*Mr. Ingpen*. "Amesbury, Hants."—*Rev. G. T. Rudd*. "I took a single specimen on the Devil's Ditch, Cambridgeshire, June 12, 1827, resting on a stem of burnet."—*Rev. L. Jenyns*.

FAMILY III.—SESIIDÆ.

Antennæ prismatic, ciliated in the males, slightly hooked, the apex terminating in an oblique scaly process: *palpi* short, clothed with scales, the terminal joint extremely minute: *abdomen* conical, with the apex tufted. *Larva* naked, with a horny appendage on the hinder segment: *pupa* smooth, without spines, enclosed in a cocoon upon the ground.

In common with the *Zygænidæ* and *Ægeriidæ*, though unlike the *Sphingidæ*, the insects of this family fly in fine weather only, towards the middle of the day, their flight being suspended about noon for a short period; it is performed with the utmost rapidity, and is accompanied by a considerable humming noise; whence the insects have been termed *Humming-bird*, or *Bee-moths*. They may be known from the *Sphingidæ* by their comparatively diminutive size, by the form of the apex of the *antennæ*, and more especially by the tuft of scaly hairs with which the abdomen is terminated: from the *Ægeriidæ* they may be distinguished by their *antennæ* being straight, destitute of a tuft at the apex, and prismatic. Their larvæ feed on the leaves of plants, and their pupæ are enclosed in a cocoon on the surface of the ground.

The two British genera contained in this family may be thus briefly characterized:

Alæ	{	squamis tectæ:	27. MACROGLOSSA.
		denudatæ:	28. SESIA.

GENUS XXVII.—MACROGLOSSA, *Ochsenheimer*.

Antennæ uncinated, gradually thickening nearly to the apex, which is scarcely attenuated; simple in the females: *palpi* contiguous above the maxillæ, thickly clothed with scales: *maxillæ* as long as the *body*; the latter elongate, clothed with scales, tufted on the sides towards the apex and at the tip: *wings* elongate-lanceolate, opaque. *Larva* elongate, slightly attenuated in front, caudal horn straight: *pupa* elongate, head-case produced.

Macroglossa may be detected from Sesia by its opaque wings, and by the elongation of its body, which is very strongly tufted at its apex, and densely clothed with elongate, hair-like scales. Frequent gardens.

Sp. 1. Stellatarum. *Alis anticis fusco cinereis, strigis duabus nigris, posticis ferrugineis, abdominis lateribus albo nigroque variis.* (Exp. alar. 1 unc. 9 lin.—2 unc.)

Sp. Stellatarum. *Linné.*—*Don*, vii. pl. 155.—*Ma. Stellatarum.* *Steph. Catal.*

The anterior wings dusky or dusky-brown, with several obsolete and two waved transverse and black strigæ, and a central black spot, generally with a pale cincture: posterior rusty-tawny, with the base and hinder margin dusky; the latter tinted with rusty: the fringe tawny, dusky at the base: head, antennæ, thorax, and abdomen, above, dusky brown; the latter varied with black and white at the sides, with a black anal tuft.

Caterpillar green, speckled with white, with a whitish or yellowish lateral line from the head to the caudal horn, and below this a pale yellow one: the anterior legs deep yellow: the horn blue at the base, reddish-yellow at the tip: previously to changing, it assumes a dark hue, and the lateral line becomes purplish. It feeds on the various kinds of bedstraw (*Galium*, particularly the *Ga. verum et aparine*), and also on the dyer's weed (*Rubia tinctorium*). The chrysalis is of a pale brown, with the wing-cases darker: its form is peculiar, the head-case being rounded, and the middle swollen.

Of this insect my friend Mr. Haworth says, "This interesting species, in the winged state, frequents gardens; flying, in sunny weather, between the hours of ten and twelve in the morning, and those of two and four in the afternoon. Its food is the nectareous juice of tube-bearing flowers; this it extracts with amazing address, by the assistance of its exerted spiral tongue, inimitably poisoning itself all the while on rapidly vibrating wings; whence its name of

Humming-bird." It is far from uncommon, and in some places it abounds. During two short visits at Dover, in August, 1818 and 1819, I observed it in great abundance in the winged state, and in June of the latter year, accompanied by the late Mr. Blunt, we found the larvæ in profusion beneath the cliffs: I have also taken the insect plentifully at Hertford, and occasionally at Ripley. There are usually three broods in the year, appearing respectively at the end of April, June, and August; some of the latter have been known to hibernate. "Common near Ely, Bottisham, &c."—*Rev. L. Jenyns*. "Not very common near York; but more abundant near Newcastle on Tyne.—*W. C. Hewitson, Esq.*" "Common round Newcastle."—*G. Wailes, Esq.* "Kimpton, Hants; and banks of the Tees, Yorkshire."—*Rev. G. T. Rudd*.

GENUS XXVIII.—*SESIA*, *Fabricius*.

Antennæ thickening from the base nearly to the apex, and from thence to the tip, becoming slender, terminated by an oblique seta: *palpi* contiguous above the maxillæ, very short, concealed by being densely clothed with hairy scales: *maxillæ* very long: *body* somewhat ovate, thickly clothed with hair, the apex with a tuft: *wings* with the disc entirely transparent; the margins, and sometimes the transverse nervure, clothed with scales, and opaque. *Larva* elongate, rather attenuated in front; caudal horn curved; *pupa* slightly elongate.

Sesia differs from *Macroglossa* in the transparency of the disc of its wings, and in having the body rather short, ovate, and thickly clothed with long hair, as well as by the form of the antennæ, and several minor characters. They frequent woods and meadows by the sides of plantations.

Sp. 1. *Fuciformis*. *Olivaceo-fulva, abdomine fulvo, fasciâ nigrâ, alarum margine angusto fusco.* (Exp. alar. 1 unc. 8—9 lin.)

Sp. *Fuciformis*. *Linné.*—*Se. Fuciformis.* *Steph. Catal.*—*Se. Bombyliformis.* *Curtis, i. pl. 40.*

Tawny-olive; abdomen with the third and fourth segments black, more or less clouded with fulvous, the two following orange-tawny, whitish at the sides, the caudal tuft black, with the centre orange: body beneath pale yellow, with a band on the abdomen anteriorly, the tuft, apex of the tibiæ, and the tarsi black: the latter brownish in the female: wings iridescent, the anterior with the costa, hinder margin, and the inner margin, especially at the base, clothed with brown scales; posterior with the inner angle, and a very narrow margin, also clothed with the same: antennæ cyaneous.

Caterpillar spinous when young; afterwards smooth, and varying much; usually green, with a paler lateral line, and a waved purplish one above, terminating

at the base of the tail, which is of the same colour; beneath the former are several oblique purplish streaks placed over the stigmata: it feeds on the devil's-bit scabious (*Scabiosa succisa*). The chrysalis is brown.

This is decidedly the rarest species of the genus near London; though near Enborne, in Berkshire, I was informed by Mr. Dale, that he formerly captured it in great plenty, at the end of May and beginning of June. It is probably a native of Cambridgeshire. "I am almost certain it appears in certain seasons in the fens about the middle of May: Professor Henslow saw several specimens this year in Horningsea-fen, and last year I also noticed one or two at Wood Ditton; but neither of us have succeeded in capturing a single specimen: its food, the scabious, abounds in the fens."—*Rev. L. Jenyns*. "New Forest, Hants, in May last."—*Mr. Weaver*.

Sp. 2. Bombylifomis. *Viridi-flava, abdomine viridi flavo, fasciâ margineque lato alarum atro-purpurascens*. (Exp. alar. 1 unc. 8—10 lin.)

Sp. Bombylifomis. *Ochsenheimer*.—*Steph. Catal.*—Sp. Fuciformis. *Don*, iii. pl. 87.

Greenish-yellow, the third and fourth segments of the abdomen crimson-purple, more or less clouded with black, especially on the sides, the two following orange-yellow, with the sides yellow; the caudal tuft black, with a yellowish centre: body beneath pale yellow, with a reddish-brown transverse band on the abdomen anteriorly, clouded with black in the male, and the caudal tuft

Sp. 3. Cimbiciformis. *Rubro-flava, abdomine rubro-fulvo fasciâ purpureâ, alarum fasciâ margineque lato rubro purpureis*. (Exp. alar. 2 unc.—2 unc. 2 lin.)

Se. Cimbiciformis *mihî*.—*Steph. Catal.*

Reddish-yellow; abdomen with the third and fourth segments purplish-red, the two following yellowish-red, with a whitish spot on each side; the caudal tuft black, with its centre and sides reddish; beneath, the head, thorax, anterior and intermediate legs and base of the posterior, yellowish; the abdomen and hinder tarsi reddish: wings iridescent; anterior, with the costa, base, discoidal spot, and margin clothed with purplish-red scales; the base and margins of the posterior the same: beneath, the margins of all the wings are of a bright orange or rusty-purple.

Upon the dispersion of Mr. Plasteed's collection I obtained a fine pair of this species therefrom; but as it is indigenous to North America, I conceive that the ends of science will be more advantageously benefited by the simple indication of the fact, than by giving the insect as an inhabitant of this country, which the mere detection of specimens in a collection does not warrant; but, on the contrary, as this insect was considered by Mr. Plasteed as the Sp. Fuciformis, it is evident that he did not scruple to admit *foreign* specimens into his cabinet.

of a dusky or reddish-black; the posterior tarsi and tips of the others dusky: wings iridescent, the anterior with the costa, hinder margin, and discoidal spot clothed with purplish-brown scales, the base and part of the costa greenish-yellow: posterior wings similar, but the hinder margin narrower and no discoidal spot; beneath, all the wings have a lighter-coloured margin, and the base and costa of the anterior are of a pale ochraceous-yellow: the antennæ are black, tinged with cyaneous.

Caterpillar green, with a yellowish dorsal and lateral line; some reddish spots on the sides; the legs violet; horn reddish-brown with an orange tip: it feeds on the honeysuckle (*Lonicera Periclymenum*) and bedstraw (*Galium*), &c.; but not on the wood of willows, as erroneously stated by some writers. The pupa is dusky-brown with reddish spots.

I have repeatedly seen and occasionally captured this insect towards the end of May at Coombe and Darenth woods, particularly the former, where I have observed it, hovering over the blossoms of the harebell (*Scilla nutans*), abundantly: it also occurs sometimes on Epping-forest. "Rather plentiful during last summer near York."—*W. C. Hewitson, Esq.* "At Littleton-copse near Kimp-ton."—*Rev. G. T. Rudd.*

FAMILY IV.—ÆGERIIDÆ.

Antennæ fusiform, a little curved, ciliated in the males, the apex terminating in a plume of scales: *ocelli* two, minute, placed between the antennæ and the base of the thorax: *palpi* elongate, thickly clothed with scales and long hairs, the last joint elongate: *abdomen* cylindric, tufted at the apex: *wings* horizontally displayed, generally naked, with the tips above opaque. *Larva* sub-cylindric, hirsute, tail-less: *pupa* elongate, with a row of spines on each segment; changes in the interior of plants.

The insects of this family are generally of small size, and are at once distinguished from the other Crepuscularia (except *Sesia*) by the transparency of their wings; but from all they may be known by that character added to the slender curved antennæ, and by the possession of stemmata or ocelli. They fly by day; their larvæ are pale and fleshy; reside beneath the bark, pith, or internal substances of various trees; and generally reach their final state in one year, though, according to Esper, *Trochilium apiformis* is several seasons in attaining perfection.

The two following genera occur in Britain:

<i>Maxillæ</i>	{	brevissimæ: antennæ abbreviatæ:	29. TROCHILIUM.
		elongatæ: antennæ longiores:	30. ÆGERIA.

GENUS XXIX.—TROCHILIUM, *Scopoli*.

Antennæ short, more or less serrated, especially in the males, stout, gradually incrassated nearly to the apex, which is curved, acuminate, and terminates in a hairy tuft: *palpi* moderately long, parallel, suddenly recurved, the base very hairy, the apex scaly and attenuated: *head* small: *clypeus* densely clothed with elongate hairs: *thorax* and *abdomen* stout, the latter with a very small tuft at its apex: *wings* with the tips not clothed transversely with scales.

Notwithstanding the great resemblance between this genus and the following, their characters are sufficiently distinct to warrant their separation: the present genus is composed of much larger insects than *Ægeria*, and they are distinguished by their remarkably short tongue; short, incrassated, and slightly serrated antennæ; robust body; small head, with a hairy crest; and by the transparency of the apex of the anterior wings. They also differ in habit, the insects of the present genus being very sluggish, usually remaining quietly at rest on trunks, and when urged to flight, flying very heavily; thus and by their abbreviated maxillæ approaching in habit to the *Bombycidæ*: whence I presume the genus would more naturally follow than precede *Ægeria*, though I have not ventured to adopt that arrangement.

Sp. 1. *Apiformis*. *Capite flavo, thorace nigro maculis quatuor flavis, abdomine flavo cingulis duabus nigris.* (Exp. alar. 1 unc. 7—10 lin.)

Sp. *Apiformis*. *Linné.—Don. i. pl. 25.—Tr. Apiformis. Steph. Catal.*

Head yellow; a white line before, and a yellow one behind, the eyes: *palpi* yellow, dull at the tip: antennæ above dusky-black, beneath ferruginous: thorax dusky-black, with two large trigonate lateral spots anteriorly, and two smaller ones posteriorly: abdomen yellow, with the first and fourth segments dusky-black, the remainder with the margins above black, the fifth and two hinder dusky on the back, with a lateral brownish line: femora outwardly yellow, inwardly dusky-black: tibiæ rich tawny-orange; tarsi paler: anterior wings sprinkled with brownish, the base with a yellow spot, the nervures, margins, and a transverse band rusty-brown; beneath with the band and margins paler; the anterior yellowish at the base: posterior also sprinkled with brownish, with the margins and nervures brown, beneath concolorous, with the anterior margin fulvous; all the fringe tawny-brown. Male less, the abdomen more slender, the tuft more distinct: the antennæ slightly serrated internally.

Caterpillar whitish, with an obscure dorsal line; head large, brown: it feeds in the trunks and the roots of the poplar (*Populus niger*), and aspen (*Populus tremula*). Chrysalis elongate, brown.

This insect occurs in various parts of the country, but nowhere in greater abundance than on Epping-forest, near Wanstead, where it may be readily obtained by diligently searching, towards the end of June, the trunks of the fine aspen trees, which form so conspicuous an object on that part of the forest. I have also frequently met with the insect at Coombe-wood.

Sp. 2. Crabroniformis. *Capite atro, thorace maculis duabus ferrugineis, collari flavo, abdomine flavo cingulis duabus atris.* (Exp. alar. 1 unc. 6—8 lin.)

Sp. Crabroniformis. *Lewin.* (*Linnean Transactions*), iii. pl. 3. f. 6—10.—

Tr. Crabroniformis. *Steph. Catal.*

Head brown; a white streak before the eyes: palpi fulvous yellow, with a few black hairs at the base externally: antennæ black, fulvescent at the base beneath: thorax glossy brown, with a narrow yellow collar anteriorly, and a dull yellowish spot posteriorly on each side: abdomen yellow, with the first, second, and fourth segments, and a broad margin to the third, black; the sides of the fourth with a yellow patch: femora dusky-brown, glossy: tibiæ rich fulvous, spotted with yellow beneath: tarsi fulvous: wings above, with the nervures and margins ferruginous, and a narrow abbreviated transverse band of the same colour on the anterior; beneath rather fulvescent: cilia brownish. Male smaller and more slender, the abdomen of a deeper colour, and the antennæ serrated internally.

This varies considerably in colour, arising from the width of the black margins of the abdominal segments.

Caterpillar whitish, with a brown spot on several segments near the legs: it feeds under the bark of the willow (*Salix caprea*).

Not very common, and rather later in the time of its appearance than the foregoing. I have only met with it occasionally at Darent-wood in the beginning of July; though during that month, in 1817, I saw it in profusion flying heavily along, on the south-west border of the wood. “A single pair taken near Newcastle.” *G. Wailes, Esq.*

GENUS XXX.—ÆGERIA, *Fabricius.*

Antennæ long, slender, gradually increasing in size nearly to the apex, which is slightly curved and acuminate; in the males they are slightly ciliated, subserrated, or pectinated: *palpi* longer than the head, divaricating, gradually reflexed, thickly clothed beneath with scales and long hair; the terminal joint somewhat naked and acuminate: *head* moderate: *clypeus* densely clothed with flat scales: *thorax* and *abdomen* rather slender, the latter with a large trilobed tuft, variable in form at its apex: *wings* transversely covered with scales at the tip.

Ægeria differs from all the foregoing insects by the union of its transparent wings, slender antennæ and body; and particularly from Trochilium by the latter characters, added to the elongation of its maxillæ, comparatively larger head, divaricating palpi, scaly clypeus, and clothed apex to the wings; in manners they are essentially different, the imago being remarkably vivacious and active, being perpetually in motion, and flying with the greatest rapidity, alighting upon flowers, from which they derive their nourishment, or basking upon leaves in the blaze of the sun, and continually moving some part of their bodies.

As in most genera of any extent, there is considerable diversity of appearance in the contents of this: I shall therefore divide it into sections.

A. Antennæ much shorter than the body: of the males distinctly pectinated: anterior wings nearly clothed with scales: abdomen robust.

Sp. 1. Asiliformis. *Alis anticis fuscis, posticis hyalinis, abdomine nigro cingulis tribus flavis, antennis nigris.* (Exp. alar. 11 lin.—1 unc. 3 lin.)

Le. Asiliformis. *Fabricius.*—Sp. Asiliformis. *Don. xi. pl. 384.*—Æg. Asiliformis. *Steph. Catal.*

Bluish-black: head with a white spot before the eyes; collar yellow: palpi with the base black, the apex yellow: antennæ cyaneous, beneath fulvous at the base: male with the tip reddish: thorax with a spot at the base of the wings, and a line on each side, yellow: abdomen glossy, with three yellow belts above yellow; caudal tuft black, with two longitudinal yellow streaks: femora black, the posterior yellow at the base: tibiæ yellow, with a black spot externally: tarsi fulvous: anterior wings above fuscous, with the nervures and costa bluish; beneath pale tawny, with an indistinct central tawny lunule; posterior transparent, with a discoidal lunule; the nervures and margin fuscous: fringe of all the wings ashy-brown. Male differs in having the antennæ very strongly pectinated nearly to the apex, the abdomen with four yellow belts, and in being considerably smaller.

Occasionally taken on poplars near London in June. I have obtained it from the neighbourhood of Bexley and from Birch-wood; but it is doubtless a rare species, and exists in few collections: of the male I have hitherto seen but two specimens, one of which I possess. “Colney-hatch Wood, an Umbelliferæ, 8th July last.”—*Mr. Ingpen.*

B. Antennæ as long as the body: of the males generally ciliated: anterior wings with the disc hyaline.

a. *Abdomen more or less robust and abbreviated, fasciated with whitish or yellow.*

† Sp. 2. Spheciformis. PLATE 11. f. 1. *Alis hyalinis, anticarum marginibus fasciâque nigro-violaceis, abdomine nigro, cingulo albido, antennis ante apicem flavescentibus.* (Exp. alar. 1 unc.)

Sp. Spheciformis. *Villars.*—Æg. Spheciformis. *Steph. Catal.*

Blue-black: palpi above black, beneath yellow; tip dusky: antennæ bluish-black, with a yellowish space near the apex: thorax with a lateral and longitudinal yellow line: abdomen glossy; above with a basal spot and the apex of the third segment whitish-yellow, beneath with a basal spot and the margin of the fifth segment yellow: caudal tuft bluish-black: femora blue-black, with the anterior yellow outwardly at the base: tibiæ with luteous spines; the hinder internally yellowish: the tarsi yellowish spotted with black: anterior wings above with the nervures, apex, margin, and a transverse discoidal line blue-black; beneath with the margin yellowish, and a yellow spot on the outer edge of the transverse band; posterior with the nervures, hinder margin, and anterior discoidal lunule blue-black; beneath with the nervures fulvous: fringe rosy-brown. Male with the antennæ slightly serrate.

Larva said by Oehlmann to feed on the birch (*Betula alba.*)

Decidedly a rare insect, of which I have seen five indigenous specimens only; the first was caught very many years ago, and is in the collection of Mr. Latham; afterwards two (a pair) were found in the woods of Southgate, and are, respectively, one in the British Museum, the other in Mr. Vigors's cabinet. Mr. Ingpen has also a specimen, which was taken in a wood to the north of London; and the fifth was taken in the Isle of Wight, by Mr. Weaver, in July, 1826, and is in Mr. Stone's cabinet.

Sp. 3. Ichneumoniformis. *Alis hyalinis, anticarum marginibus fasciâque extus crocêâ fuscis, abdomine nigro, segmentis margine flavis, antennis ante apicem fasciâ flavâ.* (Exp. alar. 10—11 lin.)

Se. Ichneumoniformis. *Fabricius.*—Æg. Ichneumoniformis. *Curtis, ii. pl. 53.*—*Steph. Catal.*

Brownish-black: palpi orange, with some dusky scales on the sides: head with its hinder margin, the clypeus, a spot at the base of the wings, a lateral line on the thorax, five or six nearly equidistant bands on the abdomen, a streak at its base, and the centre and sides of the caudal tuft, yellow: legs tawny yellow: the femora black, with a yellow line on the anterior: the base of the tibia, and a spot towards the apex, black: antennæ above with the base and apex dusky; the centre ochraceous, beneath ferruginous: anterior wings, with the costa, discoidal spot internally, hinder margin, and fringe, tawny-brown; outer edge of discoidal spot, apex, and inner margin of the wings, orange; posterior wings with four nervures and the hinder margin tawny-brown; the remaining nervures and a minute triangular spot on the anterior margin orange. Male with the body more slender; the antennæ slightly ciliated, and nearly all blue-black; the abdomen sometimes with seven rings.

Taken in several and very distant parts in June; but rather a scarce insect: the first pair were obtained by the late Mr. Francillon, from the west of England; it was afterwards found by the late Mr. Cranch in Cornwall and Devonshire; and I believe it has been taken near Scarborough. "South Creak, near Fakenham."—*Rev. T. Skrimshire*. "At Hastings."—*J. Curtis, Esq.* "Several pairs in the Isle of Wight."—*Mr. Weaver*. "Near Teignmouth, Devon."—*Capt. Blomer*.

† Sp. 4. Chrysidiformis. *Alis anticis subhyalinis croceis, margine superiori maculâque adjectâ nigris, abdomine nigro, cingulis duobus luteis.* (Exp. alar. 10 lin.)

Sp. Chrysidiformis. *Hübner*.—Æg. Chrysidiformis. *Steph. Catal.*

Bluish-black: palpi black, with the tip pale fulvous: head black; clypeus white; hinder margin yellowish: thorax glossy, with a few yellow scales and a white spot at the base of the anterior wings: abdomen shining, clothed with ashy-down, with the fifth and terminal segments edged with whitish: the caudal tuft black, with its middle yellow: thighs blue-black; the anterior outwardly white, the tibia orange, tarsi lutescent: anterior wings saffron colour, with the margins and a central spot black: with an elongate hyaline patch anterior to the last, and a round one behind: posterior hyaline, with the nervures, margins, and cilia, ashy-black; a minute orange spot on the anterior edge: antennæ above dusky-black; beneath paler, with the base white.

This elegant species is unique in Mr. Haworth's cabinet; he having purchased the only indigenous example out of the collection of the late Mr. Francillon, who formerly assured him that he caught the specimen in a thick grove himself.

Sp. 5. Cynipiformis. PLATE 11. f. 2. ♂.—*Alis hyalinis, marginibus venisque fuscis, anticarum maculâ lunari croceâ, abdomine nigro, cingulis tribus aut quinque flavis; fœmina barbâ flavâ.* (Exp. alar. 9—11 lin.)

Se. Cynipiformis. *Ochsenheimer*.—Æg. Cynipiformis. *Steph. Catal.*

Blue-black; head very glossy, with a snowy spot before the eyes, the hinder margin yellow: palpi yellow, with the sides black: thorax shining, with a lateral and longitudinal yellow line: abdomen with a basal streak, three equidistant belts, and the caudal tuft yellow; the latter sometimes with a few black hairs at the sides; femora blue-black, the anterior outwardly yellow: tibia yellow, with a cyaneous-black ring: tarsi yellow: anterior wings above with a yellow spot at the base; the nervures, a transverse discoidal line, and margins, brown, glossed with blue and tawny; the outer edge of the discoidal line croceous; beneath with the apex glossed with violet and fulvous; the margins pale-tawny; posterior with a minute lunule, the nervures and margins dusky-black: antennæ blue-black, with the basal joint yellow beneath. Male differs in being less, having the antennæ subpectinated internally; the

abdomen slightly sprinkled with yellow, the terminal belt yellow, the caudal tuft black above, with the centre and sides yellow beneath.

There is so much apparent difference in the sexes of this pretty species at a glance, that they not only seem to belong to different insects, but they have been described as such: a slight examination, however, readily shows their disparity to be merely that of sex; a fact that has been incontrovertibly proved by various persons. Until within these ten years, it was esteemed a scarce species; but it has lately occurred rather plentifully in several places: I have taken it often at Coombe and Darenth Woods, at the end of May and beginning of June. "Near Cheltenham, Gloucestershire."—*Dr. Leach*. "In Clapham Park Wood, Bedfordshire."—*J. C. Dale, Esq.*

Sp. 6. Tipuliformis. *Alis hyalinis, anticis apice flavis, marginibus fasciâque nigris, abdomine nigro, segmentis alternis margine flavis.* (Exp. alar. 8—10 lin.)

Sp. Tipuliformis. *Linné.*—*Don. ii. pl. 52, 53.*—*Æg. Tipuliformis. Steph. Catal.*

Blue-black: head black, with a white streak before the eyes, hinder margin yellow; palpi above black, beneath yellow: thorax glossy, with a lateral and longitudinal yellow line: abdomen shining, with the margin of the third, fifth, and seventh segments, yellow, the caudal tuft immaculate blue-black: femora blue-black, the anterior with a yellow line; tibiæ blue-black, with yellow hairs; the tarsi above dusky, spotted with yellow, beneath yellow: anterior wings above, with the nervures, and a broad transverse band, bluish-black, the apex rather golden; beneath, with the costa and inner margin yellowish: posterior with the nervures, the margins, and minute anterior lunule, black: cilia dusky: antennæ blue-black. Male less, with the antennæ slightly pectinated internally, and the terminal belt on the abdomen double.

Caterpillar whitish, with the head and legs brownish, and an obscure dorsal line: it feeds upon the pith of the currant-tree (*Ribes rubra*).

A very common species, inhabiting gardens in most parts of the country: it appears towards the middle of June. "Rather common in gardens at York."—*W. C. Hewitson, Esq.* "Near Newcastle."—*G. Wailes, Esq.*

b. *Abdomen slender and elongated, generally with a single red belt.*

Sp. 7. Mutillæformis. *Alis hyalinis, anticarum marginibus fasciâque nigris, abdomine nigro, cingulo fulvo, palpis nigris, (in mare) subtùs albis.* (Exp. alar. 8—10 lin.)

Sp. Mutillæformis. *Laspeyres.*—*Æg. Mutillæformis. Steph. Catal.*—*Sp. zonatus. Don. vi. pl. 195.*

Blue-black: head shining, with a very narrow silvery streak before the eyes:

palpi black; white beneath in the male: thorax glossy immaculate; breast with a large golden spot anteriorly: abdomen glossy, the fourth segment above fulvous, beneath black, with a white margin; caudal tuft immaculate bluish-black: femora blue-black, anterior with a whitish line, tibiæ and spines blue-black; tarsi paler: anterior wings above, with the nervures, margins, and a broad transverse band, blue-black; beneath, with the tip, margins, and border of the transverse band golden; posterior, with the nervures, margins, and minute anterior lunule violet-black; beneath, with the veins and margins golden; cilia of all the wings blue-black. Male rather less; abdomen elongated, slender, its fourth segment above fulvous; below, and towards the apex, white: palpi also white beneath: tarsi beneath pale brownish.

Not a very abundant species, but the most frequent of the red-belted kinds; it is found occasionally in gardens near the metropolis, at Chelsea, Highgate, Hackney, Stratford, &c., and near Hertford and Ripley, in June. "Near Dublin."—*N. A. Vigers, Esq.*

Sp. 8. *Culiciformis*. PLATE 10. f. 3. *Alis hyalinis anticarum marginibus fasciâque nigris, abdomine nigro, cingulo fulvo, palpis subtus fulvis.* (Exp. alar. 10 lin. —1 unc.)

Sp. *Culiciformis*. *Linné.*—*Æg. Culiciformis. Steph. Catal.*

Blue-black: head with a snowy streak before the eyes: palpi above black, beneath rich orange: thorax glossy, immaculate; breast with a large lateral fulvous spot: abdomen shining, the fourth segment entirely fulvous, paler beneath; the caudal tuft immaculate: femora blue-black; tibiæ the same, with pale orange spines: tarsi lutescent, with the tips dusky: anterior wings above pale fulvous at the base, with the nervures, margins, and a transverse line blue-black; beneath with the transverse line violet-black, the margins pale fulvous; posterior, with the nervures, margins, and costal lunule black, the anterior margin beneath pale fulvous; fringe of all the wings dusky-black. Male differs in having the antennæ internally ciliated; the abdomen more attenuated, and in its smaller size.

Caterpillar dirty-white, with the head brownish: it feeds beneath the bark of the plum (*Prunus domesticus*), and the apple-tree (*Pyrus malus*). The chrysalis is brown.

Not common: I have taken it occasionally at Coombe and Darenth-woods in June, where it has also been captured by others. "Near Dublin."—*N. A. Vigers, Esq.* "At Gravesend."—*A. H. Davis, Esq.*

Sp. 9. *Stomoxyformis*. PLATE 11. f. 3. *Alis anticarum marginibus fasciâque nigris, thoracis lineis duabus abdominis barbati cingulo punctisque lateralibus fulvis, palpis omninò nigris.* (Exp. alar. 11½ lin.)

Sp. *Stomoxyformis. Hübner.*—*Æg. Stomoxyformis. Steph. Catal.*

Blue-black: head with a slender silvery line before the eyes: palpi totally black: thorax glossy, immaculate: breast with a fulvous patch anteriorly: abdomen shining, with the fourth segment above bright fulvous-orange, interrupted by a broad dusky-black line beneath; caudal tuft immaculate: femora blue-black; tibiæ the same, the anterior yellowish within; the spines black; tarsi blue-black above, yellowish beneath: anterior wings above, with the base, costa, nervures, a broad transverse line, and the apex, deep bluish-black; beneath, with the costa at the base, the margins of the discoidal line, and the space between the nervures at the apex (which are very broad, and dusky-blue) bright golden-fulvous; posterior, with the nervures, margin, and anterior lunule bluish-black; beneath the same, with the costa slightly margined with fulvous.

This interesting species has been hitherto unnoticed as a British insect, unless by the accidental employment of its name in the Entomological Transactions for the foregoing, which it resembles in size alone; its other characters, as may be readily seen, both by the accompanying figures and description, being essentially distinct. Upon a re-examination of my series of *Ægeriæ* I was fortunate enough to detect amongst them a single specimen, in beautiful condition, of *Æg. Stomoxyformis*, which I had formerly confounded with *Æg. Culiciformis*; though I am, from that circumstance, uncertain of its locality, which I presume to have been Darenth, as I am told by Mr. Chant, that he possesses a pair which he caught in that wood on the 10th July, 1825; and Mr. Davis informs me that he has a specimen which he found at Gravesend: but I have not yet seen either of their specimens.

Sp. 10. *Formiciformis*. PLATE 11. f. 4. *Alis hyalinis, anticis marginibus fasciâque nigris, apice fulvo, abdomine nigro, cingulo fulvo, barbâ abdominis lateribus albidis.* (Exp. alar. 8—10½ lin.)

Sp. *Formiciformis*. *Villars.*—*Æg. Formiciformis.* *Steph. Catal.*

Blue-black: head with silvery line before the eyes: palpi above black, beneath fulvous, antennæ black: thorax and breast shining, immaculate; abdomen glossy, the fourth segment entirely bright fulvous, the following with a few fulvous scales; the caudal tuft blue-black, with a narrow longitudinal white streak on each side: thighs blue-black; tibiæ yellowish, with a black ring, and yellowish white spines; tarsi blue-black, with a few yellowish hairs internally: anterior wings with the tip bright fulvous; the upper surface, with the nervures, margin, and a narrow transverse line, black; the costa fulvous at the base; beneath, with the anterior and inner margin, also fulvous; posterior on both sides, with the nervures, margins, and minute costal lunule, black: cilia of all the wings violet-black. Male less, the antennæ ciliated; the second and third segments of the abdomen with a few yellow scales, the fourth and fifth fulvous, with a black dorsal line.

Caterpillar whitish, with the head and tail brownish: it feeds on the inner substance of apple-trees, and, according to Hübner, on the *Salix alba*.

Decidedly rather uncommon, and evidently very local: it is taken in several places near the metropolis towards the middle of June. "I bred several specimens from an apple-tree growing at Little Chelsea, and have obtained the insect from Ireland."—*N. A. Vigors, Esq.* "From Lincolnshire."—*A. H. Davis, Esq.* "Near Limehouse."—*Mr. Stone.*

c. *Abdomen beltless.*

† Sp. 11. *Ephemeræformis*. "*Antennis pectinatis, apice setaceis, alis fenestratis venis fusco-lutescentibus, abdomine exonato.*"—*Haworth.*

Sp. *Ephemeræformis*.—*Haworth.*—Æg? *Ephemeræformis.* *Steph. Catal.*

Size of a small *Ephemera*: antennæ pectinated, the tip setaceous; wings transparent, with yellowish-brown nervures: abdomen beltless.

"Found in Yorkshire by Mr. Bolton: formerly in the collection of Mr. Drury."—*Haworth, L. B. 70.*

ADDENDA ET CORRIGENDA.

Page 6. *PAPILIO Machaon*. "Plentiful throughout the fens between Ely and Cambridge. The first brood appears about the 3d, occasionally in the 2d, week of May; the second about the middle of July. I have several times found the larvæ, always on the marsh-milk parsley (*Selinum palustre*), which is undoubtedly the plant to which they are most attached, though in confinement they will feed readily on several other species of the *Umbellatæ*."—*Rev. L. Jenyns.*—I am informed by a lady residing at Deal, that this beautiful insect was taken last July in the larva state, on a carrot, near that town, and reared by her to the imago.

Page 6. *PAPILIO Podalirius*. In the fourth part of *Lepidoptera Britannica*, p. 588, Mr. Haworth alludes to the capture of this insect in the New-forest, as announced by my friend, Mr. Ingpen, in his very useful instructions for collecting insects; a fact that I did not state in the above page, as there appeared considerable mystery in the account which time has not yet cleared up. With respect to the other capture referred to by Mr. Haworth, the Rev. F. W. Hope, in a letter to me, says, "I have one specimen of *Pa. Podalirius* in my possession unset, and taken at Netley." Mr. J. O. Backhouse informed me that a resident of Newcastle has in his possession two specimens of this insect which he caught in a wood near Oxford; but from a more recent communication his account throws the usual suspicion on their authenticity.

Page 12. *COLIAS Edusa*. "A specimen of the female taken on the 23d instant, near Battle-bridge."—*Mr. Cole.*

Page 17. *PONTIA Chariclea*. My opinion respecting the distinction of this insect and *Po. Brassicæ* remains unshaken; although, from circumstances, I have been unable to investigate the subject so thoroughly as I hoped to have done last autumn by the rearing of specimens *ab ovo*. The Rev. W. T. Bree has, however, communicated to me an extensive series of *Pontia* captured by himself at Allesley, near Coventry, between the 28th April and 23d May last: now, of this series all those resembling *Po. Brassicæ*, taken prior to the 17th May, are unquestionably referable to *Po. Chariclea*; whereas one only of that insect was captured subsequently, and which is evidently a wasted example; while those of *Po. Brassicæ*, taken considerably later, are perfect: amongst the former are several varieties, some having the tips of the anterior wings deep black, others pale cinereous, and some clouded, as in the figure already given, with many intermediate shades; but *all* invariably have that part internally entire, as previously described. Again, the specimens vary much in size, some being fully as broad in expanse as *Po. Brassicæ*, others (and by far the generality) considerably smaller. The Rev. G. T. Rudd also favoured me with specimens, and sent me ten pupæ, which he found in that state during the winter: of these eight came to perfection previously to the 20th May (some as early as the 27th April), and each of the eight produced *Po. Chariclea*; whereas the other two, which came out subsequently, produced *Po. Brassicæ*. The pupæ of the former insect are less spotted with black than those of *Po. Brassicæ*, but in other respects they are similar.

The male of this insect has sometimes a small black spot on the upper surface of the anterior wings.

Since my former account of this genus was published I have obtained a copy of Albin's English Insects; and in his first plate he has not only, by singular chance it would appear, admirably depicted both sexes of *Po. Chariclea*; but his description evidently proves that such is the case, as he informs us that his insects made their appearance in the *middle of April*.

Page 19. *PONTIA Metra*. The specimens of this insect which I captured toward the end of June last season are evidently very old, and were the remains of a spring brood; and, from the observations I made after my preceding notice of this insect was printed off, I am of opinion that neither *Po. Chariclea* nor *Metra* are double-brooded, as I did not capture a single specimen of either in July and August last, although I took several hundred specimens for the sake of examination, all of which proved to be either *Po. Brassicæ* or *Rapæ*. Further than the above, other avocations have prevented me from pursuing my investigations: but the Rev. W. T. Bree also furnished me with several specimens of the "Small whites" (as they are termed), amongst the *Pontia* which he captured as before-stated; all of which appear referable to the *Po. Metra*, which is decidedly a most variable insect: the comparative slenderness and truncation of its anterior wings, and their dark base, sufficiently distinguish all the varieties from *Po. Rapæ*, with which the dark-tipped specimens might otherwise be confounded.

In addition to the above I may remark, that in examining the cabinet of Mr. Beck, I found that it contained an extensive series of *Po. Metra* alone, the

common *Po. Rapæ* being wanting; and, upon inquiry, I learnt that all his specimens had been caught in one day, in the beginning of April, which satisfactorily accounted for the deficiency, as *Po. Rapæ* does not appear till near the end of that month, or beginning of May. I may also add, that *Po. Metra* has long been known by the name of "Mr. Howard's White" amongst some of the older collectors, as I am informed by Mr. Hatchett.

One of the specimens sent to me by the Rev. W. T. Bree was caught so early as the 18th March last.

Page 23. *PONTIA Cardamines*. Of six pupæ of this species given to me by the Rev. J. Francis, two came to perfection at the end of May, one in the beginning, and one at the end of June, the other towards the middle of July; thus accounting for the long continuance of the insect in its final state.

Page 24. *LEUCOPHASIA Sinapis*. Fabricius asserts that the larvæ of this insect feed on the cabbage; not the authoress of the *Butterfly Collector's Vade Mecum*, who merely states, in the first edition of her work, that this insect and the three last (*Pontia Brassicæ*, *Rapæ*, and *Napi*), commit great havoc in our kitchen gardens. "Abundant in the New Forest in May last."—*Mr. Weaver*.

Page 25. *PIERIS*. I was misinformed by a friend respecting the use of this word as a generic term by Mr. Swainson, in his *Zoological Illustrations*, not having a copy of the work to refer to:—the three last lines must therefore be expunged.

Page 29. *NEMEOBIUS Lucina*. "In Collingbourne-wood, near Andover."—*Rev. G. T. Rudd*. "New Forest."—*Mr. Weaver*.

Page 35. *MELITÆA Euphrosyne*. † *Var. ε*, PLATE IV. f. 3. which is in Mr. Haworth's cabinet, I suspect may prove to be a variety of *Me. Selene*.

Page 38. *ARGYNNIS Adippe*.

† *Var. δ*. "Primary (anterior) wings above nearly black, embrowned at the base; with a reddish, transverse, undulated spot near the base, and a largish print of the same colour between it and the middle; these spots are also conspicuous on the underside of the wing. This last side is fulvous, spotted with black; at the apex, near the margin, are four silver dots. The secondary (posterior) wings above are fulvous spotted with black, margin black, with a double series of fulvous streaks; underneath these wings are virescent, with twenty silver spots, namely, one, three, two, seven, and seven, in the margin; the four middle spots are the largest; besides these, the shoulder of the wing is edged with silver: fringe white: antennæ rather long, with a large clava. Expansion, 1 inch, 11 lines. Taken by Mr. Seaman, of Ipswich."—*Rev. W. Kirby*.

The above description so nearly accords with a fine specimen which was sent to me for examination by Mr. Weaver, that I have preferred giving that to making a new one from the insect in my possession, which is somewhat larger (*Ex. 2 inch, 2 lin.*): the anterior wings have a row of elongate tawny spots parallel with the hinder margin above, and only two obsolete silver spots be-

neath; the disc of this surface is nearly black: the posterior wings beneath have brownish clouds attached to several of the silvery spots; and four of the latter, of the second series from the margin, are tarnished with black. This, doubtless, is a variety of *Ar. Adippe*; and I suspect that Mr. Seaman's is also referable to that species, the only points required to identify it being a knowledge of the form of the anterior wings, and of the existence of the brown clouds on the posterior beneath.

Page 39. *ARGYNNIS Aglaia*. † Var. γ . This variety differs from the others by having the clava of the antennæ cylindric-conic instead of compressed, as well as by the variation in colour described in this page.

Page 43. *VANESSA Urticæ*. Mr. Doubleday kindly presented me with a singular monstrosity of this species, which he caught flying near Epping: the right posterior wing has a perfect additional wing, about one-third of the size of the original, arising from near the base of the costal areolet; it is somewhat less angulated than the true wing, but its colours, both above and below, are very bright, and disposed as usual: the proper wing is a little defective on its anterior edge, and the nervure which bears the additional one is incrassated.

Page 44. *VANESSA Io*. "Common near Carlisle, and in Scotland."—*T. C. Heysham, Esq.*

Page 47. *CYNTHIA Cardui*. "A larva of this insect, which changed to pupa on the 1st October last, arrived to perfection on the 2d Nov. following."—*Mr. Raddon.*

Although not strictly applicable to our indigenous productions, I cannot refrain from referring to the *Annales des Sciences Naturelles* for March last, in which an extraordinary migration of this species is recorded to have taken place in May, 1827, in one of the cantons of Switzerland; the number of the insects being so prodigious, that they are said to have occupied several hours in passing over the spot where they were observed.

Page 52. *LIMENITIS Camilla*. "Lordship-lane, Camberwell, formerly in plenty."—*Mr. Witherington.*

Var. β . *Steph. Catal.* Wings above entirely dusky-brown, with a few paler spots, the white fascia completely obliterated; cilia white, spotted with brown; beneath, the anterior are of a bright tawny-brown, with an irregular black patch on the disc, intersected with pale tawny, and bordered towards the anal angle with two whitish spots; the hinder margin has a few whitish clouds towards the angle; posterior also tawny-brown, with the base and inner margin bluish-gray, the former spotted with black; the hinder margin with a few whitish spots, and one wing with a few towards the centre, in place of the band, which is completely obliterated on the other wing.

This variety is said, by the editor of the *Papillons d'Europe*, to have been taken in England.

Page 64. *HIPPARCHIA Iphis*. From recent information, kindly furnished to me by the Rev. W. T. Bree and J. Marshall, Esq., I am of opinion that this insect (which is unquestionably synonymous with pl. xxxv. f. 4. of *Esper*, but

not with pl. liii. f. 249—251. of Hübner, that being evidently a distinct species, with silvery pupils to the ocelli, &c.) and Hi. Polydama are identical, the latter being a mere variety of the other: and as the former appellation (which originated in the Weiner Verzeichnis, without any description,) has been successively applied to Hi. Davus, Hero, &c. by different authors, from the impossibility of deciding to which it ought strictly to be applied, I propose retaining Mr. Haworth's name of Polydama (notwithstanding its orthography) to the indigenous species, which *does not appear* to be described by the continental naturalists as a variety of Hi. Davus; the employment of the name Typhon in lieu of Tiphon being equally objectionable with that of Iphis.

Page 67. HIPPARCHIA Davus. "Caterpillar green, with three whitish stripes down each side, and a darker green line on the back: it feeds on the fox-tail grass."—*Mr. Weaver.*

Page 68. *HIPPARCHIA Hero. Of this insect M. Ernst says, "Ce papillon est tiré du cabinet de M. Gigot d'Orcy. Il l'a reçu d'Angleterre, comme une espèce naturelle à ce royaume"! A curious fact, as there are certainly not more than two specimens which are supposed to have been caught in England, in the indigenous collections.

Page 75. THECLA Betulæ. "Scarce near Kimpton, Hants."—*Rev. G. T. Rudd.*

Page 76. THECLA Quercus. "Very abundant near Kimpton, Hants."—*Rev. G. T. Rudd.*

Page 78. THECLA Rubi. "Occurs near Kimpton, but sparingly."—*Rev. G. T. Rudd.*

Page 85. POLYOMMATUS Argiolus. "Abundant near Coventry in May (I have seen it as early as the middle of April); with us it seems to be only single-brooded: its favourite holly abounds in this district."—*Rev. W. T. Bree.* "Found also near Darlington."—*Mr. J. O. Backhouse.* "New Forest in May last."—*Mr. Weaver.*

Page 86. POLYOMMATUS Alsus. "In great abundance near Darlington."—*Mr. J. O. Backhouse.* "Near Amesbury, Wilts."—*Rev. G. T. Rudd.* "Between Woodstock and Enston, Oxon; also in the Isle of Wight, and near Cheltenham."—*Rev. W. T. Bree.*

Page 86. POLYOMMATUS Acis. "At Coleshill in Warwickshire, and in Leicestershire."—*Rev. W. T. Bree.*

Page 125. DEILEPHILA Galii. "A single specimen taken flying in a garden at Islington three years since."—*Mr. J. Cole.*

I must not conclude my account of the Papilionaceous insects of Britain without alluding to the following, which are stated by Engramelle to have been captured in England; although both appear to be American; and, instead of being indigenous to this country, they are, I believe, natives of *New England*, in North America.

Pontia Feronia. *Alis albis, anticis margine postico serie e maculis trigonis brunneis, subtus immaculatis, apice flavescente; posticis immaculatis, infra flavescens brunneo irroratis.*

Po. Feronia. *Steph. Catal. Appendix, II.*

Wings above white; the anterior with a single row of triangular brown spots, touching the hinder margin, and terminating in a point on each nervure internally; beneath immaculate, the anterior white, with a yellowish tint on the outer angle; the posterior entirely of the latter colour, irrorated with dusky.—“Prise en Angleterre.”—*Papillons d'Europe, v. i. p. 209.* This is apparently an unnamed species: Godart, in the *Encyclopédie Methodique*, seems to have been aware of its distinction from Po. Brassicæ, from having properly restricted his references to Ernst's figures of this latter insect; but he has totally overlooked it in his account of the genus. Ochsenheimer appears to have fallen into the same mistake, or rather has omitted to notice the fact of a second species having been figured by Ernst, as usual with him under similar circumstances.

The second insect is a species of Melitæa: the *Papilio Tharos* of Cramer and Drury.

Me. Tharos. *Alis suprâ fulvis lineis plurimis transversis limboque communi nigris; posticis utrinque ad externum strigâ punctorum nigrorum.*

Po. Tharos. *Cramer.—Drury, Ins. i. pl. 21. f. 5, 6. Me. Tharos. Steph. Catal. Appendix, II.*

Wings above tawny, with several transverse lines, and their margins black: the posterior on both sides with a row of black spots toward the hinder margin; beneath they are tawny-yellow, irregularly marked with dusky, with a whitish lunule near the middle of the outer edge.

“Le Papillon existe dans la collection de M. Gigot d'Orcy, qui l'a reçu d'Angleterre.”—*Papillons d'Europe, v. i. p. 66.* Although the above extract does not actually state this insect to have been taken in England, that fact is implied from the circumstance of the editor of the above work having introduced the figure and description thereof as a native of Europe, with the above as its only locality.

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ERRATA.

- Page 2, last line but 1, for *Trochilum*, read *Trochilium*.
 4, line 28, for or, read comprises.
 — 30, read which correspond.
 8, — 27, add *Go. Rhamni. Steph. Catal.*
 18, — 26, for *Derbyshire*, read *Warwickshire*.
 73, — 23, for these, read the.
 92, — 39, for *glysyphyllos*, read *glycyphyllus*.

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C. M. Curtis del.

R. Acon Sculp.

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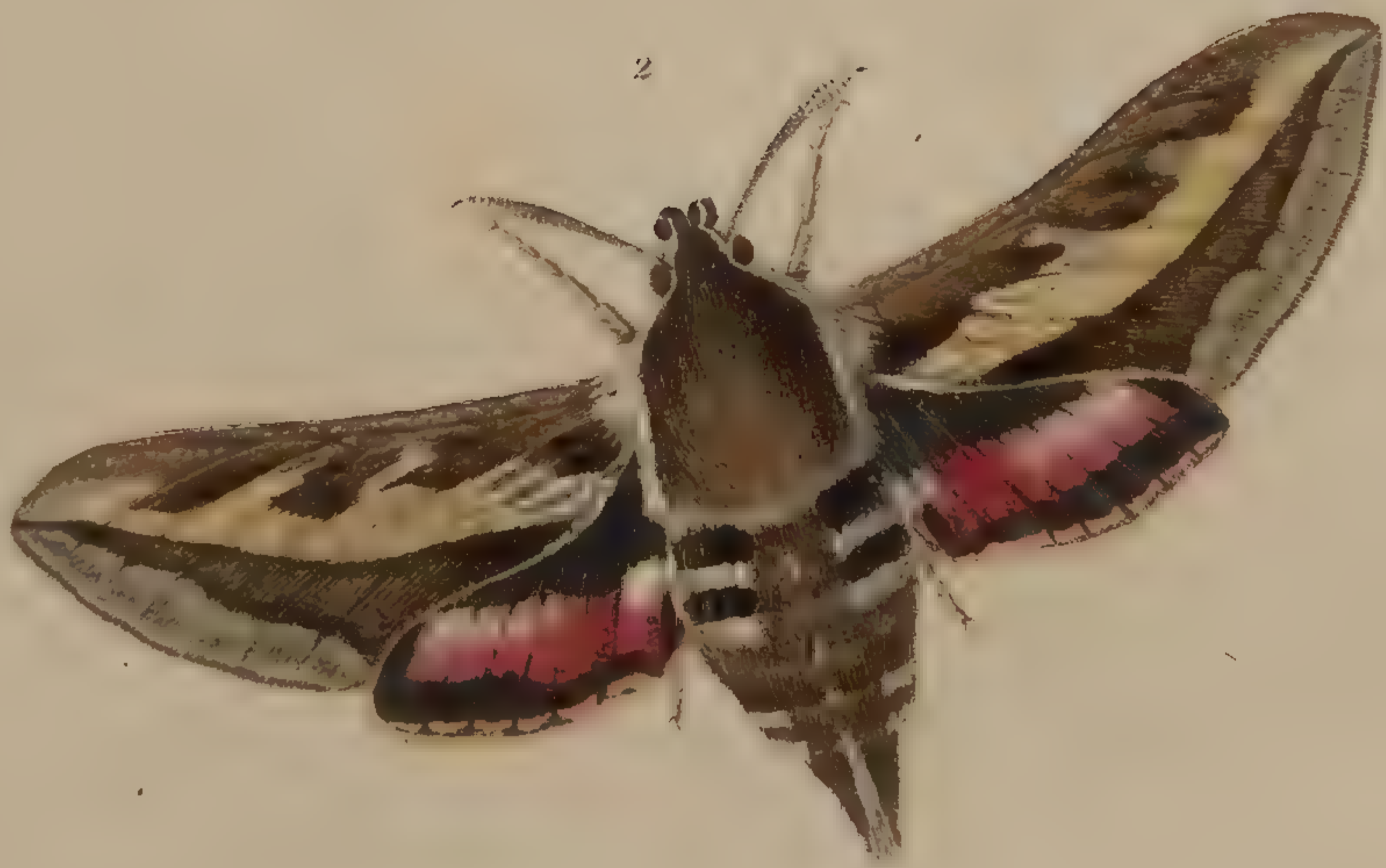
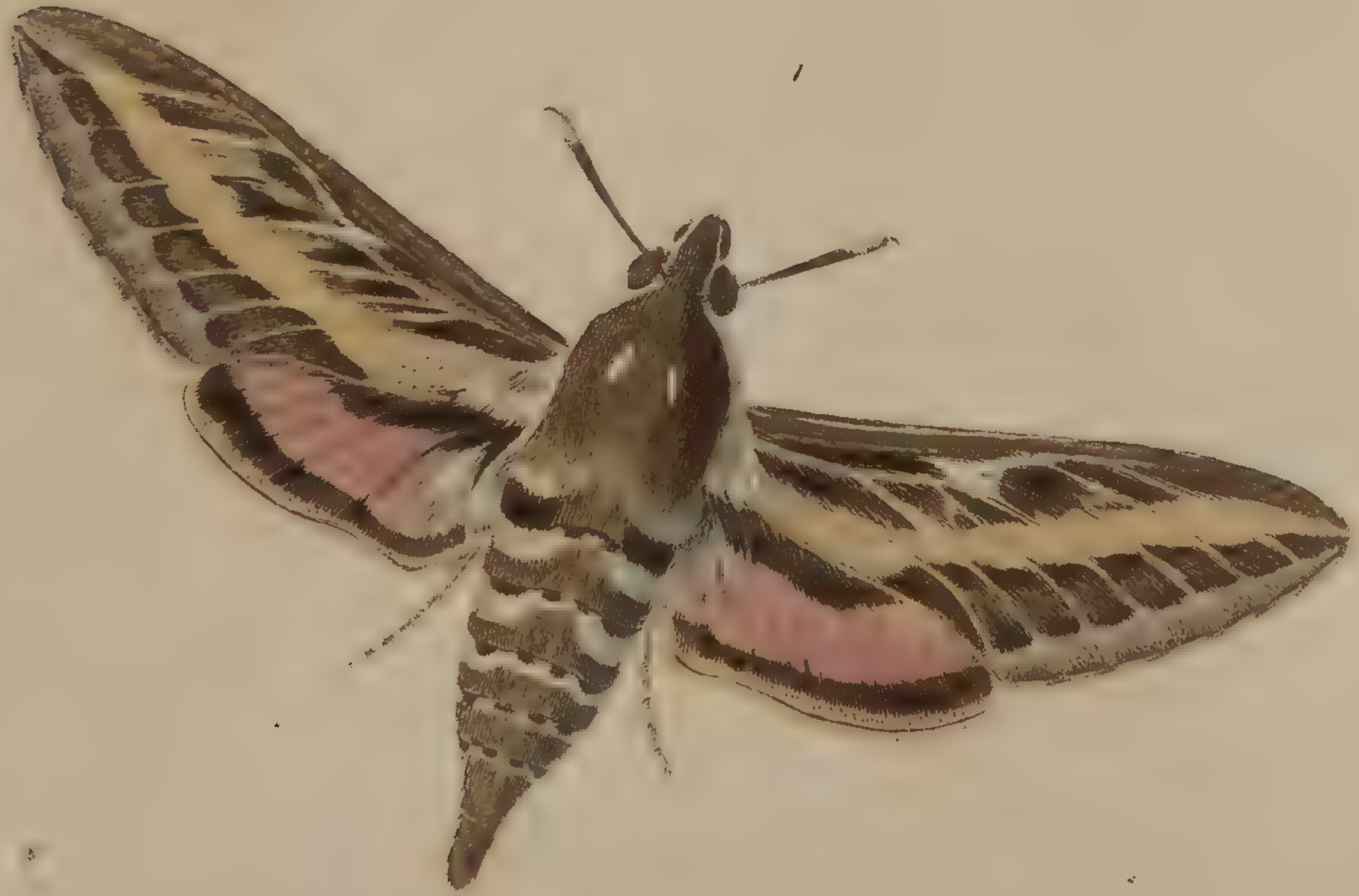


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ILLUSTRATIONS
OF
BRITISH ENTOMOLOGY;

OR, A

Synopsis of Indigenous Insects:

CONTAINING

THEIR GENERIC AND SPECIFIC DISTINCTIONS;

WITH

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

BY JAMES FRANCIS STEPHENS, F.L.S.

MEMBER OF THE ZOOLOGICAL SOCIETY, ETC.

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

HAUSTELLATA.

VOL. II.

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

“Finis Creationis Telluris est gloria DEI, ex opera Naturæ, per Hominem
solum.”—*Linné.*

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ILLUSTRATIONS
OF
BRITISH ENTOMOLOGY.

LEPIDOPTERA.

THE third division of this order of insects embraces the

LEPIDOPTERA NOCTURNA of *Latreille*,

Which have the *antennæ* setaceous, or diminishing gradually from the base to the apex; frequently ciliated, serrated, or pectinated, especially in the males, and sometimes simple: *wings*, during repose, horizontal, or deflexed, sometimes convoluted, or rolled round the body; the posterior retaining the anterior by a setiform process, as in the *Crepuscularia*. Larva various in form, with from ten to sixteen legs: food various: pupa smooth, the abdominal segments occasionally serrated, or denticulated; changes in the ground, or in a folliculus.

This group, which corresponds with the genus *Phalæna* of Linné, is evidently susceptible of subdivisions; but, from our confined knowledge of the structure, metamorphoses, and affinities of the Nocturnal Lepidoptera in general, it is impossible to define the limits of the various minor divisions with accuracy, or to place the whole naturally in one continuous or concatenated series; the innumerable anomalous forms rendering such a step perfectly impracticable at present: nevertheless, as the foundation of a building must be traced out before the superstructure can be raised, and the threshold must be passed ere we can advance into the temple, an imperfect sketch may contribute towards the attainment of that great object, which should ever guide the footsteps of the naturalist, the advancement of science; I shall therefore endeavour, in the following pages, to elucidate the affinities of this greatly neglected though highly beautiful and interesting division of insects.

Latreille, in the *Règne Animal*, divides the Nocturna into eight minor groups, and Dr. Horsfield, following the views of the learned author of the delightful *Horæ Entomologicæ*, conceives that the number of the latter is limited to three; but, as I have before observed, although I espouse the doctrine of a circular distribution

of natural objects, I do not hold to the quinary arrangement being universal; neither do I conceive that the three groups, here alluded to, are, *inter se*, of corresponding value either with the two which have been already discussed in my foregoing volume, and which complete the quinary circle of Dr. Horsfield, or with the families of Coleopterous insects, illustrated in the first part of the *Annulosa Javanica*. Upon these considerations, therefore, I shall adhere to my former plan of merely characterizing the group, which is apparently connected by affinity with the one previously treated upon; premising that the number of groups, in my opinion, appears to be more than three, but less than eight: it is, however, not without diffidence that I venture to hazard such a conjecture*. The group in immediate contact with the *Crepuscularia* doubtless consists of that portion of the *Phalænæ Bombyces* of Linné which possess the subjoined characters, and may be designated from the period of their flight

LEPIDOPTERA POMERIDIANA.

Pulpi usually two, short, generally cylindric: *maxillæ*, or *tongue*, none, or very short, somewhat membranaceous, and not convoluted: *antennæ*, at least in the males, more or less ciliated or pectinated, sometimes serrated: *head* small: *thorax* rarely crested: *body* usually stout, often woolly at the apex: *wings* elongate, trigonate, mostly deflexed, undivided. Larva with sixteen feet, the anal ones sometimes spurious.

The typical insects of this subdivision are remarkable for the great expansion of their wings, broadly pectinated antennæ, comparatively small body, and the absence of a tongue: they are of the highest utility to mankind; their larvæ constructing cocoons of pure silk, the produce of which gives employment to millions of human beings; but none of the more useful species are indigenous to Britain: the less typical larvæ mix pieces of leaves, dirt, saw-

* Although I agree with Dr. Horsfield (whose recent valuable labours have, in some measure, guided me in the following arrangement), that the metamorphoses afford important characters for the division of the larger groups, I conceive that a system constructed upon that principle *alone* is as liable to objection as if founded upon the consideration of any other *single* character; nevertheless, that it does point out such groups generally, I think is too evident to admit of a question, but there are several weighty reasons which render it necessary for practical purposes to search for other characters, of which the most prominent is the difficulty of ascertaining the larvæ of each species: I shall, therefore, consistently with the observation in Vol. I. p. 5, continue to employ the metamorphoses as a secondary character.

dust, &c. with their cocoons, or construct them of slight silken materials, while others are furnished with the means of forming a hard semi-transparent case, in which they change to pupæ. Although several of the species are crepuscular insects, many of the Bombycidæ commence their aërial excursions in the afternoon, when they may be observed flying with great velocity, and describing large undulated tracks in their course.

In dividing this section into four families only, I am in doubt whether the Saturniæ should not be separated from the Bombycidæ, from which they differ by their broad horizontally extended wings, short deeply pectinated antennæ (serrated in the female), and by the nudity of the larvæ, which have merely a verticillated series of hairs on each segment.

Maxillæ	{	nullæ: Antennæ	{	moniliformes, aut setaceæ:	1. HEPIALIDÆ.	
				plerumque bipectinatæ:	3. BOMBYCIDÆ.	
		plus minusve conspicuæ,	{	con-	brevissimi:	2. NOTODONTIDÆ.
					breves, submembranacæ:	4. ARCTIIDÆ.

FAMILY I.—HEPIALIDÆ.

Antennæ short, moniliform, simple, or furnished with a single row of denticulations, or cilia; sometimes rather elongate, pectinated, or tomentose at the base, with the apex simple: *tongue* wanting: *palpi* none, or distinct: *wings* deflexed, long, and narrow: *thorax* not crested.

Larvæ reside in the interior of vegetables; fleshy, naked, with six pectoral, eight abdominal, and two anal feet: *pupa* with the segments denticulated on the sides.

That the Hepialidæ are closely allied to the Sphingidæ may be shown by a reference to the genus *Smerinthus*, which bears considerable resemblance to some of the gigantic individuals of this family: in *Smerinthus* the tongue is very short, the thorax and body stout and thick, the antennæ rather short, more or less serrated, and the wings strongly nerved; characters which obtain more or less amongst the Hepialidæ: again, the habits of the larva are not widely dissimilar to those of the *Ægeriidæ*; the larvæ of the genera *Cossus* and *Zeuzera* perforating the solid wood of trees, while those of *Hepialus* devour roots.

The British genera may be thus distinguished:

Antennæ	{	subfiliformes; thorace multo breviores:	31. HEPIALUS.	
		setacæ; thoracis longitudine, apice	internè denticulati:	33. COSSUS.
			simplici:	32. ZEUZERA.

GENUS XXXI.—HEPIALUS, *Fabricius*.

Antennæ much shorter than the thorax, subfiliform or moniliform, sometimes pectinated or serrated: *palpi* obsolete: *wings* oblong-lanceolate, subequal: *head* small: *thorax* woolly: *abdomen* rather stout, elongate, the apex tufted in the males: *tibiæ* unarmed. *Larva* subterranean, radicivorous: *pupa* elongate, rather stout, obtuse, with two parallel rows of spinous processes: changes in a web amongst the food of the larva.

The genus *Hepialus* is remarkable for several peculiarities, of which the sexual disparity is not the least important; but this dissimilarity is more apparent than real, and the sexes may be readily united by a practised eye, as the chief distinctions generally consist of the larger size and dissimilar colour of the female, the marking in most instances being similar in both sexes: another peculiarity is the absence of trophi; and a third the want of tarsi in one sex of *He. hectus*. There are other distinctions by which the genus may be readily divided into sections.

They fly early in the evening, and with considerable rapidity, whence their name of *Swifts*, and two of the species, *He. hectus* and *Humuli* are distinguished from their congeners by their vacillating flight, which probably depends upon the structure and appendages to their *tibiæ*, the former species having the hinder *tibiæ* clavate, without tarsi, and both having them furnished with elongate simple or scaly hairs. The females deposit their eggs with force, and in rapid succession.

A. *Antennæ* simple in both sexes.

Sp. 1. *hectus*. *Alis anticis maris luteis, strigis tribus obliquis punctato-interruptis aureis; fæminæ brunneis fasciis duabus cinerascentibus, posticis fuscis.* (Exp. alar. 1 unc.—1 unc. 4 lin.)

Ph. No. *hectus*. *Linné.—Don. viii. pl. 274. ♂.—He. hectus. Steph. Catal. No. 5944.*

Male with the anterior wings rich fulvous or luteous, with three oblique moniliform golden fasciæ, and a minute spot of the same colour at the base; the anterior fascia is towards the base of the wing on the interior margin, and is abbreviated towards the costa; the second commences about the middle of the interior margin, at first parallel with the preceding, it then suddenly bends towards the apex of the costa, where it terminates; the third is in the posterior margin, and is composed of minute dots; the posterior wings are dusky: hinder *tibiæ* clavate, with elongate scaly hairs, tarsi wanting. Female very dissimilar; anterior wings livid-ash, with three oblique, rather obsolete, pale

fuscous-brown fasciæ, the two anterior obsoletely bifid towards the costa; the third fascia on the posterior margin: legs perfect.

Var. β . Male with the anterior wings deep fulvous-brown, with the golden fasciæ united into distinct strigæ, and the costa maculated with paler fulvous.

Both sexes vary considerably; the central golden fascia on the anterior wings of the male arises frequently from a large patch of gold; and the posterior wings are sometimes speckled with gold on the hinder margin. The female has the strigæ differing considerably in form.

Dr. Leach has distinguished this species in his MSS. by the name *Chelonus*.

Not uncommon throughout the metropolitan district in the middle of June, frequenting open places in woods, where it may be observed early in the evening, at a short distance from the ground, performing its singular vaccillating flight, which has not inaptly been compared to the motion of a pendulum. I presume that it occurs throughout the country, as I have received it from Devonshire, and Mr. Marshall informs me that he took it not uncommonly in Cumberland.

Sp. 2. *lupulinus*. *Alis anticis maris luteis, fœminæ cinerascentibus, lineolâ mediâ fasciisque duabus albis externâ punctato-interruptâ; posticis cinereis.* (Exp. alar. ♂ 1 unc.—1 unc. 3 lin. ♀ 1 unc. 3—7 lin.)

Ph. No. *lupulina*. *Linné.*—Ph. hecta. *Harris, pl. 22. f. 1.*—*He. lupulinus.* *Steph. Catal. No. 5945.*

Anterior wings more or less luteous or fulvous, with a central longitudinal streak, an oblique moniliform striga, reaching from the base nearly to the interior margin, and united at an obtuse angle with another, which terminates at the costal apex, pure snowy white, finely cinctured with fuscous; beyond the outer oblique stria is sometimes a row of fuscous or white spots: posterior wings fuscous, immaculate. Female dusky-ash, with dirty-white moniliform strigæ.

Var. β . With the anterior wings of the male nearly immaculate dusky-fulvous, and of the female plain dirty-ash.

Var. γ . With the anterior wings slightly spotted with white.

Var. δ . With the anterior wings deep fulvous-brown, spotted with deeper brown, and having the moniliform strigæ united with continuous white streaks, with a very distinct series of white spots on the hinder margin.

Var. ϵ . Anterior wings dirty-white, with the costa, a lunate discoidal spot, and some irregular maculations on the hinder margin, dusky-fulvous.

Var. ζ . Anterior wings white, with the costa alone fulvous-brown.

No species of *Hepialus* is more subject to vary than this; but in all the varieties the cilia are fulvous, and the posterior wings immaculate: both sexes of each variety occur; and every possible shade of variation may be obtained without much difficulty.

Caterpillar dusky, spotted with black.

This variable insect appears in profusion in grassy meadows towards the end of May.

Sp. 3. Humuli. *Alis flavis, anticis fulvo-striatis, maris omnibus niveis.* (Exp. alar. ♂ 1 unc. 8 lin.—2 unc. 1 lin.: ♀ 1 unc. 10 lin.—3 unc.)

Ph. No. Humuli. *Linné.*—*Don.* viii. pl. 274. f. 1. ♂. f. 2 ♀.—*He.* Humuli. *Steph. Catal. No.* 5946.

Male with all the wings above pure snowy immaculate white, with a slender lutescent margin, beneath fuscous, with the margins broadly fulvous: the head, thorax, and abdomen very pale fulvous. Female very dissimilar, the anterior wings above yellow, with various spots or streaks, sometimes united into two or three oblique fasciæ; posterior wings fuscous, gradually changing to a bright fulvous on the hinder margins; beneath all the wings dusky: eyes in both sexes black.

The fulvous spots on the anterior wings of the female vary exceedingly in size, form, and disposition: they are sometimes nearly obliterated.

Caterpillar rather glossy cream-colour, with the head brown, and a scaly patch on the neck: it feeds on the roots of the hop (*Humulus Lupulus*), and burdock (*Arctium Lappæ*): it changes in May to a dark brown pupa.

Very common in grassy places in the middle of June, and not unfrequently met with in church-yards, whence its name of Ghost Moth.

Sp. 4. velleda. *Alis fusco, livido alboque variis, strigâ posticâ punctorum niveorum costâque fusco maculatâ.* (Exp. alar. ♂ 1 unc. 8—10 lin.: ♀ 2 unc. 2—6 lin.)

Bo. velleda. *Esper.*—*He.* velleda. *Steph. Catal. No.* 5947.—*Ph. No.* Mappa. *Don.* x. pl. 36. f. 3.

Brown: anterior wings above fuscous, with a bifid angulated, strongly waved irregular whitish vittâ, arising at the base, and passing somewhat parallel with the thinner margin nearly to the anal angle, where it is suddenly angulated, and passes obliquely to the anterior apex; the disc is variegated with patches of a similar hue, pure white and livid; behind the oblique fascia is usually a striga of whitish subtriangular spots: costa with a few brown spots: posterior wings immaculate fulvous-brown: cilia of all the wings flavescent, spotted with brown. Female larger, less varied, and without the livid hue.

The markings of this species vary so greatly, that it is difficult to obtain two specimens perfectly similar; in some the livid hue predominates, in others the brown; the sinuated fascia is sometimes interrupted, at others much branched, and the posterior streak of white spots occasionally extends across the apex of the wing, and is sometimes totally obliterated.

Caterpillar is said to feed on the fern (*Pteris aquilina*).

Before the year 1814, few specimens only of this insect were in collections; but, in the middle of June in that year, a locality was detected at Darenth-wood, where the insect abounds: it also in-

habits other parts. "Near Alderley, in Cheshire."—*Rev. E. Stanley*. "In Derbyshire."—*Rev. W. T. Bree*.—"Near York, scarce."—*W. C. Hewitson, Esq.* "Salisbury, and Scotland."—*Dr. Leach*.

Sp. 5. *carnus*. PLATE 13. f. 1. ♂. *Alis anticis cinerascentibus, aut lividis, nubeculosis, maculis fuscis albisque seriatim sparsis, posticis cinereis.* (Exp. alar. ♂ 1 unc. 8—10 lin. ♀ 2 unc. 3—6 lin.)

He. *carnus*. *Fabricius*. *Steph. Catal. No. 5948.*

Somewhat resembling the last, but less variegated: anterior wings above cinerous or livid, with an irregular pale maculiform streak on the thinner margin, united to an oblique one, which reaches to the costa at the anterior apex; this last streak is sometimes irregularly duplex, at others simple, and nearly straight; the disc is also a little clouded with fuscous and whitish, and has a conspicuous white spot, sometimes encircled with black, a little beyond the centre, but towards the costa; posterior wings plain fuscous or livid: the cilia of all flavescent, more or less spotted with dusky. Female livid, the anterior wings nearly immaculate.

Frequently taken in the north of England, sometimes in company with the last; I obtained a specimen from the collection of the late Mr. Francillon. "Near Birmingham."—*Mr. Weaver*.

B. Antennæ pectinated, or serrated.

Sp. 6. *sylvinus*. *Alis anticis maris rufo-lutescentibus, fæminæ cinnamomeis, lineis duabus obliquis albis, posticis cinereis.* (Exp. alar. ♂ 1 unc. — 1 unc. 4 lin, ♀ 1 unc. 6—10 lin.)

Ph. No. *sylvinus*. *Linné*.—He. *sylvinus*. *Curtis, iv. pl. 185.* *Steph. Catal. No. 5949.*

Male above fulvous; anterior wings variegated with rufescent or castaneous spots, with a slightly sinuated oblique white streak near the base, and another from the apex, united at right angles with the former on the inner margin; the latter is generally accompanied by a fuscous streak internally; and the disc has a fuscous spot near its centre, bounded interiorly with white, the costa is also spotted with fuscous, each spot being encircled with white, between the oblique white streak and the hinder margin, and at the base of the cilia, are usually two rows of lunulated brown spots: cilia immaculate fulvous: posterior wings fuscous, with the hinder margin fulvous. Female nearly similar in markings, but brown, with a large patch of dirty white at the base of the anterior wings, and a row of dusky spots on the costa.

Like its congeners, this species varies exceedingly: in some cases the males are pale-ochraceous, with the usual markings, in others nearly fuscous; and I possess a large rufescent female: the moniliform striga parallel with the hinder margin is more frequently obsolete than present.

Found, in August and September, by the skirts of woods, and in lanes; not uncommon at Birch-wood; near Hertford, and in a lane near Stoke Newington. "Near York, males abundant, females scarce."—*W. C. Hewitson, Esq.*

GENUS XXXII.—ZEUZERA, *Latreille*.

Antennæ not so long on the thorax, setaceous, of the males pectinated at the base, with the apex simple; of the females entirely simple, with the base tomentose: *palpi* obsolete: *wings* entire, elongate, lanceolate, unequal. *Head* small, tomentose: *thorax* stout, thickly clothed with hair: *abdomen* not very robust, much elongated, attenuated, clothed with short hair: *legs* rather long, *shanks* unarmed. *Larva* residing in the trunks of trees, lignivorous; *pupa* enclosed in a case of wood, cemented by a glutinous substance.

Zeuzera may be known from *Cossus* by the structure of its antennæ, which in both sexes have the apical half simple, the male having the base alone pectinated, and the female tomentose: it also differs in the form and texture of its wings, and slenderness of its tomentose body: by the former character it differs from *Hepialus*.

Sp. 1. *Æsculi*. *Alis nudiusculis niveis, punctis numerosis cæruleo-nigris, thorace maculis duodecim atris.* (Exp. alar. ♂ 2 unc. 2 lin.: ♀ 2 unc. 8—10 lin.)

Ph. No. *Æsculi*. *Linné.*—*Don. v. pl. 152.* *Zeuz. Æsculi.* *Steph. Catal. No. 5950.*

Anterior wings somewhat naked and hyaline: snowy white, with the costa and nervures yellowish; thickly sprinkled throughout with numerous bluish-black spots: posterior faintly spotted towards the base, with the inner angle immaculate, and the margin itself with a row of a deeper hue: thorax snowy, with about twelve dark bluish-black spots: abdomen clothed with short dark-coloured down, with a bluish metallic hue. Female considerably larger, with the nervures more distinctly yellowish, and the spots of a brighter blue.

Caterpillar ochraceous-yellow, with black dots, the head and tail black: it feeds on the wood of the pear and apple, walnut, elm, lime, horse-chestnut (*Æsculus Hippocastanum*), ash, beech, birch, oak, &c.: it changes to a pale-brown pupa within a case formed of the dust of the wood cemented together: it appears in the imago state in the beginning of July.

This is decidedly somewhat rare, but if industriously sought for in its usual haunts, it may be obtained: it appears to inhabit a considerable portion of Britain, and has been often taken in and near London. "Near Ipswich."—*Rev. W. Kirby.* "Allesley, Leamington, and Coleshill."—*Rev. W. T. Bree.* "At Long Parish, near Andover."—*Rev. G. T. Rudd.* "Abundantly near

London, in July last."—*T. Marshall, Esq.* "Epping."—*Mr. Doubleday.* "Bottisham, and near Cambridge, female apparently not very rare."—*Rev. L. Jenyns.* "Kennington."—*Mr. Davis.*

GENUS XXXIII.—COSSUS, *Fabricius.*

Antennæ as long as the thorax, setaceous, furnished on their inner edge with a single series of short, transverse, obtuse teeth: *palpi* two, distinct, cylindric, thickly clothed with scales, three-jointed: *wings* entire, anterior larger than the posterior. *Head* small, with a pilose crown: *thorax* stout, scaly: *abdomen* robust, elongate: *tibiæ* with spurs. *Larva* residing in the trunks of trees, lignivorous: *pupa* enclosed in a case composed of rotten wood and gluten.

Cossus differs from Hepialus by the elongated antennæ, robust body, and inequality of the wings; and by the presence of distinct, somewhat elongated palpi: from Zeuzera it may be known by the antennæ, which in the latter genus are not serrated.

One indigenous species only has been detected, the history of which has been most admirably detailed by De Geer and Lyonet; the latter author having published an entire volume, containing the description of the larvæ alone, and collected sufficient materials to fill another with those of the pupa and imago; the former being accompanied by most accurately-detailed anatomical plates; and the publication of the latter being, I believe, shortly about to take place, with similar embellishments.

Sp. 1. ligniperda. *Alis albo-cinereis, fusco-nebulosis, strigis transversis atris, thorace exalbido postice fasciâ atrâ, abdomine annulis albis.* (Exp. alar. ♂ 2 unc. 10 lin.—3 unc. 3 lin.: ♀ 3 unc. 6—9 lin.)

Co. ligniperda. *Fabricius.*—*Curtis, ii. pl. 60.*—*Steph. Catal. No. 5951.*

Anterior wings clouded with whitish-cinereous and brown, with numerous transverse irregular black streaks and reticulations, varying considerably in different specimens; posterior fuscous, with obscure reticulated streaks towards the hinder margin: head dusky-brown: anterior margin of the thorax pale ochraceous, the following deep fuscous, then whitish, with a posterior, transverse, black fascia; abdomen brown, with the margins of the segments whitish-grey.

Caterpillar dull-yellow or rufescent, with large subquadrate chestnut-red shining patches on the back, and two triangular black spots behind the head, the latter entirely black: it feeds upon oaks, willows, aspens, and poplars, and is very destructive; it is three years in attaining perfection, and may consequently be obtained at any period: in the autumn, and occasionally in May, the larvæ may be found while searching for a convenient spot to change to pupa, which it does in a case composed of pieces of wood, which it unites

with a glutinous substance, and lines internally with silk: the pupa is brown, and strongly denticulated on the margin of each segment.

Not uncommon in the south of England at the end of June and beginning of July. "Infests the oaks in every wood and lane near Kimpton."—*Rev. G. T. Rudd*. "Bottisham, not uncommon."—*Rev. L. Jenyns*. "Near Deptford, abundantly, in June last."—*Mr. Newman*.

FAMILY II.—NOTODONTIDÆ*.

Palpi more or less evident, two, rarely four, in number, sometimes elongate, very hairy: *maxillæ* usually distinct, not spiral, resembling two slender filamentous processes. *Antennæ* moderate, more or less bipectinated, especially in the males, or setaceous, frequently serrated or ciliated in the females: *body* not very stout, the apex of the males tufted; *wings* deflexed, entire. Males smaller than the females. *Larva* sparingly covered with hairs, or naked, greatly diversified in form, frequently with one or more elevated tubercular appendages, the two anal legs sometimes converted into a furcate tail: *pupa* often folliculated, sometimes subterranean.

Notwithstanding the abbreviated rudimentary tongue with which the insects of this family are furnished, the general habit, structure, and metamorphoses of the latter present more essential characters of affinity to the Hepialidæ than are offered by the Bombycidæ, which are usually placed next in succession, from being, in common with the Hepialidæ, destitute of that generally important organ. The larvæ of this family are mostly naked, or very slightly hairy, and are generally furnished with one or more elevated tubercular points; they are fleshy, and have in general sixteen perfect legs; but in some of the genera the two anal ones are transformed into caudal appendages: the pupa is frequently subterranean; though it is often enclosed in a folliculus, or in a hard case formed of various materials, united by gluten.

The following indigenous genera appear to belong to this family, and may be discriminated by the subjoined external characters:

* Many of the species of this family have been frequently arranged amongst the true *Le. nocturna*; but they have evidently more affinity to the other Notodontidæ than to the *Noctuæ*, both in their larva and perfect states.

Alarum dorso	haud dentato: Thorax	{	cristatus: Alæ	{	denticulatæ: 34. PYGÆRA.		
					Antennæ	integræ: { breves, arcuatæ: 35. CLOSTERA.	
			haud cristatus: Alæ	{		subelongatæ, rectæ: 36. EPISEMA.	
					subhyalinæ: 37. CERURA.		
	dentato, apice:	{	integro: alæ	{	opacæ, { nullis elevatis: 45. PETASIA.		
					squamosæ, { elevatis: 38. STAUROPIUS.		
			plusminusve denticulato, dorso	{	unidentato: Thorax	{	breves, latæ, subtriangularcs: 46. ENDROMIS.
							opacæ: 44. CHAONIA.
	bidentato:	{	{	{	subdiaphanæ: 46. PERIDEA.		
					haud cristatus: Alæ anticæ	vix elongatæ, apice obtuso: 39. NOTODONTA.	
				elongatæ, apice subacuto: 40. LEIOCAMPTA.			
				cristatus: 41. LOPHOPTERYX.			
				. . . . . 42. PTILODONTIS.		

GENUS XXXIV.—PYGÆRA, *Ochsenheimer*.

Palpi short, porrect, densely pilose, two-jointed, basal joint incurved, second reversed, obtuse. *Antennæ* rather long, pectinated in the male, each articulation producing a duplex cilia on each side, the apex simple; setaceous in the female: *head* small, with a bifid crest at the base of the antennæ: *thorax* stout, strongly crested, with two elevated lateral strigæ: *abdomen* long, the apex with an undivided tuft: *wings*, anterior elongate, triangular, the apex with a large rounded discoloured patch, the hinder margin denticulated; *posterior* entire: *tibiæ* with spurs. *Larva* cylindric, pilose, without elevated appendages, the anal legs perfect: *pupa* subterranean.

Pygæra appears to be far more closely allied to Cossus than to any other genus amongst the Pomeridiana; its thickened and somewhat denticulated antennæ, stout thorax and abdomen, the latter considerably elongated, and the texture of the elongate-subtriangular wings, offering far more important points of similarity to the Hespialidæ than are furnished by the broad subdiaphanous rounded wings, comparatively slender thorax and abdomen, the latter abbreviated, and deeply pectinated antennæ of the Saturniæ, which are usually considered as forming a direct passage from the family last mentioned to the other Pomeridiana.

Sp. 1. bucephala. *Alis argenteo-cinereis, strigis duabus geminatis ferrugineis, maculâque magnâ terminali flavâ.* (Exp. alar. ♂ 2 unc. 2—6: ♀ 2 unc. 8—11 lin.)

Ph. Bo. bucephala. *Linné.*—*Don.* i. pl. 3, ♂.—*Py. bucephala.* *Steph. Catal.* No. 5952.

Anterior wings of a rich clouded silvery ash, with a faint black transverse striga at the base, then a duplex one, anteriorly ferruginous, posteriorly black, and towards the apex a third, also duplex, somewhat flexuous and interrupted, anteriorly black, and posteriorly ferruginous; between which and the apex is a large rounded yellow patch, a little clouded with ochraceous or luteous; the hinder margin with lunular ferruginous spots; the cilia flavescent, spotted with ferruginous: posterior wings whitish, slightly suffused with dusky on the disc, with a few obscure ferruginous spots on the cilia: head and thorax anteriorly yellow, surrounded by a double dusky-ferruginous striga; the sides and posterior margin of the thorax hoary-cinereous: abdomen pale-yellow, with row of dusky-spots on each side.

Caterpillar pilose, tawny yellow, each segment with elongate black spots placed longitudinally, and interrupted at the joints, forming a series of interrupted parallel black streaks; head black; legs outwardly black, inwardly luteous: it feeds on the lime, oak, willow, alder, elm, and chestnut: is full grown in September, when it changes beneath the ground to a brown pupa with two spines at the apex.

Very abundant, towards the middle or end of June, throughout the metropolitan district. “Common near Andover.”—*Rev. G. T. Rudd.* “Bottisham and Ely, the larva in some seasons in great profusion on the elm, which they almost strip of its leaves.”—*Rev. L. Jenyns.*

GENUS XXXV.—CLOSTERA, *Hoffmansegg.*

Palpi short, porrect, slightly ascending, and pilose, triarticulate, the apical joint minute. *Antennæ* short, curved, pectinated to the apex in both sexes; in the males especially; with a fascicle of scales at the base: *head* very minute, concealed beneath the *thorax*, the latter robust, strongly crested, with a central coloured longitudinal patch: *abdomen* moderate, the apex suddenly attenuated, with a bifid tuft: *wings*, *anterior* elongate, the hinder margin entire, the apex with a more or less discoloured patch; *posterior* entire; *tibiæ* with spurs. *Larvæ* slightly pilose, with a tubercle on the fourth, and another on the anal, segment, posterior legs perfect: *pupa* folliculated.

From *Pygæra* this genus differs by the brevity of the antennæ, which are pectinated in both sexes, and distinctly curved; by the form of the thoracic crest, and the longitudinal patch thereon; the deeply inserted, minute head; and by the integrity of the posterior margin of the anterior wings: the larva differs in being very slightly pilose, and in having the fourth and anal segment tuberculated above.

Sp. 2. *reclusa*. *Alis anticis glauco-cinerascentibus, strigis quatuor albidis subanastomosantibus, maculâ apicis ferrugineâ punctoque marginali albo, posticis fuscis.* (Exp. alar. ♂ 1 unc.—1 unc. 2 lin. : ♀ 1 unc. 1—3 lin.)

Bo. *reclusa*. *Fabricius*.—Ph. *anastomosis*. *Don.* iv. pl. 124.—Cl. *reclusa*. *Steph. Catal. No. 5954.*

Brown: anterior wings of a glaucous, or brownish-ash, with four subinterrupted, anastomosing, whitish strigæ, with a white spot on the costa, at the origin of the fourth, and a reddish-brown patch adjoining, which does not reach to the apex; hinder margin with an undulated series of dusky spots: posterior wings dark brown: centre of the thorax anteriorly dusky-chocolate; sides of the thorax cinereous: abdomen plain brown, with the anal fascicles chocolate at the apex.

Var. β? PLATE 16. f. 1.—Rather larger, the posterior wings pale glaucous-ash, with two angulated fuscous transverse strigæ: the anterior wings with the third striga united obliquely with the fourth on the interior margin.

Caterpillar brown, with a broad dorsal line, yellowish at first, but after the last moult whitish, the sides with a catenated series of yellow circles: head and tail yellow, or rufescent, legs black: it is found in September, and feeds on the aspen (*Populus tremula*): pupa brown, with the abdomen paler.

Not a common species; taken occasionally at Darenth and Birch woods, at the end of May. “Epping, rare.”—*Mr. Doubleday*. “Once taken in Cambridge, by Mr. Dale.”—*Rev. L. Jenyns*. “Dublin.”—*Rev. J. Bulwer*.

† Sp. 3. *anachoreta*. *Alis griseis strigis albidis, maculâ apicis fusco-ferrugineâ lineâ undatâ albâ.* (Exp. alar. ♂ 1 unc. 3 lin. ♀ 1 unc. 4 lin.)

Bo. *anachoreta*. *Fabricius*.—Cl. *anachoreta*. *Steph. Catal. No. 5955.*

Anterior wings griseous, with four whitish strigæ, the third anteriorly abbreviated, the fourth flexuous, nearly white, and extending to the anterior margin; the apex with a large obconic rusty-brown spot, extending to the margin of the discoidal areolet, and divided by the posterior white flexuous striga;

† Sp. 1. *anastomosis*. *Alis griseis ferrugineo fuscoque variis, strigis tribus albidis subanastomosantibus, thorace ferrugineo.* (Exp. alar. 1 unc. 8—10 lin.)

Ph. Bo. *anastomosis*. *Linné*.—*Stewart*, ii. 252. (!)—Ch. *anastomosis*. *Steph. Catal. No. 5953.*

Wings griseous, varied with ferruginous and brown, with three whitish subanastomosing strigæ; the apex with a rusty spot: the thorax with a ferruginous central patch.

Stewart introduces this fine species as an indigenous insect; but I presume that his only authority for its admission rested upon the erroneous appropriation of the name to Cl. *reclusa*, as I have never seen an example in any British collection.

towards the anal angle are two black spots, the inner one largest: posterior wings dusky-ash: thorax with a fuscous patch anteriorly.

Caterpillar brown, with a flesh-coloured, spotted, dorsal line, the protuberances and spots on the sides rufescent: it feeds on willows and poplars: pupa brown.

The only specimens I have seen of this fine insect are in the collection at the British Museum; I am not aware of their locality: Dr. Leach obtained them from the collection of Mr. Spratt.

Sp. 4. *curtula*. *Alis glaucis, strigis quatuor pallidis maculâque apicis testaceâ.*
(Exp. alar. ♂ 1 unc. 4—5 lin. ♀ 1 unc. 4—6 lin.)

Ph. Bo. *curtula*. *Linné.*—Ch. *curtula*. *Steph. Catal. No. 5956.*

Griseous: somewhat allied to the last: anterior wings glaucous or greyish-ash, with four nearly straight whitish strigæ, the outer, or fourth, a little flexuous towards the costa, where it terminates in a white spot: beyond this the apex is of a bright testaceous-brown, with an obsolete row of dusky spots: posterior wings greyish-ash: thorax anteriorly, and on the back rufous-brown, the sides cinereous, or faintly tinged with reddish: abdomen with its tuft reddish-brown at the apex.

Caterpillar cinereous, with four rows of ferruginous spots: it is found in September, feeding upon poplars and willows.

Taken occasionally near London towards the end of April, or beginning of May, but far from common. “Wanstead, on the aspen.”—*A. Cooper, Esq.* “Coleshill.”—*Rev W. T. Bree.*

GENUS XXXVI.—EPISEMA, *Ochsenheimer.*

Palpi elongate, very pilose, biarticulate, the basal joint large, the terminal very slender elongate, acute, scaly: *maxillæ* short. *Antennæ* rather elongate, not curved, bipectinated to the apex in the males, simple in the females: *head* exserted; not very small: *thorax* slightly crested with transverse fasciæ: *abdomen* rather stout, with a simple tuft at the apex: *wings* elongate, anterior entire on the hinder margin; *cilia* long: *legs* very hairy; *tibiæ* with spurs. *Larva* cylindrical, very fleshy and robust, not tuberculate; the hinder legs perfect: *pupa* folliculated.

In the texture of its wings, and in the comparative robustness and magnitude of its larva, this genus unquestionably resembles the following, although the structure of the latter and that of the imago offer several points of distinction: the location of the genus has been frequently changed; but the short filamentous tongue appears to point out the present family as its true situation.

Sp. 1. *cœruleocephala*. *Alis cinereo-griseis, stigmatibus albidis coadunatis inter strigas duas fuscas, fasciâque marginali cinereâ.* (Exp. alar. ♂ 1 unc. 3—5 lin.: ♀ 1 unc. 4—6 lin.)

Ph. Bo. cœruleocephala. *Linné*.—*Don*. iii. pl. 100.—*Ep*. cœruleocephala. *Steph*. *Catal*. No. 5957.

Griseous: anterior wings ashy-grey, with an oblique black line at the base, then an undulated transverse black streak, followed behind the middle by another, very much waved, and somewhat parallel with the hinder margin, bordered externally towards the costa with whitish; between these are two kidney-shaped confluent stigmata with whitish edges and a double greyish white centre; on the hinder margin is a cinereous fascia, bounded externally by a narrow indented black line; on the anal angle is an abbreviated black streak; the cilia griseous spotted with brown: posterior wings whitish, with a black streak at the anal angle, and the nervures and a central spot dusky: thorax anteriorly griseous, posteriorly cinereous: abdomen dusky-griseous, with the apex brownish. Female rather darker.

Caterpillar stout, smooth, and bluish, with yellow longitudinal lines and black spots: it appears early in the spring, feeds on the blackthorn, whitethorn, pear, &c., and changes to pupa in the beginning of June, within a strong silken web.

A very common species, appearing towards the beginning or middle of September: the larvæ are very abundant towards the end of May, in hedges, near Coombe, Peckham, and Colney-hatch woods.

GENUS XXXVII—CERURA, *Schrank*.

Palpi four; *labial* small, three-jointed, compressed, with the apex obtuse; *maxillary* minute, attenuated at the tip; *maxillæ* short, flat, not spiral. *Antennæ* curved at the apex, bipectinated in both sexes, the pectinations longest in the males, and ciliated: *head* moderate: *thorax* rather stout, not crested: *abdomen* moderate, robust in the females, with the apex obtuse, slightly tufted in the males: *wings* entire, somewhat diaphanous, *anterior* elongate; *neuration* various: *legs* and abdomen beneath woolly: *anterior tibiæ*, with an elongate, compressed lobe; posterior simple. *Larva* robust, truncate anteriorly, with an elevation on the third segment; the anal feet produced into two long retractile filaments, with two short spines between: *pupa* inclosed in a hard case, generally formed of pieces of woody matter united by gluten.

As a genus *Cerura* is well marked, and may be at once known by its pallid, subdiaphanous, strongly-veined wings, deeply bipectinated, somewhat uncinnated antennæ, and robust pilose body and legs, exclusively of the distinctions in the trophi, which can only be observed by dissection: the species have been greatly neglected in this country; but having, for several years past, attended particularly to them, I have detected several nondescripts, one of which has, however, been lately published. The species may be very readily detected by the differences in the neuration of the wings, a

character which has been held to be so constant in the order Lepidoptera, as to distinguish the *families*; consequently, when applied as a test to discriminate *species*, its importance must be vastly superior.

A. Posterior wings with the three anterior nervures simple at the apex, the fourth trifold.

Sp. 1. *bicuspis*? PLATE 13. f. 3.—*Alis niveis, anticis basi margineque posticè nigro punctatis, fasciâ transversâ utrinque subsinuatâ cinereâ, thoracè antice albo.* (Exp. alar. ♂ 1 unc. 2—5 lin.: ♀ 1 unc. 4—6 lin.)

Bo. *bicuspis*. *Borkhausen*?—Co. *bicuspis*. *Steph. Catal. No. 5958.*

Anterior wings snow-white at the base, with one basal and five transverse black spots; then a broad cinereous fascia, thickly sprinkled with orange, margined anteriorly with black and orange, and terminating irregularly with a waved border posteriorly; between the fascia and the apex is a broad whitish space, with three or four transverse undulated dusky strigæ, and a central black spot; the terminal striga is bent inwardly towards the tip of the wing, and is bordered externally towards the costa with an oblique abbreviated cinereous fascia, with orange spots; the hinder margin is pure white, with a row of black spots: posterior snow-white, with a central spot and the nervures fuscous; the margin spotted with black, and an obscure dusky-transverse fascia: thorax anteriorly white, posteriorly bluish-black, with transverse orange fasciæ.

Caterpillar luteous-red, with three large brownish-red spots on the sides; beneath greenish: feeds on willow.

Rare in England: it has been taken occasionally at Darentwood, in July. "Near Dublin, not very uncommon."—*Rev. J. Bulwer*, who kindly supplied me with a fine series.

Sp. 2. *integra*. PLATE 15. f. 3.—*Alis albidis, anticis basi margineque postico nigro punctatis, fasciâ transversâ utrinque nigro marginata cinerea, thorace cinereo, fasciis transversis nigris.* (Exp. alar. 1 unc. 7 lin.)

Ce. *integra*. *Steph. Catal. No. 5959.*

Allied to the preceding, but larger: anterior wings white, with a black spot at the base, then a transverse row of four black spots, followed by a broad uniform cinereous fascia, deeply margined on both sides with black and orange, and thickly sprinkled with the latter colour within; this band is followed by a whitish space, having two minute black spots on the costa, with an abbreviated line between, resembling the letter T, and continued by an irregular waved streak; in the centre is also another minute black dot: the hinder margin of the wing is pale cinereous, bordered anteriorly by a flexuous black striga, and a deep abbreviated costal fascia: on the posterior margin is a row of small black spots: posterior wings whitish, with an elongate central spot, an obsolete fascia, the nervures and marginal dots dusky: thorax cinereous, with three transverse black fasciæ, the central one interrupted.

A comparison of the accompanying figures will readily exhibit the difference between the preceding insect and this, which in the integrity of the central fascia closely resembles the *Ce. bicuspis* of Fischer, but its colouring is somewhat dissimilar. If it be Fischer's insect, the larva, according to him, is green, with a triangular violaceous dorsal spot, margined with yellowish, on the two first joints, and a dorsal series of triangular red spots, margined with yellow, the spots becoming wider towards the tail, on the other joints:—it feeds on the birch.

I believe my specimen was taken at Coombe-wood, as I obtained it from a practical collector, who chiefly collected in that locality.

B. Posterior wings with the second nervure bifid, the fourth trifid.

a. *Anterior wings with a central transverse fascia.*

Sp. 3. *furcula*. *Alis griseis, anticis basi margineque postico nigro punctatis, fasciâ transversâ subangustâ luteo-fuscâ, extus flexuosâ, thorace variegato, anticè griseo.* (Exp. alar. ♂ 1 unc. 2—4 lin.: ♀ 1 unc. 3—6 lin.)

Ph. Bo. *furcula*. *Linné.—Don. viii. pl. 272?—Ce. furcula. Steph. Catal. No. 5960.*

Anterior wings griseous; the base rather whitish, with black spots, as in *Ce. bicuspis*; followed, as in that insect, by a somewhat similar, though rather broader, cinereous fascia; beyond which is a dusky-ash patch, containing a black costal and central spot, a dusky lunule pointing inwards towards the centre of the fascia, two dusky undulated strigæ, and finally a more distinct blackish striga, with an abbreviated costal band; the hinder margin cinereous, with a row of black dots: posterior wings griseous, with a central spot, the nervures and an obscure band brownish; the margin with a row of black spots: thorax variegated with black and orange, with the front griseous.

This and the two following are distinguished by the slight bifurcation of the second nervure of the posterior wing, and by their inferior size.

Caterpillar green, with a patch over the head, and posterior appendages rufous; a broad streak of the same colour on the back, margined with whitish; and an interrupted lateral line:—it feeds on various species of willow, aspen, and poplar: pupa brown.

Apparently the most frequent of the smaller *Ceruræ* near London: at Coombe and Darenth woods in July, Hertford, Ripley, &c. "Epping-forest."—*A. Cooper, Esq.* "York, scarce."—*W. C. Hewitson, Esq.* "Coleshill."—*Rev. W. T. Bree.*

Sp. 4. *arcuata*. *Alis griseis, anticis basi margineque postico nigro punctatis, fasciâ transversâ angustâ cinereâ nigro marginatâ, strigâque posticâ flexuosâ arcuorum nigrorum, thorace anticè cinereo.* (Exp. alar. 1 unc. 5 lin.)

Ce. arcuata mihi. Steph. Catal. No. 5961.

Wings dusky-ash; anterior with the base rather white, and spotted, as in *Ce. furcula*; then a narrow transverse cinereous fascia, deeply bordered with black

on both sides, with an angular excision on the outer edge; the rest of the wing is of an uniform colour, with a central black dot, close behind which is a transverse undulated dusky striga, and a little beyond another flexuous one, composed of black lunules pointing outwards, and terminated at the apex by an abbreviated cinereous fascia; the hinder margin with a row of small black spots: posterior wings cinereous, with a central dot, and minute marginal spots dusky, the nervures fuscous: thorax anteriorly cinereous.

Distinguished by the posterior undulated striga of arched lines, and the integrity of the external margin of the fascia on the anterior wings.

It seems closely allied to *Ce. forficula* of Zetter, the larva of which is pale green, with the back bluish, the sides with a white sulcus spotted with red: and feeds upon willows.

My specimen of this species (which is the only one I have examined) was taken at Coombe-wood several years back.

Sp. 5. *latifascia*. *Alis albidis, anticis basi margineque postico nigro punctatis, fasciâ transversâ latâ cinereo-fuscâ nigro marginatâ, thorace cœruleo-atro luteo fasciato, anticè cinereo.* (Exp. alar. 1 unc. 7—8 lin.)

Ce. latifascia. *Curtis, iv. pl. 193.—Steph. Catal. No. 5962.*

Wings whitish; anterior with one basal and five transverse large black spots, the latter followed by a broad cinereous fascia, variegated with orange and margined with black, the inner margin extending nearly to the anal angle, the outer sinuated; beyond this is a whitish space with three undulated, indented, black strigæ, some spots of the same colour on the costa, and one near the centre resembling the letter x, the outer striga with an abbreviated cinereous costal band, sprinkled with orange, hinder margin whitish, with a terminal row of black dots: posterior wings with a lunate dusky spot, and two obsolete fuscous bands, the inner one narrowest, nervures dusky; margin spotted with black: head and thorax anteriorly cinereous, the latter bluish-black, with two faint orange bands posteriorly.

I have one female of this insect, which was captured near London, and a male that I obtained from Mr. Marsham's cabinet. "Near Linton, north Devon."—*Curtis, l. c.*

Sp. 6. *fuscinula*. PLATE 15. f. 1.—*Alis albidis, anticis basi margineque postico nigro punctatis, fasciâ transversâ cinereâ extus repandâ, collari griseo.* (Exp. alar. ♂ 1 unc. 8 lin.: ♀ 1 unc. 8—10 lin.)

Bo. fuscinula. *Hübner?*—*Ce. fuscinula.* *Steph. Catal. No. 5963.*

Hoary white; anterior wings with one basal and five transverse black spots, followed by a narrow transverse cinereous band, sprinkled with orange, narrowly margined anteriorly with black and orange, and rather sinuated posteriorly, with an abbreviated straight black margin towards the costa, beyond this, on a whitish ground, are two rather indistinct undulated fuscous strigæ, and a few obsolete spots, with an oblique abbreviated cinereous fascia near the apex of the costa, the hinder margin with a row of black spots: posterior

wings whitish, with a central lunulated spot, and some dots on the margin fuscous: thorax griseous in front, posteriorly variegated with black and orange. Caterpillar of a fine emerald-green, with the head brown, the back blue, and the retractile filaments red: it feeds on birch and oak.

Taken occasionally in July at Darenth-wood, and other places near London, but rare. "On Epping-forest."—*Mr. Stone*.

Sp. 7. bifida. PLATE 15. f. 2.—*Alis albidis, anticis basi margineque postico nigro punctatis, fasciâ transversâ cinereâ nigro marginatâ, posticis fimbriâ fuscâ, thorace griseo, nigro flavoque transversim striato.* (Exp. alar. 1 unc. 8 lin.: ♀ 1 unc. 10—11 lin.)

Ph. bifida. *Brahm.*—*Ce. bifida.* *Steph. Catal. No. 5964.*

Larger than the last, of which it may eventually prove to be a variety: wings whitish, the anterior spotted with black at the base, with a broad cinereous fascia, sprinkled with orange, and margined with black, the outer undulated; beyond this, on a pale cinereous ground, are several undulated dusky or black strigæ, and some obscure black spots and marks, one more conspicuous resembling the letter x; the hinder margin is dull hoary, or ashy-white, with an abbreviated costal cinereous fascia, sprinkled with yellow, and a row of black spots on the margin itself: posterior wings whitish, with a central lunular spot and a broad marginal fimbria of a dusky hue; the margin with a row of minute black dots: thorax griseous, transversely striated with black and pale orange.

This and the last species have the bifurcation of the nervure on the posterior wings very considerable.

Found near London; one of my specimens I obtained from Mr. Francillon's collection. "Darenth-wood, and near Limehouse."—*Mr. Stone*.

b. *Anterior wings without a central fascia, but marked throughout with dentated fuscous or dark strigæ.*

Sp. 8. vinula. *Alis anticis albis, punctis strigisque fuscis repandis dentatisque, corpore albo nigro maculato.* (Exp. alar. ♂ 2 unc. 6—9 lin.: ♀ 3 unc. 1—4 lin.)

Ph. Bo. vinula. *Linné.*—*Don. iii. pl. 85.*—*Ce. vinula.* *Steph. Catal. No. 5965.*

Anterior wings white, cinereous in the female; the nervures flavescent; the costa spotted with black; the base with two or three spots, then two undulated rows of transverse approximating black dots, followed by a narrow waved fuscous fascia, and another duplex corresponding series of paler dots; towards the middle is an arcuated black streak, pointing outwards, anterior to which on the costa is an abbreviated dusky fascia, continued in an undulated line to the inner margin: behind the central lunule are two very acutely waved or dentate transverse strigæ, and on the hinder margin a series of longitudinal dusky streaks: posterior wings white, or dusky-ash in the female, with a discoidal lunular spot; the margin more or less spotted with dusky or black: thorax

cinereous, obsoletely spotted with black; abdomen whitish, spotted with black. Female larger, deep cinereous, with the posterior margins much spotted with brown.

Var. β . Bo. Minax. *Hübner*?—Of a deeper cinereous, with the abdomen black, narrowly annulated with whitish, the thorax scarcely spotted.

Var. γ . The thorax pale cinereous, with several very large black spots; the anterior wings with a very distinct transverse dusky fascia near the base, the undulated strigæ towards the apex very strong, and each exterior areolet with a broad longitudinal wedge-shaped brownish streak.

Caterpillar at first black, with two short, rigid, appendages on the anterior segment; these disappear on the third moult, when the colour becomes green, with one or two red spots; and on the final moult, the upper surface becomes bright green, the lower dusky-green, the humeral tubercle, and three spots on the sides, bright red: it feeds on the willow, poplar, and sallow: is found towards the end of summer: the pupa is enclosed in a very hard folliculus, composed of wood-dust and gluten.

Far from uncommon in many parts of the country, especially in marshy districts, during the latter end of May; it also appears in some seasons a second time in August. “Near Amesbury, plentifully.”—*Rev. G. T. Rudd*. “Rarely near York, and Newcastle-on-Tyne.”—*W. C. Hewitson, Esq.* “Not uncommon in Cambridgeshire.”—*Rev. L. Jenyns*.

Sp. 9. *erminea*. *Alis niveis, anticis punctis strigisque fuscis dentatis, thorace niveo nigro maculato, abdomine nigro punctato.* (Exp. alar. ♂ 2 unc. 3—6 lin.: ♀ 3 unc.)

Bo. *erminea*. *Hübner*.—Ce. *erminea*. *Steph. Catal. No. 5966.*

Wings white, or whitish, anterior with several distinct black spots at the base, followed by an irregular duplex undulated transverse striga, then two abbreviated streaks, the second arising from a costal spot, afterwards a lunate discoidal spot, also arising from a costal spot; behind the lunule are three strongly dentate undulated transverse dusky strigæ, with a row of fuscous spots; the hinder margin has also a row of somewhat cuneated black dots: the posterior wings white in both sexes, with a discoidal lunule, and a marginal row of black dots: the thorax is white, spotted with black, and the abdomen is pale, with the base and apex immaculate, the intermediate part with large black transverse spots.

Caterpillar deep red, or reddish-brown, sprinkled on the back with white, with a white lateral line: head large, with two black spots on the angles: when young, nearly black: it feeds on the willow, poplar, and aspen: pupa pale brown.

This fine species has been taken at Birch-wood, and I believe in other places near London.

GENUS XXXVIII.—STAUIOPUS, *Germar.*

Palpi short, clothed with elongate scales, straight, cylindric, biarticulate, the terminal joint acute: *maxillæ* obsolete. *Antennæ* porrect, simple at the apex; of the male strongly bipectinated, from the base nearly to the tip; of the female simple throughout: *head* very small: *eyes* large: *thorax* not very stout, nor crested: *abdomen* somewhat elongate, rather attenuated towards the apex, which is furnished in both sexes with a tuft of fine woolly hair: *wings* entire, thickly clothed with scales, with several elevated tufts of scales and down; *anterior* lanceolate-ovate; *posterior* ovate-triangular: *legs* rather short, thickly clothed with down: *anterior tibiæ* in both sexes with an elongate attenuated spine or lobe; *posterior* with spines at the apex only. *Larva* naked, the back with several acute protuberances, the caudal segments laterally expanded and reflexed, with the hinder prolegs converted into two styliform processes: *pupa* folliculated.

Stauropus differs from the other genera of this family by having several patches of elevated scales on the anterior wings, which are rather densely clothed with scales, and somewhat pilose; the body is very downy beneath, and both sexes have a soft tuft at the apex of the abdomen, which is slightly elongate: the male has the tip, and the female the whole, of the antennæ simple.

Sp. 1. *Fagi*. *Alis rufescente-cinereis, anticis fasciis duabus linearibus luteis flexuosis, serieque punctorum nigrorum.* (Exp. alar. ♂ 2 unc. 4—6 lin.: ♀ 2 unc. 6—8 lin.)

Ph. Bo. *Fagi*. *Linné.*—*Don.* xii. pl. 328.—*St. Fagi*. *Steph. Catal.* No. 5967.

Cinereous: anterior wings deep ashy-gray, tinged with reddish, especially towards the inner margin; the base hoary, with a rugose black spot at the shoulder; followed by a narrow flexuous lutescent striga, and a second beyond the middle very much waved and indented; the space between deep dusky-ash; midway between the posterior striga and the hinder margin, near the costa, is a lunular yellowish spot, bounded exteriorly with black, and nearly parallel with the hinder margin is a slightly waved row of elevated blackish spots: posterior wings deep cinereous, with the base paler, and an undulated whitish indented and abbreviated striga on the anterior margin; the posterior margin with a continuous series of whitish lunular marks: the cilia of all the wings cinereous, varied with hoary: back with a dusky streak down the middle.

Caterpillar pale rusty-brown, with the fifth, sixth, and seventh dorsal segments bearing a conical protuberance, the anal segments laterally expanded and depressed, the terminal one furnished at its apex with two styliform processes in lieu of legs; the six anterior legs elongated: it feeds on the beech, oak, hazel, birch, lime, alder, and sloe; and is found in the autumn: while at rest its anterior legs hang down, and its head and tail are elevated, the latter being frequently reflected on the back: *pupa* dark glossy brown, enclosed in an irregular closely woven smooth web of a very peculiar texture.

Mouffet has admirably delineated the larva of this rare insect, and informs us that in his days it was very common in Norfolk, in England; but now both larva and imago are but rarely met with; the insect is, however, widely dispersed, and one or more specimens are taken nearly annually at Birch-wood, and in the neighbourhood: the male is less frequently observed than the female. From the singular aspect of the larva, Albin termed it the Lobster caterpillar, a name which has since been applied to the imago. "In a wood near Cheshunt."—*Mr. Hatchett*. "New Forest, Hants, near Brockenhurst, in July, 1821."—*Rev. W. Kirby*. "Near Norwich, once."—*W. C. Hewitson, Esq.* "Larva near Tunbridge Wells, in Sept. 1827."—*W. Raddon, Esq.* "Bexley-wood."—*Mr. Samouelle*.

GENUS XXXIX.—NOTODONTA, *Ochsenheimer*.

Palpi short, very hairy, biarticulate; basal joint minute, terminal compressed, truncate: *maxillæ* short. *Antennæ* filiform, bipectinated in the males, the pectinations short, and nearly vanishing at the apex; in the females, slightly denticulated interiorly, and ciliated: *head* and *eyes* small; *thorax* not crested: *abdomen* somewhat elongated, robust, subcylindric; the apex downy: *wings*, *anterior* obtuse at the apex, with the hinder margin rounded and denticulated; the interior, or dorsal, edge, with a projecting tuft of scales in the centre: *legs* short, robust, densely clothed with scales and hair; *the anterior tibiæ* anteriorly with an elongate lobate appendage; *anterior tarsi* short, stout, clothed with elongate scaly hair. *Larva* naked; with two or more conical protuberances on the back, the anal segment reflected, and bearing two imperfect prolegs: *pupa* subterranean, folliculated.

The genus Notodonta, as above restricted, may be known from the cognate genera by having the anterior wings somewhat rounded at the apex, and very slightly denticulated; the thorax not crested, the antennæ bipectinated in the males alone, and the abdomen slightly elongated. The larvæ have several conical protuberances on the back, and the hinder prolegs spurious; the pupæ are subterranean and folliculated.

Sp. 1. Dromedarius. *Alis anticis fusco-rufescenti nebulosis, liturâ baseos anique flavescentibus, strigisque duabus dentatis albidis.* (Exp. alar. ♂ 1 unc. 4—8 lin.: ♀ 1 unc. 8—11 lin.)

Ph. Bo. Dromedarius. *Linné.—Don. x. pl. 350. f. 1.* No. Dromedarius. *Steph. Catal. No. 5968.*

Anterior wings reddish-brown, with an irregular yellowish patch at the base; an undulated or dentate pale transverse striga before the middle, edged externally with chestnut, and another flexuous and strongly denticulated one

behind the middle, terminating in a yellowish streak at the anal angle; between these, on the disc, is a lunate dark spot, edged with yellowish; and on the hinder margin is a slightly waved bright chestnut brown irregular fascia, bounded externally with whitish or yellowish; cilia fuscous: posterior wings dusky-brown, with an obscure whitish fascia; the cilia dusky, rather whitish towards the outer edge: thorax dusky, with its centre rufescent: abdomen brownish-gray: antennæ ferruginous.

Var. β . *Steph. Catal.* l. c. With the colour more vivid, the basal spot and the strigæ on the anterior wings more distinct, and of a brighter hue; the posterior wings whitish, with a paler fascia.

This species varies considerably both in the markings and the intensity of its colouring, as well as in magnitude.

Caterpillar found in September; it is green, with four dorsal eminences and a reflexed tail: it feeds on the alder, beech, hazel, and poplar.

Taken occasionally at Coombe and Darenth woods, and at Norwood, the beginning of June, and in August. "Alderley, Cheshire."—*Rev. C. Stanley.*

Sp. 2. *perfusca*. PLATE 14. f. 2.—*Alis anticis fusco-nebulosis, liturâ baseos anique flavescentibus, strigisque duabus denticulatis obsoletis.* (Exp. alar. ♂ 1 unc. 6—8 lin.: ♀ 1 unc. 8—10 lin.)

Bo. *perfuscus?* *Haworth.*—No. *perfusca.* *Steph. Catal.* No. 5969.

Similar to the last, but of a totally different hue, and like its congener, extremely variable in the intensity and brilliancy of its markings; anterior wings fuscous, mixed with chestnut, with darker clouds, and an irregular yellowish patch at the base, a slightly undulated striga before, and a flexuous and deeply indented one behind, the middle, terminating at the costa and near the anal angle, in a yellowish streak; between the strigæ is a fuscous streak, edged with yellowish; and the hinder margin has a slightly-waved row of reddish or chestnut spots: cilia fuscous: posterior wings fuscous, with a light, rather flexuous oblique striga arising from the anal angle: abdomen fuscous: thorax dusky, sometimes rufescent in the middle.

Whether this insect be truly a distinct species from the preceding, I will not undertake to determine; but, from the circumstance of all the specimens of this (above thirty) which I have seen being of the peculiar dusky hue above described, and all of No. *Dromedarius* (of which I have seen at least two hundred specimens) being strongly rufescent, it appears probable.

"Found near Dublin."—*Rev. J. Bulwer* and *N. A. Vigors, Esq.*; to whom I am indebted for the specimens contained in my collection. It has not, that I am aware of, occurred in England.

Sp. 3. *ziczac.* *Alis anticis brunneis spadiceo-undatis fasciatisque, strigâ lunari ferrugineâ, posticis albidis, fasciâ liturâque anali obsoletâ.* (Exp. alar. ♂ 1 unc. 8—9 lin.: ♀ 1 unc. 10—11 lin.)

Ph. Bo. *ziczac.* *Linné.*—*Don.* iv. pl. 119.—No. *ziczac.* *Steph. Catal.* No. 5970

Anterior wings of the male with the base pale chestnut-brown, with two abbreviated strigæ on the costa, the centre of which, adjoining the second striga, is occupied by a large subquadrate whitish patch, followed posteriorly by a larger ocelliform one, tinged with purplish, intersected by black dashes on the nervures, margined anteriorly by a deep brown lunule, and posteriorly with griseous clouds and a whitish streak; the hinder margin with a narrow black line, and the interior margin streaked with black: cilia brown, faintly dotted with white on the edge: posterior wings ash-coloured, with a central lunular dusky spot, and a narrow marginal line; cilia whitish, towards the anal angle clouded with deep brownish-black. Female with the anterior wings of a more uniform castaneous tinge, and the posterior mouse-coloured, with brown cilia.

Caterpillar with two acute protuberances on its back, and one on the anal segment: it is greenish or ash-coloured, with a paler lateral stripe and reddish tail: it feeds on the poplar and willow, and is found in June, August, and September: the imago appears the beginning of May, and in July.

Not very abundant near London: I have occasionally taken it at Darent and Coombe woods; and, in June 1827, I captured two specimens at Ripley. "Near Dublin."—*N. A. Vigors, Esq.* "Coombe-wood."—*Mr. Ingpen.* "Rather frequent near Holt, Norfolk."—*A. H. Haworth, Esq.* "Coleshill."—*Rev. W. T. Bree.* "Near York, rarely."—*W. G. Hewitson, Esq.*

GENUS XL.—LEIOCAMPA* *mihi.*

Palpi extremely minute, enveloped in dense hair: *maxillæ* obsolete. *Antennæ* filiform, bipectinated in both sexes to the apex; the pectinations shorter, but not vanishing at the tip, and abbreviated in the female: *head* hairy in front: *eyes* moderate: *thorax* not crested: *abdomen* elongate, cylindric, tufted at the apex: *anterior wings* elongate, rather acute at the apex, the posterior margin slightly rounded and obsolete denticulated; the interior with a single squamous tooth towards the centre: *legs* short, not very stout; *femora* and *tibiæ* densely clothed with hair; *tarsi* slender: *anterior tibiæ* with a very short spine-like process interiorly. *Larva* naked, with a small conical protuberance on the anal segment only: *caudal legs* perfect: *pupa* subterranean, folliculated.

Leiocampa differs from *Notodonta* by the slenderness and comparative acuteness of its anterior wings, and by both sexes having the antennæ bipectinated: the thorax is not crested, the anterior wings very slightly denticulated, with one dorsal prominence, the abdomen elongated, the legs densely clothed with hair, and the

* *Λεϊος λευκός, καμψη ερυκα.*

palpi very minute. The larvæ are smooth on the back, and change to pupæ in a folliculus composed of pieces of wood united by silk.

Sp. 1. dictæa. *Alis anticis exustis, marginibus fuscis plagâque mediâ albidâ; posticis albis, liturâ anali fuscâ.* (Exp. alar. ♂ 2 unc.: ♀ 2 unc. 3—4 lin.)

Ph. Bo. dictæa. Linné.—Ph. trepida. Don. vii. pl. 239. f. 1.—Lei. dictæa. Steph. Catal. No. 5971.

Head and thorax brown-gray, mixed with white; abdomen rusty-gray: anterior wings grayish-white, the costa clouded with fuscous, with two or three abbreviated oblique black dashes towards the apex; the interior margin broadly black, with an irregular broken whitish streak interiorly, and intersected towards the anal angle by a few grayish dashes; the posterior margin with a grayish streak, followed by an interrupted blackish one: posterior wings white, with a dusky patch at the anal angle, intersected by a grayish streak.

Caterpillar reddish-brown, green on the sides and glossed with violet above, with a black dorsal streak: it feeds on poplar, willow, and birch, and is found in July and September: the imago occurs in the beginning of August and June.

Not common; taken at Coombe and Darenth woods, and near Dover. “Epping.”—*Mr. H. Doubleday.* “Near York, on willows, rarely.”—*W. C. Hewitson, Esq.*

Sp. dictæoides. *Alis anticis exustis, plagâ albâ maculâque anguli interioris triangulari albâ, posticis fuscescentibus, liturâ anali fuscâ.* (Exp. alar. ♂ 2 unc.: ♀ 2 unc. 2—4 lin.)

Bo. dictæoides. Esper.—Lei. dictæoides. Steph. Catal. No. 5972.

Head and thorax brown-gray, varied with white, the centre of the latter reddish, with a transverse dusky-brown streak anteriorly, and two longitudinal ones on the back; abdomen ashy-gray: anterior wings whitish-gray, with several oblique abbreviated deep black patches towards the apex of the costa, the inner edge broadly umbre, with a broad black streak, slightly edged with white, at the base, towards the middle, and bearing an elongate, triangular, broad white patch at the hinder angle; the hinder margin also of an umbre tinge, with a whitish streak margined with black, the latter intersected by white; cilia umbre, whitish at the edges: posterior wings dirty-white or dusky in the male, whitish in the female, with a broad dusky patch at the anal angle.

Caterpillar light-green, with a yellow lateral stripe, and a line on the anal protuberance: it is found on the poplar, willow, and birch.

Not so common as the last, but found in the same woods rather later in the season.

GENUS XLI.—LOPHOPTERYX* *mihi*.

Palpi short, hairy, slightly ascending, biarticulate, the first joint elongate, curved at the base, the terminal one short, ovate: *maxillæ* short, a little spiral. *Antennæ* short, filiform, simple and ciliated in the females, very slightly bipectinated in the males, nearly vanishing towards the apex: *head* small; *eyes* moderate: *thorax* crested: *abdomen* not elongate, rather stout; apex of the male with a trifid scaly tuft: *wings* compressed when at rest; *anterior* subtriangular, the hinder margin rounded, and rather deeply denticulated; the interior with a single, elongate, squamous tooth towards the centre: *legs* rather slender, downy; the apex of the *tibiæ* with two elongate spurs; the *anterior* internally simple. *Larva* slightly hairy, with one or two conical protuberances on the anal segment alone; hinder prolegs perfect: *pupa* folliculated.

In this genus I have included such insects of this family as have the thorax crested, the anterior wings considerably denticulated on the hinder margin, with one prominence on the inner, the antennæ short, and very slightly bipectinated in the males alone; the abdomen scarcely elongate, with a trifid scaly tuft at the apex: the larvæ slightly hairy, with one or two conical eminences on the anal segment alone.

Sp. 1. *camelina*. *Alis anticis ferrugineis fasciâ obscuriore denticuloque dorsali reflexo, posticis ochraceis, maculâ anali fuscâ.* (Exp. alar. ♂ 1 unc. 6—8 lin. ♀ 1 unc. 8—10 lin.)

Ph. Bo. *camelina*. *Linné.—Don. vi. 7. pl. 183.—Lo. camelina. Steph. Catal. No. 5973.*

Antennæ ferruginous: *thorax* the same, with a yellowish patch behind: *abdomen* ochraceous, with the sides and apex reddish: *anterior wings* ferruginous, with a very delicate nearly obsolete undulated black streak at the base, another before the middle, and a third rudimentary one towards the hinder margin on the costa; behind this are a few costal spots, and an obsolete pale striga: *cilia* and dorsal denticulations tipped with blackish: *posterior wings* ochraceous, with the nervures and margin rufescent, and a bluish-brown patch at the anal angle.

The intensity of the colours varies considerably: in some individuals there is a deep brown flexuous streak from the dorsal denticulation to the costa, and the black strigæ are more distinctly shown: in others the ferruginous tinge predominates.

Caterpillar delicate bluish-green, with paler longitudinal lines; the *stigmata* purplish: the legs and two caudal protuberances bright crimson. It feeds on

* Λοφος crista, πτερυξ ala.

the oak, birch, willow, poplar, alder, beech, lime, &c. and appears towards the middle of May and the end of September; the imago about the end of April and the beginning of August.

A common and beautiful species, found in most woods throughout the metropolitan district. "Near Newcastle-on-Tyne, rarely."—*W. C. Hewitson, Esq.* "Alderley, Cheshire."—*Rev. E. Stanley.*

Sp. 2. *cuculla.* *Alis anticis ochraceis ferrugineo maculatis striatisque, fasciâ marginali cinereo-albidâ, posticis cinereis liturâ anali ferrugineâ.* (Exp. alar. ♂ 1 unc. 5—6 lin.: ♀ 1 unc. 6—10 lin.)

Bo. *cuculla.* *Borkhausen.*—Ph. Bo. *cuculla.* *Don. x. pl. 333. f. 1.*—Lo. *cuculla.* *Steph. Catal. No. 5974.*

Antennæ pale ferruginous: head, thorax, and abdomen ochraceous: the crest ferruginous posteriorly: anterior wings, with the costa from the base, beyond the middle, broadly ochraceous-yellow, the interior margin and apex ferruginous, with irregular dark markings; the costa with two or three abbreviated brownish streaks in the centre, and the posterior margin with an ashy-white patch, divided by a rusty blotch intersected by a black line, and varied by a few dusky shades: cilia pale, with ochraceous spots: posterior wings griseous, with a rusty blotch at the anal angle.

Caterpillar slightly hairy, with the dorsal segments obsoletely elevated, the anal one with a distinct conical protuberance, pale bluish-green, with a brownish patch on the back of the third and fourth segments; the prolegs and caudal elevations crimson: it feeds on maple, and is found in the autumn.

This rare insect I once caught at Darent-wood, by mothing, in June, 1820: several other specimens have been captured at the same place, and in the neighbouring woods. "Near Erith."—*Mr. Hatchett.*

† Sp. 3. *carmelita.* PLATE I4. f. 3. *Alis rubiginosis, anticis ad marginem internam canescentibus, maculis duabus albis costalibus, posticis fasciâ obsoletâ albidâ liturâque anali cærulescente.* (Exp. alar. 1 unc. 7 lin.)

Bo. *carmelita.* *Esper.*—Lo. *carmelita.* *Steph. Catal. No. 5975.*

Antennæ ochraceous-red: head and thorax pale rusty-red; the latter with a yellowish lateral spot: the abdomen ochraceous-red: anterior wings, with the costal edge fine pale red, minutely irrorated with hoary: the inner margin, especially towards the anal angle, hoary, with a few black specks, and minute white irrorations; the costa with an obsolete white spot before the middle, and a larger subconical one towards the apex, from which springs a row of small dusky-brown spots, which reach to the dorsal denticulation: cilia brown at the base, white at the tip: posterior wings rufescent, with an obsolete whitish fascia, and a bluish-brown patch at the anal angle.

Caterpillar green, with a yellowish dorsal line, and a rufescent lateral one: it feeds on the birch.

Two indigenous specimens only have come beneath my observation, one of which is in the British Museum, the other in Mr. Vigors' collection: they were found in the larva state, at Darenth-wood, about sixteen years back; and, I believe, made their appearance in the perfect state in the beginning of March.

GENUS XLII.—PTILODONTIS, *Hubner*.

Palpi considerably elongated, porrect, ascending, clothed with elongate scales: *maxillæ* short. *Antennæ* filiform, bipectinated in both sexes, the pectinations shortest in the females: *head* minute: *eyes* small: *thorax* slightly crested: *abdomen* elongated, tufted at the apex, the tuft bifid in the male: *anterior wings* denticulated at the hinder margin, the interior edge with two recurved tufts of elongate scales, the basal one the largest; *posterior* entire: *legs* moderate, downy; *tibiæ* with spurs at the apex. *Larva* naked, smooth, without any dorsal prominences, head very acute: *pupa* subterranean, foli-culated.

The genus *Ptilodontis* contains only a single European species, and is at once discriminated by the elongate projecting palpi, crested thorax, denticulated anterior wings, which have two prominences on the interior margin, elongated and bifid tufted abdomen, and bipectinated antennæ in both sexes. The larva is destitute of any dorsal or caudal eminences, and has a very acute head.

Sp. 1. *palpina*. *Alis anticis griseo-albidis nigro nervosis striatisque*. (Exp. alar. ♂ 1 unc. 6—10 lin.: ♀ 1 unc. 10 lin.—2 unc. 2 lin.)

ph. Bo. *palpina*. *Linné*.—Pt. *palpina*. *Steph. Catal. No. 5976*.

Pale griseous or ochraceous: antennæ white, with the pectinations brown: anterior wings grayish-white, irregularly streaked with dusky-black, with the nervures black; before the middle is a transverse irregularly angulated streak, and behind the middle a second flexuous one frequently geminated, or accompanied by a row of black spots: and on the posterior margin is also a similar, but obsolete, row, the spots being placed separately between the nervures: the dorsal prominence margined with ochraceous-brown: posterior wings cinereous: cilia of all ochraceous, sometimes speckled with dusky or brown.

This species varies considerably in colour and size.

Caterpillar slender, green, with four pale dorsal lines, and a yellow lateral one sprinkled with orange, the former dotted with black: it feeds on the willow, poplar, and lime, and occurs at the end of May and September: pupa reddish-brown: the imago is found at the beginning of June, and at the end of August.

Not very abundant; taken occasionally at Coombe, Birch, and Darenth woods; also at Hertford, and in other places in the metropolitan district. "Near Epping."—*Mr. H. Doubleday*.

GENUS XLIII.—PTILOPHORA * *mih*i.

Palpi minute, enveloped in dense elongated hairs: *maxillæ* very short. *Antennæ* slender, of the males furnished with extremely long plumose radii, of the females subserrated; *head* densely pilose, small: *eyes* moderate: *thorax* not crested, pilose: *abdomen* scarcely elongated, clothed with velvety pile, and slightly tufted in the male: *wings* subdiaphanous, pilose; *anterior* with the apex entire, the inner margin obsoletely denticulated; *posterior* entire: *legs* short, robust, downy: *tibiæ* with minute spurs at the apex. *Larva* without dorsal protuberances: *pupa* subterranean, folliculated.

This remarkable genus may be known with facility by the peculiar delicate transparent texture of its pilose wings, which are scarcely denticulate in the interior margin, by its pilose body and minute concealed palpi; the males are further distinguished by having the antennæ furnished with extremely long plumose radii.

Sp. 1. *variegata*. PLATE 14. f. 1.—*Alis ochraceo-ferrugineis, strigâ arcuatâ flavescente*. (Exp. alar. ♂ 1 unc. 4—6 lin.: ♀ 1 unc. 6—8 lin.)

Ph. Bo. *variegata*. *Villars*.—Pt. *variegata*. *Steph. Catal. No. 5977*.

Head, thorax, and abdomen ochraceous-red: antennæ with fuscous radii: anterior wings ferruginous ochre, or ferruginous varied with ochraceous, with a distinct arcuated yellowish striga behind the middle, the nervures dusky, and the anterior margin and cilia of a deep rusty-brown; the inner edge densely margined with elongate hairs: posterior wings pale ferruginous or gray-brown, sometimes with a very obsolete transverse paler fascia.

Caterpillar smooth yellowish-green, with a bluish dorsal line, and three delicate whitish lateral lines: it feeds on the maple, birch, and sallow, and is found at the end of May: the pupa is reddish-brown: the imago appears towards the end of October.

Far from common; but met with nearly annually in the larva state at Darent-wood, which is the only locality that I am acquainted with, though it probably inhabits other parts. Old specimens are in the collection at the British Museum, and in those of Messrs. Vigers, Haworth, and Swainson.

GENUS XLIV.—CHAONIA *mih*i.

Palpi very minute, slightly porrect, recurved at the base, pilose: *maxillæ* extremely short. *Antennæ* bipectinated in the males to the apex, in the females subserrated and ciliated: *head* small, pilose, with a distinct fascicle of hairs at the base of each antenna: *eyes* moderate: *thorax* slightly crested: *abdomen*

* Πτιλον *penna mollis, φερω fero*.

not elongated, clothed with short down: *wings* opaque, squamous: *anterior* entire at the apex, with an obsolete denticulation on the inner edge; *posterior* entire: *legs* short, downy: *tibiæ* with spurs at the apex, *anterior* with a compressed spine. *Larva* naked, without dorsal protuberances; anal legs perfect: *pupa* subterranean, folliculated.

Chaonia has the anterior wings entire, with a very obsolete prominence on the interior margin; the thorax very slightly crested, the abdomen not elongated, the antennæ bipectinated to the apex in the males, and subserrated in the females. The larva has no dorsal eminences.

Sp. 1. Roboris. *Alis anticis cinereis, strigis duabus undatis albis, lunulâque mediâ nigrâ.* (Exp. alar. ♂ 1 unc. 4—7 lin.: ♀ 1 unc. 8 lin.)

No. Roboris. *Fabricius.*—*Don.* ix. pl. 299.—Ch. Roboris. *Steph. Catal.* No. 5978.

Antennæ reddish-yellow: head and collar whitish-gray: thorax ashy: abdomen rusty-gray: anterior wings cinereous, with two undulated white strigæ, and a central broad white fascia, in which is a black lunule; towards the hinder margin is an obsolete flexuous whitish striga, and the nervures are dusky: cilia gray, interrupted by dusky: posterior wings cinerascens, with two paler transverse fasciæ, and a dusky central lunule and nervures: cilia dusky, with whitish spots externally. Female rather darker.

Caterpillar green or brown, with two yellowish dorsal lines, and a paler lateral one: it feeds on the oak, and is found in the middle of September: the imago in June.

A scarce species; taken at Birch, Darent, Coombe, and Colney-hatch woods.—“In Mr. Kirby’s garden at Barham.”—*Mr. Sparshall.*

Sp. 2. Dodonea. *Alis anticis obscure griseis fasciâ albâ, strigis duabus undatis albis, maculâque apicis nigrâ tripartitâ.* (Exp. alar. ♂ 1 unc. 4—6 lin.: ♀ 1 unc. 6—8 lin.)

Bo. Dodonea. *Wien. Verz.*—Ch. Dodonea. *Steph. Catal.* No. 5979.—Ph. trimacula. *Don.* x. pl. 352. f. 2.

Antennæ pale-yellowish: head and thorax whitish-gray, the latter dusky-brown behind; abdomen ochraceous-yellow: anterior wings obscure grayish-ash, varied with fuscous at the base, with an obsolete arcuated whitish striga margined with fuscous; in the centre is a broad whitish fascia, with a faint dusky line, followed by an ashy-gray patch, which reaches to the hinder margin, and has a somewhat triangular dusky blotch on the costa; cilia white, spotted with fuscous: posterior wings grayish-ash, with a paler oblique streak.

Var. β. *Steph. Catal.* l. c. With the base, and a central fascia on the anterior wings, whitish, the latter with an undated fuscous striga; the rest of the wing dusky-brown, faintly varied with grayish.

The intensity of the colour, and apparent disposition of the markings, varies considerably, scarcely two specimens occurring precisely similar; sometimes the entire insect (except the abdomen) is suffused with dusky, at others it is nearly white.

Caterpillar green, with a bright orange-yellow lateral line, slightly dotted with red: it feeds on the oak in September, and the imago is produced in June.

Considerably more abundant than the foregoing, though far from common: I have repeatedly taken the larva at Birch-wood; and the insect likewise occurs at Coombe and Darenth woods. "Littleton copse."—*Rev. G. T. Rudd.*

GENUS XLV.—PETASIA * *mihî.*

Palpi short, compressed, straight, very hairy, biarticulate, the terminal joint ovate, subacute: *maxillæ* nearly obsolete. *Antennæ* elongated, bipectinated to the apex in the males, subserrated and ciliated in the females: *head* moderate, hairy, with two fascicles of elongate scales at the base of each antenna: *thorax* not crested; *abdomen* slightly elongated, scarcely tufted at the apex: *anterior wings* elongate, entire, with a patch of elongate scales in the middle of the interior edge: *posterior* subovate: *breast* and *femora* very downy; *anterior tibiæ* with a compressed lobe internally, and an acute, bent, glossy spine exteriorly; the *posterior tibiæ* with spurs at the apex. *Larva* naked, fleshy, with the anal segment gibbous: *pupa* subterranean.

I have designated this genus from the habits of the larvæ, which (in common with those of the two following genera) assume, while at rest, the attitude of those of the Sphingidæ, and, in addition,

† Sp. 3. *Quernea*. *Alis griseo-cinereis, fasciis tribus undatis albis nigro marginatis, lunulâque mediâ albâ, posticis albis.* (Exp. alar. 1 unc. 6—8 lin.)

Bo. *Quernea*. *Fabricius.*—Ch. *Quernea*. *Steph. Catal. No. 5980.*

Antennæ ferruginous: body griseous: anterior wings griseous-ash, with three waved white strigæ margined with black, with a central white lunule before the posterior striga: posterior wings whitish.

Caterpillar gibbous behind, green, with four yellow lines and dusky spiracles: it feeds on the oak.

Of the Bo. *Quernea*, *Fabricius*, I have not seen an indigenous specimen; the insect described by that name in *Lepidoptera Britannica* being evidently a variety of Ch. *Dodonea* alone, as it does not possess the essential characteristics of the white central lunule, and the two undulated white fasciæ on the anterior wings, and the white posterior wings, which are peculiar to Bo. *Quernea*.

* Πεττω, *pando*.

stretch out their anterior legs to the utmost, whence the name *sprawler*, which has been applied to the insect. The present genus may be known in its imago state by the integrity of its anterior wings, which are somewhat pilose, and destitute of any real prominence on the interior margin, by the elongation of its antennæ, which are bipectinated in the males alone, and by the acute, bent, glossy spine on the exterior margin of the anterior tibiæ.

Sp. 1. Cassinea. *Alis griseis, anticis lineolis sparsis atris, posticis margine fusco punctato.* (Exp. alar. ♂ 1 unc. 6—9 lin.: ♀ 1 unc. 8—10 lin.)

Bo. Cassinea. *Fabricius. Don. xii. pl. 397. f. 2.*—Pe. Cassinea. *Steph. Catal. No. 5981.*

Antennæ griseous: head cinereous, with the crown black; thorax cinereous anteriorly, with four dusky lines, and a whitish patch on each side: anterior wings deep cinereous, varied with gray, with a conspicuous streak at the base, and a second on the interior margin; the rest of the wing, especially towards the hinder margin, with smaller, irregularly-scattered, black streaks, and a faint pale interrupted striga, frequently obsolete at the hinder margin: posterior wings somewhat cinereous, with a central dusky spot, and nervures: abdomen griseous.

Caterpillar bright green, with a paler dorsal line, and two yellow lines on each side, united posteriorly, the upper one forming an acute angle on the caudal segment: it feeds on the lime, sallow, oak, beech, privet, &c.: pupa brown: the imago appears at the end of October.

Rare in the imago state, but sufficiently common in the larva, though difficult to rear: I have repeatedly taken the latter in plenty at Coombe and Darenth woods, and occasionally near Hertford. In the New Forest, Hants, the insect is evidently more abundant than near London. "Taken near Coventry, by Mr. Mercer."—*Rev. W. T. Bree.*

GENUS XLVI.—PERIDEA * *mihi*.

Palpi very short, hairy, triarticulate, the basal and terminal joints minute: *maxillæ* short. *Antennæ* elongate, serrated, bipectinated nearly to the apex in the males: *head* small, pilose: *thorax* slightly crested, robust, hairy: *abdomen* scarcely elongated, rather stout, slightly tufted at the apex: *thorax* and *body* beneath very downy: *legs* short, stout, densely clothed with hair and down to the middle of the tarsi; *anterior tibiæ* with a spineiform lobe on the inner margin: *wings* entire, subdiaphanous; *anterior* lanceolate-ovate, with a single prominence on the inner margin. *Larva* naked, without dorsal protuberances,

* *Peridens, meticulosus.*

the back slightly rugose, the sides obliquely streaked: *pupa* folliculated, the folliculus placed on the surface of the ground.

Peridea has considerable affinity in the final state to *Stauropus*, and in the primary to *Petasia* and *Endromis*; but, as shown in the note appended to the genus *Lasiocampa*, it cannot be inserted in its true situation in a *linear* series: it has subdiaphanous and elongate wings, with the hinder margin entire, and one dorsal prominence; by which characters, united with the serrated antennæ, and robustness of the legs, it may be known from the rest of the family. The larva and imago, when touched, tremble as if in fear, and the pupa is not buried beneath the surface of the ground.

Sp. 1. *serrata*. *Alis anticis griseis, strigis maculis lunulâque mediâ fuscis, posticis pallidis, margine anteriori cinereo.* (Exp. alar. ♂ 2 unc. 2—3 lin.: ♀ 2 unc. 3—7 lin.)

Bo. *serrata*. *Thunberg.*—Pe. *serrata*. *Steph. Catal. No. 5982.*—Ph. *tritopha*. *Don. x. pl. 359.*

Griseous; the anterior wings with two obsolete abbreviated dusky strigæ at the base, the basal one darkest, and the other before the middle; the space between darker than the rest of the wings, and margined on the inner edge with the dorsal prominence, which is black: the hinder part of the wing is cinerascens, and has a fuscous or obsoletely-rufescent lunule, edged with griseous, near the middle, followed by a faint undulated striga, then two lineolæ towards the apex, and an irregular row of dull ferruginous spots towards the hinder margin; the latter has a row of dusky lunules, and the cilia are brownish, immaculate: posterior wings yellowish-white, with the anterior margin clouded with cinereous: abdomen brownish.

Caterpillar light-green, with two whitish dorsal lines and red and yellow oblique lateral stripes; legs red: it feeds on the oak, and is found in the autumn: the imago appears at the end of June.

Having employed the term *Peridea* to this genus as expressive of the habits of the larva and imago, which appear to be rather generic than specific, I have been compelled to drop the older names of Fabricius and the Wiener Verzeichnis as being synonymous, and adopt the one used by Thunberg.

Not common: I once took a fine pair on a stunted oak in Richmond-park: and I have seen it captured both in Coombe and Darenth woods: it likewise occurs at Birch-wood.

GENUS XLVII.—ENDROMIS, *Ochsenheimer*.

Palpi very short, hairy, compressed, recurved, obtuse: *maxillæ* obsolete. *Antennæ* filiform, closely bipectinated in both sexes, the bipectinations shortest in the female, and in both sexes incurved, and terminating rather abruptly at the apex: *head, thorax, and abdomen* thickly clothed with very fine, long hairs,

which also envelope the base of the wings: *wings* broad, subtriangular, entire, somewhat diaphanous, pilose, without a dorsal prominence: *cilia* extremely short: *legs* slender; *hinder tibiæ* with a minute pair of spurs at the apex only. *Larva* naked, attenuated in front, with a pyramidal elevation at the anal segment, and oblique lateral stripes: *pupa* folliculated, not subterranean.

This beautiful genus was first characterized by Ochsenheimer, in the fourth volume of his *Schmetterlinge*; and shortly afterwards Dr. Leach discriminated it as a genus, by the name *Dorvillia*, in the *Edinburgh Encyclopædia*, without characters, or being aware of Ochsenheimer's labours, his work not having reached this country at the time. It differs from all the foregoing by having the antennæ bipectinated in both sexes, the bipectinations being convoluted and scarcely diminishing at the apex of the antennæ, by the brevity of the cilia, which are scarcely perceptible, by the width and transparency of its wings, and by its densely-pilose thorax and abdomen.

Sp. 1. *versicolora*. *Alis griseis, anticis strigis duabus lunulâque nigris albo innatis, maculisque tribus ad apicem thoraceque anticè albis.* (Exp. alar. ♂ 2 unc. 4—6 lin.: ♀ 2 unc. 10 lin.—3 unc. 6 lin.)

Ph. Bo. *versicolora*. Linné.—*Entom. Trans. (Neale)*, i. 323. pl. 8. ♂, ♀ *larvæ*. —En. *versicolora*. Steph. *Catal. No.* 5983.

Antennæ black: male with the thorax anteriorly white, posteriorly fulvous, mixed with whitish: abdomen fulvous, with a black patch on the second segment: anterior wings with a white fascicle of hairs at the base; griseous, with two dusky-black strigæ, the first before the middle bent outwardly, and edged with white inwardly, the second behind the middle, flexuous and biangulated towards the inner margin, and bordered externally with white: between them is a black lunule, pointing outwards; the hinder portion of the wing is deep griseous, with three oblique, subdiaphanous, triangular, united white spots at the apex, and each nervure on the hinder margin with a dilated wedge-formed whitish streak: posterior wings tawny-orange, with an undulated dusky striga, and central lunule, and a dusky patch on the anterior margin, bordered posteriorly with white: female larger griseous-white, with the thorax and anterior wings nearly as in the male, but paler: abdomen whitish, with the second segment dusky.

Caterpillar green, minutely speckled with black below, with oblique lateral yellow streaks, a yellow line on the three anterior segments, and on the tail, and yellow anterior legs: it feeds on the birch, alder, hazel, beech, and lime, and appears in June: pupa brown, with a spine at the apex: imago appears in April.

For several successive years I found the larvæ of this beautiful insect at Darenth-wood, and succeeded in tracing their progress to perfection, but lost many from being unable to devote sufficient

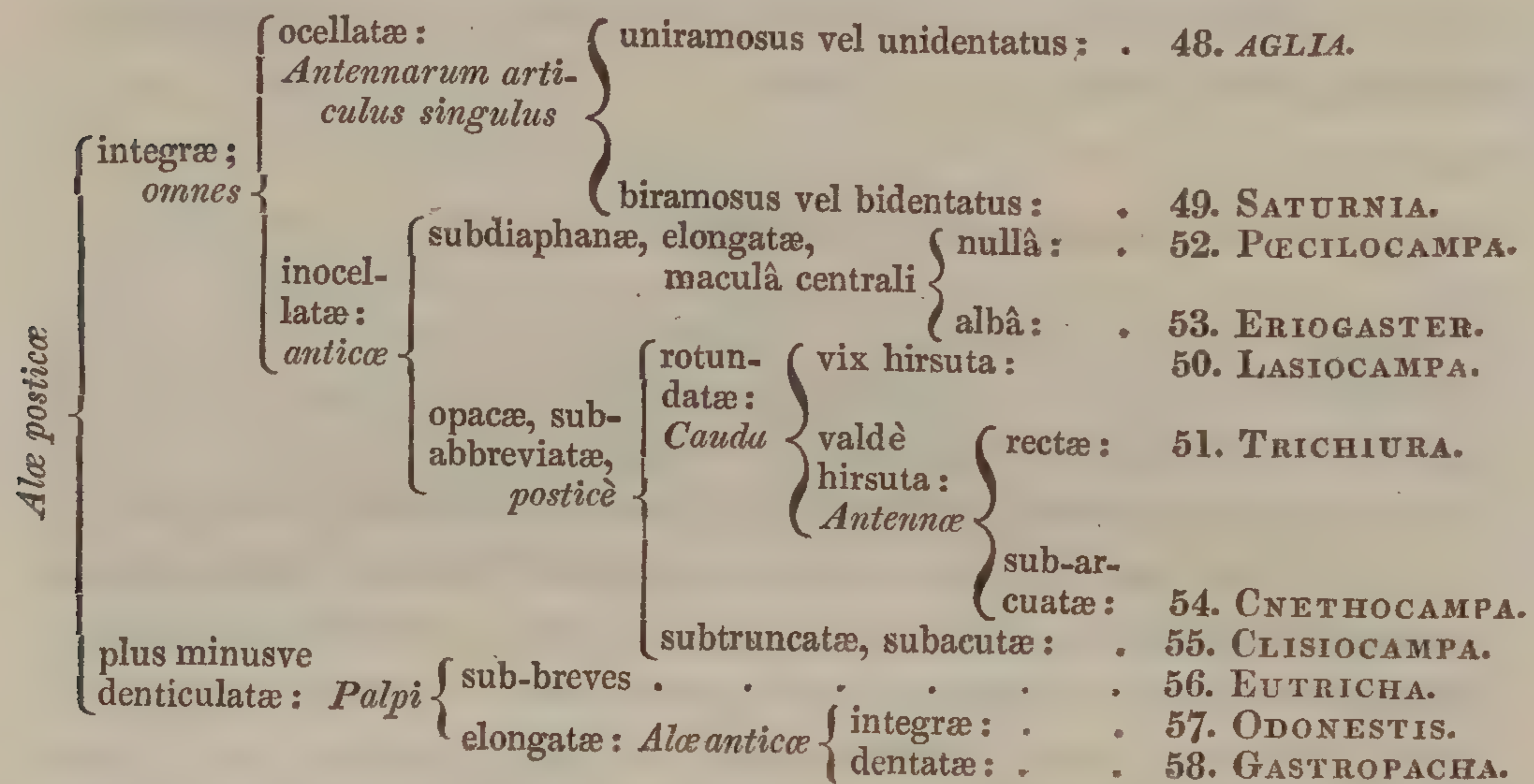
attention thereto. I have also seen the insect three or four times in April, at Coombe-wood, flying, in the afternoon: it is, however, uncommon, but very widely dispersed. "Taken near Plymouth."—*Dr. Leach*. "Near Ipswich, in April last."—*Rev. W. Kirby*. "On Ashdown-forest, Sussex, rather abundantly in the larva state, about ten years since."—*Mr. Stone*.

FAMILY III.—BOMBYCIDÆ.

Palpi usually very small, and nearly concealed, mostly triarticulate: *maxillæ* generally wanting, or extremely short, not spiral. *Antennæ* rather short, bipectinated, in the males especially, or serrated in the females; the bipectinations rarely diverging, but mostly approximating towards each other anteriorly: *thorax* not crested; *body* stout, generally tufted at the apex, particularly in some females: *wings* horizontal, or deflexed, frequently reversed. Males smaller than the females. *Larva* naked, with a verrucose ring on each segment, bearing several diverging whirls of hair; or pilose, with distinct fascicles of hair on the sides: *pupa* with the segments simple, rarely subterranean, enclosed in a folliculus, which is frequently of a firm and rigid texture.

The prevailing characteristic of the Bombycidæ is their want of maxillæ, or having mere rudiments thereof, and consequently useless to the animal: the palpi are wanting, or generally remarkably small in comparison to the magnitude of the insects, which are amongst the largest of the Linnean Phalænæ. Their habits are highly interesting, and one of the most curious is the assembling of the males of most of the species by a virgin female. The males, in general, fly swiftly in the day-time, from about noon to four or five o'clock in the day, and again in the evening; but the females are usually very sluggish and inactive. The larvæ are frequently gregarious, and are invariably furnished with sixteen legs, and in the conterminous genera alone have one or more dorsal tubercular points or elevations; they are usually pilose, and in some of the genera their hair has the property of creating much irritation and pain when applied to the skin: the pupa is rarely subterranean, but is enclosed in a folliculus, which is very commonly of a firm consistence. From the habits of the Bombycidæ being so greatly diversified, it becomes necessary to divide them into several genera, although, from the paucity of characters in the order Lepidoptera, the distinctions between them appear but trifling; nevertheless, if distinguishing names, whether capriciously termed genera or subgenera, are to be given to animals having dissimilar habits and

structure (and such seems to be the received opinion by the best writers), the following must necessarily be required to include all the indigenous species, and may be known by *external* characters, as below: their prevalent tints are griseous or fawn-colour.



GENUS XLIX.—SATURNIA, *Schrank*.

Palpi and *maxillæ* obsolete, their place occupied by a dense tuft of hair. *Antennæ* subcylindric, very short; of the male bipectinated, the pectinations divergent, and diminishing in length to the apex of the antennæ, each joint of which bears two ramifications internally and externally; female with each joint bidentate: *head* small, scarcely visible from above: *thorax* stout, densely pilose; *abdomen* abbreviated in the males; rather elongate and stout in the females, pilose, slightly tufted at the apex: *wings* broad, horizontally expanded during repose, entire, rounded, posterior ones simple: *cilia* very short. *Larvæ* naked, with a coloured ring on each segment, adorned with several whirls of hair, placed upon distinct warts: *pupa* enclosed in a rigid pyriform folliculus.

The broad, horizontally extended, subdiaphanous wings of *Saturnia*, which have the cilia so short as to be scarcely perceptible, well distinguish the genus from the rest of this family: and from *Aglia*, which resembles it in the first particular, the biramose articulations of the antennæ and want of palpi separate it.

GENUS XLVIII.—AGLIA, *Ochsenheimer*.

Palpi distinct, rather short, clothed with scales, compressed, triarticulate, terminal joint short, ovate: *maxillæ* obsolete. *Antennæ* short; of the male bipectinated, each joint bearing a single pectination, the latter diminishing in length towards the apex of the antennæ; female with each joint unidentate, not pectinated: *head* moderate: *thorax* rather short, pilose: *abdomen* moderate,

Sp. 1. Pavonia. *Alis griseo cinereoque nebulosis fasciatisque, ocello nictitante subfenestrato.* (Exp. alar. ♂ 2 unc. 6—10 lin.: ♀ 2 unc. 6. lin.—3 unc. 6 lin.)

Ph. At. Pavonia. *Linné.—Harris, pl. 25. f. b. g. d.—Sa. Pavonia. Steph. Catal. No. 5985.*

Antennæ cinereous: male with the thorax and abdomen fulvous, the former white anteriorly: anterior wings griseous, irrorated with whitish, with three strigæ, the first oblique, abbreviated, purplish, edged with black; the second behind the middle considerably waved and purplish, edged with black; the last on the hinder margin whitish, the margin itself dusky: between the two anterior strigæ is an elongate whitish patch, in which is a large nictitating ocellus, having a black pupil, with a white lunule, or griseous iris, encircled with black, and bearing a bluish lunule towards the base of the wing: the apex of the wing is purplish, with one or two black, white, and rufous spots: posterior wings tawny-ferruginous, slightly clouded with griseous, with a central nictitating ocellus, as in the anterior, a griseous posterior fascia, and a dusky or purplish hinder margin. Female larger and paler, thorax brown posteriorly: abdomen fuscous, with the margins of the segments whitish.

Both sexes vary considerably, especially the females: in some specimens of the latter all the wings are beautifully suffused with purplish; in others, the margin and strigæ of the anterior wings alone are purplish, and some are nearly destitute of the purplish hue: the bulk also varies.

pilose; tufted at the apex: wings entire, broad, horizontally expanded; posterior simple: cilia moderate. Larva naked, fleshy, the back subnodose: pupa slightly hairy, folliculated.

‡ Sp. 1. Tau. *Alis testaceis, ocello subviolaceo pupillâ hastatâ albâ.* (Exp. alar. ♂ 2 unc. 10 lin.: ♀ 3 unc. 3 lin.)

Ph. At. Tau. *Linné.—Martyn.—Ag. Tau. Steph. Catal. No. 5984.*

Testaceous: wings above with a slightly arcuated dusky line near the posterior margin, with a large discoidal subviolaceous ocellus on each, having a white mark, resembling the letter *T*, for a pupil: beneath paler, or yellowish: anterior with an ocellus as above, a faint dusky streak towards the hinder margin, and a pale spot at the apex on the costa; posterior pale testaceous, with a trifold central white spot on an oblique deep broad streak, with a whitish line on the hinder margin, and another parallel with it, between it and the central blotch. Female similar, but of a paler colour, and larger.

Caterpillar green, with oblique lateral white streaks: when young it bears five elongate rufous dorsal appendages: it feeds on birch, lime, hazel, oak, willow, beech, alder, and fruit trees: the pupa is brown: the male flies by day (in May).

“The place of this fine species in *Lepidoptera Britannica* rests solely on the authority of Martyn, in his *Aurelian's Vade Mecum*.”—*Haworth, L. B.* 79. It has not occurred in Britain, to my knowledge, subsequently to the appearance of the above note in 1802.

Caterpillar gregarious, and black when young, afterwards green, annulated with black, with verticillated hairy red and yellow warts on the black band: it is found on heath (*Erica vulgaris*), blackthorn, alder, oak, bramble, rose, elder, willow, birch, strawberry, fruit-trees, whortleberry (*Vaccinium Myrtillus*), &c. during the autumn, and constructs a hard pyriform cocoon, covered with a fuscous down, in which they change to pupæ, which emerge in April, though sometimes they remain two seasons in that state: the pupa is brown, and very obtuse.

Common in several places near London; in the hollow of Coombe-wood; at Hertford, Ripley, &c. "Not unfrequent in Horningsea and Swaffham fens."—*Rev. L. Jenyns*. "On heath, near Netley, Salop, very common."—*Rev. F. W. Hope*. "Common in Plaistow-marshes in August last."—*A. Cooper, Esq.* "Abundant on heaths, near Scarborough."—*Mr. Williamson*. "Near Manchester, but apparently rare till recently, when numbers of males were captured by taking the opposite sex into the fields."—*T. Marshall, Esq.*

GENUS L.—LASIOCAMPA*, *Schrank*.

Palpi minute, short, porrected, very hairy, triarticulate; basal joints of equal length; terminal joint minute, ovate: *maxillæ* obsolete. *Antennæ* straight, deeply bipectinated in the males to the apex, serrated in the females: *head* small: *thorax* robust: *abdomen* moderate, tufted, somewhat cleft at the apex, in the males; robust, and scarcely tufted, in the females: *wings* entire, rounded, deflexed, and slightly reversed during repose: *cilia* distinct. *Larva* cylindrical and hairy, curls up when disturbed: *pupa* obtuse, enclosed in an egg-shaped cocoon of firm consistence; or an elongate dense folliculus.

The texture, integrity, and comparative elongation of the wings

* The vastness of entomological science renders it replete with difficulties, when the attempt is made to reduce every species to its proper genus, by reason of the almost innumerable genera that appear requisite: and the present family fully exemplifies the above position, if the groups termed genera are to consist of objects having similar habits and structures, as, unless all those here proposed be adopted, it is manifest that species of dissimilar habits, &c. must be improperly associated together; though, in extensive genera, the conterminous species frequently differ considerably from the types. Again, *Lasiocampa* and the cognate genera conspicuously illustrate the absolute impossibility of placing natural objects in a linear series of affinity, while they tend to show the circular disposition which appears to prevail throughout nature, as I have endeavoured to represent by a diagram in my Catalogue, which clearly exhibits the utter impracticability of placing every subject in its proper situation by the ordinary linear method of communication, and the facility with which they may be arranged circularly, as nearly every group hitherto treated of in these volumes may be disposed.

of *Lasiocampa*, combined with the strongly bipectinated antennæ of the males, and scarcely pilose tibiæ, well distinguish that sex from the rest of the Bombycidæ; and the females are known by having the abdomen very robust, scarcely tufted, the antennæ straight, the legs slender and scarcely pilose; the wings entire, and not sub-diaphanous.

Sp. 1. Rubi. *Alis cervinis immaculatis, anticis strigis duabus albidis.* (Exp. alar. ♂ 2 unc. 4—6 lin.: ♀ 2 unc. 6—8 lin.)

Ph. Bo. Rubi. *Linné.*—*Don.* iii. pl. 87.—*La. Rubi.* *Steph. Catal.* No. 5986.

Male entirely of a lively reddish-fawn colour above; the anterior wings, with the posterior margin, rather darkest, with two nearly parallel oblique whitish streaks. Female pale ashy-brown; in other respects similar to the male, excepting the slender antennæ.

Var. β. The anterior wings with one (the hinder) posterior striga above.

Var. γ. The anterior wings with the two strigæ united, and forming a broad whitish band.

The position of the strigæ varies considerably.

Caterpillar velvety black, with pale yellow rings, when young; afterwards black below, ferruginous above, with black rings: it feeds on the bramble, appearing in September, living throughout the winter, and changing in the spring to a dusky pupa, annulated with luteous, in an elongate silken folliculus: the imago is produced towards the end of May, or beginning of June.

The habit of this species somewhat removes it from the genus: which is also apparent from the structure of its folliculus, which closely resembles that formed by the larva of *Gastropacha*.

Not uncommon in woody plains and extensive heaths throughout the metropolitan district, and in other parts; at Shooter's-hill, Hertford, Wimbledon-common, &c. I have frequently taken it. "Near Matlock."—*Rev. F. W. Hope.* "Epping."—*Mr. H. Doubleday.* "In profusion on the heaths near Stockton, in Yorkshire."—*L. Rudd, Esq.*

Sp. 2. Trifolii. *Alis in utroque sexû griseo-ferrugineis, anticis puncto albo lineâque repandâ lividâ, posticis immaculatis.* (Exp. alar. ♂ 2—4 lin.: ♀ 2 unc. 4—6 lin.)

Ph. Bo. Trifolii. *Fabricius.*—*Linn. Trans. (Lewin)* iii. pl. 2. f. 1—4.—*La. Trifolii.* *Steph. Catal.* No. 5987.

The radii of the antennæ, head, thorax, abdomen, and wings of a rusty-griseous, paler in the female: anterior wings darkest at the base, with a whitish or cream-coloured discoidal spot, and a livid or ochraceous slightly flexuous line towards the hinder margin: posterior immaculate: shaft of the antennæ ochraceous.

Caterpillar pale fuscous or ochraceous, with the incisures spotted with blue, and

a red collar: it feeds on the Purple Trefoil (*Trifolium pratense*), Yellow Medick (*Medicago falcata*), and Plantain: it appears early in the summer, and spins a loose web, in which it changes to a yellowish-brown pupa, in a hard reddish-yellow folliculus; the imago is found in July and August.

Rare near London: it was formerly taken in tolerable plenty by the late Mr. Lewin, in some chalky fields, near Darent-wood, though of late years it has not occurred in that neighbourhood; but the modern specimens have been found in the New-forest, Hants, where the insect appears to be not very uncommon.

Sp. 3. *Medicaginis*. *Alis luteo-cinereis, anticis puncto albo fasciisque duabus albidis, posticis strigâ oblitteratâ albidâ.* (Exp. alar. ♂ 2 unc. 2—4 lin.: ♀ 2 unc. 4—7 lin.)

Bo. *Medicaginis*. *Borkhausen*.—*La. Medicaginis*. *Curtis*, iv. pl. 181.—*Steph. Catal. No. 5988.*

Antennæ pale ochraceous, with a yellowish shaft: head, thorax, abdomen, and wings dull rusty-chestnut, paler in the female: anterior wings with a central white spot, and two whitish or ochraceous fasciæ, the first abbreviated and sinuated near the base, the other beyond the middle, a little flexuous and obscurely denticulated on the interior edge, the hinder margin of the wing pale castaneous: posterior wings rather darkest at the base, with an obscure whitish bent striga passing through the middle.

Caterpillar ochraceous-yellow, with the incisures blackish-blue, and oblique white streaks on the sides: it feeds on various kinds of Medick (*Medicago*), in June, and in July changes to a brownish pupa, with a greenish abdomen, in a brown folliculus: the moth appears in August.

Whether this (or rather whether the indigenous specimens which are presumed to be synonymous with the *La. Medicaginis*, Ochs.) be truly distinct from the preceding, I am not, from experience, prepared to affirm; but my friend, Mr. Ingpen, decidedly bred a single example from a number of larvæ obtained in July, 1827, from near Brockenhurst, which *did not* differ in the *slightest degree* from each other. Further observations are therefore requisite before we arrive at the truth.

I obtained a pair of this species from the collection of the late Mr. Francillon; and there are several specimens in the British Museum, which were captured near Bristol: others are in the cabinets of Messrs. Stone and Ingpen, from the New-forest; those in the former collection were found in the larva state near Lyndhurst, in company with *La. Trifolii*.

Sp. 4. *Quercus*. *Alis maris saturatè brunneis, fœminæ luteo-brunneis, fasciâ internè arcuatâ flavâ pone medium, anticis puncto medio albo, liturâque flavâ ad basin.* (Exp. alar. ♂ 2 unc. 6—10 lin.: ♀ 3 unc. 1—3 lin.)

Ph. Bo. *Quercus*. *Linné*.—*La. Quercus*. *Steph. Catal. No. 5989.*

Male with the radii of the antennæ, thorax, abdomen, and wings very deep chestnut-brown; the latter with a broad yellow fascia, arcuated and margined abruptly interiorly, rather shaded off towards the hinder margin, which has a broad chestnut-brown fimbria: the anterior wings have a central white spot, usually triangular, and a conspicuous yellow patch (as particularly mentioned by Linné) at the base: the anterior wings have brown cilia, the posterior yellowish mixed with brown. Female larger, similarly marked, but much paler, being in general of a luteous colour, with the hinder margins of all the wings palest. Both sexes vary considerably in colour.

Caterpillar ochraceous, with black rings, and oblique white streaks on the sides: it feeds on the ash, birch, sloe, willow, oak, hornbeam, whitethorn, and broom, and is found in June and July: cocoon dusky: imago appears in August.

Rare near London; but very abundant in the New-forest and in Devonshire, &c. "Common near Barnstaple."—*W. Raddon, Esq.* "Near Dublin, not unfrequent."—*N. A. Vigors, Esq.*

Sp. 5. *Roboris?* *Alis maris brunneis, fæminæ luteis, fasciâ subarcuatâ pone medium, anticis puncto-subrotundato albo.* (Exp. alar. ♂ 2 unc. 6—10 lin.: ♀ 2 unc. 10 lin.—3 unc. 4 lin.)

La. *Roboris?* *Schrank.*—Ph. Bo. *Quercus.* *Don. iv. pl. 104. f. 1. ♂ f. 2 ♀?*—*Steph. Catal. No. 5990.*

Similar to the last, but paler: the anterior wings without the yellow patch at the base; the central white spot generally rounded, the yellow fascia more dilated, and straighter internally; the hinder margin of the posterior wings with a very narrow brown fimbria; the cilia immaculate yellow or luteous. Female luteous, as in the last, but stouter, with comparatively broader and rounder wings and straighter yellowish fasciæ. This insect also varies much in colour.

Caterpillar luteous, with black rings, an interrupted row of white spots on the back, and oblique white and luteous streaks on the sides: cocoon luteous.

Are this and the preceding insect truly distinct? they certainly differ considerably in their larva, and also in their intermediate and final states; and from the circumstance of the present insect abounding so greatly in the vicinity

† Sp. 6. *Dumeti.* *Alis fusciscentibus anticis puncto, fasciâ margineque postico luteis.* (Exp. alar. 2 unc. 6—10 lin.)

Ph. Bo. *Dumeti.* *Linné.*—*Turton (!)*—La. ? *Dumeti.* *Steph. Catal. No. 5991.*

Antennæ yellowish: head and thorax luteous, abdomen dusky: wings fuscous, with a luteous anteriorly repanded fascia and posterior luteous margin: the anterior with a subtrigonal luteous spot before the fascia.

Caterpillar brown, with yellow dots and black transverse spots: it feeds on lettuce, dandelion, &c.: changes to a subterranean pupa. Said by Stewart to inhabit Britain; but I suspect without sufficient authority. It probably belongs to another genus, as its habit appears somewhat different from the true *Lasiocampæ*.

of the metropolis, while the true *Ph. Quercus* of Linné is but rarely found within that district, although it abounds in the New-forest, in Devonshire, and near Dublin, I am induced to consider them at least as distinct as *La. Medicaginis* is from *La. Trifolii*.

Common in the neighbourhood of London; especially at Darentwood, near Hertford and Ripley; also near Dover, Hastings, and Brighton. "Epping."—*Mr. H. Doubleday*. "Not uncommon in Cambridgeshire."—*Rev. L. Jenyns*.

GENUS LI.—TRICHIURA * *mihii*.

Palpi very minute, concealed by elongate hairs, triarticulate; basal joint as long as the second, and stouter; terminal joint minute, ovate: *maxillæ* obsolete. *Antennæ* straight, short, bipectinated in the males, serrated in the females: *head* moderate, densely pilose, distinctly visible from above: *thorax* stout, pilose: *abdomen* slender, with an elongate sub-bifid tuft at the apex in the males, very robust in the females, with a dense woolly mass at the tip: *wings* rounded at the apex, not reversed during repose, abbreviated in both sexes: *legs* short, stout, densely clothed with elongate hairs to the claws. *Larva* cylindrical, hairy, solitary: *pupa* stout, enclosed in an ovate rigid cocoon.

If the term genus be employed, as it ought, in the sense alluded to in p. 38, doubtless other characters, besides *mere outline* must be sought for to discriminate the genera of Lepidoptera; that *Trichiura* offers other distinguishing marks by which it may be divided from *Clisiocampa*, is very readily shown, and that its habits are totally dissimilar has been known more than a century. The female *Trichiura* lays her eggs in irregular longitudinal stripes on the bark of trees, covering them with down from the apex of her abdomen. *Clisiocampa*, on the contrary, deposits them in a solid compact ring, round a slender twig, without any protection: the larvæ of *Trichiura*, when hatched, very speedily separate, and do not form a general nest; whereas those of *Clisiocampa* form a general web, which they increase in bulk until it becomes nearly as large as a man's head, and do not separate till they have undergone their final moult, previously to their change to pupæ; in fact, they are so truly gregarious, that the young larvæ almost invariably die if separated from their companions: again, when the larvæ of *Trichiura*† change to pupæ,

* *Θειζ̄ villus, ovca cauda.*

† This and the following genera, as well as most of the new genera of *Lep. Pomeridiana*, employed in this work, were proposed by me upwards of ten years

they form a hard oval egg-like cocoon, not a subfusiform double silken web, suffused with a loose powder, as formed by those of *Clisiocampa*; the imago differs from that of the genus last named by having the antennæ straight, serrated in the females; the wings rounded, obtuse, and abbreviated in both sexes; the legs stout, and very pilose; the abdomen strongly tufted in both sexes, and of the female furnished at its extremity with a downy mass; the head distinct and very hairy, and the proportions of the palpi different.

Sp. 1. Cratægi. *Alis cinereis, strigis duabus, aut fasciâ obscuriore fuscis.* (Exp. alar. ♂ 1 unc. 1—3 lin.: ♀ 1 unc. 2—5 lin.)

Ph. Bo. Cratægi. *Linné.*—*Don.* iv. pl. 117.—*Tr. Cratægi.* *Steph. Catal.* No. 5992.

Antennæ fuscous: thorax and abdomen ashy-gray: anterior wings cinereous, with an incurved striga before the middle, arising from the base of the wing, and reaching to the costa, near which it makes an acute angle, and behind the middle another, very much angulated, dusky-black; between these the colour is usually darker, with generally an obsolete dusky central spot; the hinder margin is cinereous, with a row of minute fuscous spots on the margin, and frequently an undulated dusky striga: posterior wings brownish, with an oblique darker bar. Female darker, fuscous: the anterior wings with two undulated strigæ, obscurely edged with whitish; posterior immaculate.

Both sexes vary considerably in size and colour; the male has the strigæ on the anterior wings sometimes nearly obliterated: and the female has frequently several whitish transverse waved or angulated strigæ.

Caterpillar black, with luteous hairs and white fasciæ, and a few rusty spots; the sides with an interrupted streak of whitish spots: it feeds on whitethorn, sloe, and willow: changes to a dusky-brown pupa in June, and the imago appears in September.

Not common, though not unfrequently met with near Darent, Birch, and Coombe woods. “Epping.”—*Mr. H. Doubleday.*

GENUS LII.—PÆCILOCAMPA* *mihî.*

Palpi extremely minute, subglobose, enveloped in slender elongate hairs: *maxillæ* obsolete. *Antennæ* densely bipectinated in the males, the pectinations scarcely decreasing towards the apex, strongly serrated in the females: *head* very small

since, and the collection of insects at the Exeter Institution arranged in conformity therewith in 1821, although several of them have been recently published from a transcript of my original catalogue *under other names.* A comparison between the genera of Ochseneimer, Latreille, Germar, &c. with those herein given, will readily show how far I have been anticipated, and *my* divisions adopted.

* Ποικίλος varius: καμψη eruca.

and hairy: *thorax* stout and hairy: *abdomen* abbreviated, tufted in the male, and pilose laterally in both sexes, the female without a downy mass at the apex: *wings* entire, elongate, acute, subdiaphanous, not reversed during repose: *legs* with the *femora* and *tibiæ* pilose. *Larva* slightly hairy, a little depressed, maculated, not gregarious: *pupa* short, obtuse, enclosed in a silken folliculus, superficially subterranean.

The same principles which authorize the disunion of the insects comprised in the genus *Lasiocampa* of Schrank, or the separation of *Trichiura* from *Clisiocampa*, justify the establishment of this genus, as it differs from *Eriogaster* in habit and structure, as much as *Clisiocampa* does from *Lasiocampa*; the males have their antennæ more densely pectinated and stouter than in *Eriogaster*, and the females are destitute of the woolly apex to their abdomen; thus also differing from those of *Cnethocampa*, which, with the following genus, resembles them in the texture of their wings. *Larva* solitary: *pupa* obtuse: *eggs* naked.

Sp. 1. *Populi*. *Fusca, thorace anticè pallidâ, alis fuscescentibus, strigâ sesquialterâ repandâ albâ, anticis basi pallidè brunneis.* (Exp. alar. ♂ 1 unc. 3—5 lin.: ♀ 1 unc. 2—8 lin.)

Ph. Bo. *Populi*. *Linné.—Don. ix. pl. 307. ♀.—Pœ. Populi. Steph. Catal. No. 5993.*

Thorax dusky or black, anteriorly pale griseous, or castaneous: anterior wings fuscescent, with the base, and a slender dash on the inner margin, castaneous-brown; an incurved pale striga near the base, not reaching to the inner margin, and a second undulated and more distinct one behind the middle: cilia fuscous, spotted with griseous: posterior wings with an oblique pale striga: abdomen fuscous, or tawny brown. Female similar.

Caterpillar cinereous, darker and varied on the back, with two pair of reddish dots on each segment; it varies much: and feeds on oak, aspen, birch, poplar, lime, whitethorn, rose, and fruit trees, and is found in June; changes in a silken folliculus in the earth: *pupa* anteriorly brown, posteriorly reddish: the imago appears in December.

Not common, found in the lanes about Darenth, Birch, and Coombe woods, and near Hertford. "Near Leatherhead."—*W. Raddon, Esq.* "Coleshill."—*Rev. W. T. Bree.* "Rare near York."—*W. C. Hewitson, Esq.* "Ongar-park."—*Mr. H. Doubleday.*

GENUS LIII.—ERIOGASTER, *Germar.*

Palpi short, distinctly triarticulate, the basal joint longest and stoutest, the terminal minute, ovate, subacute: *maxillæ* obsolete, *Antennæ* bipectinated in the males, the pectinations decreasing in length to the apex, slightly serrated in the females: *head* small, pilose: *thorax* very stout, pilose above and below:

abdomen robust and elongate in the females; moderate, and rather abbreviated in the males; densely clothed in both sexes with short down, and the apex in the female with a large woolly mass: *wings* elongate, entire, subdiaphanous, slightly reversed during repose: *cilia* short: *legs* short, femora and tibiæ densely clothed with wool. *Larva* gregarious, cylindric, pilose, semi-annulated: *pupa* short, obtuse, not dentate at the apex, enclosed in a rigid ovate cocoon.

From the preceding and following genera, which somewhat resemble Eriogaster in the texture of their wings, this may be known by the stoutness and woolliness of their bodies, especially of the females, and the brevity of the cilia: the males are further distinguished from those of Pœcilocampa by the more slender and acuminate antennæ, and from Cnethocampa by their comparatively greater length and straightness; and the females from those of the former genus by the downy mass at the apex of the abdomen, and from those of the latter by the superior bulk of their body and tenuity of their antennæ. Larvæ gregarious, inhabiting a general nest, which they enlarge from time to time, leaving it during the night in search of food, but returning before morning, and finally quitting it when they are about to undergo their change, which they effect on the surface of the ground, in an oval rigid cocoon: eggs deposited in an irregular mass on slender branches, and covered by a cinereous down.

Sp. 1. Lanestris. *Alis subferrugineis, strigâ albâ, anticis puncto basique albis.*
(Exp. alar. ♂ 1 unc. 2—4 lin.: ♀ 1 unc. 6—10 lin.)

Ph. Bo. Lanestris. *Linné.—Don. vi. pl. 310. ♀.—Er. Lanestris. Steph. Catal. No. 5994.*

Antennæ brownish-yellow: thorax brown or griseous: abdomen fuscous at the base, the apex paler: the anterior wings subferruginous, with a large spot at the base (with a dark cloud in the centre in the male), and another on the disc, and an obsolete denticulated incurved striga behind the middle white: the hinder margin rather ashy: cilia griseous, interrupted by whitish: posterior wings, cinerascens in the male, griseous in the female, with an obsolete central striga. Female larger, with the downy mass at the apex of the abdomen cinereous.

Both sexes vary considerably, the hinder margin of the anterior wings is sometimes without the ashy shade.

Caterpillar black, or brownish, with two red patches on each segment between abbreviated subannular white streaks, and a yellowish lateral line: it feeds upon sloe, birch, lime, willow, fruit trees, whitethorn, &c. in June: pupa brown: imago flies in February and March.

Not uncommon, at times, in the neighbourhood of Darenth-wood, and in other places near the metropolis. I have occasionally seen

twenty or thirty nests of the larvæ in the hedges round Hertford during one season, while in others not a single example has occurred. "Larvæ frequent in certain seasons, near Bottisham."—*Rev. L. Jenyns*. "Epping."—*Mr. H. Doubleday*.

GENUS LIV.—CNETHOCAMPA * *mihi*.

Palpi very short, enveloped in elongate hairs, triarticulate, the basal joint longer and stouter than the second, terminal minute, slender, rather acute: *maxillæ* obsolete. *Antennæ* short, slightly curved, bipectinated in the males, serrated in the females, the pectinations gradually decreasing in length to the apex: *head* distinctly visible from above: *thorax* stout, hairy: *abdomen* rather elongate, tufted, the apex of the female with a woolly mass: *wings* slightly reversed, obscurely diaphanous: *cilia* not abbreviated: *legs* slender: *femora* and *tibiæ* pilose. *Larva* gregarious, cylindrical, hairy: *pupa* also gregarious, obtuse, bidentate posteriorly, enclosed in a rigid cocoon.

In a comment on the genus *Gastropacha*, it is remarked, with reference to the great difficulty of characterizing Lepidopterous genera, from the obscurity of the trophi, that "the characters to be derived from the habits of the species will only be sufficient to divide them into *families*;" but it is evident that their habits, as in other departments of nature, sufficiently point out *genera* when duly investigated, and it is equally evident that a genus which contains such discordant insects as a union of this, *Trichiura*, and *Clisio-campa* (without pointing out the peculiar habits, &c. of the respective species), must not only be strictly artificial, and lead to error, but clearly shows the absurdity of attempting to reduce genera, which, it has been justly observed, *cannot* be done with impunity, when the advancement of science is the *primary object* in view. *Cnethocampa*, in common with the two preceding genera, has the wings somewhat elongated in both sexes; from the first, the males differ by the tenuity and brevity of the antennæ and their pectinations, and the females by having a downy tuft at the apex of their abdomen; from *Eriogaster*, both sexes differ by the elongation of the cilia, exclusively of differences in the trophi, &c.: the habits of the larvæ, as hereafter noticed, are remarkably dissimilar to those of the above genera, and their hairs, when applied to any part of the body, cause very great irritation and acute pain, especially those of *Cn. Pityocampa*; the exhibition thereof

* Κνηθω, pruritus moveo, κνηση, eruca.

medicinally, no less than two enactments of the Roman senate prohibited, under severe penalties, by reason of their virulence. The pupæ are gregarious, and bidentate posteriorly: the eggs are enveloped in down.

† Sp. 1. processionea. *Alis cinereo-fuscis: fœminæ strigâ obscuriore, maris tribus.* (Exp. alar. ♂ 1 unc. 3—5 lin.: ♀ 1 unc. 4—8 lin.)

Ph. Bo. processionea. *Linné.—Martyn (!)—Cn. processionea. Steph. Catal. No. 5995.*

Antennæ dusky-brown: head and thorax ashy-gray: abdomen brownish, with the apex dusky: anterior wings ashy-brown, with three waved, dusky, or black strigæ, two approximating near the base, the other towards the hinder margin: posterior wings paler, with one oblique striga: female more obscure, with an indistinct fascia near the base, and an obsolete dusky striga towards the hinder margin of the anterior wings: posterior wings dull ochraceous, with an indistinct fascia.

Caterpillar blackish on the back, with cinereous-brown lines on the sides, and yellowish dorsal spots: feed on the oak, and change into pupæ, anteriorly brown, posteriorly yellowish, in a common receptacle: each larva forming a separate rigid cocoon of silk and hair for itself, and the whole being arranged in the nest like the cells of the honey-comb.

The larvæ, when first hatched, construct a temporary nest for themselves on the branches of the oak, and change their situation from time to time, until they are about two-thirds grown, when the entire brood unite in forming a general nest on the trunk: this nest, when completed, is about eighteen inches long, six broad, and composed of a gray silk, resembling the surface of the tree: but the most curious fact in their history is the extraordinary regularity with which the larvæ proceed, towards sunset, in search of food: at their head is a chief, by whose movements their procession appears regulated; he is followed by three or four in a single line, the head of the second touching the tail of the first, &c.: then comes an equal series of pairs, next of threes, and so on as far as fifteen or twenty, forming a band several feet in length: sometimes the order is rather different, the leader being followed by two, then three, four, and so on; but at all times the procession moves on with an even pace, each file treading upon the steps of those that precede it, through all the sinuosities made by the chief. They do not invariably return to their nest before morning, but may sometimes be found during the day assembled in irregular masses, heaped upon each other.

Martyn introduces this as a British species, and Stewart has followed his example; but I have not seen an indigenous specimen; the one reputed to be in the British Museum being apparently a stunted female of *Cn. Pityocampa*. It is said there is great danger in approaching the nests of this species, on account of the fragments of hairs which float about in its vicinity, which renders it a fortunate circumstance that the insect does not inhabit Britain, although the contemplative entomologist must necessarily be debarred from the interesting spectacle of their procession.

† Sp. 2. Pityocampa. *Alis griseis, strigis tribus obscurioribus, posticis pallidis, liturâ anali fuscâ.* (Exp. alar. 1 unc. 8 lin.)

Bo. Pityocampa. *Fabricius.*—Cn. Pityocampa. *Steph. Catal. No. 5996.*

Wings more elongate and narrow than in the last: anterior griseous or cinereous, with three dusky undulated strigæ, the two basal ones nearly parallel, the third united by an acute angle to the second, with a dusky lunule between on the disc: cilia ashy spotted with white: posterior wings pale, with a dusky spot at the anal angle: antennæ reddish-yellow: head and thorax ashy-gray: abdomen brown.

Caterpillar blackish or dusky-gray, with a whitish lateral line and margins to the segments, the dorsal hairs luteous, the lateral whitish: it feeds on various kinds of pine and fir, and changes to a pale brown pupa, beneath stones or under moss, in a reddish-brown cocoon.

There appears to be a single dwarf specimen or a variety of this insect in the collection at the British Museum; it was taken by Dr. Leach in Devonshire, in the summer of 1825. The larvæ are less regularly processional than those of the preceding species, and the pupæ are less social.

GENUS LV.—CLISIOCAMPA, *Curtis.*

Palpi minute, concealed by scales, triarticulate, the basal joint shorter and more slender than the second, the terminal joint very minute, oval: *maxillæ* obsolete. *Antennæ* short, curved, moderately bipectinated in both sexes, the pectinations gradually decreasing in length to the apex, and shortest in the females: *head* minute, scarcely visible from above: *thorax* robust, pilose: *abdomen* somewhat elongate, robust in the females, and slightly tufted in both sexes: *wings* rather acute, a little reversed when at rest, short in the male, elongate in the female: *legs* rather slender: *femora* and *tibiæ* pilose. *Larva* cylindrical, slightly pilose, gregarious: *pupa* elongate, posteriorly attenuated; enclosed in a loose silken web, suffused with a fine powder.

Clisiocampa may be known from the preceding genus, which resembles it in its abbreviated, incurved antennæ, by the opacity and brevity of its wings, and from all the foregoing by the shortness of its antennæ, and acuteness of its wings. The larvæ are gregarious, irregularly processional; frequently change their habitation, and previously to their metamorphosis into pupæ retire solitarily, and effect their transformation: the pupæ elongate, attenuated posteriorly, and enclosed in a double silken powdery web: the eggs are naked, and placed in rings round the young twigs of plants.

Sp. 1. castrensis. PLATE 13. f. 2. ♂.—*Alis anticis maris pallidis, strigis duabus fasciâque posticâ brunneis; fœminæ ferrugineis fasciis duabus pallidis.* (Exp. alar. ♂ 1 unc. 2—4 lin.: ♀ 1 unc. 6—9 lin.)

Ph. Bo. castrensis. *Linné*.—Ch. castrensis. *Curtis*, v. pl. 229. fig. sup. ♂ var. fig. inf. ♀. *Steph. Catal. No. 5997*.

Antennæ griseous, with a yellow shaft: thorax yellowish: abdomen luteous: anterior wings ochraceous or pale straw colour, with two luteous or castaneous strigæ frequently united, the basal one generally incurved towards the base of the wing, as in the accompanying figure, and sometimes the two forming a bar across the wings; towards the base are usually one or two castaneous or fawn-coloured clouds, and between the outer striga and the hinder margin is an obscure irregular-waved streak of the same colour: posterior wings fawn-coloured, with lutescent cilia, and an obscure pale streak. Female larger and stouter, dull chestnut-brown, with two oblique luteous or straw-coloured strigæ.

Scarcely two specimens of this inconstant species are found precisely similar, they vary so considerably.

Caterpillar bluish, with irregular red and black streaks above, and red lateral lines; the hirsuties pale castaneous: it feeds on various plants, particularly sea wormwood (*Artemisia maritima*), also on birch, plantain, carrot, and various Euphorbiæ: it prepares to undergo its change in the beginning of July, and in August the imago appears: the pupa is dark coloured.

This is apparently a maritime species, at least in Britain; but not strictly local, having been captured in the Isle of Sheppey, and on the coasts of Essex, Kent, and Devonshire: specimens are contained in the cabinets of the British Museum, of Messrs. Haworth, Swainson, Vigors, in my own, &c. "Mouth of the Exe."—*Dr. Leach*.

Sp. 2. Neustria, *Alis rufo-ochraceis, fasciâ saturiore mediâ, utrinque strigâ pallidâ terminatâ*. (Exp. alar. ♂ 1 unc. 3—6 lin.: ♀ 1 unc. 6—10 lin.)

Ph. Bo. Neustria. *Linné*.—*Don*. iii. pl. 95.—Cl. Neustria. *Steph. Catal. No. 5998*.

A most variable insect, and considerably resembling the foregoing: the male usually has the antennæ, thorax, and abdomen of a rusty fox-colour; the anterior wings the same, with two yellowish oblique strigæ, the space between deepest, the cilia a little spotted with yellowish; posterior wings usually immaculate ochraceous-red, with the cilia darker: the female pale ochraceous, with a broad oblique central fascia on the anterior wings, margined with pale-yellowish; the posterior wings rather darker, with a transverse dusky streak; cilia of all the wings spotted with ochraceous and fox-colour.

Var. β. Male of a bright ochraceous yellow, with two slender oblique fawn-coloured strigæ on the anterior wings, the cilia of all spotted with dusky and ochraceous.

Var. γ. Both sexes with the thorax and base of the anterior wings ochraceous, the latter followed by a broad fawn-coloured band, margined externally with yellowish, the hinder margin rusty fox-colour.

Var. δ. Both sexes of a deep uniform rusty fox-colour, with two pale indistinct ochraceous oblique streaks on the anterior wings.

The width and form of the central fasciæ on the anterior wings varies excessively, as well as the size of the insect.

Caterpillars glaucous, with three red lines on each side, and a white one down the back: they feed gregariously on various trees, especially oak, hazel, sloe, and fruit trees; they reside in a common web, enlarging it from time to time, until their separation; they are great pests to fruit-trees, which are sometimes quite defoliated by them: in changeable weather, I have observed that all the individuals which happen to be resting on the outside of the nest simultaneously and repeatedly elevate the anterior part of their body, as the larvæ of *Hylobius Pini* are said to do. The pupa of this insect is of a dull lead colour, covered with fine powder: the imago appears in July and August.

A very abundant insect in the southern parts of Britain, frequenting hedges and gardens. "The pest of our hedges, which in some seasons are entirely stripped of their leaves by the larvæ, and laid as bare as in the depth of winter."—*Rev. L. Jenyns*. "Suffolk."—*W. C. Hewitson, Esq.*

GENUS LVI.—EUTRICHIA, *Hübner*.

Palpi not very long, porrected, triarticulate, two basal joints of equal length, terminal more slender and obtuse: *maxillæ* short, a little spiral. *Antennæ* nearly straight, not very short, deeply bipectinated in the males to the apex, which is a little bent, slightly bipectinated in the females: *head* small: *thorax* robust, densely pilose: *abdomen* the same, rather elongate; more robust in the females: *wings*; *anterior* entire, rounded posteriorly; *posterior* obsoletely denticulated, reversed during repose: *legs* rather slender, not very pilose, with minute spurs at the apex of the tibiæ. *Larva* cylindrical, with fascicles of hairs down the sides, and a tubercular eminence on the penultimate joint: *pupa* short, obtuse, enclosed in an elongate subfusiform loosely-constructed cocoon.

Agreeably to the principles which ought to guide us in the formation of genera, as noticed in page 38, the present *must* be detached from *Odonestis*, from which it differs in having the antennæ shorter and straighter, and less pectinated, the thorax and abdomen more densely pilose, the palpi less prominent, and, when denuded, with the two basal joints of equal length.

Sp. 1. *Pini*. *Alis rufo-griseis, fasciâ lobatâ ferrugineâ utrinque fuscâ, ante medium puncto triangulari albo.* (Exp. alar. ♂ 2 unc. 7—10 lin.: ♀ 3 unc. 6—8 lin.)

Ph. Bo. *Pini*. *Linné*.—Odo. *Pini*. *Curtis*, i. pl. 7.—Eu. *Pini*. *Steph. Catal.* No. 5999.

Griseous: the anterior wings dark-griseous at the base, sprinkled with minute white dots, with a large triangular white spot before the middle, then an ob-

scure cinerescens fascia, followed by a somewhat ferruginous band, lobated posteriorly, and irregularly margined on each side with fuscous and pale griseous; the hinder margin is of an ashy-griseous: the posterior wings are deep immaculate griseous: the female larger and paler.

Caterpillar variegated with white, gray, and brown, with the anterior segments adorned with two blue transverse dorsal streaks, and some red spots on the sides: it feeds on various species of pine, forms an elongate yellowish-gray web, and changes to a brown pupa, with the abdomen reddish.

Unquestionably a rare insect in Britain; so far as my information extends, one specimen only has been captured within the last thirty years; that was taken by Mr. Sparshall, in the Norwich Hospital, in July, 1809; and a reputed British specimen is in the collection of Mr. Vigors. Wilkes, who first notices it as a British insect, tells us that he once found the larva in a white thorn, near Richmond Park, but he did not succeed in rearing it to perfection.

GENUS LVII.—ODONESTIS, *Germer.*

Palpi elongate, porrected, hairy, triarticulate, the basal joint not half as long as the second, the terminal rather larger than the basal, obtuse: *maxillæ* obsolete. *Antennæ* slightly curved near the base, bipectinated, especially in the males, to the apex: *head* small: *thorax* stout, loosely but thickly pilose; *abdomen* the same, elongated, and tufted at the apex in the males, somewhat acute and stout in the females: *wings* reversed when at rest; *anterior* rather acute at the tip, the posterior margin rounded, entire; *posterior* slightly denticulate: *legs* stout, densely pilose, especially in the males, with spurs at the apex of the tibiæ. *Larva* robust, cylindric, with fascicles of hair down the sides, a distinct tuft on the neck, and another placed on a minute tubercle on the penultimate joint: when alarmed, it rolls itself in a ring: *pupa* robust, obtuse, placed in a fusiform, closely-woven, luteous cocoon.

Odonestis has the palpi more hairy and prominent than Eutricha, and the second joint above twice the length of the first; the antennæ are more curved towards the base, and more deeply pectinated; the anterior wings acute at the apex; the thorax and abdomen less compactly pilose, and the legs shorter, stouter, and densely clothed (the femora and tibiæ especially) with elongate hairs.

Sp. 1. *potatoria*. *Alis luteis, flavo nebulosis, strigis duabus obliquis brunneis, lunulâ punctoque albis.* (Exp. alar. ♂ 2 unc. 4—6 lin.: ♀ 2 unc. 8 lin.—3 unc.)

Ph. Bo. *potatoria*. *Linné.—Don. v. pl. 148.—Od. potatoria. Steph. Catal. No. 6000.*

Pale luteous-griseous: anterior wings griseous, clouded with ochraceous-yellow, the base brownish at the costa, with a transverse, slightly-undulated, and sometimes abbreviated, dusky-brown striga, and another, behind the middle, reaching obliquely from the apex: between these, on the disc, is a sublunate whitish spot, and a smaller and whiter one between this and the costa: the hinder margin of the wing has frequently an undulated brown striga: posterior wings immaculate griseous, with a transverse brown streak. Female similar in markings, but of a pale ochraceous yellow, or yellowish.

Var. β . Both sexes very pale ochraceous, with the usual markings very obsolete.

Var. γ . Female of a deep fawn-colour, clouded with luteous, and marked as in var. α .

Caterpillar dusky-brown, with a lateral yellow line and white spots on the sides above the legs: it is found in June, on various kinds of coarse high grasses, and changes into a brown pupa: the imago appears in July.

Very abundant in lanes, hedges, and woods, in the neighbourhood of London, especially in Hagbush-lane, Copenhagen-fields, the lanes near Garrett-green, and at Ripley and Hertford. "Sundridge, Kent, in plenty."—*Mr. Ingpen*. "Abundant near Andover."—*Rev. G. T. Rudd*. "Throughout the fens of Cambridgeshire, in the greatest profusion."—*Rev. L. Jenyns*. "York and Newcastle-upon-Tyne."—*W. C. Hewitson, Esq.* "Abundant near Barnstaple, Devon."—*W. Raddon, Esq.*

GENUS LVIII.—GASTROPACHA, *Ochsenheimer*.

Palpi elongate, porrected, hairy, triarticulate, the second joint longest, the terminal obtuse: *maxillæ* very small. *Antennæ* short, recurved, strongly bipectinated in both sexes: *head* small, with an acute projecting hairy tuft: *thorax* and *abdomen* robust, densely pilose, the latter acute in the female: *wings* dentated, reversed during repose: *legs* moderately stout: the *femora* and *tibiæ* pilose. *Larva* broad, rounded above, with fascicles of hair on the sides, each segment with a fleshy lateral appendage, and on the penultimate joint a distinct truncated tubercle: *pupa* obtuse, enclosed in an oblong broadly constructed cocoon, and covered with a whitish powder.

The stout recurved antennæ (which are nearly alike in both sexes), and dentated wings, at once discriminate this genus from all the foregoing: the caterpillars are also remarkable from the fleshy lateral appendages, or lappets, with which each segment is furnished, from whence has originated the name of *Lappets*, which has been applied to the imago.

Sp. 1. Quercifolia. *Alis ferrugineis, strigis undatis fuscis margineque postico nigris.* (Exp. alar. ♂ 2 unc. 3—10 lin.: ♀ 3 unc. 2—4 lin.)

Ph. Bo. Quercifolia. *Linné*.—Ga. Quercifolia. *Curtis*, i. pl. 24.—*Steph. Catal.* No. 6001.

Body, antennæ, and palpi of a deep dusky or brown ferruginous, the two latter darkest: wings the same, the anterior with three oblique waved dusky strigæ, and a central black spot; the posterior immaculate. Female larger, of a lighter hue, with the strigæ darker.

Both sexes vary considerably; the strigæ on the wings are sometimes nearly obsolete, at others very deep and broad: the posterior wings are occasionally marked with one or more oblique transverse dusky strigæ.

Caterpillar very large, variable: dusky or slightly rufescent, with blue patches on the nuchal segments, and sometimes a double series of white and red spots down the sides: it is found in May, and feeds on the whitethorn, sloe, willow, rose, &c.; and changes, in a powdery web, to a brown pupa, with red fasciæ: the imago appears in July.

Although usually reputed an uncommon insect, this frequently appears in considerable plenty, especially in the larva state: in May, 1814, I found many of the latter in the Robin Hood-lane, leading to Coombe-wood; and have since found both the larva and imago in the lanes near Hertford; the former feeding upon the sloe. "Very abundant in May last, in the larva state, upon willows in Bottisham and Swaffham fens. I have also occasionally noticed them in former years, both in the caterpillar and winged state."—*Rev. L. Jenyns*.—"Epping."—*Mr. H. Doubleday*.

† Sp. 2. Ilicifolia. *Alis cinereis rufo nebulosis, fasciâ maculari albidâ*.

Ph. Bo. Ilicifolia. *Linné*.—*Turton* (!).—Ga. Ilicifolia. *Steph. Catal.* No. 6002.

One-fourth the size of the foregoing; griseous: the wings cinereous, clouded with rufous, with a posterior fascia of whitish spots.

Caterpillar feeds on the willow; it is glaucous, with a broad white dorsal band, in which is a black patch, varied with luteous, on each segment, beneath yellowish: chrysalis bluish, with the abdomen bluish-white.

Turton introduces this as a British insect; but I have not yet seen an indigenous example.

† Sp. 3. Populifolia, *Alis luteo-testaceis, lunulis numerosis fuscis*.

Ph. Bo. Populifolia. *Fabricius*.—*Martyn* (!).—Ga. Populifolia. *Steph. Catal.* No. 6003.

As large or larger than Ga. Quercifolia; thorax testaceous, with a black dorsal line: wings pale yellowish-testaceous, with numerous distinct fuscous lunules, disposed in strigæ; the hinder margin palest.

Caterpillar feeds on the poplar: it is ashy-gray, spotted with rust-colour, and some bluish-black marks on the neck.

Of this insect (which was introduced into the British list by *Martyn*), I have also never seen an indigenous example.

FAMILY IV.—ARCTIIDÆ, *Leach.*

Palpi two, rather small, mostly triarticulate, pilose; rarely wanting: *maxillæ* generally short, somewhat membranaceous, sometimes obsolete. *Antennæ* moderate, bipectinate or ciliated, sometimes serrated, the pectinations simple or ciliated, and furnished with one or more bristles at their apex: *thorax* rarely crested, stout: *body* not very robust; the apex of the males usually tufted, and of the females occasionally furnished with a woolly mass: *wings* deflexed, or horizontal, entire. Males usually smaller, but not unfrequently larger, than the females. *Larvæ* generally very hairy, frequently ornamented with several compact tufts of hair on the back, and elongate ones on the neck or tail; occasionally naked, enclosed in a covered moveable case, or free: *pupa* various, mostly folliculated.

The insects which I have included in this family are considerably diversified in habit, and I do not feel satisfied with the location of several of the genera; but, without materially increasing the number of families, no better situation presents itself for their reception; their diversities will be hereafter pointed out: it may be sufficient to notice in this place, that the typical genera form the genus *Arctia* of Schrank, a name imposed by him from the hairiness of their larvæ, and which has consequently been used to designate the family. As among the Bombycidæ, the larvæ of many genera are gregarious, and the males of the perfect insect assemble in search of their virgin females, and fly with great celerity in the afternoon. One group, *Psyche* and its congeners, approaches closely to the Hepialidæ; and another, *Limacodes* and *Heterogenea*, to the first group of Bombycidæ, the cause of which will be rendered very evident by an inspection of the diagram in my catalogue: these groups differ materially from the true Arctiidæ and from each other, and offer some most interesting facts, which will be subsequently detailed.

If the two great genera, *Laria* and *Arctia* of Schrank, require further division (and such appears to be the universal opinion of modern writers), it necessarily follows that, unless that subdivision is carried on to the utmost, dissimilarly constructed species must inevitably remain united: I have therefore been compelled to divide the indigenous species into the following genera; which may be known by the subjoined table, formed, as far as possible, from external characters.

A. *Maxillæ* obsoletæ.a. *Alæ* plus minusve diaphanæ, vix aut non squamosæ.

<i>Alæ</i>	{	haud squamosæ,	{	rotundatæ, pilosissimæ: . . . . .	. 76. FUMEA.
		squamis minutis sparsis instructæ:		elongatæ, subacutæ: . . . . .	. 75. PSYCHE.
					. 74. PENTHOPHERA.

b. *Alæ* opacæ, densè squamosæ.

<i>Antennæ</i>	{	pectinatae aut ciliatæ: <i>Tarsi antici</i>	{	vix pilosæ, subgraciles: <i>Palporum articulo 1-mo</i>	minuto: 59. HYPOGYMNA.
				valdè pilosæ, crassiores: <i>Alæ</i>	elongato, clavato: 60. PSILUBA.
		elongatæ: . . . . .	. 61. DASYCHIRA.		
			abbreviatæ, triangulares aut nullæ: 63. ORGYIA.	
simplices: <i>Alæ</i>	{	triangulares, posticè subtruncatæ: . . . . .	. 78. HETEROGENEA.		
		elongatæ, posticè rotundatæ: . . . . .	. 79. LIMACODES.		

B. *Maxillæ* distinctæ, vix capite longiùs.a. *Alæ* opacæ, densè squamosæ.

<i>Thorax</i>	{	cristatus:	{	annulatum, aut maculatum: <i>Palporum articulo 1-mo</i>	2-do longiore; <i>articulo 3-tio</i>	subacuto: . . . . .	. 62. DEMAS.
						breve, ovato: . . . . .	. 69. ARCTIA.
		haud cristatus: <i>Corpus</i>	{	2-do brevior; <i>articulo 3-tio</i>	{	cylicindrico: . . . . .	. 72. SPILOSOMA.
						globoso: . . . . .	. 68. EUTHEMONIA.
immaculatum, apice cristato:	{		{	globoso: . . . . .	. 70. NEMEOPHILA.		
					. 66. PORTHESIA.		

b. *Alæ* plus minusve diaphanæ, squamis rarioribus adpersæ.

<i>Corpus</i>	{	immaculatum: <i>Palpi</i>	{	elongatæ, pilosissimæ: . . . . .	. 64. LÆLIA.
				abbreviatæ, acutæ: . . . . .	. 65. LEUCOMA.
		maculatum: <i>Palpi</i>	{	vix distinctæ, pilosæ: . . . . .	. 71. PHRAGMATOBIA.
				distinctæ, squamosæ: . . . . .	. 73. DIAPHORA.

C. *Maxillæ* capite multo longiores.

<i>Alæ</i>	{	densè squamosæ: . . . . .	. 67. HYPERCOMPA.
		diaphanæ, pilosæ: . . . . .	. 77. NUDARIA.

GENUS LIX.—HYPOGYMNA, *Hübner*.

Palpi hairy, short, triarticulate, the basal joint minute, second elongate subclavate, terminal ovate, obtuse: *maxillæ* obsolete. *Antennæ* short, acute at the tip, very strongly bipectinated in the males, slightly in the females: head minute, with a downy tuft: *thorax* and *abdomen* stout, woolly, the latter very robust and obtuse in the female, and terminated by a downy mass, rather attenuated, and furnished with a hairy tuft in the male: *wings* deflexed, not very densely clothed with scales; *legs* not very stout; *femora* and *tibiæ* slightly fringed with long hairs. *Larva* elongate, cylindric, with short, rigid hairs on the back, and elongate fascicles on the sides of the head, and at the tail: *pupa* slightly hairy, the apex with a truncate projection: it changes in a loose cocoon.

Hypogymna and the following genus are unquestionably greatly allied, and were it not from the circumstance of the structure of the palpi rendering such a step necessary, I should not have separated them; but the dissimilarity in the proportions of the joints of the palpi, and in the abdomens of the respective females, sufficiently point out the propriety of dividing them, if, as before stated, the *Lariæ*, &c. of Schrank, are disturbed: both species are placed by Ochsenheimer in his genus *Liparis* (a name which cannot be employed generically in entomology, having been properly used by Cuvier for a *genus* of fishes), along with *Leucoma*, *Porthesia*, and *Penthophera*.

Sp. 1. *dispar*. *Alis maris griseo fuscoque nebulosis, fœminæ albidis nigro-striatis.*
(Exp. alar. ♂ 1 unc. 6 lin.—2 unc. 1 lin.: ♀ unc. 8 lin.—3 unc. 1 lin.)

Ph. Bo. *dispar*. *Linné.—Don. v. pl. 163.—Hy. dispar. Steph. Catal. No. 6004.*

Male with the antennæ, thorax, and abdomen hoary-griseous: the anterior wings clouded with cinereous and brown, sometimes nearly black, with obscure dusky waves, the cilia brown and griseous; posterior wings griseous immaculate. Female much larger, with the antennæ black; the head and thorax whitish, the abdomen very stout, griseous-white, with the apex dusky-black or brown: the wings white; the anterior with one or more undulated transverse strigæ, and costal spots, and a dusky black lunule; cilia spotted with dusky.

Both sexes vary considerably; the male is sometimes very pale fuscous, at others almost black; the female has the abdomen sometimes entirely whitish, and the wings more or less suffused with cinereous or dusky; the posterior wings are occasionally immaculate, and sometimes they have an undulated transverse fascia.

Caterpillar dusky, with whitish lines, the anterior part spotted with bluish, the posterior with red: it feeds on the oak, lime, fruit-trees, &c., in June, and changes to a brown pupa: the imago appears in August: the eggs are covered with down.

Not common in the neighbourhood of London; it has occasionally been taken at Coombe-wood, but in the fens of Huntingdonshire it appears to abound, and may be taken in all its states at one time, as the imago frequently appears long before all the larvæ have changed into pupæ. It is said to have been introduced into Britain by eggs imported by Mr. Collinson; but the abundance with which it occurs near Whittlesea, and the dissimilarity of the indigenous specimens (which are invariably paler, with stronger markings) to the foreign, sufficiently refute that opinion.

GENUS LX.—PSILURA * *mih*.

Palpi very hairy, triarticulate; the basal joint nearly half as long as the second, somewhat clavate; the second elongate, clavate; the terminal ovate, acute, *maxillæ* obsolete. *Antennæ* short, acute, very strongly bipectinated in the males, slightly in the females: *head* small, very pilose: *thorax* rather short and downy: *abdomen* slender, and tufted at the apex in the male, rather short and attenuated in the female, with the apex acute and naked: *wings* deflexed, thickly clothed with scales: *legs* not very slender; *femora* and *tibiæ* fringed with hairs. *Larva* elongate, attenuated posteriorly, with fascicles of hair on the back and sides; those behind the head, and on the penultimate segment longest: *pupa* smooth, with tufts of hair on the segments, the terminal one with an obtuse projection: changes in a loose folliculus.

This genus differs from the foregoing by having the basal joint of the palpi elongate, somewhat triangular and clavate, the terminal acute, and closely allied to the preceding; the female has the abdomen moderately stout, and attenuated posteriorly, with the ovipositor exposed.

Sp. 1. Monacha. *Alis albis atro undatis, incisuris abdominis sanguineis.* (Exp. alar. ♂ 1 unc. 3—9 lin.: ♀ 1 unc. 9 lin.:—2 unc. 5 lin.)

Ph. Bo. Monacha. *Linné.—Don. vii. pl. 227.—Ps. Monacha. Steph. Catal. No. 6005.*

Thorax white spotted with black; of the male with a black lateral line: abdomen hoary, with the terminal segments sanguineous spotted with black: anterior wings white, with various rarely confluent black spots at the base, a single distinct one before the middle, three or four confused waved strigæ behind, another distinct towards the hinder margin, then a marginal row of black dots: posterior dusky, with black and white cilia; or pale ash, with a darker margin, and white dusky spotted cilia. Female larger and paler; in other respects similar to the male.

Var. β. With the striga on the anterior wings united so as to form a deep black patch.

Both sexes vary considerably: in some males the posterior wings are deep fuscous, and in others nearly white, with a white marginal striga; the females vary similarly.

Caterpillar ashy-brown, with red dorsal tufts, and a black heart-shaped spot on the second segment: it feeds on various trees, particularly the oak and bramble: it is found in June, and changes to a black hairy pupa: the moth is produced in July: eggs naked.

Sometimes, though rarely, found at Coombe and Darenth woods;

* Ψίλος nudus, ουρα cauda.

but in great plenty on the oaks, near Brockenhurst, in the New Forest. "Epping."—*Mr. H. Doubleday.*

GENUS LXI.—DASYCHIRA, *Hübner?*

Palpi very short, hairy, triarticulate; the basal joint about one-third the length of the second, and more slender, the terminal ovate, acute: *maxillæ* obsolete. *Antennæ* short, acute at the apex, thickly bipectinated, especially in the male; the pectinations deeply ciliated, and shortest in the females: *head* small, hairy: *thorax* rather stout, not crested: *abdomen* somewhat robust, especially in the females, woolly beneath: *wings* deflexed, elongate, thickly and densely covered with scales: *legs* short, stout, pilose; *femora* and *tibiæ* and *anterior tarsi* fringed with long hairs. *Larva* very hairy, with several compact truncated tufts on the back, and another on the tail: *pupa* hairy, enclosed in an ovate folliculus, its posterior extremity with an acute projection.

Dasychira differs more in its preparatory states, than in the imago, from the two foregoing genera; but the dissimilarity in its palpi and elongated wings, with its stout, fringed, and prominent anterior legs, well distinguish it from them: from *Demas* it may be known by its thorax not being crested, and from *Orgyia* by the acuteness of the apex of the antennæ and triarticulate palpi. The species of this genus considerably resemble those of *Cnethocampa*.

Sp. 1. *fascelina*. *Alis cinereis, anticis nigro-irroratis, strigis duabus fulvo-fuscis repandis.* (Exp. alar. ♂ 1 unc. 8—10 lin.: ♀ 1 unc. 8 lin.—2 unc. 2 lin.)

Ph. Bo. *fascelina*. *Linné.—Don. xvi. pl. 576.—Da. fascelina. Steph. Catal. No. 6006.*

Antennæ and *thorax* hoary, fuscous: anterior wings grayish-brown, with a griseous tinge, minutely irrorated throughout with black, with an obscure striga at the base, another before the middle, and a third much undulated behind the middle of a fuscous-brown, and between the latter and the hinder margin some obsolete fuscous or black transverse spots; and an undulated pale ash-coloured line: posterior wings dusky, with an obscure darker marginal fascia. Female larger and paler: the apex of the abdomen black. The posterior wings are sometimes immaculate in both sexes; and the colours of the markings on the anterior vary considerably, the strigæ being occasionally nearly black instead of fulvous: the hinder margin of the anterior wings has sometimes a row of interrupted black dots.

Caterpillar dusky, spotted with yellowish, with five dorsal fascicles of white hairs tipped with black, two fusiform brown ones on the head, and one at the tail: it feeds on various plants, especially the trefoil, dandelion, hop, bramble, oak, &c. in the autumn; and breeds through the winter, changing to a hairy brown pupa, with a pale dorsal hue in May: the imago appears in July.

Rather an uncommon species, occurring most frequently in the

woody districts of Kent and Bedfordshire. I have occasionally met with the young larvæ at Coombe-wood in the autumn.

Sp. 2. pudibunda. *Alis albo-cinereis, anticis maculâ mediâ lunari strigisque tribus undatis fuscis.* (Exp. alar. ♂ 1 unc. 8—11 lin.: ♀ 1 unc. 10 lin.—2 unc. 6 lin.)

Ph. Bo. pudibunda. *Linné.—Don. v. pl. 160.* Da. pudibunda.—*Steph. Catal. No. 6007.*

Anterior wings cinereous-white anteriorly, cinereous posteriorly; the base with an abbreviated fuscous striga, the middle with an irregular ashy-brown fascia, streaked with fuscous, the hinder margin with an undulated dusky striga, margined posteriorly with whitish, the margin itself generally spotted with dusky; the central fascia with a lunate stigma, and sometimes with several undulated whitish strigæ: posterior wings whitish-ash, with a dusky streak near the hinder margin, arising at the anal angle, and a central dusky lunule: thorax and abdomen ashy-white; antennæ whitish, with ferruginous radii. Female much paler, sometimes nearly white, with the strigæ on the anterior wings very distinct.

Caterpillar hairy, yellow, with the head luteous, the back with four whitish tufts on the back, and a larger reddish one on the tail: it feeds on various trees, and appears in September; the pupa is dusky anteriorly, and brown posteriorly, enclosed in a yellowish folliculus; the imago appears in June, and varies considerably; but a pupa which was found near Canterbury last autumn, and given to me, produced the moth in January last: and Albin tells us that he reared his specimens early in February.

Not uncommon in the neighbourhood of London, especially near Darent-wood. “Hop-gardens, Kent, common; the caterpillars called *hop-dogs*.”—*Mr. Ingpen.* “Epping.”—*Mr. H. Doubleday.* “Very common at Kimpton.”—*Rev. G. T. Rudd.*

GENUS LXII.—DEMAS* *mihi.*

Palpi extremely short, enveloped in hair, triarticulate, the basal joints rather stoutest, the second nearly as long again as the preceding, the terminal minute ovate: *maxillæ* short, a little spiral. *Antennæ* rather elongate, acute, slightly bipectinated in the males, ciliated in the females: *head* small, pilose: *thorax* stout, crested: *abdomen* moderately stout, the back with hairy fasciculi; the apex with a tuft: *wings* deflexed, elongate, densely squamous: *legs* moderate; *femora* and *tibiæ* pilose; the anterior with a large naked lobate appendage anteriorly. *Larva* hairy, with two dorsal tufts, whiskers at the head, and a fascicle of hair at the tail: *pupa* smooth, with an acute termination posteriorly: changes in an ovate cocoon.

* Δημας, nomen viri.

The name *Colocasia*, which was proposed by Ochsenheimer, being employed in Botany, it becomes necessary to change it; the crested thorax at once distinguishes this genus from the other *Arctiidæ*, and its subspiral maxillæ from the foregoing genera; from which it also differs by the more slightly pectinated antennæ of the males, and simply ciliated antennæ of the females. There is but one indigenous species; but, according to the author above alluded to, a second occurs on the continent; and I may here take occasion to remark, that, although many of the genera of *Bombycidæ*, &c. before described contain one British species only, many, such as *Eriogaster*, *Pæcilocampa*, &c. contain several continental ones, as do *Dasychira*, &c. among the present family.

Sp. 1. *Coryli*. *Alis anticis fusco-brunneis annulo liturisque atris, postice cinereis, strigâ obsoletâ undatâ fuscâ*. (Exp. alar. ♂ 1 unc. 1—6 lin. ♀ 1 unc. 3—5 lin.)

Ph. Bo. *Coryli*. *Linné*.—*Don*. ix. pl. 309. De *Coryli*.—*Steph. Catal.* No. 6008.

Anterior wings with an ashy patch at the base, tinged with griseous, then an interrupted dusky striga, followed by a broad rusty or dusky-brown fascia, in which are several irregular black lines and a black ring: this fascia is bounded by a dusky or black waved striga; the posterior half of the wings is pale cinereous, clouded with darker, with an undulated brownish striga, margined externally with yellowish, the cilia dusky, frequently spotted with white: posterior wings dusky, sometimes with a pale transverse band, at others cinereous at the base, with a broad marginal fimbria: thorax griseous, varied with fuscous; abdomen ashy-griseous, with dusky tufts on the back; antennæ pale-ferruginous. Female generally rather paler. Both sexes vary exceedingly in the brilliancy and distinctness of their markings, as well as in colour. Caterpillar red, with two deeper red tufts on the back, near the tail, and two elongate attenuated fascicles of hair on the neck; it feeds on hazel and birch, and appears in the middle of May and of September; the pupa is dusky before, brownish behind, and is enclosed in a pale folliculus: the imago is produced at the beginning of April, and a second time about the middle of July.

Of late years this insect has become very scarce near London, but formerly I used to capture it at Coombe-wood, not uncommonly, both in the larva and imago states: it has also occurred at Birch and Darenth woods. "Near Dublin, not unfrequent."—*Rev. J. Bulwer*.

GENUS LXIII.—*ORGYIA*, *Ochsenheimer*.

Palpi short, compact, hairy, biarticulate, the basal joint small, the terminal large, broad, ovate, subacute: *maxillæ* obsolete. *Antennæ* short, deeply

bipectinated in the males, abruptly terminated: serrated in the females, each serrature producing a bristle: *head* small, hairy: *thorax* slender, not crested: *wings* deflexed, short, triangular, or wanting: *legs* rather stout, anterior elongated, the *femora* and *tibiæ* of all, and the *tarsi* of the anterior, fringed with elongate hairs. *Larva* with distinct fascicles of hair on the sides, and several dorsal tufts, two or more, composed of capitate hairs, on the sides of the body and head, one on the penultimate joint, and some shorter ones at the apex: *pupa* slightly pilose, with an acute spine at the tip: folliculus ovate, of a very loose texture.

The short triangular wings and abbreviated, subtruncate, deeply pectinated antennæ well distinguish the males of this genus, and the females are known by being apterous, and having serrated antennæ; both sexes have the terminal joint of the palpi very large, and the males the anterior legs elongated, and deeply fringed with hair: the latter sex of the common species may be frequently observed, during the autumnal months, even in the streets of the metropolis, performing its short, jerking, vacillating flight, and resting at intervals with extended anterior legs and elevated antennæ.

Sp. 1. antiqua. *Alis ferrugineis, anticis strigis duabus obsoletis obscurioribus maculâque anguli ani niveâ; femina abdomine cinereâ.* (Exp. alar. 1 unc. 2—6 lin.)

Ph. Bo. antiqua. *Linné.*—*Don. i. pl. 16.*—*Or. antiqua. Steph. Catal. No. 6009.*

Wings ferruginous; the anterior clouded with brown, with two rather obsolete undulated strigæ, a pale luteous crescent-shaped spot on the disc, and a snow-white sublunate spot at the anal angle; posterior immaculate. Female dark cinereous.

Var. β . With the posterior wings pale luteous. Female pale cinereous.

Caterpillar dusky, spotted with red, with a black patch on the back, thickly clothed with fascicles of hair, with four white tufts on the back, two dark whisker-like tufts of capitate hairs on the head, one on the tail, and two on the sides: it feeds on various trees, especially white and black thorn; and may be found from April to August: it changes to a dusky and yellow pupa; and the imago is found from July to October.

A very abundant insect throughout the metropolitan district; occurring in profusion at Hertford and Ripley, and in the streets of London.

Sp. 2. gonostigma. *Alis fuscis, anticis maculâ apicis fulvâ albo marginatâ alterâque anguli ani albâ; femina fusca.* (Exp. alar. ♂ 1 unc. 3—7 lin.)

Ph. Bo. gonostigma. *Linné.*—*Don. ix. pl. 316.*—*Or. gonostigma. Steph. Catal. No. 6010.*

Wings fuscous; anterior prettily varied with pale griseous, with a pale annular mark at the base, and another on the disc, the hinder margin with a dusky or pale streak, with a bright fulvous patch at the apex, near the costa, margined externally with white, and a semilunar white spot at the anal angle: cilia dusky, interrupted by pale griseous: posterior wings deep dusky-brown; the cilia irregularly whitish at the edges. Female deep fuscous.

Caterpillar black, spotted with red, with four pair of yellowish or luteous dorsal tufts, two composed of capitate hairs on the neck, one on each side of the body, and one at the tail, elongate and dusky: it feeds on various plants, and, like its congener, is to be found, for a considerable period, during the summer: it changes to a dusky or black pupa, posteriorly yellow: the imago is first observed in June, and continues till the end of August, but is scarce.

The *Orgyia* "assemble" vigorously, and I once had the pleasure of capturing some dozens of this rare insect at Coombe-wood, by means of a female that I fortunately reared from the larva. It occurs in several places near the metropolis, as at Lewisham, Erith, Greenhithe, &c. "Bagley-wood, Oxon."—*Rev. W. T. Bree*.

GENUS LXIV.—*LÆLIA mihi*.

Palpi elongate, projecting, very hairy beneath, the last joint exposed; triarticulate, the basal and terminal joints very minute, the second considerably elongated: *maxillæ* distinct. *Antennæ* moderate, shortest in the females, deeply bipectinated in the males, the pectinations terminating abruptly at the tip, and very short in the female, each pectination ciliated, and furnished at its apex with three or four divergent bristles: *head* small, pilose: *thorax* not crested, pilose: *wings* deflexed, rather narrow, trigonate, sparingly clothed with scales: *abdomen* rather elongated and stout, slightly tufted: *legs* moderate: the *femora* and *tibiæ* fringed with elongate hairs. *Larva* hairy, with four compact dorsal tufts, and one at the tail, and two elongate fascicles at the neck: *pupa* slightly pilose, acute at the tip; enclosed in an elongate compact yellow folliculus.

This and the two following genera form a portion of the extensive genus *Laria* of Schrank; the *Arctiæ* of that author embracing *Bombyx caja* of Linné and its congeners: that the miscalled genus *Arctia* requires subdivision is very evident. *Lælia* has the *antennæ* of the females shorter than those of the males, and nearly simple, those of the latter sex abruptly terminated, and their pectinations tipped with several divergent bristles; the females are generally smaller than the males, the body rather elongated, the *palpi* lengthened, projecting, very hairy beneath, with the basal joint very minute, and the second considerably elongated; the form and texture of the

wings are also different, and the larva is not only furnished with compact dorsal tufts, but constructs an opaque fusiform dense folliculus.

Sp. 1. *cœnosa*. *Alis pallidè ochraceo-fuscis, strigâ posticâ punctorum obsoletorum fuscorum (aut albis immaculatis); palpis pedibusque luteis.* (Exp. alar. ♂ 1 unc. 7—9 lin.: ♀ 1 unc. 6—9 lin.)

Bo. *cœnosa*. *Hübner*.—Ar. *cœnosa*. *Curtis*, ii. pl. 68.—Læ. *cœnosa*. *Steph. Catal. No. 6011.*

Head, thorax, radii of the antennæ, and anterior wings pale ochraceous-fuscous, the basal areolet and thinner margin whitish, the hinder margin with a curved series of more or less distinct fuscous spots, nearly parallel with the hinder margin: posterior wings ochraceous, or whitish, with a fuscous margin: cilia of all the wings ochraceous or whitish: abdomen whitish: palpi and legs luteous, with the inner side of the latter dusky. Female white, with the legs and palpi luteous.

Caterpillar dusky, spotted with ochraceous, with pale yellowish hairs; four light luteous-yellow dorsal tufts, two dark elongate fascicles of hair on the head, and one on the tail: it feeds on the burr-reed; and is found simultaneously with the imago at the end of July and the beginning of August: the pupa is deep glossy black, and is enclosed in an elongate fusiform cocoon.

This insect was discovered in profusion by Mr. B. Standish on the borders of Whittlesea Mere in July, 1820, while in search of the beautiful *Lycæna dispar*, though the larva had been taken by Mr. Dale in the same vicinity several years previously, without his being acquainted with its metamorphosis. I believe no other locality has yet presented itself.

GENUS LXV.—LEUCOMA, *Hübner*.

Palpi short, bent upwards, hairy, cylindric, triarticulate, the intermediate joint longest, the terminal shortest, obtuse: *maxillæ* very short. *Antennæ* acute, of equal length in both sexes, deeply bipectinated in the males, the pectinations gradually shortened towards the apex, ciliated, and furnished with one or two fine setæ at the tip, shortest in the females: *head* small, hairy, with a distinct fascicle of scales at the base of each antenna: *thorax* short, woolly: *abdomen* tufted in the males, very robust and acute in the females: *wings* deflexed, rather broad, trigonate, with remote scales: *legs* robust; *femora* and *tibiæ* slightly fringed with hair. *Larva* with fascicles of hair on each side, and sometimes with loose dorsal tufts: *pupa* slightly hairy, enclosed in a loose orbiculate cocoon: *eggs* enveloped in a friable silken matter.

Leucoma differs from *Lælia*, in having the palpi abbreviated, rather divergent, less hairy, and the projections of the joints dissimilar; the antennæ are of equal length in both sexes, and consider-

ably pectinated in the females; the latter sex is usually the largest; the head has a distinct tuft of elongate scales at the base of each antenna:—from *Porthesia* this genus may be known by the semi-transparency and breadth of its wings, the different proportions of the joints of the palpi, the comparatively greater length and nudity of its legs, and the want of a downy mass at the apex of the abdomen in the females.

† Sp. 1. *Vau-nigra*. PLATE 16. f. 2. ♀.—*Alis niveis, anticis V nigro parvo notatis*.
(Exp. alar. ♂ 1 unc. 9 lin.: ♀ 1 unc. 10 lin.)

Bo. *Vau-nigrum*. *Fabricius*.—*Leu. Vau-nigra*. *Steph. Catal. No. 6012*.

Wings snow-white, with the nervures slightly fuscous, and a deep black V-shaped spot in the centre of the anterior towards the costa, the point looking towards the base of the wings: antennæ with the shaft white, the radii fulvous: body and thorax white: legs white, slightly spotted with black.

Caterpillar dusky or rufous, with whitish lateral fascicles of hair, and eight loose dorsal tufts, the two anterior and three posterior of which are whitish, the rest rufous; the three anterior segments are thickly clothed with elongate fascicles directed forwards:—it feeds on the lime in June, and the imago appears in August: the pupa is greenish-blue, with a black spot on the thorax.

Of this very rare insect I have hitherto seen but five specimens, of which the collection at the British Museum, and those of Messrs. Haworth and Vigers contain one each, and a pair is in that of Mr. Swainson. Another specimen, I believe, was taken at Bromley, in Kent, in August 1827, and is in a collection at Birmingham.

Sp. 2. *Salicis*. *Alis albo-nitidis, radiis antennarum nigris, pedibusque atro annulatis*. (Exp. alar. ♂ 1 unc. 6—10 lin. ♀ 1 unc. 10 lin.—2 unc.)

Ph. Bo. *Salicis*. *Linné*.—*Don. i. pl. 30*.—*Leu. Salicis*. *Steph. Catal. No. 6013*.

Wings entirely of a rich glossy satiny-white: head, thorax, and abdomen of a clear snowy white: antennæ with the shaft white, the radii black: legs white, annulated with black. Female usually largest; the abdomen stouter, and less densely hairy.

Caterpillar dusky, spotted with red, with an interrupted series of white dots along the back; hair fulvous: it feeds on willows and poplars, and changes in June to a hairy pupa, within a loosely constructed cocoon; the imago appears in about ten or twelve days: the eggs are protected by a brittle silken substance.

Very abundant in certain seasons in the neighbourhood of London, committing great havoc amongst the poplars and willows; in plenty on the poplars near Chelsea, in July 1827, and in other parts during the past season.

With reference to the assembling propensity of the *Lep.-Pomeridiana*, an interesting notice is given in the Magazine of Natural History for November last, by Mr. Davies of Portsmouth, in which, amongst other facts, it is stated, that the writer, having bred some females of this species, had the windows of the room in which they were confined literally besieged by numberless males, anxious to obtain admittance to the objects of their desires.

GENUS LXVI.—PORTHESIA * *mih*i.

Palpi very short, descending, slightly hairy, cylindrical, triarticulate, the terminal joint exposed; the basal minute, about half as long as the terminal, the intermediate longest: *maxillæ* very short: *antennæ* short, especially in the females, acute, bipectinated in both sexes to the apex, the pectinations shortest in the females: *head* small, very pilose: *thorax* and *abdomen* somewhat robust and woolly: *wings* deflexed, subtrigonal, thickly clothed with scales: *legs* robust, short: *femora*, *tibiæ*, and *anterior tarsi*, densely fringed with elongate hairs. *Larva* with close fascicles of hair down the sides, rather longest on the neck, the back without tufts: *pupa* slightly hairy, acute, enclosed in a slight folliculus: *eggs* enveloped in down.

This genus, to which I have applied the name *Porthesia*, in allusion to the destructive habits of its larva, may be known from the two preceding by the opacity and texture of its wings, the stoutness and hairiness of its legs, the great bulk of the tuft at the apex of the abdomen in the males, and the downy mass in the females, the brevity of the antennæ, the minute basal joint of the palpi, and other less important characters. The larvæ also differ, and the eggs are enveloped in down.

Sp. 1. *chrysorrhœa*. *Niveus, ano barbato ferrugineo, radiis antennarum luteo-fulvis*. (Exp. alar. ♂ 1 unc. 3—7 lin. ♀ 1 unc. 7—10 lin.)

Ph. Bo. *chrysorrhœa*. *Linné.—Don. i. pl. 10.—Por. chrysorrhœa. Steph. Catal. No. 6104.*

Antennæ tawny-luteous, with the shaft white: palpi dusky-brown: head, thorax, and wings above snow-white, the latter with a dusky spot at the anal angle of the anterior, which spot is nearly, or quite obsolete, in the female, and sometimes nearly black in the male; the anterior wings beneath with a broad dusky cloud: abdomen white, with its apex bright tawny-luteous in both sexes.

The male has the base of the anterior wings frequently edged with black, and the anal spot composed of several smaller ones; and not unfrequently two or three dusky spots towards the base.

Πορθησις, vastatio.

Caterpillar dusky, with a broad red band on the back, divided by a narrow black line, and white spots on the sides, with another red line beneath; it is gregarious and polyphagous, feeding on white and black thorn, elm, oak, fruit-trees, &c. in June; the pupa is dusky, and the imago appears at the end of July or beginning of August.

Very abundant in certain years, but of late it has been rather scarce near London: it occurs in various parts of the country. "Common at Bottisham."—*Rev. L. Jenyns*. "Marton Lodge, Yorkshire."—*L. Rudd, Esq.* "Near York, and Newcastle-on-Tyne."—*W. C. Hewitson, Esq.* "Epping."—*Mr. H. Doubleday*.

Sp. 2. auriflua*. *Alis albis, radiis antennarum ferrugineis, abdomine barbato fulvo aut fusco.* (Exp. alar. ♂ 1 unc. 4—6 lin. ♀ 1 unc. 6—8 lin.)

Bo. auriflua. *Fabricius?*—*Ph. phæorrhæa.* *Don. x. pl. 555.*—*Por. auriflua.* *Steph. Catal. No. 6015.*

Wings above pure white; beneath with a narrow fuscous cloud on the costa of the anterior in the male, immaculate in the female: antennæ with the shaft white, the radii ferruginous: the abdomen white, the apex fulvous in the male, with the anal tuft brightest, dusky in the female, with the downy mass at the apex brown: head and thorax white.

Caterpillar dusky, with two red lines on the back, and an interrupted white streak on each side, with white lateral fascicles: it feeds gregariously on various plants, especially the white-thorn, and in some years its increase is enormous. In 1782, prayers † were ordered to be read in all the churches, to avert the supposed impending calamity, from the vast number of larvæ that abounded in that year, having despoiled so many trees of their foliage, and, it was feared, would extirpate the growing corn and grass. It changes to a dusky pupa, with paler rings: the imago appears in August.

Not very common of late years near London, but more frequent at Gravesend and Southend, where many specimens were captured during the past season. "Common near Bottisham."—*Rev. L. Jenyns*. "Near York, and Newcastle-on-Tyne."—*W. C. Hewitson, Esq.*

* The names of this and the preceding insect have hitherto been confused by English writers, like those of *Theclæ Pruni*, and *W. album*; the true *Pa. Pruni* of Linnè (of which a description will be given in my catalogue), not having been detected in Britain before July last: the reputed *Th. Pruni* (Vol. I. p. 77.) being the *Pa. W. album*, Hüb. and unknown to Linnè.

† In France these larvæ have so frequently appeared in such prodigious numbers, to the utter defoliation of the forests, as to induce the legislature to promulgate several ordonnances for their destruction.

GENUS LXVII.—HYPERCOMPA, *Hübner?*

Palpi very short, ascending, pilose, triarticulate, the terminal joint exposed; the basal joint tumid at the apex, as long as the second, terminal short, ovate: *maxillæ* considerably longer than the head. *Antennæ* simple, ciliated in both sexes: *head* small, clothed with short, compact, hair: *thorax* and *abdomen* not very stout, covered with close short velvety pile: *wings* deflexed, densely squamous; the anterior elongate-trigonate: *legs* robust, squamose. *Larva* with fascicles of hairs down the sides: *pupa* smooth, with a spine at the apex, enclosed in a loose web on the ground.

Both sexes of *Hypercompa* are remarkable for having the antennæ simple and ciliated; and they may be known with facility from the other *Arctiidæ* by the elongation of their *maxillæ*, which are much longer than the head, and spirally, but irregularly twisted.

I am not certain whether this be the type of the *Hypercompæ* of *Hübner*; but the exquisite beauty of the insect well accords with the name.

Sp. 1. *Dominula*. *Alis anticis viridi-atris, maculis albo-flavescentibus, posticis rubris nigro-maculatis.* (Exp. alar. 2 unc. — 2 unc. 2 lin.)

Ph. No. *Dominula*. *Linné.*—*Don.* iv. pl. 171.—*Hy.* *Dominula.* *Steph. Catal.* No. 6016.

Antennæ, head, and *thorax* black, the latter tinged with green, with two ochraceous-yellow streaks; *abdomen* red above, with a black dorsal line, dark green beneath; anterior wings deep black, with a rich silken green gloss, with several cream-coloured or ochraceous spots of various magnitudes, and more or less confluent, three at the apex small: posterior wings cinnabar-red, spotted with black on the anterior and posterior margins: *cilia* black: both surfaces of the wings nearly similar. The size of the spots varies considerably.

Caterpillar hairy, black, with three yellow longitudinal linear and white spots: it feeds on the hounds-tongue, willow, ash, nettle, archangel, &c.; changes into a brown pupa, in a loose web, mixed with pieces of leaves on the ground: the imago appears in June.

This elegant species was formerly taken in considerable plenty in the lanes near Charlton and Blackheath, but of late it has become scarce near London: it, however, has occurred in plenty at *Whittlesea-mere*, and in the *New-forest*. “Near *York*, once.”—*W. C. Hewitson, Esq.* “*Long Parish* and *Amesbury*.”—*Rev. G. T. Rudd.* “Not very uncommon in the neighbourhood of *Bottisham* and *Cambridge*.”—*Rev. L. Jenyns.* “*Teignmouth*, *Devon*, and *Oxford*.”—*Rev. W. T. Bree.* “Near *Barnstaple*, not uncommon.”—*W. Rad- don, Esq.*

GENUS LXVIII.—EUTHEMONIA * *mih*.

Palpi porrected, moderate, slightly hairy, triarticulate; the basal joint shorter than the second, the terminal rather slender: *maxillæ* short. *Antennæ* rather short, slender, bipectinated in the males, serrated in the females: *head* small, pilose: *thorax* and *abdomen* rather slender; the former hairy, the latter with a small tuft at the apex, and annulated: *wings* deflexed, densely squamous, trigonate: *legs* rather slender, the anterior with a compressed lobe on the inner edge, the posterior with spines at the apex: females smaller than males. *Larva* with short, closely set fascicles of hair: *pupa* rather elongate, with a spine at the apex.

Unless Euthemonia be divided from Arctia, the latter genus † should be restored to its artificial state, as left by Ochsenheimer, a retrograde movement which would tend rather to create error than to advance knowledge. The present genus differs very considerably from Arctia in its habit, and the proportions of the joints of the palpi are very dissimilar.

Sp. 1. Russula. *Alis luteis limbo sanguineo lunulâque fuscis, aut fulvis venis lunulâque rufis, posticis suprâ fasciâ marginali fuscâ.* (Exp. alar. ♂ 1 unc. 6—9 lin.: ♀ 1 unc. 4—5 lin.)

Ph. Bo. Russula. *Linne.*—Ey. Russula. *Curtis, i. pl. 21.*—Ar. Russula. *Steph. Catal. No. 6017.*

Male, with the thorax and anterior wings pale luteous, the costa towards the apex, the inner margin and cilia bright sanguineous, a fuscous lunulated spot in the middle more or less edged with sanguineous: posterior wings and abdomen yellowish-white, the former with a dusky lunate spot on the disc and a marginal fimbria of the same colour; cilia sanguineous: shaft of the antennæ and legs rufescent, radii of the former dusky. Female with the antennæ, head, thorax, and anterior wings, rufo-fulvous, the margins of the latter, nervures, and central lunule, bright sanguineous; the posterior wings fulvous, with the base, an ovate spot near the centre, and the margin, dull black: the abdomen black, with the edges of the segments pale fulvous. The marginal fascia in the posterior wings varies exceedingly; in some specimens it is nearly obliterated, in others interrupted by pale yellowish veins, and in some it forms a broad border, and the base of the wing is dusky.

Caterpillar dusky, with yellow lateral spots, and dull orange hair: it feeds on grasses, the plantain, scabious, hounds-tongue, &c.: changes in May to a reddish-brown pupa, in a web on the ground: the imago appears in June.

Far from uncommon on the warren and heathy places about Coombe-wood: the female, however, is rarely met with, owing to her sluggishness, and being generally concealed at the roots of plants:

* *Eυθημων*, concinnus.

† Eyprepia, *Och.*, which embraces Euthemonia, and the five following genera, with Eulepia and Deiopeia.

also copiously in the New-forest. "In considerable plenty on Stockton-heath, and near York."—*W. C. Hewitson, Esq.* "Not uncommon in Bottisham and Horningsea-fens."—*Rev. L. Jenyns.* "Sutton-park and Coleshill-heath."—*Rev. W. T. Bree.*

GENUS LXIX.—ARCTIA * *Schrank.*

Palpi porrected, short, very hairy, triarticulate, the basal joint longer than the second, the terminal ovate, or cylindric: *maxillæ* short. *Antennæ* rather long, slender, bipectinated in the males, serrated in the females, the serrations and pectinations terminated by a fine bristle: *head* small, pilose: *thorax* stout, densely pilose: *abdomen* robust, tufted at the apex in both sexes, transversely streaked or spotted: *wings* deflexed, densely scaly, elongate-trigonal: *legs* short, *femora* very pilose: *anterior tibiæ* with a compressed lobe. *Larvæ* solitary, cylindric, thickly clothed with elongate fascicles of hair, each fascicle arising from a tubercle; when touched roll themselves into a ring: *pupa* rather elongate, with a spine at the apex, enclosed in a loose extended web; eggs naked, deposited with regularity.

The lively and brilliant colours of the *Arctiæ* offer a splendid contrast to the sober and chaste hues of most of the foregoing genera of *Arctiidæ*, of which family this genus appears to be the type. From the preceding and following genera this may be known by the robustness of its thorax and abdomen, and by the latter being transversely striped or longitudinally spotted: the basal joint of the palpi longer than the second, and the antennæ rather elongated. The species hereunder given appear to differ considerably from each other; but as they will not associate with any other genus, and I have not an opportunity of being acquainted with their habits, &c., it must be understood that they are merely placed in this genus provisionally, as being apparently their best location.

Sp. 1. *Caja.* *Alis anticis fuscis rivulis albis, posticis rubris maculis orbiculatis atro-cæruleis nitidis.* (Exp. alar. ♂ 2 unc. 8—11 lin.: ♀ 2 unc. 9 lin.—3 unc.)
Ph. Bo. *Caja.* *Linne.*—*Don. i. pl. 15.*—*Ar. Caja.* *Steph. Catal. No. 6018.*

A highly beautiful insect: antennæ with the shaft white, the radii fuscous: head and thorax fuscous, the latter with a narrow ring anteriorly, and the apex posteriorly red: anterior wings fuscous, with numerous white irregularly waved strigæ: cilia brown, except at the anal angle, where they are white: posterior wings red, with the cilia flavescent, sometimes speckled with fuscous; with about seven small orbicular bluish-black spots, varying exceed-

* In restoring the name *Arctia* to this genus, I have adhered to the rule, which is with justice generally adopted, of employing that which has the claim of priority. Why *Ochsenheimer* should have rejected the term so aptly given by *Schrank*, I am at a loss to determine.

ingly in size and form, and delicately margined with fulvous: abdomen red, more or less transversely streaked with black.

Var. β . Anterior wings deep black, with bright cream-coloured strigæ: abdomen broadly fasciated with black.

Var. γ . Anterior wings with the basal half cream-coloured and immaculate, or with a few scattered brown spots, the apex as in var. α ; posterior with three or four bluish-black spots only.

Var. δ . Anterior wings cream-colour, with a few scattered brown spots; cilia ochraceous; posterior rufous, speckled with fulvous, with one small and two minute black spots, the latter nearly united, and resembling a colon; cilia yellowish.

Var. ϵ . Anterior wings as in var. α ; posterior and abdomen bright luteous, the latter broadly fasciated with black, the former with large bluish-black spots.

Var. ζ . Anterior wings brown, with pale flesh-coloured strigæ.

† Var. η . Anterior wings brown, with the hinder margin and strigæ white.

Var. θ . Anterior wings brown, with interrupted waved white strigæ; posterior with the spots united, and forming two transverse bands.

Var. ι . Anterior wings brown, with dusky strigæ, and a few irregular whitish spots: posterior blue-black, slightly rufescent on the inner margin.

† Var. κ . Anterior wings ochraceous, with interrupted whitish strigæ; posterior with small black spots.

The above are some of the more striking varieties of this protean species, scarcely two specimens of which agree precisely in colour and markings.

Caterpillars nearly black or brownish, with three elevated bluish tubercles on each segment laterally; hirsuties dusky-red; they feed on various plants, especially lettuces and chickweed: they are hatched in the autumn, and come forth in the spring, and change to pupæ in June, the moth appearing towards the end of July.

A very abundant species in the vicinity of London, and, I presume, throughout the chief part of England.

† Sp. 2. Matronula. *Alis anticis fuscus exterius flavo-maculatis, posticis flavis nigro sub-fasciatis.* (Exp. alar. 3 unc. 6 lin.)

Ph. Bo. Matronula. *Linné.—Turton (!)—Ar. Matronula. Steph. Catal. No. 6029.*

Larger than the preceding: anterior wings deep fuscous, with irregular, sometimes confluent, yellowish, or cream-coloured spots on the anterior margin, and a smaller one towards the anal angle: lower wings yellow or luteous, with two rows of interrupted black patches, disposed in bands: head and thorax fuscous, with sanguineous streaks, the latter with a lateral cream-coloured streak: abdomen sanguineous, with short transverse black fasciæ on the back.

Caterpillar pale brown, with the tubercles on which the hairs are placed, and the legs rufescent; it feeds on the lime.

This remarkably elegant insect is marked as a native of Britain by Dr. Turton, but, I believe, without sufficient authority.

Sp. 3. *Villica*. *Alis anticis atris maculis flavicantibus, posticis flavis nigro-maculatis*. (Exp. alar. ♂ 2 unc. 1—4 lin.: ♀ 2 unc. 2—6 lin.)

Ph. Bo. *Villica*. *Linné.—Wilkes, pl. 37.* Ar. *Villica*. *Steph. Catal. No. 6020.*

Anterior wings black, with about eight yellowish spots of different magnitudes; a large spatulate one at the base, emarginate externally, followed by two suborbicular ones placed transversely, then two much smaller also transverse, followed by two considerably larger than the rest, and finally a suborbicular one in the hinder margin: posterior wings yellowish, or luteous, more or less

‡ Sp. 4. *Hebe*. *Alis anticis atris albo-fasciatis, posticis sanguineis atro-maculatis*. (Exp. alar. 2 unc. 1 lin.)

Ph. Bo. *Hebe*. *Linné.—Martyn?—Ar. Hebe.* *Steph. Catal. No. 6021.*

Anterior wings deep black, irregularly fasciated with white, the apical fascia united by a transverse white bar: posterior wings sanguineous, spotted or fasciated with black: head black, posteriorly sanguineous: thorax black, with a sanguineous ring anteriorly: abdomen sanguineous, with the apex and a dorsal line black.

Caterpillar black, with the hirsuties griseous on the back, and red on the sides and abdomen: it feeds on the millefoil, dandelion, and other plants.

A very conspicuous insect, which has been improperly mentioned as an indigenous species; though I am not aware of the origin of the report.

‡ Sp. 5. *purpurea*. *Alis anticis flavis fusco-punctatis, posticis rubris nigro maculatis*. (Exp. alar. 2 unc. 2 lin.)

Ph. Bo. *purpurea*. *Linné.—Stewart (!)—Ar. purpurea.* *Steph. Catal. No. 6022.*

Head, thorax, and abdomen yellow, the latter with a streak of black spots on the back and sides: anterior wings also yellow, with various irregularly dispersed fuscous spots, the hinder margin immaculate: posterior wings red, irregularly spotted with black.

Caterpillar rough, cinereous, with whitish spots, the hirsuties fulvescent: it feeds on the currant; and the pupa is dark brown.

Stewart and Turton give this as a British species, but I apprehend without a proper investigation of the subject.

‡ Sp. 6. *aulica*. *Alis anticis griseis flavo-punctatis, posticis fulvis nigro-maculatis*. (Exp. alar. 1 unc. 8 lin.)

Ph. Bo. *aulica*. *Linné.—Martyn (!)—Ar. aulica.* *Steph. Catal. No. 6023.*

Head, thorax, and anterior wings griseous, the latter with various irregular yellow or whitish spots: posterior wings fulvous, irregularly maculated and banded with black: abdomen luteous, transversely fasciated with black.

Caterpillar with the six middle segments yellowish-white, the anterior and posterior dusky or griseous, the hirsuties flavescent: it feeds on the millefoil.

Martyn introduces this insect into his *Vade-Mecum*; but I have never seen an indigenous specimen, nor heard of one being captured: I therefore suspect that it is not British.

spotted with black, and an irregular black fascia at the apex: antennæ, head, and thorax black, the latter with a cream-coloured spot on each side: abdomen rufous, with a dorsal and lateral series of black spots.

Var. β . With the basal and two following spots on the anterior wings confluent.

Var. γ . With the basal and four following spots on the anterior wings confluent.

Var. δ . The apical spots on the anterior wings united.

The relative bulk of the respective spots on the anterior wings and their confluence varies considerably; and not unfrequently there are three or four small spots disposed in a band at the apex; the posterior wings are sometimes nearly immaculate, at others very thickly spotted, especially on the margin.

Caterpillar dusky, with blackish hairs, and fulvous tubercles; the head and legs red: it is polyphagous, but prefers chickweed: it is hatched in the autumn, and may be found in heathy places in the spring, while in quest of a situation to effect its change: the pupa is black: the imago appears towards the middle or end of June.

Not very common in the neighbourhood of London; but taken occasionally at Sydenham and Norwood; also at Birch, Darent, and Coombe woods, Hertford, Ripley, &c. "Not uncommon near Southend and at Deal."—*Rev. F. W. Hope*. "Suffolk."—*W. C. Hewitson, Esq.* "Rare near Cambridge."—*Rev. L. Jenyns*.

GENUS LXX.—NEMEOPHILA * *mihi*.

Palpi extremely short, enveloped in the hairs of the front, triarticulate, the joints of nearly equal length, subglobose, the basal largest, the terminal smallest, and slightly compressed: *maxillæ* very short. *Antennæ* rather slightly bipectinated in the male, the pectinations shortening towards the apex, serrated and ciliated in the female: *head* small, very pilose: *thorax* and *abdomen* rather slender, the former with elongated hairs in the male, the latter stoutest and acute in the female, tufted at the apex in the male: *wings* deflexed, opaque; scaly: *legs* rather short: *anterior tibiæ* with a spine on the inside; posterior with spurs at the apex. *Larva* cylindric, slightly tuberculated, each tubercle producing a fascicle of hair: *pupa* with a truncate projection.

Nemeophila has the thorax and abdomen rather slender; the antennæ but slightly bipectinated in the males; the wings opaque and squamous; and the palpi extremely short, enveloped in the hairs of the head, with all the joints of nearly equal length, subglobose, the apical one somewhat compressed.

Sp. 1. *Plantaginis*. *Alis anticis atris rivulis flavis, -posticis luteis margine maculisque nigris*. (Exp. alar. ♂ 1 unc. 6—8 lin.; ♀ 1 unc. 7—10 lin.)

* Νεμος nemus, φίλος amicus.

Ph. Bo. Plantaginis. *Linné.*—*Don.* iv. pl. 134.—*Ne. Plantaginis.* *Steph. Catal.*
No. 6024.

Anterior wings black, with two yellow spots on the costa anteriorly, and a longitudinal fascia arising at the base, and terminating on the hinder margin in a large dentate cross of the same: the posterior wings yellowish, with irregular elongate black spots at the base, and the hinder margin with an interrupted black fascia: head and thorax black, the latter with two fulvous spots anteriorly, and two yellowish ones laterally, and longitudinally streaked with yellowish: abdomen fulvous, with the back black. Female without the yellowish lines on the thorax, the spots and streaks on the anterior wings of a deep fulvous: posterior wings with the base black, sometimes with a yellow spot in the centre, the margin luteous, irregularly spotted with black: abdomen rufous, with a black dorsal line.

Var. β . The anterior wings with the spots and streaks pure white.

Var. γ . All the wings white, marked with black, as in var. α .

Var. δ . Male with the posterior wings luteous, slightly streaked and spotted with black.

Var. ϵ . Female with the posterior wings rufous or scarlet, spotted with black.

As in the Arctiæ this insect varies exceedingly.

Caterpillar black, with the six middle segments rufescent: it feeds on the plantain, and lives throughout the winter, changing in April to a dark pupa: the imago appears in the beginning or middle of June.

Not uncommon in certain years in Darenth-wood, which is the only locality that I have observed; the insect, however, is found in several other parts of the country. Var. γ was given to me by Mr. Dale, who took it in the north of England. "York and Westmoreland."—*W. C. Hewitson, Esq.* "Sutton-park."—*Rev. W. T. Bree.*

GENUS LXXI.—PHRAGMATOBIA * *mihi*.

Palpi short, very hairy, triarticulate, the basal joint the length of the second, and stouter; the terminal shortest, and ovate, obtuse: *maxillæ* rather spiral. *Antennæ* short, serrated, simple in the female, ciliated in both sexes: *head* very small, pilose: *thorax* stout, woolly: *abdomen* rather stout in both sexes, tufted at the apex in the males, acute and smooth in the females: *wings* deflexed, subdiaphanous; the anterior elongate, trigonate: *legs* stout: *anterior tibiæ* with a spine internally; two posterior pair with spurs at the apex. *Larva* very hairy: *pupa* with a slight spine, folliculated.

The abbreviated nearly simple antennæ in both sexes, robust thorax and abdomen, the latter spotted, and semi-transparent elongate triangular wings, well distinguish this genus; to these may be added

* Πρᾶγμος sepes, βίωω vivo.

the characters of the palpi, which have the basal joint as long as the second, and stouter, with the terminal very short and ovate.

Sp. 1. fuliginosa. *Alis anticis rufo-fuliginosis, puncto gemino nigro, posticis rubris, maculis marginalibus nigris.* (Exp. alar. 10 lin.—1 unc. 6 lin.)

Ph. Bo. fuliginosa. *Linné.*—*Don.* iii. pl. 80.—*Phr. fuliginosa.* *Steph. Catal.* No. 6025.

Antennæ pale rufescent, with black radii: head and thorax dusky-red: abdomen cinnabar-red, with a streak of spots down the back, and another along each side: anterior wings like the thorax, with one or two minute black spots at the apex of the basal areolet, the cilia bright red: posterior wings fine bright red, with the margin and some scattered spots on the disc black, cilia bright red.

The posterior wings are frequently nearly immaculate, and occasionally nearly all black, with the inner margin alone red; at other times they have the margin alone dusky. The form of the wings differs materially. I possess a pair which have the anterior very much elongated and attenuated, forming a remarkable contrast to the usual appearance. Can they belong to different species? Harris figures the common kind in his Aurelian, and another, which he considers distinct, in his Exposition; and there is considerable diversity in the larvæ.

Caterpillar ferruginous, with the head and anterior legs black; or slate-colour, with the head cupreous: it is polyphagous, but prefers plantain, dock, and nettle; is found in June, and the imago appears in the beginning of July.

I have once or twice found the ferruginous larvæ of this insect near Ripley, and occasionally at Darent-wood and near Hertford. "Near Dublin."—*Rev. J. Bulwer.* "West Moors, York, and Prestwick Carr, near Newcastle."—*W. C. Hewitson, Esq.* "Coles-hill."—*Rev. W. T. Bree.*

GENUS LXXII.—SPILOSOMA * *mihî.*

Palpi short, a little descending, triarticulate, the two basal joints very hairy, the terminal scaly, the basal joint somewhat longer than the second, the apical rather small, oval, subconic: *maxillæ* short. *Antennæ* slightly bipectinated in the mâles, serrated in the females, each articulation with a bristle at the apex: *head* rather small, hairy: *thorax* and *abdomen* rather stout in both sexes, the latter slightly tufted in the male, acute in the female; *wings* trigonate, deflexed, opaque: *legs* moderately stout: *anterior tibiæ* short, with a spine internally; the four posterior with spurs at the apex. *Larva* slightly tuberculated, each tubercle producing a whisker of hairs: *pupa* obtuse, folliculated.

We again arrive at a group of insects in which the predominant colour is white; but, unlike the former group of the same hue, the

* Σπιλος macula, σωμα corpus.

wings are more elongate, and are deeply speckled with black, and their bodies are spotted with the same colour, the spots being disposed in longitudinal lines. The species vary much, and some of the more remarkable varieties have been recorded as distinct species: their spotted bodies, combined with the opacity of their wings, exclusively of the structure of the palpi, &c. well distinguish them from the other Arctiidæ.

Sp. 1. Menthastri. *Alis albidis, aut pallidè ochraceis, punctis numerosis sparsis, lineolisque apicis atris.* (Exp. alar. ♂ 1 unc. 6—9 lin.: ♀ 1 unc. 6—11 lin.)

Bo. Menthastri. *Fabricius.*—*Don.* vi. pl. 189.—Sp. Menthastri. *Steph. Catal.* No. 6026.

Antennæ black: head and thorax white or ochraceous: abdomen luteous, with the tip snow-white, the back with one, and the sides with two lines of black dots: anterior wings whitish or ochraceous, irregularly spotted with black, with an oblique series of abbreviated black lineolæ: posterior wings white, with one or two black spots: legs black: the femora and tibiæ fringed externally with white hairs.

Var. β. With the spots on the anterior wings very minute and distant.

Var. γ. With the spots on the anterior wings large, and somewhat confluent.

Var. δ. As in var. γ; but the spots united into waving transverse strigæ.

Var. ε. PLATE 16. f. 3.—Anterior wings ochraceous, or white, with the base of the costa and edges of the nerves at the base of the wing black, the space between the nervures more or less filled in with black, the hinder margin sometimes spotted with black, at others immaculate: posterior wings more or less spotted with black.

† Var. ζ. *Curtis*, ii. pl. 92.—Pale buff-colour: anterior wings, with the costa and edges of the nervures towards the base, black, the spaces between the nerves on the posterior margin, and the margin itself, also black, with a few ochraceous spots on the fifth, sixth, and seventh areolets: posterior wings as in var. ε.

Caterpillar brown, faintly spotted with blue, with a yellowish dorsal line: it is polyphagous, but prefers nettle and fruit trees: it appears in the autumn, and changes in September to a reddish pupa, in a loose cocoon; and the imago appears in May.

Less common than *Sp. lubricipeda* near London, though not rare, except the varieties; whether the two last are truly referrible to the present insect I am not able to decide: var. ε seems to be not uncommon near Manchester; and Godart appears to give var. ζ as a variety of *Sp. Menthastri*. “*Kimpton.*”—*Rev. G. T. Rudd.* “*Cambridgeshire, common.*”—*Rev. L. Jenyns.* “*York and Newcastle-on-Tyne.*”—*W. C. Hewitson, Esq.* “*Epping.*”—*Mr. H. Doubleday.*

Sp. 2. *Urticæ?* *Alis albidis, anticis ferè immaculatis, posticis punctis tribus nigricantibus.* (Exp. alar. 1 unc. 7 lin.)

Bo. *Urticæ.* *Hübner?*—Sp. *Urticæ?* *Steph. Catal. No. 6027.*

Antennæ white, with dusky radii: head, thorax, and apex of the abdomen the same, middle of the latter slightly fulvescent, with a dorsal and two lateral streaks of black dots: anterior wings whitish, with a single minute black dot on the disc: posterior the same, with two dusky spots parallel with the hinder margin, and one larger and paler in the centre: legs white, the anterior, with the femora, fulvescent within, and the tibiæ with a narrow black streak: tarsi of all white.

This insect closely resembles the foregoing, if it be not a variety thereof: its chief distinction consists in the antennæ being white, the abdomen very slightly fulvescent, and in the greater purity of the white colour of the wings: it is the Bo. *Urticæ* of the Ent. Trans.; but whether the Bo. *Urticæ* of Hübner is referrible to this or to Sp. *papyratia*, which is of totally dissimilar form to the present, although somewhat similar in the colour of its antennæ, &c. I am unable to determine.

Of this species I have seen two specimens only, a female, in the collection of Mr. Haworth, and a male in my own: the latter was taken on Epping-forest, many years since; Mr. Haworth's specimen in Yorkshire.

Sp. 3. *Papyratia.* *Alis albis, anticis punctis discoidalibus lineolâque punctorum nigrorum ad apicem nigris, posticis sæpissimè immaculatis.* (Exp. alar. 1 unc. 6—8 lin.)

Ph. *Papyratia.* *Marsham, Linn. Trans. i. pl. i. f. 4.*—Sp. *Papyratia.* *Steph. Catal. No. 6028.*

Antennæ white, with black radii: head, thorax, and tip of the abdomen clear white, middle of the latter bright orange, with the usual dorsal and lateral lines of spots: anterior wings white, with two or four black spots on the disc, and an oblique streak of black dots (varying in number, and sometimes obsolete) at the disc: posterior wings generally immaculate white, sometimes with a dusky speck in the centre, and one or two obsolete ones near the margin.

Wings sometimes totally immaculate.

Caterpillar deep brown, with a few black spots: it feeds on various aquatic plants, especially the water-mint, white ladies bed-straw, &c. and is found in the autumn: the pupa is dusky, and changes about the middle of June to the imago.

Not common; but taken occasionally in the larva state in the marshy places near London; especially near the banks of the Croydon Canal, in the Isle of Dogs, Plaistow, and Hackney-marshes, &c.

Sp. 4. *lubricepeda*. *Alis flavescens strigâ obliquâ fractâ punctorum atro-
rum, thorace anoque luteis.* (Exp. alar. ♂ 1 unc. 6—9 lin.: ♀ 1 unc. 8—10
lin.)

Ph. Bo. *lubricepeda*. *Linné. Don. xvi. pl. 568.*—*Sp. lubricepeda. Steph.
Catal. No. 6029.*

Antennæ black: male with the head, thorax, and abdomen pale buff colour, the latter with one dorsal and two lateral lines of black dots: anterior wings yellowish or buff-colour, with a slight transverse band of black spots near the base, an oblique interrupted striga from the apex to the inner margin, where it becomes rather expanded, three or four black dots on the hinder margin, and a few on the centre of the costa: posterior wings rather paler, with a few black spots. Female pale or whitish, with the spots on the wings somewhat obsolete.

Var. β . Wings reddish buff, with the margins and cilia deep sanguineous, the markings as usual.

Both the colour and markings of this species vary exceedingly: in some specimens the former is of a rich orange-buff, in others paler, and some whitish; the strigæ and dots are sometimes nearly obliterated, at others they are so broad and deeply marked as to become fasciæ: occasionally the oblique striga ceases a little beyond the middle, and becomes incurved towards the costa: the posterior wings are sometimes immaculate, at others they have a central waved transverse striga of interrupted dots, and several marginal spots.

Caterpillar greenish, with pale fulvous hairs: it feeds on various herbaceous plants, in the autumn, and in June the imago appears.

A very common insect, I believe, throughout England, frequenting gardens and shrubberies, even in the centre of the metropolis itself. “York and Newcastle.”—*W. C. Hewitson, Esq.* “Kimpton.”—*Rev. G. T. Rudd.* “Cambridgeshire, common.”
Rev. L. Jenyns.

† Sp. 5. *radiata*. “*Alis anticis nigris maculâ magnâ lobatâ variisque flavican-
tibus.*”—*Haw. Ent. Trans.*

Be. *radiatus*. *Haworth.*—*Sp. radiatus. Steph. Catal. No. 6030.*

Anterior wings black, with a large lobate spot, and the nervures yellowish.

I regret not having it in my power to give a more detailed account of this species at present, but I hope in my Appendix to make amends for the omission.

I have seen one specimen only of this species, which somewhat resembles var. ζ of *Sp. Menthastri*: it is in Mr. Haworth's cabinet, and was taken in Yorkshire.

GENUS LXXIII.—DIAPHORA* *mihî*.

Palpi moderate, descending, triarticulate, the two basal joints very hairy, the terminal squamous, all of nearly equal length, cylindric, the basal one in-

* Διαφορά differentia.

curved, the terminal more slender than the others, obtuse: *maxillæ* rather longer than the head. *Antennæ* bipectinated in the males, serrated in the females, the pectinations incurved, and meeting at the apex: *head* very small, woolly: *thorax* stout, very woolly: *abdomen* slender in the male, robust and slightly acute in the female: *wings* subdiaphanous, deflexed, trigonate: *legs* short, stout; the *anterior tibiæ* short, with a spine on the inside, the posterior with spurs at the apex. *Larva* tuberculated, each tubercle producing a tuft of hairs: *pupa* acute, folliculated.

The sexes of this genus differ considerably from each other, but in each the wings are rather abbreviated (especially in the males), and but sparingly covered with scales: the thorax of both sexes, and the femora and posterior tibiæ of the male, are very woolly, and the palpi have the terminal joint as long as either of the others, and cylindric.

Sp. 1. mendica. *Alis maris cinereis, fæminæ albis, utroque atro punctatis.*
(Exp. alar. ♂ 1 unc. 2—4 lin.: ♀ 1 unc. 4—6 lin.)

Ph. Bo. mendica. Linné. *Linn. Trans. i. pl. 1. f. 3.*—Dia. mendica. *Steph. Catal. No. 6031.*

Male with the antennæ black: thorax and abdomen ashy-brown; the latter with obsolete black spots: wings fuscous; the anterior with six or eight scattered black spots, the hinder margin immaculate; posterior with three or four dusky ones towards the hinder margin, and a larger one on the disc. Female very dissimilar: antennæ black: head and thorax snow-white; abdomen grayish-white, with five rows of dusky spots, one dorsal, the others lateral; wings white, more or less spotted with black; the posterior generally with some larger spots near the hinder margin; the hinder margin of the anterior rarely spotted.

The maculations on the wings vary considerably: I possess one specimen with two minute dots only on the anterior wings, and one on the posterior; others with about fourteen on the anterior and ten on the posterior wings; and all intermediate grades, some with the cilia of the anterior wings also spotted.

Caterpillar cinereous; it feeds on various aquatic plants, in the autumn, and the imago is produced about the middle of May.

Not very uncommon in several places near London, especially in the marshy places near Dartford, Erith, &c. I once took a fine specimen, which had been impaled by a shrike on a whitethorn bush, in Epping forest. "Norwich."—*W. C. Hewitson, Esq.* "Epping."—*Mr. H. Doubleday.* "Marton Lodge, Yorks."—*Rev. G. T. Rudd.*

GENUS LXXIV.—PENTHOPHERA, *Germar.*

Palpi small, nearly concealed by hairs, porrect, biarticulate, the terminal joint very large, ovate, subacute: *maxillæ* obsolete. *Antennæ* deeply bipectinated

in the males, the pectinations long and slender, each terminated by three or four fine rigid hairs: simple in the female: *head* small, pilose: *thorax* robust in the males, smaller in the females: *abdomen* short in the males, subacute in the females: *wings* subdiaphanous, rounded in the males, small and lunulate in the females: *legs* slender; the anterior tibiæ with a spine internally, the four posterior with spurs at the tip. *Larva* tuberculated, each tubercle producing a fascicle of hairs.

The want of maxillæ distinguishes this genus from the preceding, Phragmatobia and Nudaria, with which it agrees in the texture and transparency of its wings, as well as from Spilosoma, and the foregoing genera, which have densely squamous wings. From Psyche and Fumea, the robustness of its body, and differently constructed wings and antennæ, well distinguish the males, and the females are known by having wings, which, however, are abbreviated, and thus approach towards the apterous ones of the following genera.

† Sp. 2. nigricans. *Fusco-nigra tinctura flavedinis, ciliis neurisque saturatoribus, abdomine subtùs tarsisque argenteo micantibus.* (Exp. alar. 1 unc. 2 lin.)

Pe. nigricans. *Curtis, v. pl. 213. Steph. Catal. No. 6033.*

“Male semitransparent, hairy, brownish-black with a yellowish tint; cilia and nervures darker, the former very short, superior (anterior) wings rather long and narrow: thorax and abdomen woolly, the latter beneath at the apex, and the tarsi silvery. Female unknown.”—*Curtis, l. c.*

This insect I have never seen: the figure above referred to appears to differ sufficiently from that of P. Morio to constitute a distinct species.

Taken by Mr. Dale, in June, 1824; West Parley coppice, Dorset.

GENUS LXXV.—PSYCHE, *Schrank.*

Palpi and *maxillæ* wanting, a minute loose tuft of hair occupying their place. *Antennæ* of the male rather short, bipectinated, the pectinations twisted, and very pilose; of the females very short, simple submoniliform, the two basal joints very large and robust, the rest small: *head* and *thorax* scarcely pilose,

† Sp. 1. Rubea. *Alis pallidè rufescentibus, puncto medio albido, fasciâ strigâque posticâ nigris.*

Bo. Rubea. *Fabric. Samouelle (!)*—Pe. Rubea. *Steph. Catal. No. 6032.*

All the wings pale rufescent, with a whitish dot in the middle, and a black fascia and posterior striga.

Caterpillar yellow, with two dusky stripes and some black dots anteriorly: it feeds on the oak: pupa brown, slightly hairy.

Introduced as British in Samouelle's Compendium, but evidently without any authority.

shining; *abdomen* of the males somewhat robust, densely pilose; of the females naked, rather glossy above, with a woolly mass at the apex, the *ovipositor* exerted, subtruncate: *wings* elongate, rounded posteriorly, very transparent, slightly hairy; wanting in the females: *cilia* moderate: *legs* slender, transparent, scarcely pilose; *posterior tarsi* with very short spurs at the apex. *Larva* enclosed in a case, composed of bits of leaves, &c. in which it changes to an elongate *pupa*.

This curious genus and *Fumea* are remarkable for the singularity of their habits, and ought possibly to constitute a family by themselves, rather than be associated with the *Arctiidæ*; but, unless that family be considerably dismembered, no great advantage would arise from their separation, and their present location is unquestionably not far from their natural position, as pointed out by the genera *Penthephora* and *Nudaria*, which have evidently considerable affinity in their perfect states, the former genus being destitute of maxillæ, with semitransparent and almost scaleless wings (abbreviated in the females of some of the species), and *Nudaria* resembling them in the texture of the latter organs, and in their want of scales. Dr. Horsfield places them with the *Hepialidæ*, to which he unites them by means of the singular genus *Oiketicos*, of *Guilding*; but, although the larvæ may indicate the affinity, the imago is more allied to the *Arctiidæ*; but these affinities may be readily comprehended by the diagram to which I have before alluded, and which clearly shows that it is impossible to define the absolute line of demarcation in the larger groups, and that, although writers necessarily differ in the linear arrangements, such differences are more apparent than real.

Sp. 1. *fusca*. PLATE 18. f. 3 ♂ f. 4 ♀. *Alis pallidè fuscis, concoloribus, immaculatis, abdomine dilutè cinerascete.* (Exp. alar. ♂ 8—9½ lin. ♀ aptera, long. corp. 2—2½ lin.)

Nu. *fusca*. *Haworth*.—Ps. *fusca*. *Steph. Catal. No. 6034.*

Male with the antennæ dusky-brown: the thorax grayish-black; the abdomen pale cinereous, with an ochraceous tinge: wings very transparent, all pale cinereous-brown, immaculate: legs and under side of the thorax and abdomen pale ochraceous ash. Female apterous, with the head and thorax very glossy dusky-brown; the abdomen dusky, and rather shining on the back, the sides cinerascete: legs pale transparent ashy-colour.

“ I first took the larvæ in *Hornsey-wood*, in the summer of 1820, and reared two males; after several unsuccessful seasons, I again met with them and the pupa on 22d June and 4th July, 1827, in great abundance, on the leaves of the hazel and willow, and on the leaves and trunks of young oaks, from which I bred only three males, nearly all the larvæ being infected with ichneumons.

“ Again in June last I procured another considerable supply of both larvæ and pupæ, some only half the size of the others, from the largest of which I obtained four males and two females, in the beginning of July; the larvæ on the smaller cases being still alive (Nov. 24.); from which I conceive that they remain at least two seasons, if not more, before they attain perfection*: which opinion is strengthened by the fact of my taking the young larvæ† on 17th July, 1827, under three-fourths of a line in length, including the case, which are now but four lines long, and which I fed at first on the leaves of the sallow, the cuticle of which they devoured, and with the downy portion they formed their cases; during the winter they remained fixed to the upper part of the inverted glass in which they were placed (having made the sides easy of ascent, by covering them with a fine silken web); and in March they began to stir, when I supplied them with the buds of white-thorn and afterwards with sallow; they gradually increased the size of their cases, and added to them fine saw-dust and pieces of leaves; and after a few weeks they again became immovably fixed, and from each of them the Chalcideous insects alluded to in the note were produced; and their extremely slow growth not only indicates their anomalous longevity, but satisfactorily shows why they are so obnoxious to the attacks of parasites. The females never leave their cases; and from previous ignorance of that fact, I am not confident whether any of the larvæ taken in June 1827 produced any of that sex.”—*Mr. Ingpen.*

How the union of the sexes takes place it is difficult to imagine, as the female does not leave her birthplace, and the extraordinary smallness of the latter sex is very remarkable.

For the above interesting facts I am indebted to my friend Mr. Ingpen, who has also taken the insects at Highgate: specimens were also taken, many years previously, by Messrs. Hatchett and Bydder, I believe in or near the same locality.

GENUS LXXVI.—FUMEA, *Haworth.*

Palpi and *maxillæ* wanting, their place occupied by a tuft of elongate hairs. *Antennæ* of the male elongate, bipectinated, the pectinations subclavate, ciliated, and straight; of the female very short, simple, the two basal joints largest; *head* pilose anteriorly: *thorax* slightly hairy, and generally glossy: *abdomen* of the male pilose, with a tuft at the apex, of the female more robust, with a woolly mass at the tip: *wings* incumbent, of the male diaphanous, deeply ciliated, pilose, of the female wanting: *legs* rather stout, the *posterior*

* Thereby approaching in the duration of their lives to some of the Hepialidæ.
—*J. F. S.*

† “ Which larvæ, although taken so young, produced a great abundance of Chalcideous parasites in June last; the eggs of which must either have been deposited in the young larvæ upon leaving the egg, or in the latter, if not introduced upon the leaves upon which they were nourished.”—*Mr. Ingpen.*

tibiæ very pilose, with elongate spurs at the apex. *Larva* enclosed in a case, in which it changes to *pupa*.

Like the preceding genus, the males of this have the antennæ pectinated; but the pectinations, instead of being incurved, are straight, subclavate, and ciliated; the wings are very transparent, abbreviated, pilose, and strongly ciliated; the females are wingless; and both sexes appear to be destitute of trophi, a broad tuft of hairs alone occupying their place.

Sp. 1. nitidella. *Alis subelongatis, fusco-nitidis, margine cinerascete.* (Exp. alar. 5—5½ lin.)

Ti. nitidella. *Hübner.*—Fu. nitidella. *Steph. Catal. No. 6035.*

Wings entirely of a bright shining fuscous, with the margins cinerascete; the anterior a little elongate, the posterior rounded: antennæ and legs gray-brown; abdomen dusky. Female ochraceous-ash, with the head chestnut-brown, some grayish spots on the thorax, and the apex of the abdomen woolly. Caterpillar rufescent or yellowish, with the head castaneous, and a line of the same colour on the three first segments; the case is formed of bits of grass and leaves: the pupa of the male is slender, and brown; the female stouter and brownish-yellow.

Of this species I possess a pair, taken by myself, in the lane leading to Darenth-wood from the village, in July.

Sp. 2. pulla. *Alis rotundatis atris immaculatis, undique margine piloso cinctis, antennis parum pectinatis.* (Exp. alar. 5 lin.)

Bo. pulla. *Esper.*—Fu. pulla. *Steph. Catal. No. 6036.*

Antennæ dusky, rather slightly pectinated; head, thorax, and abdomen deep black, the latter brownish at the sides and apex, and the former very hairy: wings rounded, very pilose, deep immaculate brown, with the anterior margin pilose, and the cilia rather elongate.

My specimen of this very distinct species was caught by myself in June, in the lane leading into Darenth-wood from Greenhithe: it appears to be scarce.

Sp. 3. muscella. *Alis oblongiusculis obscure hyalinis, corpore atro hirtò, antennis valde pectinatis.* (Exp. alar. 5½—6 lin.)

Bo. muscella. *Fabricius.*—Fu. muscella. *Steph. Catal. No. 6037.*

Antennæ dusky-black, deeply pectinated: head, thorax, and abdomen black and hairy, the sides of the latter paler: wings slightly oblong, obscurely hyaline, of a deep immaculate black, with the margins darker, the fringe long and dusky-black.

Found in grassy places amongst furze: I have seen many and captured several on Hertford-heath in June, and it has also been taken in Epping Forest and Dartford-heath.

Sp. 4. Bombycella? *Alis rotundatis obscure hyalinis lividis, fusco irroratis.*
(Exp. alar. 6—6½ lin.)

Ti. Bombycella? *Hübner.*—Fu. Bombycella. *Steph. Catal. No. 6038.*

Antennæ with the shaft yellowish, the radii dusky-brown: front hairy, slightly ochraceous: thorax and abdomen dusky: wings rounded, obscurely transparent, of a livid brown, with darker fuscous spots, the margin rather dusky, with a deep yellowish-gray fringe.

Apparently very rare: I have two specimens, one of which I obtained from Mr. Marsham's collection, the other from a dealer. Mr. Haworth has specimens of his own taking.

Sp. 5. pectinella. *Alis rotundatis cinereo-fuscis, hyalinis, immaculatis, margine brunneo.* (Exp. alar. 6 lin.)

Bo. pectinella. *Fabricius.*—Fu. pectinella. *Steph. Catal. No. 6039.*

Antennæ dusky-brown, with the radii palest: front hairy and dusky: thorax and abdomen fuscous: wings rounded, immaculate, transparent ashy-brown, with a narrow darker margin, the nervures dusky, fringe yellowish-gray.

Also rare. I possess one specimen, which I obtained from Mr. Francillon's collection. Mr. Haworth has one, which he purchased of a dealer.

GENUS LXXVII.—NUDARIA, *Haworth.*

Palpi minute, curved upwards, squamous, triarticulate, the two basal joints of equal length, the terminal minute, cylindric: *maxillæ* longer than the head. *Antennæ* simple in both sexes, ciliated beneath in the males; the basal joint robust, elongate, with a dense hairy tuft: *head* with a dense fascicle of hairs between the antennæ: *thorax* not crested: *abdomen* pilose, slender in the males, with a tuft at the apex, more robust in the females, the tip rather conical: *wings* slightly deflexed, more or less elongate, rounded posteriorly, diaphanous, pilose: *legs* rather slender, naked, the two posterior joints with spurs at the tip. *Larva* exposed, hairy; *pupa* obtuse.

Nudaria has the wings remarkably transparent, and may be known from the rest of the Arctiidæ (except Hypercompa) by the length of its maxillæ, which considerably exceeds that of the head: the antennæ are simple in both sexes, with the basal joint remarkably large and ovate, and the palpi are minute and squamous: their flight is nocturnal.

Sp. 1. mundana. *Alis subhyalinis, lutescente-albidis strigis duabus undatis punctoque medio fuscis.* (Exp. alar. 9—11 lin.)

Ph. At. mundana. *Linné.*—Nu. mundana. *Steph. Catal. No. 6040.*

Antennæ ochraceous-brown; head, thorax, and abdomen woolly grayish-white: the anterior wings lutescent-white, with two undulated fuscous strigæ, one

towards the base, the other behind the middle, with a round fuscous spot between, towards the costa; posterior wings immaculate.

Var. β . With a fuscous cloud at the base of the anterior wings, on the costa; and a denticulated striga on the hinder margin.

Caterpillar hairy, brown; it feeds upon lichens: pupa brown, with the abdomen greenish, speckled with black: the imago appears in August, and frequents hedges.

Not uncommon in several places near London; in great plenty near Ripley, and also at Darenth-wood near Hertford. "Alderly, Cheshire."—*Rev. C. Stanley*. "Sundridge, Kent, in July, 1825."—*Mr. Ingpen*.

Sp. 2. Hemerobia. *Alis hyalinis, immaculatis, limbo squamoso ciliisque lutescentibus.* (Exp. alar. 6—10 lin.)

Bo. Hemerobia. *Hübner*.—Nu. Hemerobia. *Steph. Catal. No. 6041.*

Distinguished by the transparency of its wings, which are beautifully iridescent: immaculate, with the nervures slightly tinged with ochraceous, the entire margin squamous, and with the fringe lutescent or yellowish.

Were it not that I have frequently reared this insect from the larva, I should be induced to think, with Ochsenheimer, that it was a mere wasted example of the foregoing species; but on first emerging from the pupa, the wings have been perfectly transparent and immaculate.

Taken occasionally at Darenth-wood at the end of July.

Sp. 3. senex. PLATE 18. f. 2. *Alis rotundatis, sordidè lutescentibus, anticis maculâ mediâ punctulisque fuscis perparcè notatis, posticis puncto medio fusco.* (Exp. alar. 8—9 lin.)

Bo. senex. *Hübner*.—Nu. senex. *Steph. Catal. No. 6042.*

Antennæ, head, thorax, abdomen and legs pale ochraceous, or cinerascens: wings rounded, anterior lutescent, with a round dusky spot a little beyond the middle, various minute brown spots on the nervures towards the base, disposed in a striga, and between the larger spots and the margin a series of elongate spots or lineolæ also on the nervures; the tip of the wing a little clouded with dusky, the cilia flavescens, with dusky spots: posterior wings rather paler, with some obsolete spots towards the margin, and a larger central lunate one: cilia flavescens, obsoletely spotted with dusky. There is sometimes a dusky patch at the base of the anterior wings, and the costa is clouded with the same colour.

Very scarce near London; two or three specimens, of which I possess one, have been taken in Battersea-fields; but on the borders of Whittlesea Mere the insect occurred in considerable plenty in July 1825, and the following season.

GENUS LXXVIII. HETEROGENEA, *Knoch*.

Palpi minute, densely clothed with scales, triarticulate, the second joint longest, the last minute: *maxillæ* wanting: *Antennæ* of the female simple, slightly

pubescent at the tip, with a small tuft of hairs at the end: *head* slightly hairy; *thorax* and *abdomen* scaly: *wings* opaque, scaly: *anterior* subtriangular, acute, *posterior* suborbiculate; *legs* rather slender, *posterior tibiæ* short, robust, with rather long spurs at the apex. *Larva* ovate, without legs, naked, depressed: *pupa* folliculated.

Heterogenea differs in the imago state from *Limacodes* by the form of its anterior wings, which are trigonate and somewhat truncated posteriorly; the thorax and abdomen are rather slender, and the antennæ, at least in the female (the only sex I possess, or have had an opportunity of examining), are more slender than in that sex of *Limacodes*: the palpi are very minute.

Sp. 1. Asellus. PLATE 17. f. 2. *Alis luteo fuscescentibus, posticis saturatioribus* (Exp. alar. 6—9 lin.)

Hep. Asellus. *Fabricius*.—He. Asellus. *Steph. Catal. No. 6043.*

Antennæ, head, thorax and abdomen pale luteous, tinged with ferruginous; anterior wings immaculate glossy, lutescent brown; the cilia dusky: posterior fuscous, slightly tinted with luteous, with dusky cilia.

Caterpillar ovate, red, with a yellow dorsal line, spotted with black, the sides green: it feeds on the poplar: the pupa brown, folliculated.

Of this insect I have seen but five examples, in different cabinets; all but one of which were captured in the New Forest, near Lyndhurst. “Kimpton.”—*Rev. G. T. Rudd.*

GENUS LXXIX.—LIMACODES, *Latreille.*

Palpi short, a little ascending, densely clothed with scales and short hairs, triarticulate, basal joint short, second as long as the other two, robust, subcylindric, terminal, the length of the first, slender, subfusiform, slightly acute: *maxillæ* obsolete. *Antennæ* simple, of the male stout, compressed, rather serrated, pilose at the apex, of the females slender, a little serrated towards the apex, which is acute: *head* moderate, very hairy: *thorax* stout: *abdomen* slightly robust, a little tufted in both sexes at the apex, rather stoutest in the females: *wings* opaque, deflexed; *anterior* elongate, subtrigonate, posterior margins rounded: *legs* very stout, short; *femora* and *tibiæ* with a broad fringe of hairs; *anterior tibiæ* simple, four posterior, with spurs at the apex. *Larva* very stout, naked, limaciform, gibbous above, flat beneath, apodous: *pupa* robust, obtuse, posteriorly acute; enclosed in a dense ovate folliculus.

Limacodes and the preceding genus differ in their metamorphoses from the other Arctiidæ; but, in their final state, their resemblance is certainly greater to the insects of that family than to the Bombycidæ; amongst which, or rather in the group containing

the genus *Saturnia*, Dr. Horsfield is inclined to place them, from the consideration of their larvæ: but as my limits will not permit me to discuss the point here, I must refer to the introduction to my Catalogue for my ideas respecting their location. The present genus differs from *Heterogenea* at first sight by the stoutness of its thorax and abdomen, the elongation and rotundity of its anterior wings, and the robustness of its antennæ; the proportions and comparative bulk of the palpi, and other less evident characters.

Sp. 1. Testudo. *Alis fulvis, aut ferrugineis, strigis duabus obliquis obscurioribus.* (Exp. alar. ♂ 8—11 lin.: ♀ 10 lin.—1 unc. 4 lin.)

Hep. Testudo. *Fabricius.*—Ph. Testudo. *Wilkes, pl. 88.*—Li. Testudo. *Steph. Catal. No. 6044.*

Anterior wings deep fulvous, clouded with dusky, with an oblique dusky stria, reaching from near the base of the inner margin to about the middle of the costa, and another extending from the costa, a little behind the middle, nearly to the anal angle; cilia dusky: posterior dusky-black, sometimes fulvescent on the inner margin; cilia dusky-fulvous, deepest at the base. Female with the anterior wings deep unclouded tawny, and slightly ferruginous, with the cilia concolorous; posterior fulvous, thickly irrorated with dusky; cilia pale tawny: markings of the anterior wings as in the male.

This insect varies much; in some cases the males have the anterior wings clouded with large patches of fulvous, and others nearly immaculate: the females have the posterior wings occasionally nearly fuscous:—both sexes have frequently the rudiments of a second striga parallel with the usual basal one.

Caterpillar green, with two whitish dorsal lines: it feeds on the oak; and is to be found at the beginning of September: the imago appears towards the end of June.

In certain seasons this insect is taken in tolerable plenty at Darent-wood; and I have captured as many as a dozen males in one day, while flying amongst the underwood, a little after noon; but, on the whole, the insect may be esteemed rare. It not only occurs in that neighbourhood, but at Birch Wood, the woods near Chisselhurst and Sydenham; and it has likewise been taken within this twelvemonth near Ipswich.

LEPIDOPTERA NOCTURNA.

By which term, as being the typical group, I shall include such insects only as possess the following characters:

Palpi two, most frequently compressed; the second joint usually large; the terminal short: *maxillæ* in general elongate, rarely abbreviated; never

wanting: *antennæ* simple, occasionally pectinated, but mostly ciliated in the males, rarely serrated: *head* not very small: *thorax* stout, very frequently crested: *body* moderately stout, the apex of the males tufted: *wings* subtri-
gonate, generally deflexed, rarely convoluted, sometimes horizontal or in-
cumbent, undivided. Larva generally with sixteen feet, rarely fourteen, the
anal ones never deficient: pupa generally subterranean.

The almost insurmountable difficulties that present themselves, at nearly every step, in our endeavours to detect the characters of Lepidopterous insects, are in no place more evident than amongst the insects of this subdivision, owing to their great similitude, and the obscurity of their characters; the trophi, which are such important organs in other orders, being more or less enveloped in scales or hair. We must therefore select our characters from external differences of outline, colour, and texture; as also from the structure of the *antennæ*, the disposition of the wings, &c. during repose, and as far as practicable from the metamorphoses and economy: but, with all these aids, the insects approximate so closely, that, notwithstanding the diversified materials of which the Nocturna are manifestly composed, it is utterly impossible to frame characters for the various genera, that shall include every species truly belonging to each respectively, and exclude such as do not.

If the metamorphosis be taken as a primary guide in the subdivision of the Lepidoptera into families, we must doubtless consider the indigenous Nocturna as composed of several; the first of which has a larva attenuated at each end, and more or less hairy, with sixteen legs: the second a cylindrical larva, generally naked, but sometimes thickly clothed with hair, and always having sixteen legs; the third of such insects as have a naked larva with fourteen legs; and a fourth of such as have a larva with sixteen legs, but the two anterior abdominal ones evidently shortest, the body naked, ciliated laterally, and frequently having two prominences on the anal segment; though, as the perfect insects resemble each other so greatly, and their characters are manifestly not only excessively obscure, but have not been examined with sufficient accuracy to the requisite extent, I shall merely subdivide the present group into the two following families, which appear to be sufficiently distinct.

Alæ { valdè elongatæ; sæpissimè convolutæ: *palpi* cylindrici: . 1. LITHOSIIDÆ.
vix elongatæ; haud convolutæ: *palpi* subcompressi: . 2. NOCTUIDÆ.

FAMILY I.—LITHOSIIDÆ *mihi*.

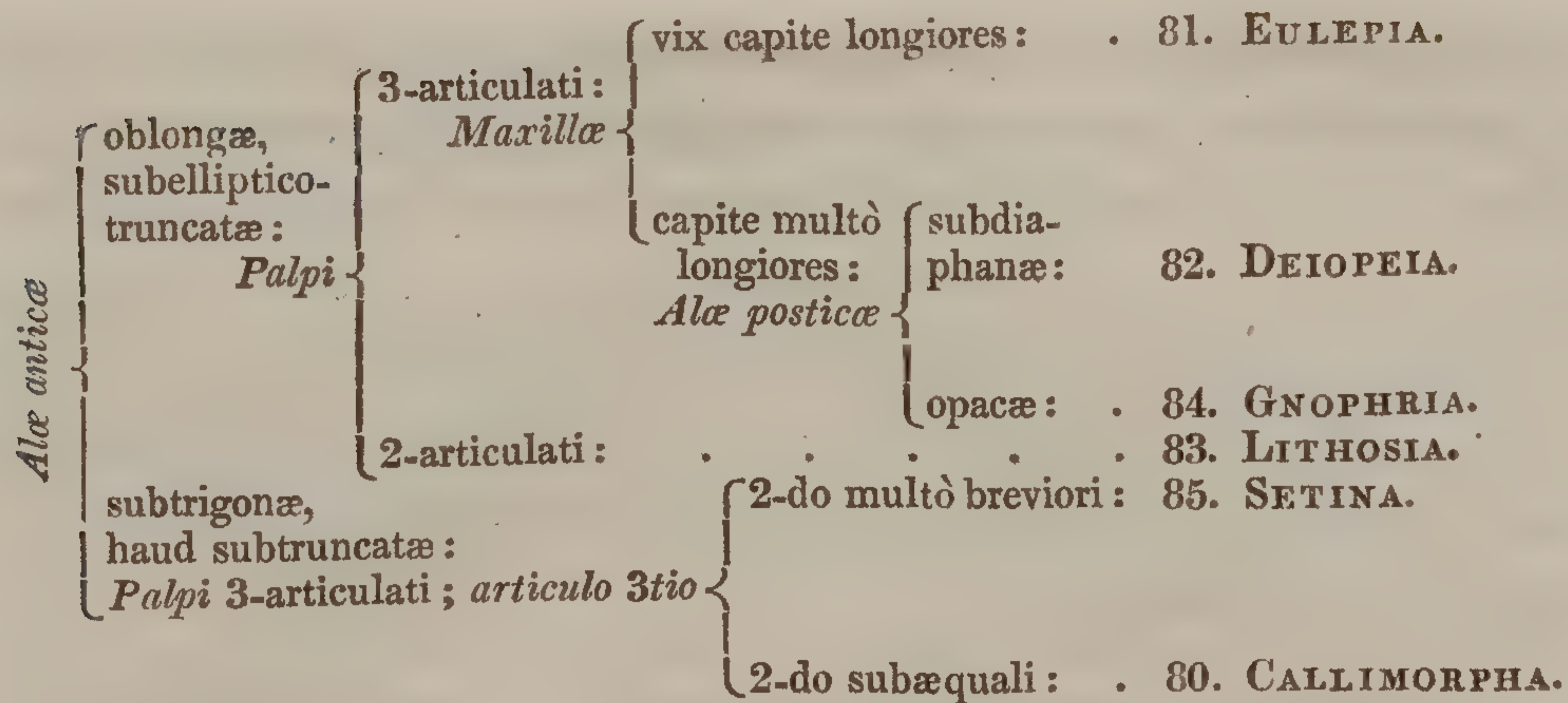
Antennæ moderate, very slender, setaceous, sometimes pectinated or ciliated in the males: *palpi* not longer than the head, cylindric, terminal joint as short as, or shorter than, the second: *maxillæ* generally longer than the head: *wings* horizontal, somewhat elliptic, the posterior much folded, the anterior without stigmata: *thorax* not crested: *body* slender. Larva fusiform, sometimes hairy, with sixteen legs, solitary, either residing in a common web, or subcutaneous: pupa generally folliculated.

The insects comprised in this family were arranged by Linné either amongst the Tineæ, Bombyces, or Noctuæ; and the accuracy of such arrangement evidently accords with nature, as it appears to me that their resemblance in certain particulars with the three groups results entirely from the station they apparently occupy in the scale of creation, and which the system of Mr. MacLeay so beautifully illustrates. Callimorpha is doubtless allied to the Arctiidæ, through the medium of Hypercompa; Eulepia and Deiopeia to the Tineidæ, and the remaining genera to the Noctuidæ: but I conceive that the affinity of the three genera here named is not sufficiently close to warrant their being placed in either of the three families alluded to, but that all agree sufficiently with each other, and moreover have so many characters in common with the Noctuidæ, as to justify their union as a family among the Nocturna.

As in the Nocturna generally, the Lithosiidæ repose during the day on trunks of trees or amongst their branches, and fly in the twilight and darkness.

Their larvæ are unquestionably unlike those of the Tineidæ, but strongly resemble those of the Arctiidæ and of many groups of Noctuidæ; being cylindric, with each extremity slightly attenuated, frequently clothed with elongate hairs, placed in tufts, and having sixteen feet, placed as in the above families; they are solitary and exposed, and do not live gregariously in a web, or subcutaneously, like those of the Tineidæ.

I shall divide the indigenous species into the following genera, thus briefly characterized:

GENUS LXXX.—CALLIMORPHA, *Latreille*.

Palpi short, a little descending, or horizontally porrected, slightly hairy, triarticulate, the basal joint elongate-ovate, as long as the two following, which are of equal length, and subovate or attenuated, with the terminal one acute: *maxillæ* longer than the head. *Antennæ* setaceous, slightly ciliated in the males: *head* small, rather hairy in front: *thorax* and *abdomen* clothed with silken scales; the latter somewhat robust in the female, slightly tufted in the males: *mingæ* rather broad, *anterior* elongate-trigonate, with the hinder margin rounded, or subelliptic: *legs* moderate; *tibiæ* short, the posterior with two pair of spurs. *Larvæ* sparingly covered with hairs, or densely pilose, the head nearly naked: pupa obtuse or acute.

The two insects which I have, with the utmost reluctance, associated together in this genus, differ so considerably, both in their perfect and larva state, that it becomes necessary to notice their respective distinctions. The proportions of the joints of the palpi* are the same in both species, but in *Ce. Jacobææ* the palpi are comparatively stout, with the two apical joints abbreviated, and the terminal one obtuse; in *Ce. miniata*, on the contrary, they are slender, with the apical joints greatly attenuated and elongated, the terminal one being subulated and very acute: the form of the wings is very dissimilar; in the first species the hinder margin of the anterior is gradually rounded, whereas in the second the costa is somewhat obliquely truncated, and the hinder margin obtusely elliptic: other differences of the perfect insects might be pointed out, especially the singularity of colouring in the first species, which is the only indi-

* Although these organs differ exceedingly in form and proportion in the various groups of Lepidoptera, I think it questionable whether we ought to consider the characters derived therefrom of a primary or secondary nature, inasmuch as there is but slight difference in the method employed by those insects for taking their pabulum, which consists of the nectareous juices of flowers alone.

genous Lepidopterous insect that has both surfaces precisely similar: the larvæ of *Ce. Jacobææ* are but slightly pilose, and feed upon flowers; whereas those of *Ce. miniata* are densely clothed with hairs, and subsist upon leaves: the latter are solitary, but the former are somewhat gregarious, and in that respect agree with those of the *Arctiidæ*, with which family this genus has evidently so great an affinity that Latreille and others have generally associated it with the genus *Hypercompa*.

Sp. 1. *Jacobææ*. *Alis anticis utrinque fusco-cinereis, lineis maculisque duabus rubris, posticis rubris nigro-marginatis.* (Exp. alar. 1 unc. 6—11 lin.)

Ph. No. *Jacobææ*. *Linné*.—*Don*. ii. pl. 45.—*Ca. Jacobææ*. *Steph. Catal.* No. 6045.

Antennæ, head, thorax, abdomen, and legs black: anterior wings on both sides ashy-brown, with a longitudinal sanguineous streak towards the costa, and another abbreviated one on the inner margin at the base, and two spots of a similar colour on the hinder margin: posterior wings also similar on both surfaces, bright sanguineous, with the costa irregularly fuscous; fringe of all ashy-brown, excepting on the anal angle of the posterior, where it is sanguineous.

Var. β . The sanguineous colour converted into a pale luteous.

Caterpillar slightly hairy, black, annulated with yellow; it feeds on the flowers of the ragwort, and is most abundant at the end of June, when it changes, in a slight cocoon, to an obtuse reddish pupa; the imago appears in the following May.

Very abundant in the larva state in Darenth-wood; also at Hertford, in Epping Forest, at Ripley, and in a sand-pit near Charlton. "Scarce near Kimpton; found at Amesbury and at Marton Lodge, Yorks."—*Rev. G. T. Rudd*. "Near York, and in Suffolk."—*W. C. Hewitson, Esq.* "Common in Cambridgeshire."—*Rev. L. Jenyns*. "Abundant near Barnstaple, Devon."—*W. Raddon, Esq.*

Sp. 2. *miniata*. *Alis miniatis anticis strigis tribus nigris, secundâ undatâ, tertiâ punctatâ.* (Exp. alar. 10 lin.—1 unc. 4 lin.)

Ph. *miniata*. *Forster*.—Ph. *rosea*. *Don*. ii. pl. 40. fig. inf.—*Car. miniata*. *Steph. Catal.* No. 6046.

Antennæ luteous, with dusky ciliæ: head and thorax lutescent, abdomen paler, with the sides and under surface, in the males, fuscous: anterior wings dark rose colour, with one or two black spots at the base, then an undulated black striga, followed, behind the middle, with an oblique very much undulated one of similar hue, and on the margin a bent series of distinct black dots, varying in number: posterior wings paler, or ochraceous, immaculate, with the margin rose coloured: cilia of all pale luteous.

Caterpillar brown, with long gray hairs placed in tufts; the head reddish brown, with orange pubescence: it feeds on the birch, ash, and oak in the spring,

and the imago appears towards the end of June and beginning of July: the pupa is brown and acute; it is enclosed in a stout web, composed of silk and hairs.

Not very abundant, but found in several places in the metropolitan district; especially near Darenth-wood; and not very uncommon in a woody lane near Ripley, where I obtained several specimens during the two last seasons. I have also taken it at Hertford, Highgate and Colney Hatch woods, &c. "York."—*W. C. Hewitson, Esq.* "Coleshill."—*Rev. W. T. Bree.*

GENUS LXXXI.—EULEPIA, *Curtis.*

Palpi very short, bent upwards, slightly clothed with scales, obscurely triarticulate, basal joint as long as the other two, incurved; the other joints equal in length, rather more slender than the basal, the terminal one ovate-conic: *maxillæ* scarcely longer than the head. *Antennæ* bipectinated in the males, simple in the females, each joint in the latter sex bearing two short setæ: *head* small, squamous: *wings* oblong, convoluted: *legs* moderate, posterior with two pair of spurs. Larva slightly hairy. Pupa obtuse, folliculated.

This genus was separated by me from the *Eyprepia* of Ochsenheimer, about twelve years ago; the propriety of which is manifest by its characters having been since published by the name which is here retained. It differs principally from *Deiopeia* by having the *maxillæ* scarcely larger than the head, the two apical joints of the palpi of equal length, and the *antennæ* bipectinated in the males: from the preceding genus by the form of its wings; and from *Lithosia* by its three-jointed palpi.

Sp. 1. *grammica*. PLATE 17. f. 3.—*Alis luteis; anticis flavis nigro-striatis, posticis fasciâ terminali lunulâque nigris.* (Exp. alar. 1 unc. 4—6 lin.)
Ph. Bo. *grammica*. *Linné.*—*Eu. grammica.* *Steph. Catal. No. 6047.*

Antennæ luteous, with black radii: head black: thorax luteous, with three black streaks: abdomen orange yellow, with five rows of black dots: anterior wings pale luteous, longitudinally streaked with black, with a large spot of a darker hue, behind the middle, near the costa, and a dusky streak between it and the hinder margin, which last is bordered with black, and bears a bright luteous fringe: posterior wings deep luteous, with the margins black, two radiating streaks of a paler hue at the base towards the inner margin, and a deep black lunule in the middle; fringe luteous. Female similar, but rather brighter in colour. Like the following insect, this varies much. Caterpillar brown, with a luteous streak on the back, having a white longitudinal line, and a narrow longitudinal yellow line on each side above the legs, which are

orange-red: it feeds on the plantain, black-thorn, &c. and may be found towards the end of August, when it changes to a dusky pupa, and the imago appears in October.

Of this beautiful insect I have hitherto seen but two indigenous examples, both males, and taken in the autumn of 1815 near Windsor: one of them is in the collection of the British Museum, the other in my own cabinet, respectively presented by my valued friend, Dr. Leach. The insect has been taken by Mr. Donovan in North Wales, near Manachty, in the Isle of Anglesea; but I believe only one specimen.

Sp. 2. cribrum. *Alis anticis cærulescenti-albis, transversè nigro-punctatis, posticis cinereis.* (Exp. alar. 1 unc. 4—6 lin.)

Ph. Bo. cribrum. *Linné.*—Eu. cribrum. *Curtis, ii. pl. 56. Steph. Catal. No. 6048.*

Ash-gray: head, spots on the collar and petagiæ, and down the back and sides of the abdomen, black; apex of the abdomen yellow: anterior wings ashy-gray, with five transverse angulated rows of black spots, two irregular longitudinal stripes diverging from the base, and a few dusky streaks towards the apex: posterior wings fuscous, with the margin darkest; fringe of all pale ashy; beneath entirely fuscous. It varies considerably, some specimens having more and others less black spots than others: the female is generally rather less than the male.

Caterpillar deep black when young.

For the discovery of this species as an inhabitant of Britain, entomologists are unquestionably indebted to the exertions of Mr. Bentley, who captured two males in June, 1819, near Ringwood, and kindly supplied my cabinet with one of them, on his return home in July: in the following year Mr. Dale also detected its habitat in the same vicinity (Parley Heath, Hants), and has since taken the insect in plenty, and to him I am obliged for part of my series. Four seasons back, and subsequently, however, the insect has been found in considerable abundance, I believe in the same locality, and some of the females laid eggs, which hatched, but the young larvæ unfortunately died before changing their first skin.

GENUS LXXXII. DEIOPEIA *mihî.*

Palpi elongate, bent upwards, slightly clothed with scales, triarticulate, the basal joint stoutest, the second longest, the third short, ovate: *maxillæ* as long as the antennæ. *Antennæ* simple in both sexes, rather short, slightly hairy beneath in the males: *head* short, scaly: *wings* deflexed, *anterior*

elongate, posterior broad, subdiaphanous, much folded: *body* subconic, stout, a little tufted in the male: *legs* moderate, *tibiæ* very short; posterior with two pair of spurs at the apex. Larva hairy: pupa folliculated.

Deiopeia, which was separated as a genus by me at the same time with Eulepia, differs considerably from the latter genus, and has evidently much affinity with the Tineidæ, and, as in that family, it has four palpi, though the second pair are but rudimentary. Unlike the Lithosiæ, all the species, which are very numerous, are known by the beautiful and lively colours with which their wings are adorned: from the genus just alluded to they also differ by having the palpi three-jointed, &c., and from Eulepia by the terminal joint of those organs being minute, the antennæ being simple in both sexes, the maxillæ elongated, and in less essential particulars.

Sp. 1. pulchella. *Alis anticis flavescens, atro sanguineoque punctatis, posticis lacteis nigro marginatis.* (Exp. alar. 1 unc. 5—9 lin.)

Ph. Ti. pulchella. *Linné.*—De. pulchra. *Curtis, iv. pl. 169.*—De. pulchella. *Steph. Catal. No. 6049.*

Antennæ and legs dusky: eyes black: head and thorax pale straw-colour, the latter spotted with yellow and black: abdomen milky-white, with the apex luteous, and a row of minute black spots on the sides: anterior wings pale straw-colour, with five irregularly bent rows of quadrate black spots, between which are several larger irregularly shaped sanguineous spots, the fringe pale-yellow, spotted externally with dusky: posterior wings milky-white, with a sinuated black margin, and a dusky spot at the apex of the basal areolet. Both sexes resemble each other.

Caterpillar bluish-gray, spotted with black and red, with a broad white dorsal stripe; legs dusky: it feeds on the Mouseear or Forget-me-not (*Myosotis arvensis*).

Of this truly beautiful species I have hitherto seen but four indigenous examples; one of which, in Mr. Vigors's cabinet, was taken many years since in Yorkshire; the second, a fine female, in that of Mr. Dale, found by him in a stubble field, near Christchurch, Hants, at the end of September, 1818; and a fine pair in my own cabinet, captured by Mr. Brown, in a similar locality, near Brighton, one about the middle of September, the other at the beginning of October, in the same year.

GENUS LXXXIII.—LITHOSIA, *Fabricius.*

Palpi short, irregularly covered with scales, biarticulate, the basal joint larger, attenuated, curved upwards, second joint minute, nearly rhomboid, or one-third as long as the first, elongate-trigonate; *maxillæ* longer than the antennæ.

Antennæ simple in both sexes, with a short seta on each articulation in the middle on both sides in the males: *head* short, squamose in front: *wings*, anterior elongate, subelliptic, convoluted; posterior broad, folded: *body* sub-linear, stoutest in the females, the apex tufted in the males: *legs* moderate: *tibia* short and slender. *Larva* more or less hairy: pupa folliculate.

The Lithosiæ are insects of very simple colours, being usually of various tints of ochraceous or yellow, with lighter margins, whence they have obtained the name of Footman Moths. From the great uniformity of their colouring, and the almost total absence of maculation or strigæ, the species have been much confused, and their synonymy confounded: I believe, however, that the following species are correctly named, and their synonyms properly arranged, in my Catalogue: their singular biarticulate palpi at once distinguish this genus from the others of the family; but in *Li. quadra* the terminal joint is rather elongate and bent upwards.

Sp. 1. aureolâ. PLATE 18. f. 1. *Alis anticis luteo-fulvis, subtus disco fusco, posticis utrinque flavis.* (Exp. alar. 10 lin.—1 unc. 2 lin.)

Bo. aureola. *Hübner.*—*Li. aureola.* *Steph. Catal. No. 6050.*

Antennæ dusky, yellowish at the base: head, thorax, and apex of the abdomen orange: legs ashy-gray: anterior wings bright luteous orange above, immaculate; beneath with a broad fuscous patch occupying the entire disc, leaving the margin above luteous: posterior wings paler, immaculate on both sides: fringe of all deep orange.

Caterpillar black, with three pale-yellow, interrupted stripes on the back, and some white spots on the tail: it feeds on the spruce fir (*Pinus Abies*) and Scotch fir (*Pinus sylvestris*), and is found in May and June: the imago appears about the middle of July.

Decidedly a scarce species near London: I have taken it at Birch-wood, and in a fir-plantation near Ripley; it has also been found at Coombe-wood.

Sp. 2. helvola. *Alis anticis lividis cinereo fulvoque marginatis.* (Exp. alar. 9 lin.—1 unc. 2 lin.)

Bo. helvola.—*Hübner.*—*Li. helvola.* *Steph. Catal. No. 6052.*

Antennæ with the shaft whitish, the cilia lutescent: head and thorax luteous: abdomen grayish-yellow, with the apex luteous: anterior wings ochraceous-yellow, the hinder-margin ashy-gray, and the anterior towards the apex luteous; beneath the disc is fuscous, with the margins luteous: posterior wings ochraceous yellow, with the hinder margin cinerous: fringe of all the wings luteous.

Also very rare, especially near London: my specimens occurred near Brockenhurst in the New Forest, where the insect has been

taken several times. I believe it has also occurred in the neighbourhood of Woodford or Epping Forest.

Sp. 3. flava. *Alis omnibus undique flavis immaculatis.* (Exp. alar. 1 unc. 4—6 lin.)

Li. flava. *Fabricius.*—*Steph. Catal. No. 6051.*

Antennæ luteous: head, thorax, and abdomen pale ochraceous: eyes black: anterior wings above pale ochraceous-yellow or straw-colour; beneath paler, immaculate; posterior wings whitish yellow: cilia of all pale luteous: legs pale yellow.

Like the two preceding species, this is also very uncommon: it has been taken near Birch-wood and at Darenth: and I have one specimen, which was caught near Brockenhurst in the New Forest.

Sp. 4. gilveola? *Alis flavescens, anticis subtus cinerascens, posticis utrinque pallidis.* (Exp. alar. 1 unc. 4—6 lin.)

Li. gilveola. *Ochsenheimer?*—*Steph. Catal. No. 6053.*

Size of the last: antennæ, head, thorax, and apex of the abdomen bright luteous; rest of the abdomen cinerascens: anterior wings pale luteous-yellow, with the disc slightly suffused with cinereous beneath, with a large cinerascens patch on the disc, the margins luteous: posterior wings on both sides pale yellow, tinged with cinereous: legs deep luteous: eyes black.

I have a fine pair of this apparently very rare species, which were captured either at Birch or Darenth-woods, and are the only indigenous examples that have hitherto come under my notice.

Sp. 5. complana. *Alis anticis plumbeis, margine anteriori luteo, posticis totis flavis.* (Exp. alar. 1 unc.—1 unc. 4 lin.)

Ph. No. complana. *Linné.*—Li. complana. *Leach, Z. M. i. pl. 49. fig. 3. Steph. Catal. No. 6054.*

Antennæ cinereous, with the base of the shaft luteous: head bright luteous: thorax and abdomen cinereous or fuscous, the apex of the latter yellow: anterior wings deep fuscous or lead-colour, with the costa bright yellow nearly to the apex, and the fringe ochraceous-yellow; beneath with the disc deep fuscous, the anterior margin and tip ochraceous-yellow: posterior wings on both sides yellow; fringe pale luteous.

Caterpillar black, with two yellow streaks, spotted with red and white, on the back, and a narrow yellowish line on each side; it is slightly hairy: it feeds on the oak, ash, poplar, sloe, &c.: also upon the *Pinus sylvestris*, and is found about May, the imago appearing at the end of July or beginning of August. The pupa is reddish-brown.

The most abundant species of the genus; occurring in plenty in woods and shady lanes throughout the metropolitan district, and

far from uncommon in several other places. "Common at Kimp-ton and at Marton, Yorkshire."—*Rev. G. T. Rudd.* "Epping."
—*Mr. H. Doubleday.*

Sp. 6. depressa. *Alis anticis cinereo-plumbescentibus, margine anteriori luteo; posticis utrinque flavis basi cinerascens.* (Exp. alar. 1 unc. 6 lin.)

No. depressa. Esper?—*Li. depressa.* *Steph. Catal. No. 6055.*

Larger than the foregoing: antennæ pale ash, with the base yellowish: head and anterior margin of the thorax bright luteous, the rest of the thorax and base of the abdomen cinereous; the apex and margins of the latter yellow: anterior wings very narrow: the entire disc pale lead-coloured ash, with the costa luteous, the extreme edge being bright orange, and the coloured margin of an uniform width to the fringe: the latter short, pale ashy-yellow: posterior wings with the base cinerascens, the colour gradually blending with that of the outer margin, which is clear pale yellow, pale luteous.

Caterpillar feeds on the *Pinus sylvestris*: it is of a grayish-brown, with the back yellow, spotted with black: it is found in June, and the imago towards the middle of July. The pupa is reddish.

One of my specimens of this pretty and distinct species was taken at Darent-wood about ten years since, and in July, 1827, I captured a fine pair near Ripley. I have not observed the species in other cabinets.

Sp. 7. griseola. *Alis anticis cinerascens, margine anteriori tenuè stramineo; posticis lividis.* (Exp. alar. 1 unc. 3—6 lin.)

Bo. griseola. *Hübner.*—*Li. griseola.* *Steph. Catal. No. 6056.*

Antennæ dusky-gray: head, front of the thorax, and apex of the abdomen pale yellow; disc of the thorax and base of the abdomen ashy-gray: anterior wings clear ashy-gray, with the anterior margin, at the base especially, pale straw-colour, the fringe ashy-gray; under side nearly similar: posterior wings on both sides ashy-gray; fringe rather paler.

This insect occurs in the utmost profusion in a woody lane near Ripley, towards the end of July or beginning of August; it is likewise far from uncommon near Hertford, though it has been usually esteemed rather a scarce species.

Sp. 8. plumbeolata. *Alis anticis cinereo-plumbescentibus, costâ tenuissimè flavescens; posticis cinereo-flavis.* (Exp. alar. 1 unc. 5—6 lin.)

No. plumbeolata *mihi.*—*Steph. Catal. No. 6057.*

Similar to, but rather larger than, the last: the head bright luteous: antennæ, thorax, and abdomen cinereous: anterior wings of a pale lead-coloured ash, with the costa narrowly edged with yellowish; fringe flavescent: posterior wings above cinereous-yellow, beneath paler; fringe straw-colour.

A pair that I possess of this species I obtained from the collection of Mr. Hall ; but their locality is unknown to me : I have seen other specimens which were found near London.

† Sp. 9. muscerda. *Alis cinereis, anticis punctis aliquot nigris.* (Exp. alar. 1 unc. 4 lin.)

Ph. muscerda. *Hufnagle.*—Li. muscerda. *Curtis, i. pl. 36. Steph. Catal. pt. ii. p. 61. No. 6058.*

Antennæ, head, thorax, and abdomen pale ashy-gray ; the apex of the latter brownish : the anterior wings pale fuscous ; the costa straw-coloured at the base ; towards the apex are three small black spots placed obliquely, and two others towards the middle of the inner margin ; the under side is ashy-gray : posterior wings deep immaculate ashy-gray ; fringe of all fuscous.

Two specimens only of this insect have, I believe, hitherto occurred ; they were found in a marsh at Horning, Norfolk, floating upon the water, in a ditch, by Mr. Sparshall.

Sp. 10. quadra. *Alis anticis maris lividis basi fulvis, costâ cæruleo-nigrâ ; fœminæ luteis, punctis duobus atro-cæruleis.* (Exp. alar. ♂. 1 unc. 8—10. lin. : ♀ 1 unc. 8 lin. : 2 unc.)

Ph. No. quadra. *Linné.—Don. ix. pl. 306.—Li. quadra. Steph. Catal. pt. ii. p. 61. No. 6059.*

Antennæ dusky-brown : eyes black ; head, thorax, and abdomen ochraceous-yellow : legs blue : male with the anterior wings yellowish-gray, with the apex dusky, the base bright tawny yellow, with the costa blue-black : posterior wings ochraceous-yellow, with the base more or less dusky. Female with the anterior wings rich citron-yellow, with two bright deep-blue spots in the middle, one on the costa, the other placed obliquely towards the base of the inner margin : posterior paler, immaculate.

Var. β. Male with the anterior wings of an uniform deep fuscous, with the usual marginal spot at the base.

Var. γ. Female without the blue spots on the anterior wings.

Caterpillar dusky ; the back marked with red dots and a black spot, the sides with black lines : it feeds on the oak, birch, fir, &c. towards the end of May ; and changes about the middle of June to a black pupa in a strong web ; and towards the middle of July the imago appears.

Extremely abundant in certain seasons in the New Forest near Brockenhurst, and near Chigwell-row in Epping Forest ; it also occurs, though more sparingly, at Darent, Birch, and Coombe-woods. “ Very common at Kimpton and Amesbury last season.”

—*Rev. G. T. Rudd.* “ Lowestoft, Suffolk.”—*W. C. Hewitson, Esq.*

GENUS LXXXIV.—GNOPHRIA* *mihi*.

Palpi moderate, curved upwards, sparingly covered with scales and slightly hairy beneath, triarticulate; the two basal joints of nearly equal length, the first stout, the second sublinear, the terminal minute, subovate: *maxillæ* as long as the antennæ. *Antennæ* similar in both sexes, the male with a single seta on both sides of each articulation: *head* scaly in front, small: *wings*, anterior elongate, narrow; *posterior* orbicular-trigonate, folded: *body* short, rather stout, subconic, with a tuft at the apex in the males: *legs* short, rather stout; *tibiæ* short, robust, the posterior with two pair of spurs. Larva pilose; pupa folliculated.

Gnophria is at once distinguished from Lithosia, which it most resembles in form, by its triarticulated palpi, and, in the only indigenous species, by its deep black colour:—from Setina it differs by the elongation of its wings, and the brevity of its body.

Sp. 1. rubricollis. *Atra*, abdomine postice flavo, collari sanguineo. (Exp. alar. 1 unc. 1—4 lin.)

Ph. No. rubricollis. *Linné*.—*Don*. x. pl. 350. f. 3.—*Gn. rubricollis. Steph. Catal. pt. ii. p. 61. No. 6060.*

Entirely of a deep black, with the collar bright sanguineous, and the apex and under side of the abdomen of a rich golden-yellow.

† Var. β . The anterior wings with an elongate naked patch on the disc.

Caterpillar greenish-ash, with dusky or black fasciæ, spotted with red and white; head piceous, with two white streaks:—it feeds on various kinds of lichens; is found in June, changing to a reddish-brown pupa, in a grayish web, and appearing in its final state about the middle of July.

Not uncommon in the lane leading into Darent-wood from the village; and occasionally found in other parts of the wood. “In profusion in June last at Collingbourne-wood.”—*Rev. G. T. Rudd*. “Epping, rare.”—*Mr. H. Doubleday*. Var. β . is in the British Museum.

GENUS LXXXV.—SETINA.

Palpi short, ascending, slightly divaricating, hairy beneath, triarticulated; the two basal joints of equal length, the first stoutest, the next sublinear, the terminal one very minute, subovate: *maxillæ* elongate. *Antennæ* simple in both sexes, ciliated in the males: *head* small, pilose in front; *thorax* slightly pilose: *body* rather slender, sublinear, stoutest in the females: *wings* short,

* Γνοφρός, caliginosus.

anterior elongate, trigonate; *posterior* broad, slightly emarginate on the hinder edge: *legs* not very stout: *tibiæ* moderate, rather slender; the posterior with two pair of spurs. Females smaller than the males. Larva pilose; pupa folliculate.

Setina differs from the other genera of the family by the semi-orbulate-triangular form of the entire insect when displayed, arising from the comparative brevity of the anterior and length of the posterior wings: from Lithosia it may be at once distinguished by its triarticulate palpi, and from Gnophria by the minuteness of the terminal joint of the same organs, as well as from the lively yellow tinge which adorns the wings, which are usually more or less spotted with black. It is probable that the genus may require subdivision, as the two first species evidently differ in habit from the third; have the palpi minute, and the wings subdiaphanous. I am not certain whether the name above employed be correctly applied to the present genus, not being aware of the type of Schreber's genus Setina; but I used it in preference to coining a new term, as all the species are included in that genus by Schrank.

Sp. 1. *irrorella*. PLATE 17. f. 1. *Alis luteis, anticis punctis nigris trifariis, thorace anticè posticèque fulvo.* (Exp. alar. ♂ 1 unc.—1 unc. 3 lin.: ♀ 9 lin. 1—unc.)

Ph. Ti. *irrorella*. Linné.—Se. *irrorella*. Steph. Catal. pt. ii. p. 62. No. 6061.

Antennæ, legs, head, thorax, and abdomen black, the tip of the latter, the collar and petagiæ orange-yellow; the back with a large yellowish spot: anterior wings of a clear orange-yellow, with three transverse rows of black spots, two of which are towards the middle; and the third, somewhat irregularly waved, on the hinder margin: cilia bright orange-yellow: posterior wings pale orange-yellow, with two or three black spots towards the hinder margin anteriorly. Female less, but similar.

† Var. β . Steph. Catal. l. c. The anterior wings with the two central rows of spots united by black lines, forming the letters IVI very distinctly.

Caterpillar black, with yellow dorsal and lateral stripes; it feeds on the common Lichen, (*Lichen parietinus*), and changes to a red-brown pupa; the imago appears in June.

An insect very irregular in its appearance, and excessively local; several specimens have been caught on Dartford-common, and near Birch-wood. "Taken copiously near Rochester in 1816, and the following year."—*Rev. Professor Henslow*:—in whose collection, which is now incorporated with that of the Cambridge Philosophical Society's, var. β . was contained.

Sp. 2. roscida. *Alis fulvis, anticis nigro-punctatis, posticis maculatis.* (Exp. alar. ♀. 8 lin. ♂ 10 lin.—1 unc.)

Li. roscida. *Fabricius.*—*Se. roscida.* *Steph. Catal. pt. ii. p. 62. No. 6062.*

Less than the foregoing: antennæ black, with luteous radii: head, thorax, and abdomen black; the tip of the latter, collar, and petagiæ, luteous: the two first pair of legs dusky-blue; the tibiæ and tarsi beneath, of the hinder pair, yellow; anterior wings deep luteous, with three rows of black spots, as in the former insect, the posterior row being very irregular, and composed of dissimilar-sized dots; posterior wings with several black spots on the hinder margin.

This species has been taken at Riddlesdown, near Croydon, in June; but it is far less abundant than the foregoing.

Sp. 3. eborina. *Alis anticis albidis aut flavis, margine flavo, punctisque duobus fuscis; posticis suprâ nigrescentibus, subtùs flavis.* (Exp. alar. ♂ 1 unc.—1 unc. 3 lin.: ♀ 10 lin.—1 unc.)

Li. eborina. *Fabricius.*—*Steph. Catal. pt. ii. p. 62. No. 6063.*

Antennæ, head, and thorax anteriorly luteous; eyes black; abdomen whitish, with the apex luteous: anterior wings whitish and glossy, with the costa and posterior margins luteous; each with two minute black dots, one in the middle of the costa, the other nearly opposite, on the inner margin: posterior wings above dusky, with the hinder margin and cilia luteous: beneath the anterior wings have the disc dusky, and the posterior whitish-yellow.

Var. β. *Steph. Catal. l. c.* With the anterior wings pale-yellow, the margins deep luteous, the spots as in var. α.

Far from uncommon during the beginning of August at Darenth, Birch, and Coombe woods; I have also met with it at Hertford and Ripley. “Epping, common.”—*Mr. H. Doubleday.*

FAMILY II.—NOCTUIDÆ.

Antennæ moderate, not very slender, setaceous, sometimes pectinated or ciliated in the males: *palpi* as long or longer than the head, more or less compressed, pilose, mostly three-jointed, the terminal joint generally shortest: *maxillæ* very distinct, spiral, usually much elongated: *wings* generally deflexed, not divided, sometimes horizontal or incumbent, never convoluted, the anterior generally bearing stigmata: *thorax* very frequently crested, stout: *body* stout, elongate-conic, squamous; of the males, usually tufted at the apex: *legs* moderate; anterior *tibiæ* rather short; generally furnished with a compressed spine interiorly; intermediate with a pair of spurs at the apex; and posterior mostly with a pair of spurs in the middle, and a second at the tip. *Larvæ* considerably diversified, with fourteen or sixteen feet, always cylindric, the extremities not being attenuated; sometimes perfectly smooth, at others

furnished, on the anal segment, with tubercular elevations, or a conical prominence; in one group the sides are ciliated, and in others they are clothed with long fascicles of hair: pupa various, most frequently subterraneous, sometimes folliculated; the folliculus simple, mixed with hair, or small fragments of wood, earth, &c.

The insects to which I have restricted the term Noctuidæ, "par excellence," are so extremely similar in general structure, although considerably diversified in appearance, that, as observed in a former page, it is nearly impossible to frame distinguishing generic characters: nevertheless, it cannot be disputed, that the family comprises many very distinct genera; a fact that receives confirmation from the recent labours of the continental naturalists, Ochsenheimer, Treitscke, and Boisduval, who have proposed several generic divisions in this family, and have each given an incomplete arrangement of the European species, in accordance with their respective views; those of the former writer forming the basis of the others. The following arrangement* differs materially from either, as the location of several of the genera, as proposed by the above writers, appears to me unnatural; though, as I am fully aware of the utter impossibility of placing the whole in one continuous series, I do not presume to assert that my views are more correct. Dr. Horsfield, upon the consideration of their metamorphosis, thinks that the European species should be divided into three families; though, from the perfect insects being so extremely similar, I have not ventured to separate them, but have attempted to arrange them somewhat in accordance with their transformations; of which I shall endeavour to point out the peculiarities, as I proceed with my descriptions.

The typical groups of the Noctuidæ, as their name imports, fly only by night, and repose during the day, in the crevices of the bark of trees, old walls, palings, &c.; though others not only fly by night, but during the afternoon and at twilight: the position of the wings during repose varies much; in some groups, (as *Triphæna*, &c.) they are placed horizontally, and closely applied to the body, giving the insect a somewhat cylindrical form; in others, (*Catocala*, &c.) they are also placed horizontally, but somewhat expanded, and forming a triangle; in others, (as *Plusia*), they are considerably deflexed, and the thorax is also greatly crested: there is also considerable

* See Addenda for the tabular view.

diversity in the form of the wings, though in general the anterior ones are elongate-triangular, and the posterior somewhat triangular-orbiculate; some few have the posterior margins denticulated; and the anterior wings are mostly adorned with two stigmata, one more or less circular, the other reniform; a character rarely observed in any other family of this order. The larvæ are usually solitary, do not reside in a web, neither are they subcutaneous; but those of the genus *Ceropacha* twist up the leaves, similarly to those of the *Tortricidæ*: the pupa are usually subterraneous.

GENUS LXXXVI.—TRIPHÆNA, *Ochsenheimer*.

Palpi ascending, compressed, parallel, triarticulate, the two basal joints clothed with very compact capitate scales, terminating acutely in front, the apical somewhat exposed; the basal joint shorter than the following, and curving upwards; the second as long as the other two, a little bent inwards towards the apex; the terminal short, rather slender, somewhat attenuated at the tip, which is obtuse: *maxillæ* very long. *Antennæ* simple in both sexes, ciliated beneath in the males: *head* densely clothed with scales: *thorax* not crested, with large anterior tippets: *body* rather stout, flat on the back; downy at the base: *wings* horizontal, entire, anterior elongate-lanceolate, rounded posteriorly, with two stigmata; *posterior* orbiculate-triangular, slightly emarginated, large, folded during repose, of lively colours, usually luteous, with black margins. Caterpillar naked, cylindric, with sixteen legs: pupa subterraneous, not folliculated.

In placing this genus at the commencement of the *Noctuidæ*, I am guided more by the pomeridian habits of the perfect insects and their lively colouring, (in which they resemble the *Catocalæ*, at the other extremity of the family) than by any real affinity to the *Pomeridianæ*: it may, however, be remarked, that, in common with *Agrotis* and some of the intermediate genera, the larvæ of the *Triphænæ* are evidently, though not entirely, radicivorous, and rarely venture from their lurking-places during the day; and the imago, when at rest, is not very dissimilar in appearance to a *Lithosia*: the gay-coloured posterior wings, with dark borders, render the species very conspicuous: they fly during the afternoon with great velocity in a straight line, as if casually, and again in the evening.

Sp. 1. *orbona*. *Alis anticis hepaticis, posticis luteo-flavis, lunulâ centrali strigâque posticâ nigris.* (Exp. alar. 1 unc. 7—8 lin.)

No. orbona. *Fabricius*.—*Don.* x. 36. pl. 343.—*Tr. orbona.* *Steph. Catal. pt. ii.* p. 62. No. 6064.

Head, thorax, and abdomen dull hepatic-brown or testaceous, the apex of the latter rufescent: anterior wings concolorous with the thorax, and more or less obsolete punctate-striated transversely, two obscure strigæ being at the base, beyond which the ordinary stigmata appears, with the middle dusky and the margins pale; these are followed by a bent geminated striga of black dots; then an undulated pale streak, between which and the hinder margin the colour of the wing is paler; the edge of the wing at the base of the cilia has a row of black dots: the posterior wings are luteous-yellow, with a blackish central lunule, and an irregular marginal fascia. The colours and intensity of the markings vary considerably; in some specimens the latter are completely obliterated; in others they are very strong: and the former is occasionally of a deep rusty-testaceous, somewhat virescent, or tawny: the lunular streak on the posterior wings is sometimes nearly evanescent. Caterpillar greenish, spotted with black on the sides.

Not uncommon throughout the metropolitan district, towards the end of June and beginning of July:—in great plenty near Ripley. “York and Suffolk.”—*W. C. Hewitson, Esq.* “Allesley.”—*Rev. W. T. Bree.* “Epping.”—*Mr. H. Doubleday.* “Netley, Salop.”—*Rev. F. W. Hope.* “Bottisham.”—*Rev. L. Jenyns.*

† Sp. 2. subsequa. *Alis anticis griseo-hepaticis, maculâ reniformi obscuriori lineolâque apicis atris; posticis flavis, lunulâ strigâque posticâ fuscis.* (Exp. alar. 1 unc. 8—9 lin.)

No. subsequa. *Hübner*.—*Tr. subsequa.* *Steph. Catal. pt. ii. p. 62. No. 6065.*

Rather larger than the foregoing; usually of a paler hue and the markings less evident, but similarly placed, with the reniform stigma obscure and a black streak at the apex of the anterior wings; the posterior are yellow with a fuscous central lunule and posterior marginal band; the head and thorax are concolorous with the anterior wings.

Mr. Curtis informed me, shortly after he returned from Scotland, that he captured a specimen of this insect during his excursion; but as I have not had an opportunity of examining it, I am compelled to give the above insufficient description of the species from Engramelle.

Sp. 3. pronuba. *Alis anticis hepaticis fusco albidoque strigatis, margine antici thoracisque fasciâ albicante, posticis luteis, strigâ angustâ nigrâ.* (Exp. alar. 2 unc.—2 unc. 3—4 lin.)

Ph. No. pronuba. *Linné*.—*Don.* ix. pl. 311.—*Tr. pronuba.* *Steph. Catal. pt. ii. p. 63. No. 6066.*

Head and thorax anteriorly pale griseous-ash, or whitish; the latter posteriorly pale-griseous or fuscous; abdomen luteous: anterior wings fuscous, variegated with griseous and whitish or cinereous, with the costa pale at the

base, two undulated pale strigæ near the base, margined on each side with black, two other arcuated pale strigæ beyond the stigmata, followed towards the hinder margin with a whitish waved streak, arising from three or four more or less confluent black spots on the costa, near the apex; on the hinder margin is a series of dusky or black spots; the anterior stigma is pale, a little clouded with dusky; the posterior dusky in the middle, with a pale margin surrounded with black or dusky: the posterior wings bright luteous, with a narrow submarginal waved band, attenuated towards the inner margin; fringe luteous.

No two specimens of this inconstant species are found precisely similar, it would therefore be fruitless to attempt to describe its varieties: it may be observed, that the ground colour of the thorax and anterior wings is sometimes very pale griseous, with a few darker markings, and the reniform (or posterior) stigma conspicuously dark in its centre;—the space between the stigmata, and a triangular spot between the anterior one and the base of the wing, are sometimes deep black, at others concolorous with the wings, as are the stigmata themselves; the hinder margin is occasionally destitute of the row of black spots, and is sometimes darker than the rest of the wing, at others lighter.

Caterpillar greenish or brownish, with two rows of interrupted black streaks on each side, and a pale dorsal line:—it feeds upon the roots of various plants, especially of the primrose, violet, auricula, cabbage, &c., hiding itself by day, beneath stones, clods, &c., and coming out in the evening to feed: it is found throughout the winter; and in the spring, about April or May, it changes to an elongate reddish pupa, which emerges in its final state in the beginning of June, or as late as the middle of July.

One of the most abundant of the indigenous Lepidoptera, at least throughout the south of England; and, I believe, far from uncommon in other parts; frequenting hedges and gardens. “York and Newcastle.”—*W. C. Hewitson, Esq.*

Sp. 4. *innuba*. *Alis anticis hepaticis, margine antici thoraceque concoloribus, posticis luteis, strigâ submarginali nigrâ.* (Exp. alar. 2 unc.—2 unc. 4 lin.)

Tr. *innuba*. *Ochsenheimer.*—*Steph. Catal. pt. ii. p. 63. No. 6067.*

Differs from the preceding by having the head, thorax, and anterior wings concolorous, without a pale anterior streak, as in that insect: these parts are in general of a very deep fuscous, or rusty-brown, but the markings are throughout similar in their dispositions to those of Tr. *pronuba*, though usually they are more obsolete, and in some examples nearly obliterated: the stigmata are mostly dark, with a pale ring; and, as in the last named insect, the anterior one varies considerably in form: the posterior wings are similar to those of Tr. *pronuba*.

This is equally variable with the foregoing species, and sometimes occurs nearly ferruginous.

Ochsenheimer gives this as a distinct species from the preceding; but I think with *Boisduval*, that it is a mere variety of that insect, as the only difference between

them appears to consist in the dissimilar colour of the head, and anterior margin of the thorax and anterior wings, and in the usually deeper colour of the insect.

Found equally common, and in similar places, with *Tr. pronuba*.

Sp. 5. *fimbria*. *Alis anticis griseis vel hepaticis strigis dilutioribus, posticis aurantiacis, fimbriâ latissimâ nigrâ.* (Exp. alar. 2 unc.—2 unc. 3 lin.)

Ph. No. *fimbria*. *Linné.*—*Don.* vi. pl. 208.—*Tr. fimbria.* *Steph. Catal. pt. ii. p. 63. No. 6068.*

Head, thorax, and anterior wings concolorous, most frequently pale griseous, the latter with two oblique dusky streaks towards the base, the anterior of which is abbreviated, and the posterior reaches to the inner margin; behind the stigmata is an angulated pale streak, and between it and the hinder margin is an undulated one, having one or two more or less conspicuous black dots at its origin on the costa, towards the apex of which are three or four minute white spots; the stigmata are frequently conjoined, are dusky with a pale margin, and are placed in a darker band on the wing: the posterior wings are light orange at the base, with a very broad submarginal border, the fringe being orange: abdomen also of the latter colour.

The anterior wings vary much, being sometimes nearly black, and of all intermediate shades to the above, with the usual pale markings.

Caterpillar very stout, ochraceous, with the head reddish, a pale dorsal line, and black spots on the stigmata:—it feeds also on the primrose, violet, potato, &c. and occurs in the autumn and spring; the imago appearing towards the end of June, or beginning of July.

Unquestionably a scarce, but a diffused, species, occurring in Devonshire, Norfolk, Suffolk, Derbyshire and Yorkshire, and in the vicinity of London. I once took a specimen at Darenth-wood, and saw two captured in Norwood: in the former wood it has been taken repeatedly. “Epping.”—*Mr. H. Doubleday.* “York, once.”—*W. C. Hewitson, Esq.* “Near Sheffield and Buxton.”—*Rev. F. W. Hope.*

Sp. 6. *interjecta*. *Alis anticis sordidè ferrugineis punctato-strigatis, posticis luteis nigro-circumcinctis.* (Exp. alar. 1 unc. 2—5 lin.)

No. *interjecta.* *Hübner.*—*Tr. interjecta.* *Steph. Catal. pt. ii. p. 63. No. 6069.*

Head, thorax, and anterior wings generally of a dull ferruginous, the latter with various obsolete waved dusky strigæ, and a double streak of black spots towards the hinder margin, posterior to the stigmata, which latter are very obsolete; the hinder margin itself is rather paler than the rest of the wing, and at the base of the cilia is an indistinct dusky line: the posterior wings are luteous, with dusky streaks at the base, and a broad undulated black submarginal band behind; fringe luteous.

Less variable than the preceding species, though inconstant in its markings and colour.

Not a very common insect, but occasionally found in tolerable plenty: in June, 1826, I took a considerable number both of this and the next species in a lane near Hertford; and about sixteen years back I also captured several of each, at the extremity of Lordship-lane, near Dulwich. This species is also found at Darent, Birch, and Coombe woods. "Epping."—*Mr. H. Doubleday.*

Sp. 7. *Janthina*. *Alis anticis fuscis griseo-irroratis stigmatibus albido-cinctis, posticis atris, maculâ mediâ margineque aurantiacis.* (Exp. alar. 1 unc. 5—8 lin.)

No. *Janthina*. *Wien. V.*—Tr. *Janthina*. *Steph. Catal. pt. ii. p. 63. No. 6070.*

Head and thorax anteriorly of a pale cinereous; the latter posteriorly, abdomen and anterior wings deep griseous brown, the latter varied and banded with a deeper hue, with a subovate rusty-brown spot near the apex of the costa, in which are three or four minute white spots at the costa itself; the ordinary stigmata are very indistinct, being faintly exhibited by a few interrupted whitish spots, which are occasionally wanting: the posterior wings have the base and a broad submarginal band deep black, with the centre and fringe bright luteous orange; the fringe sometimes clouded with dusky towards the costa.

Also a variable species, but less so than its congeners.

Caterpillar whitish, with undulated dusky streaks on the sides, and black spots posteriorly;—it feeds on chickweed, &c., and changes to a brown pupa, with two spines at its apex: the imago appears in July or August.

Found in shady lanes, and on the borders of woods, with the foregoing species, than which it is more abundant, though far from common. "Epping."—*Mr. H. Doubleday.* "York and Suffolk."—*W. C. Hewitson, Esq.* "Allesley."—*Rev. W. T. Bree.*

GENUS LXXXVII. *CERIGO mihi.*

Palpi rather porrect, ascending, slightly compressed, clothed with loose hair-like scales, triarticulate, the joints of nearly equal length, the basal joint reniform, the next cylindrical, slightly attenuated at the apex, the terminal more slender, bending outwards, and somewhat acute: *maxillæ* long. *Antennæ* elongate, setaceous, slightly pectinated to the apex in the males: *head* clothed with loose scales: *thorax* stout, a little crested behind, loosely squamous: *body* cylindrical, rather long, slightly carinated on the back, tufted at the apex: *wings* horizontal, entire, anterior elongate-triangular, with three stigmata: *posterior* suborbiculate-triangular, usually pale yellow, with a darker hinder border.

Ochsenheimer places *Cerigo* in his extensive genus *Polia*, dividing it, however, from the typical species by forming it into a section; but it appears to me that its characters are not only clearly distinct from those of the true *Polia*, but that they are of sufficient im-

portance to constitute a generic difference, and moreover that the habits of the species are more closely allied to the *Triphæna* than to the genus before alluded to, from which it is at once known by its proportionably shorter and broader wings, and by the lively colour of the posterior ones: from *Triphæna* it differs in the proportion of the joints of its palpi, subcrested thorax, and dissimilar antennæ.

Sp. 1. *texta*. *Alis anticis fuscis albido nebulosis, strigis flexuosis albis nigro adnatis, posticis stramineis, margine latè fusco.* (Exp. alar. 1 unc. 6—9 lin.)
No. *texta*. *Esper.*—Ce. *texta*. *Steph. Catal. pt. ii. p. 63. No. 6071.*

Head and thorax fuscous: anterior wings the same, with a cinereous tinge, varied with whitish; at the base is an abbreviated bent dusky striga, united longitudinally to a transverse waved one of white, bordered posteriorly with black, anterior to the stigmata; behind these last is a more distinct arcuated white streak edged internally with black, and between this and the hinder margin is an irregular deeply undulated pale striga: in the margin itself is a row of dusky spots; the ordinary stigmata are dusky with paler margins, and between these and the inner margin is an elongate one, indicated by a double black streak, as in the species of the genus *Agrotis*: the posterior wings are light straw-colour, with a broad dusky margin, in which are a few white dots edged with black posteriorly; fringe also dusky.

Var. β . With the anterior wings beautifully varied with rich purplish-rosy tints, especially the disc of the stigmata.

Caterpillar whitish-gray, with a black dorsal line:—it feeds on the goat's-beard (*Tragopogon*):—the imago appears about June.

Far from an abundant species in most places; it has occurred sparingly at Darent, Birch, and Coombe woods, on Epping Forest, at Colney Hatch, and in Norfolk. “Epping, very common.”—*Mr. H. Doubleday.*

GENUS LXXXVIII.—LYTÆA *mih*.

Palpi slightly ascending, triarticulate, the two basal joints densely clothed with elongate loose depending clavate scales, the terminal almost naked; the two basal joints of nearly equal length, the first slightly curved and very robust, the second more slender, gradually attenuated from the base to the apex; the terminal minute, ovate obtuse: *maxillæ* elongate. *Antennæ* rather long, serrated internally in the males, and ciliated; simple in the females: *head* and *thorax* downy, the latter stout and not crested: *body* rather short, slender, very downy at the base, slender posteriorly and tufted at the apex, and on the sides: *wings* horizontal, entire; *anterior* rounded posteriorly; *posterior* scarcely emarginate on the hinder margin; of a dingy hue, with a darker margin. *Larva* radicivorous: *pupa* subterranean.

Lytæa may be known by the stoutness of its thorax, and the slenderness of its short tufted abdomen, with the rotundity and glossiness of its wings: the length of its robust serrated antennæ, the proportions and form of the joints of the palpi, and the elongated loose depending scales, which clothe the two basal joints of the latter, leaving the apical one nearly and conspicuously exposed.

Sp. 1. *umbrosa*. *Alis anticis pallidè griseo-roseis, strigis faciâque inter stigmata ordinaria fuscescentibus.* (Exp. alar. 1 unc. 4—8 lin.)

No. *umbrosa*. *Hübner*.—*Ly. umbrosa*. *Steph. Catal. pt. ii. p. 64. No. 6072.*

Head and thorax of an immaculate griseous-rosy; anterior wings the same, inclining to cupreous, and glossy; with an abbreviated dusky striga at the base, a second rather undulated one, between it and the anterior stigma, a broader irregular angulated one between the stigmata, expanding into a dusky patch towards the costa; behind the posterior stigma, a fourth gradually bent striga, followed midway between it and the hinder margin with a broader waved one, and a narrow streak on the margin of the wings itself: the posterior wings ashy-brown at the base, with an obsolete transverse striga, and a broad fuscescent margin; cilia rosy: abdomen cinereous, with the lateral and anal tufts rosy.

Caterpillar ashy-white, with a dusky stripe on each side of the back.

Occasionally taken near Birch-wood, and I have twice found it in Sydenham-wood at the end of July. "Netley, Salop, abundantly in August, 1827."—*Rev. F. W. Hope*.

GENUS LXXXIX.—*CHARÆAS mihi*.

Palpi very short, triarticulate, the two basal joints densely squamous, the terminal slightly exposed, the basal joint shorter and stouter than the following, which is stout at the base and gradually attenuated to the apex, the terminal slightly elongate, acute, or ovate acuminate: *maxillæ* long. *Antennæ* simple in the females, more or less pectinated in the males: *head* small, squamous: *thorax* robust, not crested: *body* short, slightly carinated on the back; the apex of the males with a tuft: *wings* generally denticulated on the hinder margin, sometimes rounded; *posterior* not very large, ovate-triangular, usually whitish in the males, fuscous in the females. *Larvæ* naked, radicivorous; *pupa* subterraneous.

The typical species of this genus are distinguished by having their wings more or less denticulated, a character not very common amongst the Noctuidæ; but in *Ch. Graminis*, (which ought probably to be separated from the rest as a distinct genus) they are entire, and the palpi are somewhat dissimilar in their proportions: the

antennæ of the male *Ch. cespitis* and *confinis* are obviously different in their pectinations from those of the remaining species of the genus; and their wings are rather broader and less sensibly denticulated.

Sp. 1. *cespitis*. *Alis anticis nigro-fuscis, strigis tribus undatis albidis nigro adnatis.* (Exp. alar. 1 unc. 4—7 lin.)

No. *cespitis*. *Wien. V.*—*Ch. cespitis*. *Steph. Catal. part ii. p. 64. No. 6073.*

Head and thorax deep fuscous, irrorated with cinereous: anterior wings of a brownish-black, with an obscure abbreviated ashy striga at the base; behind which, nearly adjoining the anterior stigma, is a slightly waved whitish transverse one, margined exteriorly with black; and beyond the posterior stigma is an arcuated one, black interiorly and whitish exteriorly; between which and the hinder margin is an undulated striga of a paler hue: on the hinder margin itself is a series of minute fuscous spots, some of which are accompanied by whitish dots interiorly; and on the costa, towards the apex, are three or four minute whitish spots: the posterior wings are grayish-white at the base, and a little clouded with dusky towards the margin, with an obscure striga of fuscous spots, placed transversely a little beyond the middle. The female differs in having the posterior wings ashy-brown, with a darker margin.

Caterpillar brownish, with three paler longitudinal lines:—it feeds on grasses.

Not common; taken occasionally in the lanes near Bexley, and on Dartford-common, in September.

Sp. 2. *confinis*. *Alis anticis obsoletè denticulatis fusco-cinereis, strigis duabus nigricantibus, unâque albidâ.* (Exp. alar. 1 unc. 5 lin.)

Ch. confinis mihi.—*Steph. Catal. part ii. p. 54. No. 6074.*

Head and thorax grayish-ash, slightly mixed with fuscous: anterior wings pale ashy-brown, with a transverse dusky striga anterior to the basal stigma, and a second greatly arcuated one immediately adjoining the posterior stigma; between which and the hinder margin is an undulated striga, composed of whitish lunules; the hinder margin immaculate: the space between the stigmata and behind the posterior one blackish: posterior wings ashy-white, very obscurely tinted with dusky towards the costal angle of the hinder margin.

The paler colour and narrowness of the anterior wings, nearly uniformly coloured posterior wings, and slightly pectinated antennæ, distinguish this from the foregoing species.

The only specimen I have seen of this insect I obtained from Mr. Marsham's cabinet. I am not aware of its locality.

Sp. 3. *fusca*. *Alis anticis fusco-nigris, fasciâ subtriangulari mediâ saturatiore, strigâque posticâ obsoletè pallidiore; posticis maris albidis, fœminæ fuscis.* (Exp. alar. 1 unc. 4—7 lin.)

Bo. fuscus. Haworth.—*Ch. fusca.* Steph. *Catal. part ii. p. 64. No. 6075.*

Head and thorax of a deep fuscous-black; anterior wings deep brownish-black, with a griseous tinge, having an obscure subtriangular fascia in the middle, visible only in certain lights, greatly attenuated towards the inner margin, and obscurely bordered on each side with a paler striga; the stigmata are very obsolete, and placed in the fascia, the anterior being ovate or rounded, and the posterior reniform, with one or two palish spots on the margin; between the latter and the hinder margin is an undulated repanded striga of an ashy or pale griseous hue; and on the costa, near the tip, are four or five distinct whitish spots: the posterior wings are clear immaculate white in the male, fuscous, with a darker margin, in the female. Antennæ pale ferruginous, rather dusky in the female.

Var. β . *Ch. consimilis.* Steph. *Catal. l. c. No. 6076.*

Female with the anterior wings nearly of an uniform pale cinereous, the stigmata and fasciæ being only visible in certain lights.

† Var. γ . *Ch. orthostigma.* Steph. *Catal. l. c. No. 6077.*

Female, with the stigmata rather flavescent and distinct, the anterior one rounded, the posterior straight anteriorly, and bounded on the hinder margin with a few whitish spots: the posterior wings very deep fuscous.

I have no doubt that the above varieties belong to this rare species, which is probably the *Noctua lutulenta* of Hübner, so far as I can ascertain by Ochsenheimer's description.

Var. β . is smaller than either of the others; and var. γ . appeared to be distinct in Mr. Stone's cabinet; but upon comparison with my own specimens, I am of opinion that it is a mere variety, which is further corroborated by the locality of the specimen.

All the above described specimens were taken during the month of September, in different years, near Birch-wood.

Sp. 4. *nigra.* PLATE 20. f. 1.—*Alis anticis nigris fasciâ latâ saturatiore, stigmatibus ferè obliteratedis, postico margine externo flavescenti; posticis maris albis nigro marginatis, fœminæ fuscis.* (Exp: alar. 1 unc. 8—10 lin.)

Noctua nigra. Haworth.—*Ch. nigra.* Steph. *Catal. part ii. p. 64. No. 6078.*

Head and thorax black: anterior wings deep black, obviously denticulated on the posterior margin, with a broad subtriangular darker fascia in the middle, in which are the usual stigmata, but very obsolete, and the posterior one has the outer margin yellowish; in the fascia towards the inner margin of the wing is a longitudinal darker line; towards the hinder margin of the wing, and in the margin itself, are a few obscure yellowish spots, and near the apex of the costa are three or four whitish ones: the posterior wings in the male are whitish, with the margin dusky; the abdomen is whitish at the base and dusky at the tip; the female has the abdomen uniformly dusky, and the posterior wings dusky-ash, with the margin darker. Antennæ of the male black, with whitish radii.

This rare species, which is the Ag. *Æthiops* of Ochsenheimer, (*Noctua nigricans* of Hübner) is in very few cabinets. I obtained my specimen from that of the late Mr. Francillon.

I have known this insect to have been twice captured in the wood upon Shooter's Hill, in June: it has also occurred in Devonshire. "Cumberland."—*T. Marshall, Esq.*

Sp. 5. Graminis. *Alis anticis fusco-griseis lineâ trifurcâ albâ, stigmatibus pallidis lineolisque ad apicem atris.* (Exp. alar. 1 unc. 2—6 lin.)

Ph. Bo. Graminis. *Linné.*—*Don. xiii. pl. 458.*—Ch. ? graminis. *Steph. Catal. part ii. p. 64. No. 6079.*

Head and thorax pale griseous-brown; anterior wings the same, with a longitudinal whitish line reaching from the base to beyond the middle, and giving off three branches in the direction of the nervures towards the anal angle: between this and the costa the stigmata are placed; these are of a pale luteous, with the margin paler; the space between and on the margin is dusky; on the inside of the longitudinal line is an elongate lutescent stigmatiform spot, bordered towards the inner edge of the wing with black; beyond the ordinary stigmata, towards the hinder margin, is a repanded striga of somewhat acute black streaks: the posterior wings are fuscous, with the margins darker and the cilia yellowish: the body is fuscous, and the antennæ ferruginous.

In some examples, the row of black streaks toward the hinder margin is nearly obliterated: others have the anterior wings, with the exception of the stigmata and trifurcate line, of an uniform colour; while others have the space between the stigmata, and on the hinder margin, deep fuscous: others, again, have the stigmata edged with deep black on a plain ground: in fine, it is a most variable species.

Caterpillar fuscous with yellowish streaks on the sides and back:—it feeds on various grasses, but, according to Linné, not upon the *Alopecurus*; towards the end of June it changes to a brown shining pupa, and the imago appears in about a fortnight.

Rare in the south of England, but more abundant in the northern districts; it has been taken at Coombe-wood, and Whittlesea-mere, and in Devonshire.

GENUS XC.—RUSINA *mihî*.

Palpi ascending, densely squamous, with the terminal joint exposed, rather elongate, composed of three somewhat slender joints, the terminal one being most slender: the basal joint about half the length of the second and a little curved, the terminal one one-third the length of the preceding, elongate, obtuse: *maxillæ* moderate. *Antennæ* deeply bipectinated in the males, the pectinations suddenly abbreviated towards the apex, ciliated in the females:

head small, pilose; *thorax* not very stout, clothed with loose hair-like scales, subcrested: *wings* horizontal, entire; the *anterior* elongate, subtrigonal, narrowed at the base, with the shoulder a little rounded; *posterior* orbiculate-triangular, slightly excised towards the costa: *body* slender, tufted at the apex in the males: *legs* short, robust. Caterpillar subterranean: pupa short, spinose at the apex, subterranean.

The deeply bipectinated antennæ of the males, and ciliated ones of the females, with the slenderness of their bodies, and the rotundity at the shoulder of their broad anterior wings, distinguish this genus from the cognate genera, exclusively of the difference in the position, form, slenderness and proportions of the palpi.

Sp. 1. *ferruginea*. *Thorace alisque griseo-ferrugineis, anticis strigis quatuor denticulatis, maculisque costalibus aliquot pallidis.* (Exp. alar. 1 unc. 6—8 lin.)

Bo. *ferruginea*. *Esper.*—Ru. *ferruginea*. *Steph. Catal. pt. ii. p. 64. No. 6080.*

Head and thorax rusty-griseous: anterior wings the same, with two obscure dusky spots at the base; a slightly denticulated transverse striga near the anterior stigma, and another much bent towards the costa behind the posterior one, with a broader one between the stigmata, which are very obscure, and a similar but considerably undulated one near the hinder margin, bordered exteriorly with grayish; the costa, at the origin of the first, third, and fourth striga, is pale griseous-ash, and between the latter bears three distinct pale spots: the posterior wings fuscous, with an interrupted dusky streak on the hinder margin. Female somewhat darker, with the denticulated strigæ more obscure, and the abdomen stouter.

Caterpillar dusky-brown, with the head paler, with a yellowish dorsal and pale lateral lines; the latter with a few black spots: pupa rufous: the imago appears towards the end of June.

I am not aware of any other locality for this obscure but remarkable insect, than the hedges in the vicinity of Darent-wood, where I have twice captured it.

GENUS XCI.—AGROTIS, *Hübner*.

Palpi ascending, stout, the basal joints thickly clothed with long scales, the terminal distinct, slightly squamous; triarticulate, the two basal joints of equal length, the first curved, and the second slightly attenuated; the terminal small, subovate, obliquely truncate: *maxillæ* elongate. *Antennæ* bipectinated at the base and setose at the apex in the males, simple and pubescent beneath in the females: *head* small, thickly clothed with scales: *thorax* densely squamous, not crested: *wings* horizontal during repose; *anterior* elongate, with the hinder margin entire; *posterior* broad, not denticulated. *Larva* subterranean, naked, radicivorous: *pupa* subterranean.

The species of this extensive genus differ exceedingly in appearance; nevertheless, from their habits being similar, and their structure varying but slightly, I have not attempted to disunite them; neither have I ventured to subdivide the genus into sections, as the distinctive characters vary in the respective sexes: it may, however, be remarked, that the males of the seven first species have the antennæ more deeply pectinated than the remainder, with the terminal joints frequently simple. In common with all the foregoing Noctuidæ, and many of the following genera, the individuals repose with their wings incumbent or horizontal, as noticed under each genus; a character which can only be used as secondary, for if it be employed in a primary view*, such discordant genera as the present, and *Leucania*, must be unnaturally associated together, while *Semiophora* would be placed in a distinct subdivision from *Graphiphora*, to which it is so closely allied, that *Treitschke* and others unite both under the latter genus.

Without some practical acquaintance, both with regard to their localities and periods of flight, it would be hopeless to attempt the separation of all the numerous varieties of the respective species, or place them with their legitimate partners, as their markings are not only extremely similar, but many of the species are so prone to vary; and they are, moreover, in general, of dull and sombre colours, usually with three stigmata on each of the anterior wings. Many of the species may be occasionally remarked flying, as if by chance, in the afternoon; but they all fly at twilight, and some throughout the night; their larvæ are naked, more or less spotted with black, and radicivorous, and are consequently but seldom observed.

Sp. 1. *lunigera*. PLATE 20. f. 2. *Alis anticis fuscis, flavescente variegatis, strigis duabus geminatis nigricantibus, stigmâ anticâ internè flavescente; posticis luteo-albis.* (Exp. alar. 1 unc. 8 lin.)

Ag. lunigera mihi.—*Steph. Catal. part ii. p. 65. No. 6081.*

Head deep fuscous; thorax the same, varied with yellowish, with a large spot of the latter colour on each side at the base of the wing: anterior wings rich fuscous, varied with yellowish, with an angulated black streak at the base, united to an abbreviated pale striga; behind this, at a distance from the an-

* As done by *Fabricius*, in 1775, and subsequently by *Gmelin*, *Turton*, *Stewart*, &c., alluded to by me in page 87, in February last, and published as an *unnoticed character* within the past month.

terior stigma, is a transverse yellowish waved striga, bordered on each side with dusky, and very much angulated towards the inner margin; a similar striga arises from the costa, opposite to the posterior stigma, and, bending outwards, turns rather suddenly towards the inner edge, the space between the arch and the stigma being yellowish, or dull ochraceous-brown; near the hinder margin is a pale waved streak, and the margin itself is spotted with black, with a pale griseous line at the base of the cilia: the anterior stigma is dusky towards the costa, and bright flavescent towards the inner margin of the wing, forming a lunule of the latter colour; the posterior stigma is margined anteriorly with black and flavescent, and posteriorly with black: the body is pale fuscous, and the posterior wings of a creamy-white, with the nervures rather dusky.

I have seen but three specimens of this very distinct and prettily variegated insect, which, so far as I can ascertain, does not appear to have been noticed by entomological writers: they were taken in June, 1826, near Cork, in Ireland, and I believe the species has not yet occurred in Great Britain. I am indebted to my friend Mr. Stone for the specimen from whence the accompanying figure was designed.

Sp. 2. Corticea. *Alis anticis cinereis fusco irroratis, stigmatibus ordinariis atris, thorace fusco, griseo vel albo vario, alis posticis in utroque sexu cinereis.*
(Exp. alar. 1 unc. 4—8 lin.)

No. Corticea. *Hübner.*—Ag. Corticea. *Steph. Catal. part ii. p. 65. No. 6082.*

A most variable species: antennæ ferruginous: head dusky, varied with grayish: thorax also dusky, varied with griseous or whitish: anterior wings cinereous, more or less dusted throughout with fuscous, with the ordinary stigmata deep fuscous or black; towards the base is a geminated fuscous striga, and a second curved one behind the posterior stigma: the posterior wings are cinereous in both sexes, with a central lunule, the nervures and margin darker.

Var. β . Anterior wings deep fuscous, irrorated with black, with the stigmata externally dark; the thorax fuscous, streaked with white.

Var. γ . The anterior wings of an uniform pale griseous-fuscous, slightly dusted with dusky, the stigmata deep brown.

Var. δ . The anterior wings with a black fascia at the base, edged on each side with pale fuscous, the centre of the wing pale cinereous, with the hinder margin dusky, the stigmata with dark margins, the anterior having a black pupil.

It is difficult to find two specimens perfectly similar; in some the stigmata are remarkably large and distinct, in others they are but slightly darker than the wings; in some the teliform one is slender and elongate, in others abbreviated and stout.

Not common, but very widely dispersed: I have taken it near Hertford, Ripley, Brighton, and Dover, and have obtained spe-

cimens from Devonshire and Norfolk. "Netley, Salop."—*Rev. F. W. Hope.*

Sp. 3. *æqua.* *Alis anticis griseo-cinereis, stigmatibus subobliteratis, maculâ apicis pallidiore; posticis subalbidis tincturâ violacei, margine postice nigricante.* (Exp. alar. 1 unc. 10 lin.—2 unc.)

No. *æqua.* *Hübner?*—Ag. *æqua.* *Steph. Catal. part ii. p. 65. No. 6083.*

Thorax fuscus: anterior wings clouded griseous-ash, with a double series of black spots, as in the following insect; between which are placed the usual stigmata, which are nearly obliterated; towards the apex is a paler or yellowish spot: the posterior wings are dusky-white, tinged with violet, with the nervures and the hinder margins, especially towards the anal angle, fuscous.

Var. *β.* *Steph. Catal. l. c.* Anterior wings pitchy-black or deep fuscous; the posterior smoky-white, tinged with violet, with the nervures and hinder margin as in Var. *α*, but nearly black.

This rare species, as we learn from *Lepidoptera Britannica*, was first detected in this country by Mr. Hatchett: it has since been taken by Messrs. Raddon and Stone near London. The late period of its appearance (September and October) is probably the reason why so few examples have occurred: it is evidently very variable, like the cognate species *Corticea*, *Segetum*, and *suffusa*. I possess a specimen captured in Hertfordshire. "Several examples taken near Epping in 1827, by me."—*Mr. H. Doubleday.*

Sp. 4. *Segetum.* *Alis anticis griseo-ferrugineis strigis undatis obscurioribus, posticis albidis.* (Exp. alar. 1 unc. 6—11 lin.)

No. *Segetum.* *Wiener Verz.*—Ag. *Segetum.* *Steph. Catal. part ii. p. 65. No. 6084.*

Head and thorax pale fuscous or griseous-brown: anterior wings the same, with an abbreviated pale striga at the base, bounded on each side with dusky; a similar undulated one before the stigmata, a third, more or less arcuated, and varying considerably, being sometimes moniform (1), at others resembling a comb with the pectinations outwards (2), occasionally placed in immediate contact with the reniform stigma (3), at others at a distance (4); and finally, towards the hinder margin, a waved band, composed of lunular pale spots, on a darker ground: the abdomen pale ashy-brown; the posterior wings white, with the nervures slightly fuscous. The female (5) is usually darker, and the posterior wings are of a bluish-white, with the hinder margins and nervures dusky.

Both sexes vary amazingly, and it is nearly impossible to obtain two specimens

(1) *Noctua monilea*, *Haworth.*

(2) *No. pectinata*, *Haw.*

(3) *No. catænata*, *Haw.*

(4) *No. spinula*, *Haw.* Ag. *affinis mihi olim.*

(5) *No. nigricornuta*, *Haw.*

precisely similar: in some males the anterior wings are of a hoary-ash, in others almost black (6), and all intermediate gradations; the costa is sometimes of a darker hue than the inner edge of the wing, and spotted with pale flavescent at the origin of the strigæ; at others the wing is of an uniform tinge. Again, the stigmata not only vary in shape, but in number, one or more being occasionally obliterated; and sometimes all become obsolete; the anterior one is generally dark in the centre, and either round, subovate, or ovate-acute (7), and is frequently united to the posterior one by two black streaks (8), or to the second striga by a black line; the reniform one is generally dusky in the centre, with a paler margin; and the third, or teliform stigma, varies exceedingly in length, stoutness, and intensity: the nervures are sometimes dilated, and brown (9), and the centre of the wing between the stigmata has occasionally a broad angulated dusky fascia: finally, the males are found of the dark hue of the females, and vice versâ.

Caterpillar fuscous, with paler dorsal and lateral lines, with four or five black spots on each segment: it is found at the roots of corn, and changes to a dusky-brown pupa towards the end of May, and in the following month the imago appears.

Probably the most variable of the British Noctuidæ, scarcely two specimens occurring precisely alike, and their discrepancies being occasionally so considerable as to induce Mr. Haworth to describe several as distinct species, in the early pages of his valuable *Lepidoptera Britannica*; a mistake which he has very properly corrected in the concluding part, as there can be no doubt of all being referrible to one inconstant species, which is a great pest in several districts, and abounds to a most destructive extent in certain years; the larvæ doing incalculable mischief by destroying the young corn, insidiously devouring the roots and base of the plant, while the blade is left untouched. In the autumn of 1826, and the succeeding spring, the larvæ abounded, and in June following the imago actually swarmed, in the neighbourhood of Ripley, the hedges for nearly three weeks being literally alive with their multitudes, as I found to my loss, while mothing. About the same period the lands in the neighbourhood of Barham, in Suffolk, were similarly visited, and the Rev. W. Kirby told me that several bushels of the larvæ were destroyed by Mr. Rodwell.

Sp. 5. *suffusa*. *Alis anticis griseis fusco-nebulosis, aut fuscis, apice pallidioribus, lineolâ mediâ duabusque apicis puncto albo notatis atris.* (Exp. alar. 1 unc. 9 lin.—2 unc.)

(6) No. *subatrata*, Haworth.

(8) No. *connexa*, Haw.

(7) No. *Corticea*, Haw.

(9) No. *venosa*, Haw.

No. suffusa. *Wien. Verz.*—*Ag. suffusa. Steph. Catal. part ii. p. 66. No. 6085.*—*Ph. Bo. spinula. Don. x. pl. 345. f. 2, 3.*

Head and thorax fuscous; anterior wings griseous, clouded with fuscous towards the costa, with a very obsolete geminated dusky striga towards the base, to which the teliform stigma is united, as in its congeners, and a second very slightly bent behind the stigmata; on the hinder margin is an irregular fuscous band, anterior to which are two elongate-trigonal lineolæ, whitish at the base interiorly, and black at the apex: the anterior stigma is dusky in the centre, with a black margin; the posterior dusky, margined anteriorly with griseous and black, and posteriorly with black, having an elongate-acute black spine-like streak pointing to the hinder margin: posterior wings whitish, with a violaceous tinge, with the nervures and marginal lines dusky.

Var. β . *Steph. Catal. l. c.*—Anterior wings very dark fuscous, with a cloud at the base, and the hinder margin pale griseous-ash, the stigmata nearly obliterated, but the spine-like process to the posterior stigma, and the acute lineolæ towards the hinder margin, as usual: posterior wings with the nervures very dark fuscous.

Caterpillar ashy-gray; found at the roots of grass in May, and changing towards the end of the month to a brownish pupa: the imago appears in June and July.

Found occasionally at Birch and Darenth woods in July: but I am not aware of any other locality. "Very common in June and September, near Epping, in some seasons."—*Mr. H. Doubleday.*

† Sp. 6. annexa. PLATE 22. f. 2. *Alis anticis griseo-fuscis, costæ basi margineque postici pallidioribus, stigmatibus lineolâ nigrâ conjunctis.* (Exp. alar. 1 unc. 8 lin.)

Ag. annexa. Ochsenheimer.—*Steph. Catal. part ii. p. 66. No. 6086.*

Head and thorax pale griseous-brown, anterior wings with a broad marginal band of the same hue reaching to the posterior stigma, the rest of the wing of a deeper brown, with the hinder margins rather paler; at the base, dividing as it were the two colours, is a longitudinal dusky streak; and on the hinder margin are two or three lineolæ of a similar colour; the anterior stigma is pale, with a dusky centre, and the posterior rather slender, also dusky in the centre, with a pale margin; they are connected together by a broad black fasciola; the teliform stigma is rather obsolete, and behind the posterior one is an arcuated striga of pale spots: the posterior wings are pearly white, with the nervures and margins slightly fuscous.

Of this remarkably distinct species*, three specimens only have

* The *Noctua subterranea* of Haworth, but not of Fabricius, which is a native of South America, and evidently very distinct. Without entering into the broad question of specific distinctions, which I have elsewhere discussed, I may

come beneath my observation; the first was found nearly thirty years since, by Mr. Hatchett, in the neighbourhood of London; but unfortunately his specimen was accidentally destroyed: the second was taken in June, 1817, by the late Mr. Blunt, near West Ham, in Essex: and the third (whence the accompanying figure was obtained) occurred near Cork, in June, 1826, and is in Mr. Stone's rich cabinet of Lepidoptera.

Sp. 7. *valligera*. *Alis anticis griseo-fuscoque variis, maculâ oblongâ baseos nigricante, puncto-ocellari ferrugineo.* (Exp. alar. 1 unc. 4—8 lin.)

No. *valligera*. *Wien. V.*—*Ag. valligera*. *Steph. Catal. part ii. p. 66. No. 6087.*
Ph. Bo. *clavis*. *Don. x. pl. 340. f. 2.*

Head griseous, varied with white; thorax anteriorly griseous, with two transverse dusky lines, and two whitish ones, and the back griseous mixed with white; the petagiæ white, with griseous borders: anterior wings pale griseous, varied with fuscous, the costa spotted with white; in the middle of the base is a black spot, adjoining to which, on the inner edge, is an ocellated ferruginous patch, with a pale iris, from which the teliform stigma, which is very stout and dusky, with a darker margin, arises; between this and the costa following the discoidal nerve is a broad whitish streak; the anterior stigma is small, rounded, with a dusky pupil, and edged with black; the posterior is dusky, margined with black and white, with a small spine-like black lineola on the hinder edge; on the hinder margin is a striga of arrow-shaped black lines, and a whitish one behind, very much waved, with a mark towards the anal angle resembling the letter W: the fringe is pale at the base and brown at the tip: the posterior wings are white in the male, and dusky, with a darker margin, in the female

Var. β . Anterior wings darker, without the spiniform process to the posterior stigma.

Like its congeners, this beautiful species varies greatly. In some examples the ground colour is of a beautiful leaden- or bluish-gray, and the usual markings are greatly suffused:—in others the colour is lighter, with faint markings.

Caterpillar ashy-gray, with a brown head, each segment with four black spots: it feeds on grass: the imago appears in August.

A scarce species; it occurs, however, in very remote parts of the

here take occasion to remark upon the importance of attending to minute differences in the examination of specimens from distant parts: if the British specimens of *Ag. annexa* had been strictly examined with those of *No. subterranea*, their distinction would soon have been evident, and an error in the geographical station of the species would not have been committed, and have remained uncorrected till now, although the genus has been recently investigated in this country.

country; having been captured in the neighbourhood of London; in Norfolk, &c. "Teignmouth, Devon."—*Rev. W. T. Bree*. "Dublin."—*Rev. J. Bulwer*. "Glamorganshire."—*Mr. J. Millard*. "New Forest."—*A. Cooper, Esq.*

Sp. 8. *radia*. *Alis grisescentibus maculâ quadratâ baseos fimbriâque saturatioribus, in quâ strigâ pallidâ punctorum sagittatorum.* (Exp. alar. 1 unc. 4 lin.)

Bo. radius. *Haworth*.—Ag. *radia*. *Steph. Catal. part ii. p. 66. No. 6089.*

Antennæ griseous: thorax slightly crested, griseous: anterior wings pale fuscous, with three stigmata, of which the two anterior are small and shuttle-shaped, the exterior large and teliform: the costal edge is spotted with brown and dotted with white: the posterior wings are whitish.

Closely allied to the following species, of which I suspect it is a mere variety.

Taken near London; also in the New Forest, and in Derbyshire. "Devonshire."—*Rev. J. Yonge*.

Sp. 9. *radiola*. PLATE 20. f. 3. *Alis anticis cinereo-griseis maculâ quadratâ baseos alterâque pone medium fuscis, stigmâ anteriore elongato utrinque acuto; aut nigro-fuscis maculâ costali pallidâ.* (Exp. alar. 1 unc. 2—4 lin.)

No. *radiola*. *Haworth MSS.*—Ag. *radiola*. *Steph. Catal. part ii. p. 66. No. 6089.*

Antennæ griseous; head and palpi ashy: thorax ashy, with a griseous lateral line, and a black transverse one in front: anterior wings pale ashy-griseous, with a large quadrate dusky or brown patch at the base, and a spot of a similar hue behind the middle, on the costa; on the margin of the basal patch is a geminated dusky striga, and behind the posterior stigma is a second, composed of black dots, or lunular spots; between these the stigmata are placed, the anterior of which is very slender and acute at each extremity, very pale cinereous, with a darker centre; the reniform one is dark fuscous, and the inner or teliform one is extremely minute; the hinder margin of the wings is a little dusky, with a row of distinct whitish spots: the posterior wings are white, with dusky nervures. The female has the anterior wings deep fuscous, with a pale cloud towards the middle of the costa, and the posterior dusky, with a darker central lunule.

A rare species; found occasionally in St. James's and Greenwich Parks, in June; it also occurs in Norfolk. "Devonshire."—*Rev. J. Yonge*.

Sp. 10. *sagittifera*. *Alis anticis griseis, albido nebulosis, lineolâ baseos alterâque infrâ maculas ordinarias atris, sagittiformibus; posticis albis.* (Exp. alar. 1 unc. 5 lin.)

No. *sagittifera*. *Hübner?*—Ag. *sagittifera*. *Steph. Catal. part ii. p. 66. No. 6090.*

Head and thorax griseous, mixed with white: anterior wings griseous clouded

with white, with a longitudinal black arrow-shaped line at the base; the anterior stigma is rather elongate-ovate, whitish, with the centre pale ashy-brown; the posterior griseous in the centre, margined with dusky and white; the space between, as well as at the base of the anterior stigma, deep fuscous; the teliform stigma is rather elongate, and has a slender black streak extending from it; on the hinder margin is an angulated pale striga, having a few dusky wedge-shaped lineolæ within; the margin itself has a row of minute black dots; on the costa, near the apex, is a fuscous spot, in which are three white dots: the posterior wings are whitish, with the margins dusky. The male has the posterior wings milk-white.

My specimens of this species were taken in the neighbourhood of London.

Sp. 11. vitta? *Alis anticis rufescente-subfuscis, margine crassiori, stigmatibusque albidis, strigâque posticâ lineolarum nigrarum.* (Exp. alar. 1 unc. $4\frac{1}{2}$ lin.)

No. vitta. *Hübner?*—Ag. lineolata. *Steph. Catal. part ii. p. 66. No. 6091.*

Allied to the foregoing, but smaller: head and thorax reddish-brown; the latter with one or two pale transverse streaks in front: anterior wings also reddish-brown, with the costa from the base to beyond the middle whitish, its extreme margin being however dark-brown, interrupted with whitish; the central nervure of the wings is whitish from the base to its union with the reniform stigma, which is also whitish, with the middle ashy; in common with the anterior one; between the stigmata is a quadrate dusky spot, and a triangular one of similar colour at the base of the anterior one; the inner or teliform stigma is very small and sometimes wanting: it arises from a pale transverse waved striga; the hinder margin is clouded with cinereous, with one or two dusky longitudinal streaks, an undulated whitish striga, and a row of small wedge-shaped spots on the extreme edge; the cilia ashy: male with the posterior wings whitish, with a dusky fimbria; of the female dusky, with the base cinereous.

This species varies much: in some examples the anterior wings are nearly all fuscous, with merely a vestige of the whitish costa and longitudinal streak; others have them more or less strigulated with whitish at the base, and some are destitute of the posterior undulated striga: and others have the margin behind the transverse striga deeper in colour than the rest of the wing.

Caterpillar gray and shining; found beneath stones in June.

Rare; but occurring in the metropolitan district:—I have taken it at Darent-wood, about the middle of August. “Near Dublin, not unfrequent.”—*Rev. J. Bulwer.*

Sp. 12. pupillata. *Alis fuscescentibus stigmatibus ordinariis subocellatis, stigmatique tertio teliformi sesquialtero.* (Exp. alar. 1 unc. 5 lin.)

No. pupillata. *Haworth.*—Ag. pupillata. *Steph. Catal. part ii. p. 66. No. 6092.*

Rather larger than the last: head and thorax as in that insect: anterior wings

brownish, with an abbreviated transverse striga at the base, an undulated one before the middle, and an arcuated one behind, cinereous, margined with dusky or black; and on the hinder margin is an undulated one, with a conspicuous angle at the costa, and two towards the middle of the hinder margin; the space between the second and third strigæ is rather paler than the rest of the wing, and bears the usual stigmata, of which the two ordinary ones are cinereous, with the centre dusky, and the third dusky, with the margin black: near the base of the wing is a dusky spot, and a few streaks of the same hue appear towards the middle of the posterior undulated striga; and the posterior of the wing behind the latter is nearly of an uniform brown; cilia brown; posterior wings cinereous, with the hinder margin deepest; in the male rather whitish at the base.

The stigmata are sometimes rufescent, with the centre dusky:—I possess one specimen, which may belong to a distinct species, with the usual stigmata very large and rufescent, and having a large dusky-ferruginous subocellated spot at the base of the inner margin of the anterior wings, as in *Ag. valligera*.

Found near London in July, but very rarely: also in Devonshire and at Whittlesea-mere.

Sp. 13. *aquilina*. *Alis anticis cinereis nigro strigosis, costâ basi nigro, apice albo-punctatâ; posticis maris albidis.* (Exp. alar. 1 unc. 5 lin.)

No. *aquilina*. *Wien. V.*—*Ag. aquilina*. *Steph. Catal. part ii. p. 66. No. 6094.*

Closely allied to the two last: the anterior wings cinereous, with three transverse waved black strigæ, between the two posterior of which the stigmata are placed, the anterior of which is rather elongate-ovate, dusky-brown in the centre, with a cinereous margin, the posterior the same, but with an outer black edge; on the hinder margin is an undulated whitish, or cinereous striga, and the extreme edge bears a row of minute black dots; the costa is spotted with black at the base, and with white towards the tip; the posterior wings of the male are whitish, of the female ashy, with the base palest.

This varies in the colour and intensity of the wings and markings.

Caterpillar cinereous, sprinkled with dusky on the sides, the head reddish: it feeds on the Bed-straw (*Galium verum*).

Not common: found occasionally in the neighbourhood of London, and in Glamorganshire: about the middle of July.

Sp. 14. *Tritici?* *Alis anticis cinereis stigmatibus ordinariis pallidioribus unâque nigricante, posticis maris albidis margine fuscescente.* (Exp. alar. 1 unc. 4—5 lin.)

Ph. No. *Tritici*. *Linné?*—*Ag. Tritici?* *Steph. Catal. part ii. p. 67. No. 6094.*

Size of the last, which it greatly resembles: anterior wings cinereous, sometimes a little tinged with reddish; with a short dusky streak at the base, which is slightly paler than the rest of the wing, a faint transverse ashy striga before the anterior stigma, and a curved one behind the posterior, as in the last in-

sect; the stigmata are large and pale ash; the anterior one is round, and the space between them is sometimes dusky; the third stigma is dusky, with a black edge; on the hinder margin is a slightly varied palish striga; the margin itself has a row of minute black spots; the fringe is pale-brown: posterior wings of the male whitish, with the margin brownish; of the female pale-ashy, with the margin dusky: abdomen pale cinereous.

As in the rest of the genus, scarcely two specimens occur precisely similar.

Caterpillar pale gray, with paler longitudinal lines: it feeds on corn in May, and the imago appears in June or July.

Decidedly an uncommon species, especially near London. "Whittlesea-mere in July last."—*Mr. Weaver.*

Sp. 15. Hortorum. *Alis anticis cinereo-nigricantibus, stigmatibus ordinariis rufescentibus nigro-marginatis, posticis fusciscentibus, margine venisque saturioribus.* (Exp. alar. 1 unc. 4—5 lin.)

Ag. Hortorum mihi. *Steph. Catal. part ii. p. 67. No. 6098.*

Closely resembling the last: anterior wings deep dusky-ash, with four transverse paler strigæ, the three anterior of which are edged with dusky, placed nearly as in that insect, but the posterior one is less undulated, and has a row of elongated dusky or black streaks attached to the anterior edge as in *A. cuneigera*: on the hinder margin is a row of minute black spots: the usual stigmata are faintly rufescent, margined with black, the third is very slender, and the black margins alone are visible: the posterior wings are fuscous, with the nervures and margin darker: body deep fuscous.

The darker posterior wings and brown abdomen at once distinguish this from the preceding, unless it should prove to be a mere suffused variety, which I think probable.

The only specimens I have observed of this species were taken in August last, at Whittlesea-mere: they seem very distinct from the preceding species, which they most resemble.

Sp. 16. ocellina. *Alis anticis nigricantibus, vittâ longitudinali abbreviatâ cinerascenti, maculis duabus atris, striâ arcuatâ alterâve posticâ dentatâ, cinerascens.* (Exp. alar. 1 unc. 3—4 lin.)

No. ocellina. *Wien. V.—Ag. ocellina. Steph. Catal. part ii. p. 67. No. 6095.*

Somewhat less than the foregoing: anterior wings dusky, or rufescent, with a pale abbreviated longitudinal streak at the base; an undulated black transverse striga before the anterior stigma, an incurved pale one behind, and a dentated one near the hinder margin, the latter accompanied anteriorly with some black streaks; the stigmata slightly rufescent in the middle, with a narrow pale-ashy margin: fringe rufescent: posterior wings dusky, with the base cinereous in both sexes, palest in the male.

Also a variable insect, but less so than its congeners. ;

Once captured at Darent-wood, and I believe a single specimen

has occurred in the New Forest. “Near Dublin.”—*Rev. J. Bulwer.*

Sp. 17. *cuneigera.* *Alis anticis rufo-fuscis stigmatibus tribus strigâque posticâ cuneorum fuscorum.* (Exp. alar. 1 unc. 3—5 lin.)

No. *valligera.* *Haworth.*—Ag. *cuneigera.* *Steph. Catal. part ii. p. 67. No. 6096.*

Size of the last: anterior wings reddish-brown, or dusky-ash, with a pale streak towards the base of the costa; and four obsolete transverse strigæ, the first at the base, very stout, the second immediately anterior to the basal stigma, the third adjoining the posterior stigma, much bent, and the last, slightly waved towards the hinder margin, accompanied by a series of acute wedge-shaped fuscous spots: the ordinary stigmata are pale, with a dusky spot adjoining the base of the anterior one; and sometimes with a quadrate black one between them; the teliform stigma is variable in size, and has usually a black edge: the male has the posterior wings whitish, with the margins and nervures dusky, the female cinereous, with a darker margin and nervures; in other respects she resembles the male.

The form of the stigmata varies much, especially that of the anterior one, being round, ovate, elliptic, and subtriangular: the tinge of colour also varies.

Far from abundant near London; and I believe equally scarce in other parts of the country. I have met with it at Darentwood in the beginning of July. “Chelsea.”—*N. A. Vigers, Esq.*

Sp. 18. *venosa.* *Alis anticis griseo-fuscis, strigis tribus cinerascentibus unâque postice pallidiore, venis griseo-cinerascentibus; posticis maris cinereis, venis saturatoribus.* (Exp. alar. 1 unc. 5 lin.)

Ag. *venosa mihi.*—*Steph. Catal. part ii. p. 67. No. 6097.*

Allied to the last, but abundantly distinct: anterior wings griseous-brown, with three transverse cinerascent strigæ, edged with dusky, placed nearly as in the foregoing insect, but the posterior one remote from the reniform stigma; the hinder margin has also a waved whitish streak, which arises from a dusky spot on the costa, and is bounded posteriorly with ashy-brown, but is destitute of any wedge-shaped accompanying streaks; the usual stigmata are ashy-brown in the centre, with a slender pale margin, the teliform one is obliterated, and the nervures of the wing are pale griseous-ash: the posterior wings of the male are cinereous: the abdomen of the same colour, with the base whitish. The second transverse striga is much more undulated than in the foregoing insect; and the male is easily known by its dark-coloured posterior wings.

Taken near Edinburgh in July 1824 by the late Mr. Blunt, to whom I am indebted for my specimen.

Sp. 19. *nigricans.* *Alis anticis nigricantibus, stigmatibus tribus pallidioribus, strigâ posticâ punctorum alborum.* (Exp. alar. 1 unc. 3—6 lin.)

Ph. No. *nigricans.* *Linné.*—Ag. *nigricans.* *Steph. Catal. part ii. p. 67. No. 6099.*

Anterior wings dusky, with three obscure pale, transversely waved, strigæ, margined with brownish or black, and an undulated streak of whitish spots on the hinder margin; the ordinary stigmata are pale with a darker edge, the posterior one is sometimes obliterated, and the teliform one is nearly indicated by its black margin: the posterior wings are whitish, with the margin, or lunule, in the middle, and the nervures dusky.

Var. β . *Steph. Catal. l. c.*—With the anterior wings pale immaculate reddish, the posterior whitish, with a dusky margin.

Var. γ . *Steph. Catal. l. c.*—Posterior wings rufous, with very obsolete strigæ, the posterior stigma entirely obliterated.

A most variable species; sometimes nearly rufescent, with all the markings very obsolete; at others nearly black, with the strigæ more or less evident. There is frequently a quadrate dusky spot between the stigmata, and a triangular one adjoining the anterior one: the series of whitish spots on the hinder margin is frequently obliterated, and sometimes the spots are united into a waved striga. The ordinary stigmata are not unfrequently edged with yellowish.

Caterpillar glossy-brown, spotted with black, with a yellowish lateral line: it is found in June, and the imago appears towards the end of July or beginning of August.

Not uncommon in gardens in the vicinity of London. "Whittlesea-mere in July last."—*Mr. Weaver.*

Sp. 20. *fumosa.* *Alis nigricantibus stigmatibus duabus ordinariis flavo cinctis.*
(Exp. alar. 1 unc. 3—4 lin.)

No. *fumosa.* *Wien. V.*—Ag. *fumosa.* *Steph. Catal. part ii. p. 67. No. 6100.*

Anterior wings dusky or blackish: marked nearly as in the last, but the strigæ more obsolete, and the third stigma wanting; with the two ordinary ones distinctly margined with yellowish.

Probably a dark variety of the foregoing variable insect, from which it differs chiefly in wanting the third or teliform stigma; a character which varies greatly in this genus, and can consequently be scarcely regarded as a specific difference.

Taken with the preceding insect at Whittlesea-mere, and found also, but rarely, near London.

Sp. 21. *obeliscata.* *Alis rufo-fuscis maculâ atrâ trigonâ ante, alterâque tetragonâ inter stigmata pallidâ.*—*Haworth.* (Exp. alar. 1 unc. 3—5 lin.)

No. *obeliscata.* *Haworth.*—Ag. *obeliscata.* *Steph. Catal. part ii. p. 67. No. 6101.*

Similar to some of the numerous varieties of the last; but the anterior wings with scarcely a rudiment of strigæ; they are rufous, with a trigonate black spot before the anterior stigma, and a quadrate one between it and the posterior one; the stigmata pale cinereous, with the teliform one elongated and margined with black; the hinder margin of the wing is irregularly edged with

fuscous: the posterior wings are whitish-yellow, with a narrow dusky margin and faint central lunule; the cilia rufescent.

The anterior wings are sometimes slightly blackish or dusky; and the spots adjoining the stigmata vary in intensity of colour.

Found in the vicinity of London, at Ripley, and at Darent-wood, in August.

Sp. 22. *ruris*. *Alis anticis pallidè fuscis, vittâ costali stigmatibusque ordinariis flavescenti-albidis; posticis maris albidis.* (Exp. alar. 1 unc. 4—8 lin.)
No. *ruris*. *Haworth*.—Ag. *ruris*. *Steph. Catal. part ii. p. 67. No. 6102.*

Also similar to Ag. *nigricans*, but larger, with the strigæ and stigmata stronger and more distinct: the anterior wings are pale fuscous, or rufescent, with the costa rather paler, and the ordinary stigmata yellowish-white; on each wing are four pale yellowish-ash strigæ, of which the anterior is short and basal, the next transverse and undulated, the third arcuated and placed a little behind the reniform stigma, and the fourth is in the margin itself, and sometimes obsolete; the teliform stigma is sometimes palish, with a black margin; posterior wings pale cinereous-white, with a faint central lunule; the nervures and margin dusky.

This insect varies considerably: in some examples the strigæ are nearly obliterated; and I possess one with the stigmata scarcely visible. As in its congeners, individuals occur with a triangular dusky spot before the anterior stigma, and a quadrate one between them; thus furnishing us with the No. *sordida* of Haworth.

Rare near London, but found at Darent-wood. “Whittlesea-mere, in August last.”—*Mr. Weaver*. “In Norfolk.”—*A. H. Haworth, Esq.*

Sp. 23. *dubia*. *Alis fuscis vel nigris strigis stigmatibusque ordinariis saturatioribus, strigâ aliâ posticâ conspicuâ, undulatâ, albâ.* (Exp. alar. 1 unc. 6 lin.)
No. *dubia*. *Haworth*.—Ag. *dubia*. *Steph. Catal. part ii. p. 67. No. 6103.*

Anterior wings deep brown or black, with four darker transverse strigæ, the anterior stout, the second broad, geminated, and considerably waved, the third greatly bent, submoniliform, and somewhat remote from the posterior stigma, between which and the hinder margin is another undulated one, accompanied by a conspicuous streak of white dots; in the margin itself is a row of minute black spots; the stigmata are dusky with their edges darker, and a quadrate deeper spot between them: the posterior wings are nearly of an uniform dusky hue, with a deeper central lunate spot, and the nervures slightly blackish.

Found near London, with the foregoing species, of which it may probably be a mere variety, though its appearance is widely different.

Sp. 24. subgothica. PLATE 22. f. 3. *Alis anticis griseo-fuscis, costâ basi, plagâ longitudinali fasciâque posticâ submarginali, stigmatibusque pallidis.* (Exp. alar. 1 unc. 4—6 lin.)

No. subgothica. Haworth.—Steph. Catal. part ii. p. 68. No. 6104.

Somewhat resembling *Ag. valligera*: anterior wings griseous-brown, with a pale longitudinal dash on the costa, and another branching off from the central nervure towards the anal angle, where it unites to a broad patch of the same hue, which is carried on to the apex of the wing in the form of a band, with two acute angles on the posterior edge near the anal angle; the margin itself is irregularly dusky; the anterior stigma is subtriangular, and the reniform one ovate, rufo-ferruginous in the middle, with an ashy margin; the teliform stigma is very distinct, with its margin black, and rather acute at the tip; between the posterior stigma and the inner margin is a dusky or blackish streak, and a patch of similar hue behind the stigma: the posterior wings are whitish, with a faint central lunule, and a narrow dusky border.

Decidedly a scarce insect: it has been captured three or four times near London, and in Norfolk. “Near Barnstaple, Devon.”—*W. Raddon, Esq.*, from whose specimen the accompanying figure was designed.

Sp. 25. exclamationis. *Alis anticis fuscis aut rufescentibus, strigis tribus stigmatibusque nigris, posticis maris albis.* (Exp. alar. 1 unc. 4—8 lin.)

Ph. No. exclamationis. Linné.—*Ag. exclamationis.* Steph. Catal. part ii. p. 68. No. 6105.

A very distinct but excessively variable species: head, thorax, abdomen, and anterior wings fuscous or rufescent, sometimes dusky or piceous; the latter with a faint abbreviated waved striga at the base: an undulated transverse one before the anterior stigma, black within and pale without, and to which the teliform stigma is united; this is generally very stout, rather short and black; behind the posterior stigma is a bent black striga, usually denticulated exteriorly, and margined on that side with pale-ash; on the hinder margin is an undulated ashy streak, and the margin itself is slightly clouded with dusky; the anterior stigma is somewhat darker in the centre than the wing, and has a black margin; the posterior one is very large and dusky, with a pale streak on its anterior edge, which is bounded with black: the posterior wings of the male are white; of the female deep ashy-brown.

The strigæ on the anterior wings are sometimes entirely obliterated, and the ordinary stigmata are occasionally nearly obsolete; at others they are both rounded and almost black: the colour of the wings varies considerably, and the costal edge is frequently suffused with a bright purple tinge.

Caterpillar dirty reddish-brown, glossy, with black spots and a pale reddish dorsal line:—it feeds on the groundsel (*Senecio vulgaris*).

Extremely abundant near London towards the end of June, frequenting gardens, hedges, and woods.

† Sp. 26. *nebulosa*. PLATE 22. f. 1.—*Alis anticis pallide cano-cinereis, basi nebulis fuscis, margine postice saturatiori strigâ sub-undulatâ albâ, posticis maris albis, fœminæ cinereis.* (Exp. alar. ♂ 1 unc. 4 lin.: ♀ 1 unc. 2 lin.)
Ag. nebulosa mihi.—*Steph. Catal. part ii. p. 68. No. 6106.*

Head and thorax hoary gray; antennæ ciliated in the male; pale cinereous: anterior wings pale hoary or whitish gray, the costa slightly clouded with fuscous; with a cloud of the same hue at the base of the wings, divided from the teliform stigma by a very obscure transverse waved striga; anterior stigma round, small, its centre and margin dusky; posterior reniform, clouded with fuscous and black; behind this is an arcuated submoniliform striga, beyond which the rest of the wing is deep fuscous, with an undulated white striga, composed of approximating wedge-shaped spots; in the margin itself is a series of minute black subtriangular dots: cilia pale ash: posterior wings pure white: abdomen of a glossy silken ash colour. Female nearly of an uniform pale cinereous, with the stigmata and costal spots nearly obsolete.

The spots on the abdomen of the male, as represented in the plate, appear to arise from accident, seemingly from some of the hirsuties being abraded.

I have seen two specimens only (the sexes) of this very conspicuous and apparently novel species; they were captured in July, 1827, near Barnstaple, Devonshire, by Mr. Raddon, through whose kindness I am enabled to introduce the accompanying figures and descriptions.

Sp. 27. *cinerea*. *Alis anticis cinereis, fuliginoso nebulosis, strigis duabus denticulatis atris.* (Exp. alar. ♂ 1 unc. 6—8 lin.: ♀ 1 unc. 4 lin.)
No. cinerea. Hübner.—*Ag. cinerea. Curtis. iv. pl. 165.*—*Steph. Catal. part ii. p. 68. No. 6107.*

Thorax cinereous, anteriorly dark: head cinereous; antennæ griseous: anterior wings griseous-ash, with dusky shades; with two black dots at the base, a slender denticulated striga before the middle, and another behind; the anterior stigma is nearly obsolete, but the posterior is distinct; between them is a transverse angulated fuscous or rufescent striga, arising from a dusky spot on the costa, and passing to the inner margin; the hinder has an obscure waved striga, and a series of minute black dots on the margin itself: cilia griseous-brown; posterior wings whitish, with a dusky central spot, and a series of blackish dots on the margin. Female considerably darker, and destitute of the griseous hue, the strigæ more evident but less denticulated; the posterior wings cinereous.

This species differs considerably in habit from the rest of the genus, in the obscurity of the stigmata particularly, and in the total absence of the teliform one.

Caterpillar slightly hairy, greenish-brown, with three reddish stripes on the back, and a glossy-brown head; the legs yellowish-white.

Not common, taken occasionally on a heathy common to the

north of Darenth-wood, flying by day, and in other parts of the country. "Netley, Salop."—*Rev. F. W. Hope*. "Near Burghfield, Berks."—*Rev. C. S. Bird*. "In the Isle of Wight."—*Mr. Weaver*.

GENUS XCII.—GRAPHIPHORA, *Hübner*.

Palpi moderate, ascending, parallel, densely clothed with scales, the base pilose, the terminal joint distinct, squamous; triarticulate, the basal joint curved, the second longer than the first, slightly attenuated, the terminal small, elongate-ovate, a little acuminate: *maxillæ* as long as the antennæ. *Antennæ* various, moderate, generally simple, with the lower surface pubescent in the females; usually ciliated beneath in the males, or deeply bipectinated, with the pectinations abbreviated towards the apex, sometimes serrated and pubescent beneath: *head* large, scaly: *thorax* slightly crested: *wings* generally rather broad, slightly rounded behind, horizontal during repose, not denticulated; mostly griseous or dusky, with dark spots towards the costa. Larva exposed, usually with pale lateral stripes, naked: pupa subterranean.

Like the preceding genus, Graphiphora is chiefly composed of dingy and similarly marked species, though amongst them may be noticed a few of delicate and somewhat vivid colours; from the former circumstance, the investigation of the species appears to have been neglected in this country, as very few cabinets contain above six or eight of the following species. The genus is evidently closely allied to Agrotis, and several of the species are included in that genus by Ochsenheimer and Treitschke, while Schrank and Boisduval agree in uniting the whole under the incorrect appellation Noctua (a name which has been also employed by Treitschke, in lieu of Graphiphora, although justly restored by Savigny to a genus of owls); they may, however, be distinguished by the superior width and glossiness of the anterior wings, which have usually but two stigmata, and by the general simplicity of the antennæ.

Sp. 1. rhomboidea. PLATE 19. f. 1. 8.—*Alis anticis rubro-brunneis, tincturâ roseâ, maculâ rhomboideâ alterâque triangulari rufo-fuscis; antennis maris pectinatis.*
—(Exp. alar. ♂ 1 unc. 8 lin.: ♀ 1 unc. 6 lin.)

No. rhomboidea. *Esper?*—Gr. rhomboidea. *Steph. Catal. part ii. p. 68. No. 6108.*

A beautiful species: head and thorax cinereous, irrorated with rosy: anterior wings reddish or ashy-brown tinted with bright rose-colour, with a red-brown rhomboid spot, and a triangular one near the stigmata; at the base is an obscure abbreviated undulated dusky striga, a second, much waved anteriorly, before the

stigma, and a third, more distinct, suddenly angulated at the costa, and considerably arcuated, composed of connected lunules, the points of each directed outwards, between which and the posterior margin is an undulated pale rosy striga, and the hinder margin itself has a row of minute fuscous lunules; cilia fuscous, tinted with rosy; stigmata cinereous: posterior wings whitish-ash with an ochraceous tinge, with a central spot and a broad marginal band fuscous; cilia ochraceous: antennæ pectinated in the male,—the colours more vivid, and the markings stronger in the female, antennæ simple.

The strongly pectinated antennæ of the male of this species, and its general habit, appear to indicate more than a specific difference.

Of this delicately beautiful insect I have seen four examples only, which were captured in July last on the borders of Whittlesea Mere, by Mr. Weaver.

Sp. 2. *renigera*. *Alis anticis griseo-nigricantibus, atomis canis sparsis lineisque transversis saturatioribus; posticis fusco-cinereis, ad basin pallidioribus.* (Exp. alar. 1 unc. 4—6 lin.)

No. *renigera*. *Hübner. Steph. Catal. part ii. p. 63. No. 6109.*

Head, thorax, and abdomen pale ashy-brown: anterior wings shining-griseous or brownish-black, thickly sprinkled, especially towards the base, with minute hoary dots: before the middle is an obscure paler striga, bounded on each side with black, and behind the middle is another very obsolete incurved one; the stigmata are scarcely visible, but the posterior one is indicated by a black reniform patch; the hinder margin of the wing is very deep fuscous black, with an indistinct streak of fuscescent lunules on the margin itself; cilia dusky: posterior wings deep fuscous-ash, or blackish, with the base rather paler, the cilia whitish ash.

This conspicuous but sombre insect is unquestionably rare, at least in the southern part of England, and but few specimens have occurred in the north. “Derbyshire.”—*Rev. W. T. Bree*. “Westmoreland, in July, 1827.”—*Mr. Weaver*. “Scotland, near Forfar.”—*G. Milne, Esq.*

Sp. 3. *latens?* *Alis anticis cinereo-nigricantibus, lucidis, strigis undatis fuscis obsoletissimis, stigmata ordinaria ferè obsoleta.* (Exp. alar. 1 unc. 6 lin.)

No. *latens*. *Hübner?—Gr. latens?—Steph. Catal. part ii. p. 68. No. 6110.*

Resembling the last in the obscurity of its markings: head, thorax, and abdomen deep cinereous: anterior wings of a glossy ashy-black, most obsoletely strigated transversely with undulated fuscous lines, visible only in certain positions; the first of which is towards the base and abbreviated, the second anterior to the basal stigma, the last beyond the reniform stigma, and considerably bent; beyond this the wing is darker, and has towards the hinder margin an obscure pale denticulated striga, the margin itself immaculate; cilia fuscous: stigmata very obscure, with a dark quadrate spot between them: posterior wings obscure cinereous, with the cilia whitish.

The only example I have seen of this insect was taken in the south of Scotland in the summer of 1827.

Sp. 4. *pyrophila*. *Alis anticis cinereis, strigis maculisque fuscis, posticis fuscis, nitidulis.* (Exp. alar. 1 unc. 6—9 lin.)

No. *pyrophila*. *Wien. V.*—Gr. *pyrophila*. *Steph. Catal. part ii. p. 68. No. 6111.*

Head and thorax cinereous, the latter with a black spot on each side in front: anterior wings cinereous or fuscous, with various fuscous spots and strigæ, the latter dispersed at irregular distances; the first being basal, geminated, and slightly flexuous, the second considerably before the anterior stigma, obliquely transverse, considerably undulated exteriorly, and also duplex; the third is submoniliform and obscure, a little bent, and situated behind the posterior stigma; near the hinder margin is a fourth striga composed of conical spots, and slightly waved toward the apex and the anal angle; the posterior margin has a row of minute black dots; cilia fuscous, with a pale line at the base; between the stigmata, which are distinct, and the anterior immaculate, runs a faint transverse dusky striga: the posterior wings are deep glossy fuscous.

Caterpillar dirty grayish-brown.

Also a rare species: one or two specimens have, I believe, occurred at Southgate near London, and also in the county of Warwick. "Several examples found in July, 1826, at Netley, Salop."—*Rev. F. W. Hope*, who kindly supplied me with the specimens which I possess. "Zetland."—*Rev. Dr. Fleming*. "Lanarkshire."—*G. Lyell, Esq.*

† Sp. 5. *lunulina*. "*Alis fuscis strigis lunularum pallidarum.*" *Haworth*. (Exp. alar. 1 unc. 8 lin.)

No. *lunulina*. *Haworth.*—Gr. *lunulina*. *Steph. Catal. part ii. p. 68. No. 6112.*

"Wings fuscous, with four obsolete pale strigæ, edged, as it were, with minute black lunules; the first at the base, nearly entirely obliterated, the second undulated and placed before the middle, the third arcuated and placed behind: between these last is a lunule and several pale spots in the place of the margin of the posterior stigma; the anterior stigma wanting; beyond the third striga is a fourth dentated one, and on the margin itself is a row of extremely minute black spots; cilia fuscous, or slightly cinerous: posterior wings cinereous, with a fuscous border, and a pale striga on the margin itself, cilia whitish."—*Haworth*.

The only specimen I have seen of this species is in Mr. *Haworth's* cabinet; it was captured in Cambridgeshire by Mr. *W. Skrimshire*.

Sp. 6. *crassa?* *Alis anticis fuscis nitidis atro subnebulosis, strigâ posticâ pallidâ undatâ.* (Exp. alar. 1 unc. 6—9 lin.)

No. *crassa*. *Hübner?*—Gr. *crassa*. *Steph. Catal. part ii. p. 68. No. 6113.*

Thorax deep fuscous, reddish anteriorly: anterior wings with a dark streak at the base, and several irregular black spots between and round the ordinary stigmata, which are rather obscure, and the anterior elongate-quadrate; and there is sometimes the appearance of a third, as in the following species: there are also three obscure pale transverse strigæ, as in most of the foregoing insects, more or less edged with fuscous, placed one at the base, the second before, and the last behind, the stigmata; and towards the hinder margin is a distinct pale waved one; the margin itself immaculate: cilia fuscous: posterior wings whitish, with the nervures and margin blackish; cilia whitish.

Whether this be truly synonymous with *Noctua crassa* of Hübner I am not certain: Mr. Haworth thinks it is, but it appears rather to resemble the *No. ruris* of that author, if Ochsenheimer's reference to *Engramelle* be correct.

Less rare than the foregoing insects, though far from common: it does not occur near London, but has been captured in Norfolk, and in Scotland, in August, frequenting gardens. "Bottisham."—*Rev. L. Jenyns*. "Netley, Salop."—*Rev. F. W. Hope*.

Sp. 7. *augur*. *Alis anticis fusco-rufescentibus strigis undatis characteribusque nigris, posticis fuscescentibus.* (Exp. alar. 1 unc. 7—9 lin.)

No. *augur*. *Fabricius*.—Gr. *augur*. *Steph. Catal. part ii. p. 69. No. 6114.*

Somewhat resembling the last: the anterior wings fuscous or dusky rufescent, with a dentated and abbreviated pale striga at the base, a second undulated one, edged exteriorly with black, before the middle, beyond which are two irregular black rings forming two stigmata placed transversely, as in most of the *Agrotæ*, followed by the usual reniform stigma, cinereous in the middle, with a broad black margin; then a bent striga composed of minute fuscous or black lunules, and a dusky fascia, terminating abruptly by a pale undulated striga; the hinder margin immaculate, or faintly spotted with pale cinereous and fuscous dots: cilia fuscous: posterior wings fuscous, with a central lunule, the nervures and margin darker.

The intensity and bulk of the black stigmatiform rings, as well as the colour of the wings, vary considerably in different specimens.

Not uncommon: taken at Coombe and Darenth-woods, near Ripley, Hertford, &c. in July. "Bottisham."—*Rev. L. Jenyns*. "Epping."—*Mr. H. Doubleday*.

Sp. 8. *brunnea*. *Alis anticis purpurascente-brunneis, fasciâ posticâ subundulatâ saturatiore, stigmatè postico flavo, punctoque medio atro.* (Exp. alar. 1 unc. 6—8 lin.)

No. *brunnea*. *Wien. V.*—Gr. *brunnea*. *Steph. Catal. part ii. p. 69. No. 6115.*

Head, thorax anteriorly, and tuft and sides of the abdomen rufous: anterior wings purplish-brown, with obsolete strigæ, or dusky spots towards the base; a quadrate black spot between the stigmata, of which the anterior is rounded,

and margined with black and yellow; the posterior, as usual, reniform, yellow, with the middle generally cinereous, and a black patch in it towards the middle of the wing; behind the stigmata is an obscure submoniliform rufo-brunneous striga, followed by a broad slightly undulated deep purplish-brown fascia; the hinder margin rufescent; the cilia rufous: posterior wings of a rufous-brown, with a dusky central spot; cilia bright rufous.

In some examples the anterior wings are of a bright rosy-brown, with the markings more or less obliterated: but in all the posterior stigma is yellow.

Caterpillar brown, spotted with white, with a bluish lateral line and black head, the latter with two white streaks: it feeds on the Pea (*Pisum arvense*): the imago appears toward the end of July, or beginning of August.

Also found at Coombe and Darenth-woods, and in other places throughout the metropolitan district, not uncommonly. "Netley, Salop."—*Rev. F. W. Hope.*

Sp. 9. candelisequa. *Alis anticis griseis glauco pruinosis, strigis atris, extimâ dentatâ, alterâque posticâ pallidâ subundulatâ.* (Exp. alar. 1 unc. 6 lin.)

No. candelisequa. *Wien. V.*—*Gr. candelisequa. Steph. Catal. part ii. p. 69. No. 6116.*

Head and thorax griseous: abdomen whitish-gray: anterior wings griseous, with a glaucous hue, and several black transverse strigæ, of which the basal one is abbreviated, the second undulated before the middle, the third rather broad, arising from the costa, and passing between the stigmata, where it becomes abruptly angulated, the angle pointing outwards, and terminates about the middle of the inner margin; beyond the posterior stigma is a faint striga which is externally dentated, and between this and the posterior margin is a very slightly waved pale yellowish-brown striga: the anterior stigma is of an irregular form, and rather obsolete, the posterior reniform; there is a minute black spot in the place where the teliform stigma of the *Agrotis* is situated; cilia rufo-griseous: posterior wings dusky-ash, with pale rufescent cilia.

Caterpillar dusky-brown, with reddish and white streaks, and a reddish-yellow head.

My specimen of this species was taken in the larva state at Darenth-wood, in May, and appeared in July, many years since.

Sp. 10. tristigma. *Alis anticis fusco-brunneis, maculâ rhomboideâ inter stigmata alterâ triangulari tertiâque baseos irregulari atris.* (Exp. alar. 1 unc. 6—8 lin.)

Go. tristigma. Ochsenheimer.—*Steph. Catal. part ii. p. 69. No. 6117.*

Allied to the following: head, thorax, and anterior wings deep fuscous-brown, the latter strigated as in *Gr. brunnea*, with a large quadrate black patch between the stigmata, a triangular one at the base of the anterior stigma, and a third of an irregular form and variable in size and intensity, at the base of the wings near the inner margin; towards the hinder margin is an undu-

lated fuscous striga; the margin itself is immaculate and the fringe is dusky: the posterior wings are dusky, with the base rather palest.

Caterpillar dusky, with a whitish dorsal line and a slender lateral white one, with a rufescent streak beneath: it feeds on the Dandelion (*Leontodon Taraxicum*), and is found in May; the imago in July.

Not common; found however at Darenth and near Ripley.

Sp. 11. *triangulum*. *Alis anticis griseo-purpurascensibus atro maculatis, maculâ nigrâ costali versùs apicem, posticis fuscis.* (Exp. alar. 1 unc. 7—8 lin.)

Ph. *triangulum*. *Hufnagle*.—Gr. *triangulum*.—*Steph. Catal. part ii. p. 69. No. 6118*.—Ph. No. *sigma*. *Don. xvi. pl. 562*.

Head and thorax anteriorly cinereous; the latter posteriorly, and anterior wings griseous-purple or fuscous, with four pale transverse strigæ as usual, the first abbreviated and basal, with a black spot at its origin on the costa, and two or three at its termination towards the inner margin; the second oblique, scarcely undulated, also arising from a black costal spot, and edged externally with the same colour; the third obscure, placed behind the stigmata, and margined on each side with dusky; and towards the hinder margin, arising from an oblique black dash, near the apex of the costa, is the fourth, which is considerably undulated and edged interiorly with fuscous spots; the margin itself has a series of minute dusky lunules; between the stigmata is a large quadrate black spot, and a second between the anterior stigma and the oblique transverse striga; the abdomen and posterior wings are fuscous, the apex of the former rufous.

Caterpillar reddish-ash, with a dusky line on the back and a reddish one on each side, with two brownish streaks on each joint; it changes in June to a brown pupa, and the imago appears towards the end of July.

More frequently captured than the foregoing species, but nevertheless not very abundant; it is most commonly found at Darenth-wood, but it occurs also at Coombe and Birch-woods; near Dover, Brighton, Hertford, and Ripley. "York and Suffolk."—*W. C. Hewitson, Esq.* "Epping."—*Mr. H. Doubleday*.

† Sp. 12. *depuncta*. *Alis grisescentibus, laturis marginalibus nigricantibus, strigâque posticè punctatâ.*

Ph. No. *depuncta*. *Linné*.—Gr. *depuncta*. *Steph. Catal. part ii. p. 69. No. 6119, note*.—No. *depunctina*. *Haworth*. (!)

Anterior wings cinereous or grisescent, with two black spots at the base, then two or three confluent ones towards the costa; anterior stigma ovate, posterior reniform, followed by an obsolete dusky striga, and a row of minute black dots, with the hinder margin of the wing dusky.

This species is enumerated by Mr. Haworth in his *Prodromus*, but it is not included in his valuable *Lepidoptera Britannica*, neither have I ever seen a British specimen; I therefore infer that it is not indigenous.

Sp. 13. baja. *Alis anticis griseo-ferrugineis, medio obscure nebulosis, puncto minuto basi maculâque costali versùs apicem nigris.* (Exp. alar. 1 unc. 6—8 lin.)

No. baja. *Wien. V.*—Gra. baja. *Steph. Catal. part ii. p. 69. No. 6120.*

Anterior wings rusty-griseous, with several obscure transverse strigæ, composed of fuscous lunular spots, and a more distinct dusky angulated one in the middle, passing between the stigmata, which are usually rather obsolete, the anterior being discriminated by a pale marginal line, and the posterior by a fuscous cloud and pale margin; near the base of the wing is a minute but conspicuous black dot, and towards the apex two or three united into an oblique costal patch, from which an obscure pale transverse striga arises; the hinder margin is deep rufo-griseous, with rufous cilia: posterior wings deep fuscous, with the hinder margin sometimes irregularly paler; the cilia rufous.

In some examples the strigæ and stigmata are more distinctly marked; and the ground colour of the insect varies considerably.

Caterpillar varied with cinereous and brown, with three dorsal whitish lines and a lateral yellowish one: it feeds on the nightshade (*Atropa Belladonna*), and changes to pupa in June; the imago appearing towards the end of July.

Found nearly in similar places with the preceding insect, not very uncommonly.

Sp. 14. erythrocephala. *Alis anticis griseo-ferrugineis, maculâ sub-quadratâ inter stigmata fasciâque posticâ castaneis.* (Exp. alar. 1 unc. 4—7 lin.)

No. erythrocephala. *Wien. V.?*—Gr. erythrocephala. *Steph. Catal. part ii. p. 69. No. 6121.*

Somewhat resembling the preceding insect, but without the black costal spot, and smaller: the anterior wings bright rusty-griseous, with several indistinct undulated transverse strigæ, and a broader dusky one between the stigmata as in that species; the posterior margin of the wing is brownish-chestnut, with a distinct slightly waved pale castaneous striga; the extreme margin with a row of faint dusky spots; the cilia rufous-brown, with a pale rufous streak at the base; between the stigmata is a subquadrate castaneous spot, and between the anterior one and the inner margin a minute black dot; the posterior stigma is sometimes yellowish, and the anterior has a dusky margin, but in general they are very obscure; posterior wings fuscous, with a darker central lunule.

Caterpillar gray-brown, with a dusky streak on the back, and two whitish lateral lines, and a few white spots; it feeds on the Plantain (*Plantago lanceolata*)? is found in May, and the imago appears in July.

Not common; found at Darenth and Birch-woods; also once near Sydenham.

Sp. 15. festiva. *Alis anticis pallidè incarnatis aut subferrugineis nebulosis, maculis angulatis saturatoribus ad stigmatibus flavis.* (Exp. alar. 1 unc. 3—6 lin.)

No. festiva. *Wien. V.*—Gr. festiva. *Steph. Catal. part ii. p. 70. No. 6122.*

A beautiful and variable species: anterior wings generally pale towards the base, with two ordinary strigæ, and a fuscous or rusty spot; then the stigmata which are pale rufous-yellow, but indistinctly margined; between them is a ferruginous quadrangular spot, and between the anterior stigma and the inner margin is a dusky or black spot, more or less conspicuous; the posterior half of the wings is irregularly varied with ferruginous and griseous fasciæ, and bears the two ordinary strigæ, which are mostly very indistinct; and in the margin is a row, more or less evident, of dusky or black spots; cilia rufous-ferruginous: posterior wings cinerascens, with a central lunule, a transverse striga behind the middle, and the hinder margin dusky; cilia rufous.

Scarcely two examples occur precisely similar: some are beautifully varied with rufous and purple shades; others have the spots between the stigmata black; the strigæ more or less distinct, and the stigmata themselves are frequently rufous, and in some specimens the spots are nearly obliterated: the insect is sometimes nearly cinereous, with a faint rosy tinge.

Caterpillar reddish-yellow, sprinkled with yellow spots, with a yellowish dorsal, and two dusky lateral lines; it feeds on the Primrose (*Primula vulgaris*), and changes to pupa in June, and towards the end of the month the imago appears.

Frequently taken at Darent-wood towards the end of June or beginning of July; it also occurs, though more sparingly, at Coombe-wood, and near Hertford. “Buxton and Netley.”—*Rev. F. W. Hope.*

Sp. 16. punicea. *Alis anticis griseo-roseis fusco-strigatis, maculâ quadratâ inter stigmatâ obscurâ, aliâque costali versûs apicem fuscis.* (Exp. alar. 1 unc. 2—5 lin.)

No. punicea. *Hübner.*—Gr. punicea. *Steph. Catal. part ii. p. 70. No. 6127.*

Head and thorax immaculate rosy-griseous: anterior wings the same, with obscure fuscous strigæ placed nearly as usual; the stigmata rather pale, with the margins sometimes yellowish; the space between with an obscure dusky quadrangle spot; and between the anterior and the inner margin a minute black dot; behind the stigmata is the usual arcuated striga, which has a dusky outer edge united to a similar coloured patch on the costa; towards the hinder margin is a slightly waved pale or flavescent striga, the margin itself is rather dusky, and has occasionally a row of minute black specks on its extreme edge: cilia reddish: posterior wings cinerascens, with a dusky central spot, and the cilia reddish.

This insect varies considerably in the colour and intensity of the fuscous strigæ. Caterpillar reddish-brown, with a yellow dorsal stripe, the sides with a pale streak, irrorated with brown and yellowish: head brown.

Less common than the last, but occasionally found in considerable plenty at Darent-wood, and near Winchmore-hill in June. “Epping.”—*Mr. H. Doubleday.* “Netley.”—*Rev. F. W. Hope.*

Sp. 17. *C. nigrum*. *Alis anticis fusco-cinereis lineolâ basi, aliâque costali versùs apicem, maculâque centrali extùs pallidâ atris; posticis albidis.* (Exp. alar. 1 unc. 3—6 lin.)

Ph. No. *C. nigrum*. *Linné.*—Gr. *C. nigrum*. *Steph. Catal. part ii. p. 70. No. 6123.*

Thorax fuscous, anteriorly pale; abdomen cinereous: anterior wings deep fuscous-ash, with the ordinary strigæ nearly obliterated, a pale ochraceous-white patch in the costa towards the middle, bordered towards the inner margin with a deep arcuated black spot; the anterior stigma obsolete; or rather confused in the pale costal patch; the posterior griseous, dusky at the base, and forming the termination of the central black spot; at the base of the wing is an irregular black patch or streak, and towards the apex on the costa another placed somewhat obliquely, and from which a slightly undulated pallid striga arises, the space between which and the fringe is darker than the rest of the wing; fringe dusky: posterior wings pale luteous-white in the males, with the hinder margin rather dusky; and in the females cinerascens, with the base palest.

This species varies a little in size, colour, and intensity of markings.

Caterpillar varied with cinereous and brown, with a pale lateral line and transverse lineola on the sides: it feeds on the Chickweed (*Alsine media*), Marsh Willow herb (*Ephilobium palustre*), and Spinach; changes in May to a brown pupa, and the imago appears towards the end of June and beginning of July.

Not very rare; found in various parts of the country: I have taken it at Darenth and Coombe woods, and in the lanes near Ripley and Hertford; it also occurs in Devonshire, the New Forest, in Norfolk, Suffolk, &c. “Bottisham.”—*Rev. L. Jenyns*. “Epping.”—*Mr. H. Doubleday*. “Buxton.”—*Rev. F. W. Hope*.

† Sp. 18. *musiva*. *Alis anticis brunneis, lineâ baseos flexuosâ atrâ vittâque marginis superioris albidâ, thorace fasciâ atrâ.* (Exp. alar. 1 unc. 6 lin.)

No. *musiva*. *Hübner.*—Gr. *musiva*. *Steph. Catal. part ii. p. 70. No. 6124.*

Head and thorax reddish-white, the latter with a transverse black streak anteriorly: anterior wings reddish-brown, with a reddish-white streak at the base towards the costa, and the ordinary strigæ nearly obliterated; at the base is a flexuous black line, which extends nearly to the posterior stigma, terminating in a black spot; the anterior stigma is round and pale cinereous, the posterior reniform and dusky in the middle: the fringe is yellowish-red: posterior wings whitish. Caterpillar yellowish-green, with the head brown, a dusky-green dorsal line, and two whitish lateral lines.

One specimen only of this beautiful insect has, I believe, hitherto been captured in England; the locality of which is unknown to me; it was obtained by Dr. Leach about fifteen years ago, and deposited by him in the collection of the British Museum.

Sp. 19. *plecta*. *Alis anticis purpureo-brunneis, lineâ nigrâ basali, costâ a basi ad medium pallidâ; posticis albidis.* (Exp. alar. 1 unc. 2—3 lin.)

Pl. No. plecta. *Linné*.—Gr. plecta. *Steph. Catal. part ii. p. 70. No. 6126.*

A small though beautiful species: head and thorax purplish- or reddish-brown, the latter with a black transverse streak in front: anterior wings light dusky-purple, with the costa pale ochraceous white, from the base nearly to the middle, with a black streak at the base, and another in the middle of the wing, nearly united to the former, and traversing, as it were, the stigmata, the anterior of which is well defined, circular, and white, with its centre dusky; the posterior rather small, heart-shaped, cinereous, with a whitish border: near the hinder margin is an obscure undulated streak, the margin itself has a row of minute black dots; the fringe is purplish-brown: abdomen cinereous, with the apex rufescent; posterior wings whitish, with the fringe ochraceous.

Var. β . The anterior wings without the pale costal spot.

Caterpillar green, with a brown head; it feeds on various plants, and is found in May and August; the imago appearing in June and September.

A beautiful and not uncommon insect, frequenting hedges and lanes in woody situations, throughout the metropolitan district. "Common at Kimpton and Amesbury."—*Rev. G. T. Rudd.* "Epping."—*Mr. H. Doubleday.*

Sp. 20. albimacula. PLATE 19. f. 3. *Alis anticis fusco-brunneis purpureo variegatis, vittâ costali pallidâ, lineolâ basi atrâ, plagâ elongatâ centrali fusco-nigrâ, in qua macula rotundata alba.* (Exp. alar. 1 unc. 5—7 lin.)

Gr.? albimacula mihi.—*Steph. Catal. part ii. p. 18. No. 6125.*

Antennæ griseous: head cinereous, with two black spots on the crown: thorax griseous-ash, transversely streaked anteriorly with black and white: anterior wings shining fuscous brown, beautifully shaded with rich purple, with a pale reddish patch at the base, towards the costa; a black streak at the base, with a subocellated purplish spot, between its tip and the inner margin, having an ovate black stigmatiform mark adjoining, placed as in most of the *Agrotis*; on the disc is an elongate fuscous black patch, acute anteriorly, and truncate posteriorly: in this the anterior stigma, which is round and white, is placed, and the posterior one at the hinder extremity; the ordinary strigæ are rather obsolete; but in the place of the usual hinder one is a series of fuscous dots, united by an interrupted black longitudinal streak to the reniform stigma: the posterior wings dusky-ash, and glossy, with a faint transverse striga, and darker border.

With the location of this remarkably conspicuous species I am not satisfied: it differs in many respects from the rest of the genus, especially in the roundness of the base of its somewhat reticulated anterior wings, the internally serrated and ciliated antennæ of the male, and in its autumnal flight: in many respects it resembles the species of the genus *Agrotis*.

The specimen whence the accompanying figure was designed was captured in September, 1824, at Whittlesea-mere; since which

period other examples have occurred near Ringwood, Hants, in the autumn.

GENUS XCIII.—SEMIOPHORA* *mihî*.

Palpi short, very hairy at the base, the terminal joint exposed and scaly; tri-articulate, the basal joint slightly bent, stout, not half as long as the second, which is elongate, slightly attenuated, the terminal one minute, ovate, subtruncate: *maxillæ* as long as the antennæ. *Antennæ* bipectinated in the males, serrated in the females, each joint producing a bristle on both sides: *head* small, pilose: *thorax* stout, woolly, not crested: *body* not very stout, short: *wings* entire, slightly deflexed, *anterior* elongate, narrowed at the base, rather acute at the tip, *posterior* abbreviated, subtrigonate: *legs* short: *femora* woolly. Larva naked, exposed: pupa subterranean.

This genus should unquestionably be separated either from *Episema*, with which it is associated by Ochsenheimer, or from *Graphiphora*, to which Treitschke removes it, and amongst which (under the improper name of *Noctua*, after Schrank) Boisduval places it in his recent Catalogue of European Lepidoptera. It is evident from the above remark that the insect in question offers some peculiarities. I shall therefore, in this, as in other instances, fearlessly consider such very discordant species as belonging to uncharacterized genera, as a more correct view of species must be obtained by separating dissimilar individuals, than by uniting them, in order to avoid applying a new generic term. From the preceding genera the present differs by the woolliness of its smooth thorax, the brevity of the posterior wings, by reposing with the anterior ones deflexed, &c.

Sp. 1. *gothica*. *Alis anticis griseo-fuscescentibus, arcu lineolâque medio atris, stigmatibus margine pallidè solo conspicuis.* (Exp. alar. 1 unc. 3—7 lin.)

Ph. No. *gothica*. *Linné*.—*Se. gothica*. *Steph. Catal. part ii. p. 70. No. 6128.*

Head and thorax clothed with reddish or griseous-brown woolly hairs: anterior wings brownish-griseous, with two black spots (frequently confluent) at the base; in place of the ordinary basal striga, then three equidistant obsolete pale strigæ, each arising from a dusky or black costal spot; between the two anterior of which is a conspicuous arcuated black spot, and an oblong black line, the space between being brown: the anterior stigma, of which the pale ashy margin alone is visible, forms the inner segment of the arch, and the posterior one, of which also the pale margin alone is apparent, is placed

* Σημείον signum, φέρω fero.

at its termination; between this stigma and the following striga is frequently a brown spot; and the posterior margin, beyond the third striga, is generally dusky or dark brown: posterior wings fuscous; cilia rufescent.

Both sexes vary greatly: in some the oblong line is very minute, in others it is considerably elongated; in some specimens there is a transverse pale band, between the third and fourth strigæ; and the wings are not uncommonly varied with beautiful purple shades.

Caterpillar pale-green, yellowish on the back, with a white lateral line and a few dusky specks:—it feeds on the oak, honeysuckle, woodbine, &c.: the imago appears towards the middle of April.

Not a very uncommon species, frequenting hedges and wood sides: I have often taken the larva both at Darent and Coombe woods, Highgate, Hampstead, &c. “Kimpton, not common.”—*Rev. G. T. Rudd.* “Epping.”—*Mr. H. Doubleday.* “Bottisham.”—*Rev. L. Jenyns.* “Netley.”—*Rev. F. W. Hope.*

GENUS XCIV.—ORTHOSIA, *Ochsenheimer.*

Palpi nearly horizontal, densely clothed with elongate scales, the terminal joint scarcely projecting; triarticulate, basal joint a little bent, above half the length of the second, and more robust, second nearly straight, terminal about the length of the basal, obscurely pear-shaped: *maxillæ* shorter than the antennæ. *Antennæ* simple in the females; bipectinated or ciliated in the males: *head* small, with long scales above: *thorax* not crested, stout, woolly: *abdomen* short, tufted in the males, acute in the females: *wings* slightly deflexed, entire; *anterior* elongate, the apex slightly rounded or somewhat acute; *posterior* short, ovate-triangular: *legs* moderate. Larva naked, longitudinally streaked; pupa subterraneous.

Orthosia evidently consists of two groups of insects (as briefly characterized in the following pages), differing considerably from each other in colour and habit, although their general structure is sufficiently alike to authorize their union under one genus:—the species of the first section are vernal, and the remainder mostly autumnal; they are all extremely variable, and several manifest varieties have been hitherto considered in this country as distinct species. In the woolliness and stoutness of the thorax the genus resembles the preceding, but its other characters are different; the structure of the palpi especially: by the former mark it may be known from *Agrotis*, *Graphiphora*, and *Mythimna*, added to which the last genus has the thorax strongly crested in front.

A. Anterior wings somewhat rounded at the tip. (Antennæ of the males more or less pectinated.)

Sp. 1. *instabilis*. *Alis anticis griseo-fuscis, fasciâ mediâ ferrugineâ, stigmatibus ordinariis pallidè cinctis, strigâque posticè simplice.* (Exp. alar. 1 unc. 5—8 lin.)

No. *instabilis*. *Wien. V.*—Or. *instabilis*. *Steph. Catal. part ii. p. 70. No. 6129.*

A most variable species: head and thorax generally pale griseous-ash or cinereous; anterior wings griseous-brown, or cinerascens clouded with griseous, with the ordinary strigæ rather obsolete, and a broad angulated ferruginous bar between the stigmata, which are margined with pale ash or whitish, and the posterior one has a black spot towards the inner margin of the wings; the posterior striga is simple and whitish or lutescent, slightly undulated, and in general has a rusty spot at its origin on the costa, another at its termination on the inner margin, and a third about its centre: posterior wings fuscous, with a dusky central spot, and another near the anal angle: body fuscous, with the tuft and sides reddish. Antennæ griseous, slightly pectinated in the male.

It is difficult to find two specimens precisely resembling each other; nevertheless their differences consist mostly of slight variations of colour: in some examples the anterior wings are pale griseous ash, with two rusty-brown strigæ and spotted cilia (1): others have the anterior wings clouded with griseous, with three griseous lunules towards the posterior striga (2): others again have the anterior wings dusky, with the margins of the stigmata and the posterior striga alone pale (3): while in some the anterior wings are very narrow, varied with chestnut and brown, with the margins of the stigmata pale, and the posterior whitish striga interrupted (4): the stigmata vary in form, and are sometimes confluent.

Caterpillar green, with a white dorsal and yellow lateral line: it feeds on the oak: the imago appears towards the beginning of April.

An extremely common species, occurring throughout the metropolitan district; in great abundance in Richmond Park and Epping Forest; usually obtained at the former place by digging the pupæ during the winter months. “Epping.”—*Mr. H. Doubleday*. “Netley.”—*Rev. F. W. Hope*.

Sp. 2. *intermedia*. *Alis anticis griseo-fuscis, fasciis tribus saturatoribus, annulis duobus strigisque ordinariis pallidis, strigâ posticâ duplice; antennis maris valdè pectinatis.* (Exp. alar. 1 unc. 6—7 lin.)

Or. *intermedia mihi*.—*Steph. Catal. part ii. p. 71. No. 6130.*

(1) *Noctua nebulosa*, *Haworth*.

(2) *No. subsetacea*, *Haw.*

(3) *No. fuscata*, *Haw.*

(4) *No. angusta*, *Haw.*

Allied to the foregoing, but differs in the strongly pectinated antennæ of the male, in which alone it resembles the following: head, thorax, and anterior wings griseous-brown, the latter with three equidistant darker fasciæ, with the ordinary striga paler, and the posterior one consisting of two somewhat parallel and slightly undulated lines, and unaccompanied by darker spots; the stigmata have the margins alone conspicuous and pale, and the posterior one is destitute of a black spot: the hinder margin of the wing itself has a narrow pale streak: the abdomen and posterior wings are dusky-ash; the apex of the former and the cilia with a rosy tinge; antennæ of the male deeply pectinated, with a white rib and griseous radii.

I have seen a pair only of this species: the male I obtained of a practical collector, the female was found by myself in the pupa state, at the foot of an oak in Richmond Park many years since.

Sp. 3. *gracilis*. *Alis anticis plumbescentibus griseo subnebulosis, strigâ obsoletâ posticâ e punctis griseo-nigris extûs pallido adnatis*. (Exp. alar. 1 unc. 6—7 lin.)

No. *gracilis*. *Wien. V.—Or. gracilis*. *Steph. Catal. part ii. p. 71. No. 6131*.

Antennæ strongly pectinated; pale griseous, with the shaft ashy: head, thorax, and anterior wings lead-coloured ash, more or less clouded with cinereous, with the ordinary strigæ very obsolete; the posterior one pale, slightly waved, and accompanied on its inner edge with several black spots: stigmata deep fuscous-ash, with the margins pale griseous; the anterior circular, the posterior reniform; abdomen and posterior wings dusky.

Like its congeners, this rare species seems to be extremely variable: in some examples the ordinary strigæ are very distinct, a pale ferruginous bar traverses the centre of the wings between the stigmata, and the arcuated striga behind the posterior stigma is externally pectinated: the pale hinder striga is sometimes accompanied by an almost continuous series of black dots.

Caterpillar green, the sides yellowish, with yellow rings, each articulation with an anterior black spot and four obscure dots: it feeds on the oak, willow, bramble, &c.; changes in July to pupa, and appears at the beginning of the following April.

Not common: the pupa has been occasionally found at the roots of oaks in Epping Forest, and the larva has been taken sometimes at Darenth and Birch woods; and I believe the insect has occurred in Richmond Park.

Sp. 4. *munda*. *Alis anticis griseo-cinereis, aut ferrugineis, strigâ posticâ pallidiorè, punctis duabus geminatis ad apicem atris*. (Exp. alar. 1 unc. 7—8 lin.)

No. *munda*. *Wien. V.—Or. munda*. *Steph. Catal. part ii. p. 71. No. 6132*.

Head, thorax, and anterior wings pale griseous-ash, the latter with a dusky spot at the base, a dusky ferruginous striga, before the anterior stigma, angulated beyond the middle, and turning rather suddenly to the base, a flexuous brighter

striga between the stigmata, and an ordinary bent one behind the posterior stigma, between which and the hinder margin is a somewhat pale and undulated one, having two very distinct black spots near its centre, and two griseous ones at its termination on the anal angle: posterior wings fuscous, with pale griseous cilia.

Var. β . *Steph. Catal. l. c.*—Anterior wings pale ferruginous with two contiguous black spots behind, the stigmata nearly obsolete: posterior pale dusky griseous.

Var. γ . Anterior wings deep fuscous, with the ordinary striga very distinct, the reniform stigma with a dusky spot at its apex, the costa with a blackish streak near the tip, and the ordinary geminated black spots very large.

Var. δ . Anterior wings pale ferruginous, with the strigæ very obsolete, and the geminated black spots obliterated.

Caterpillar varied with griseous and black, with a testaceous lateral line: it feeds on the oak, sloe, elm, and fruit trees; changes to pupa about June, and appears in its final state about the middle or end of April.

Rare; but found in several places in the metropolitan district. "Leatherhead and Dorking."—*W. Raddon, Esq.*, who kindly supplied me with fine specimens of var. β . which have been given as a distinct species, under the name of *O. bimaculata*. "Epping."—*Mr. H. Doubleday*.

Sp. 5. *sparsa*. *Alis anticis griseo-cinereis atomis fuscis, strigâ arcuatâ punctorum nigrorum aliâque posticâ fusco-albâ.* (Exp. alar. 1 unc. 7—8 lin.)

Bo. *sparsus*. *Haworth.*—Or. *sparsa*. *Steph. Catal. part ii. p. 71. No. 6133.*

Head and thorax hoary-ash, or griseous: anterior wings concolorous, sprinkled with minute fuscous dots, with the ordinary strigæ extremely obscure, except the two outer ones, of which the first is represented by a bent series of black spots, and the second, or posterior one, by a slightly waved fuscous line, margined externally with white or ochraceous; the hinder margin of the wing has sometimes a row of minute black dots: the stigmata are dusky, with the margins pale: the posterior wings cinereous, with a broad fuscous margin: fringe whitish.

The tint of colour differs exceedingly; in some instances the anterior wings approach to bright rusty-griseous, in others they are nearly gray or hoary, and sometimes deep brownish-ash: the strigæ are frequently well defined, and the stigmata are sometimes nearly concolorous with the wings.

Larva green, with a paler lateral and dorsal stripe; it feeds at the tops of willows, drawing the young twigs together, and destroying their vegetation: they change in July, and the imago appears towards the end of April.

Not very common; I have met with it in Copenhagen-fields, flying in the afternoon: at Hampstead, Hertford, &c.; it also occurs in several other places near the metropolis, having been found at Darenth and Coombe woods. "Epping."—*Mr. H. Doubleday*.

Sp. 6. *pallida*. *Alis uniformitèr pallescentibus, strigâ posticâ rufâ extûs albidâ, aliâque punctorum, stigmatibus pallido marginatis.* (Exp. alar. 1 unc. 5—6 lin.)

No. *pallida*. *Haworth.*—Or. *pallida*. *Steph. Catal. part ii. p. 71. No. 6134.*

Head, thorax, and anterior wings, of a nearly uniform pale rufous-brown, with the ordinary stigmata having a slender pale margin alone conspicuous: the outer one heart-shaped, and sometimes dusky: between this and the hinder margin is an oblique, nearly straight, rufous striga, margined externally with pale ochraceous, followed by a row of very minute fuscous dots near the hinder margin: cilia short and cinereous: posterior wings rather dusky, with the cilia pale rufescent.

Few specimens only of this rather doubtful species have hitherto occurred, all, I believe, captured within the metropolitan district; I have taken it in Richmond Park:—it closely resembles some of the varieties of the preceding.

Sp. 7. *stabilis*. *Alis anticis griseo-ferrugineis stigmatibus flavicinctis, strigâ externâ pallidiore fusco adnatâ, margine nigro punctato.* (Exp. alar. 1 unc. 3—6 lin.)

No. *stabilis*. *Wein. V.*—Or. *stabilis*. *Steph. Catal. part ii. p. 71. No. 6135.*—*Albin, plate 76. f. e—h.*—*plate 75. f. a—e.* Var. β .

Antennæ ferruginous: head, thorax, and anterior wings rusty-griseous, reddish-gray, or flesh-coloured; the latter with one or two dusky or black spots at the base, the second and third ordinary strigæ rather obsolete, composed of minute fuscous dots, and each arising from a dark costal spot; the fourth slightly repanded, pale ochraceous, margined internally with fuscous; the hinder margin with a row of minute black dots; the stigmata slightly dusky, with pale-yellowish margins; the nervures towards the apex of the wing also yellowish or ochraceous: abdomen pale reddish-ash: posterior wings fuscous, with rufous cilia.

Var. β . *Steph. Catal. l. c.*—Anterior wings with the stigmata united, the pale margins forming a figure of 8.

Var. γ . *Steph. Catal. l. c.*—Anterior wings with the margins of the stigmata, and the posterior striga, more or less rufescent.

The varieties of this inconstant species are endless: in some examples the strigæ are very distinct, in others completely obliterated; some have a broad angulated dusky fascia between the stigmata, others want it: the stigmata are frequently remote, occasionally united, and a third, situated in place of the teliform one of the *Agrotis*, is frequently indicated by a yellowish hook: the anterior wings are found of a dusky-ash, irrorated with pale and darker atoms, or of a plain hoary-ash; and the posterior margin is sometimes destitute of the row of black spots.

Notwithstanding the appellation which has been given to this species, in contradistinction to that applied to the first, both are equally variable; and were the judgment of authors alone to guide us, their names ought to be reversed,

if such a proceeding were not contrary to rule, the varieties being so considerable that Var. γ . has been lately placed, as a distinct species, in the second division of the genus.

Caterpillar yellowish, with three sulphureous lines; the head blue: it feeds on the oak, elm, beech, lime, poplar, cherry, &c. in the summer; and the imago appears at the beginning of April.

A very common insect, found throughout the metropolitan district, and in other parts of the country. "Epping."—*Mr. H. Doubleday*. "Netley."—*Rev. F. W. Hope*.

Sp. 8. *miniosa*. *Alis anticis rufescentibus, strigis tribus undatis maculisque miniaceis; posticis roseo-albidis, puncto medio strigæque subobsoletâ pone medium fuscescentibus.* (Exp. alar. 1 unc. 4—6 lin.)

No. *miniosa*. *Wien. V.*—Or. *miniosa*. *Steph. Catal. part ii. p. 72. No. 6136.*

Head, thorax, and anterior wings pale ashy-red, with a mixture of gray; the latter with the base and posterior margin palest, leaving a deep-coloured central fascia (in which the stigmata are situated), broad on the costa, and gradually narrowing towards the inner margin, and bordered anteriorly and posteriorly by a paler striga, accompanied by a fuscous one; between this and the hinder margin is a slightly undulated pale striga, having a series of rufous spots on its anterior margin; the hinder margin itself has a row of minute reddish or fuscous dots; and the fringe is reddish-ash; the stigmata are fuscous, with pale rufous margin: posterior wings rosy-white, with a dusky central spot, and in the females particularly, an interrupted fuscous striga beyond the middle, and a series of reddish lunules on the margin itself: the cilia deep rose colour. This handsome insect varies less than its congeners; there is, however, considerable diversity in the colour of different species, and the strigæ vary in intensity, and slightly in position.

Caterpillar black, with an interrupted yellow lateral line, the head with three strigæ:—it feeds on the oak and birch in May and June; the imago appears about the end of March.

This delicately pretty species is certainly rather uncommon: I have taken the larva occasionally at Darent-wood, and once in Epping Forest. "Leatherhead."—*W. Raddon, Esq.*

Sp. 9. *cruda*. *Alis anticis rufo-cinereis, atomis nigricantibus undique adpersis, stigmâ reniforme obscuriore griseo cincto.* (Exp. alar. 11 lin.—1 unc. 3 lin.)

No. *cruda*. *Wien. V.*—Or. *cruda*. *Steph. Catal. part ii. p. 72. No. 6137.*
Albin, plate 74. f. a—e.

Head, thorax, and anterior wings rufous-ash, the latter sprinkled throughout with fuscous atoms, the spots at the base largest; the ordinary strigæ very obscure, but the bent one behind the posterior stigma most evident and composed of minute fuscous dots; between which and the posterior margin is a somewhat undulated paler one, frequently composed of detached reddish

lunular spots; the stigmata are rather dusky, with reddish or griseous margins, the anterior one being in general nearly obsolete: cilia dusky, rosy at the tip; abdomen and posterior wings fuscous; fringe rosy.

This varies slightly in the colour of its anterior wings, and in the intensity of its markings; in some specimens the stigmata are remote, in others united: the size also varies considerably.

Caterpillar green or reddish-brown, sprinkled with white on the back, with a yellowish lateral line; head green, irrorated with white and black: it feeds on the oak, wild rose, &c. in June; and the imago appears towards the end of March.

By far the most abundant species of this genus; frequenting all parts throughout the metropolitan district, and occurring copiously on the oaks in Richmond Park. "Epping."—*Mr. H. Doubleday.*

Sp. 10. *pusilla.* *Alis anticis griseis stigmatibus contiguis obsolete lineolâque fuscescentibus, strigâque marginali punctorum fuscorum.* (Exp. alar. 1 unc.)

No. *pusilla.* *Haworth.*—Or. *pusilla.* *Steph. Catal. part ii. p. 72. No. 6138.*

Smaller than, but similar to, the preceding insect; anterior wings more rounded or retuse, the stigmata less remote, the reniform one larger, more oblong, and darker, with a stout, fuscous, subinterrupted lineola, extending from the base to the anterior stigma, which is wanting in *O. cruda*: abdomen very stout, with a black spot at the apex.

Probably a mere variety of the foregoing insect.

Taken in company with the last described species in Richmond Park.

B. Anterior wings acute at the apex, the hinder margin slightly repanded. (Antennæ of the males usually ciliated). Flight autumnal.

Sp. 11. *litura.* *Alis anticis griseo-fuscis, fasciâ obscuriore liturisque marginalibus nigris.* (Exp. alar. 1 unc. 2—6 lin.)

Pl. No. *litura.* *Linné.*—Or. *litura.* *Steph. Catal. part ii. p. 72. No. 6139.*

Head and thorax pale griseous-brown; anterior wings darker, with a black transverse costal streak at the base, a second before the middle, from which arises an undulated striga, then two other dusky central spots opposite the stigmata, which are brownish, with whitish margins, and between them is frequently an angulated dusky fascia reaching from the costa to the inner margin; behind the posterior stigma is the usual arcuated striga, and between it and the posterior margin an obscure, but greatly undulated one, arising from an oblique black lineola near the apex of the costa, the space between the two strigæ dusky, forming an arcuated fascia: abdomen, posterior wings, and cilia, dusky.

The colour is deeper, and the markings more distinct in some specimens than in others; and the stigmata are occasionally united.

Caterpillar green or yellowish, with a dusky line on the back, edged with whitish, and a whitish or yellow lateral line; head pale brown: it feeds on

willow, sloe, birch, rose, trefoil, &c. in May and June; the imago is produced in September or October.

Not a common species; taken occasionally in woody situations, and thick bushy hedges: I have found the larva at Darenth-wood, and captured the insect at Hertford. "Epping."—*Mr. H. Doubleday*. "Hebden-bridge, Yorkshire."—*Mr. Gibson*. "Matlock."—*Rev. F. W. Hope*.

Sp. 12. Pistacina. *Alis anticis flavo-fuscis aut ferrugineis, pallidè plus minusve lineatis, stigmatibus pallicinctis, priori saturatori; posticis fuscis.* (Exp. alar. 1 unc. 3—6 lin.)

No. Pistacina. *Fabricius*.—Or. Pistacina. *Steph. Catal. part ii. p. 72. No. 6140.*

Head, thorax, and anterior wings nearly concolorous, yellowish-brown or bright ferruginous; the latter with the ordinary strigæ in general very distinct, and intersected with pale rufous or ferruginous nervures; the stigmata generally distinct, ashy-brown with pale edges; the anterior one very variable in form, in general linear, sometimes ovate, and mostly of a deeper colour than the posterior, which is of a more elongate form than usual; and between it and the hinder margin is usually a striga of black dots: posterior wings deep fuscous, with rufous cilia.

Var. β . *Steph. Catal. l. c.* Ph. No. lineola. *Don. x. pl. 360. f. 2.*—Anterior wings very deep ferruginous, with two obsolete strigæ of fuscous spots before the stigmata, a third near the posterior one, then an obscure darker fascia, and another in the margin.

Var. γ . *Steph. Catal. l. c.*—Anterior wings ferruginous, with the ordinary strigæ very distinct, and several rows of dusky spots between the fifth and the posterior margin.

Var. δ . *Steph. Catal. l. c.*—Anterior wings deep ferruginous, with a series of black spots near the posterior margin, the rest of the wing immaculate.

Var. ϵ . *Steph. Catal. l. c.*—Anterior wings dull ferruginous, with two paler strigæ, the posterior margin deeply fuscous, obsoletely intersected with ferruginous nervures.

Var. θ . Anterior wings pale hoary-ash, tinged with rufous: the ordinary strigæ pale fuscous, and the stigmata deep ashy-brown.

To attempt the description of all the varieties of this truly protean insect, of which those above described have hitherto been considered as distinct species in this country, would be fruitless. I shall merely add, that I have reared several of the varieties from similar larvæ, and that all are found at the same place and season.

Caterpillar green, with a lateral whitish or rufescent streak and pale spots: it feeds on the *Centaurea Scabiosa* and *Ranunculus bulbosus*: the imago appears in September.

An insect of moderate rarity, occurring chiefly at Darenth and Birch woods.

Sp. 13. *lunosa*. *Alis anticis fuscis, vel cinereo-fuscis aut griseo-rufescentibus, strigâ posticâ punctorum nigrorum; posticis flavo-albidis aut fuscescentibus lunulâ centrali fasciâque submarginali fuscis.* (Exp. alar. 1 unc. 4—6 lin.)

No. *lunosa*. *Haworth.*—Or. *lunosa*. *Curtis, v. pl. 237.*—*Steph. Catal. part ii. p. 73. No. 6141.*

Also a variable species: in general the head, thorax, and anterior wings are pale ashy-brown; the latter with the ordinary strigæ nearly obliterated; the stigmata very distinct and fuscous, with a pale margin; behind the posterior one is a pale, slightly undulated striga, followed by one composed of conspicuous, somewhat triangular, black spots, the space between rather fuscous; in the margin itself is a row of minute black spots: the posterior wings are yellowish or ochraceous-white, with a central lunule, and an irregular submarginal dusky or brown fascia, and an interrupted black striga on the margin itself: cilia immaculate, ochraceous, sometimes with a reddish tinge.

Both sexes vary exceedingly: in some the anterior wings are brown, in others griseous-red, or ferruginous, with the ordinary strigæ distinct, and the nervures rather pale; but the posterior striga of black spots is always very distinct: the posterior wings also vary much: I possess one specimen with them nearly fuscous, with the central lunule darker, and another nearly white.

Caterpillar unknown: the imago appears in September.

The phases of this insect are precisely those of the foregoing; it is therefore surprising that writers should not have profited from that fact, and have restored the varieties of the former to their legitimate species, instead of servilely copying from their predecessors; especially after Ochsenheimer had properly reduced the varieties from Esper. Or. *lunosa* is occasionally met with rather abundantly near Birch and Coombe woods: it has also been taken near Hertford, Limehouse, and Stepney. "Common at Kimpton."—*Rev. G. T. Rudd.* "Marton Lodge, Yorkshire."—*L. Rudd, Esq.*

Sp. 14. *Lota*. *Alis cinereis, anticis puncto pone medium atro, strigâque posticâ rufâ extus albidâ, stigmatibus rufo-marginatis.* (Exp. alar. 1 unc. 3—6 lin.)

Ph. Bo. *Lota*. *Linné.*—Or. *Lota*. *Steph. Catal. part ii. p. 73. No. 6142.*

Deep cinereous brown: anterior wings with the ordinary strigæ obscure, their origin indicated on the costa by some dusky and paler marks; the stigmata with a slender pale margin, bounded externally with bright rufous, the anterior one generally immaculate in the centre, the posterior with a deep black spot towards the inner edge of the wings: towards the hinder margin is a conspicuous bright rufous striga, edged externally with whitish, and abruptly broken near its origin on the costa: posterior wings fuscous, sometimes with a pale striga near the margin: fringe pale ashy or fuscous.

The anterior stigma has occasionally a black patch in its centre; and at the base of the wings there is frequently a deep black dot.

Caterpillar ash-coloured, with longitudinal white streaks, faintly edged with

black, and a reddish line above the legs:—it feeds on willows, and constructs rather a solid folliculus.

Not a common species: occasionally found in Epping Forest, near Walthamstow, and at Darenth wood. I have also taken it at Hertford, and received it from the New Forest, and Devonshire. “Bottisham.”—*Rev. L. Jenyns*. “Kimpton, but rare.”—*Rev. G. T. Rudd*. “Hebden-bridge, Yorkshire.”—*Mr. Gibson*.

Sp. 15. flavilinea. PLATE 19. f. 2.—*Alis anticis rufescentibus, strigâ posticâ rufâ extus flavicante, punctoque basi fusco*. (Exp. alar. 1 unc. 4—5 lin.)

No. flavilinea. *Haworth*.—Or. flavilinea.—*Steph. Catal. pt. ii. p. 73. No. 6143*.

Head, thorax, and anterior wings rufescent, the latter with the ordinary strigæ very indistinct; the stigmata rather pale yellowish, with the margin slightly rufescent; towards the posterior margin is a rufescent striga, broken towards the costa, as in the foregoing species, and delicately margined externally with pale yellowish; at the base of the wings is a dusky or black dot, and sometimes a second, near the costa: posterior wings fuscous; with the cilia rufescent.

Notwithstanding this species has been hitherto considered as peculiar to Britain, I suspect from *Ochsenheimer's* description and reference to *Engramelle*, that it is the true *No. macilenta* of *Hübner*; and that the following insect, supposed to be the species just mentioned, is the *No. ferruginea* of that author. If it be the *No. macilenta* of *Hübner*, the larva feeds on plantain and chickweed: the imago appears at the end of September, and I have taken it so late as the beginning of December.

Unquestionably a scarce insect near London: I have found it on the palings near Caen Wood, Hampstead; and have received specimens from *Brockenhurst* in the New Forest; and from Devonshire.

Sp. 16. macilenta. *Alis anticis testaceis aut rufescentibus strigis quatuor saturatioribus, punctoque fusco basi stigmati postici*. (Exp. alar. 1 unc. 4—8 lin.)

No. macilenta. *Haworth*. Or. macilenta. *Steph. Catal. pt. ii. p. 73. No. 6144*.

Head, thorax, and anterior wings testaceous or rufescent; the latter with the strigæ more or less obsolete, the basal one frequently wanting; the second, slightly flexuous before the stigmata, the third behind composed of indistinct lunules; the fourth near the hinder margin, considerably undulated, bright rufous internally, slightly flavescent or ochraceous externally: the stigmata are indicated by slightly rufescent or dusky rings, and the posterior one has a deep brown spot (somewhat dusted with white) at its base: posterior wings fuscous, with a darker central lunule, the costa whitish; cilia rufescent.

There is frequently an angulated broad dusky striga between the stigmata; and the usual strigæ are sometimes of a deep fuscous and very conspicuous.

Caterpillar reddish-brown, with darker spots, with a faint whitish dorsal and lateral streak: it feeds on the elm and oak: the imago appears towards the end of September.

Not very common; I have found several examples near Hertford and at Coombe Wood, and have received the insect from the New Forest. "Bottisham."—*Rev. L. Jenyns.*

Sp. 17. Upsilon. *Alis anticis cinereo-fuscis lineolâ basi alterâque duplici in medio nigris, stigmatibus pallidis.* (Exp. alar. 1 unc. 3—6 lin.)

No. Upsilon. *Wien. V.—Or. Upsilon. Steph. Catal. part ii. p. 73. No. 6145.*

Ashy-brown; anterior wings a little clouded with a deeper tinge; the costa with some dusky points towards the base, and some whitish ones towards the apex: the usual strigæ are obsolete, except the fourth or posterior one, which is pale and considerably undulated, with a few trigonate dusky spots in the middle of its inner margin; at the base of the wing is a black streak, sometimes rather obscure; the stigmata are rather pale with blackish margins, and in the space between is a black mark resembling a Y or V; towards the inner margin is a sort of third stigma, formed by two black lineolæ, which, after uniting, become again detached towards the posterior edge of the wing: the posterior wings are rather paler, with a central lunule and the margin of a deeper colour.

This insect varies considerably; in some examples all the markings are obliterated, except the pale posterior striga: in others the stigmata are of a hoary ash.

Caterpillar dirty brown, with three pale stripes on the back, and some dusky spots on the sides: it feeds on the willow and poplar.

The general appearance of this species, and the habits of the larva, which reside beneath the bark of old willows and poplars, seem to require its separation as a genus.

Not very uncommon in several places near the metropolis; in the marshes near Hertford, and in Battersea and Kentish Town Fields I have frequently captured specimens: it also occurs in Cambridgeshire.

GENUS XCV.—MYTHIMNA, *Ochsenheimer.*

Palpi short, ascending, densely enveloped in scales, the apical joint not exposed; triarticulate, the basal joint scarcely one-third as long as the second, bent; the second very long, slightly attenuated towards the apex, not so stout as the first, a little curved; terminal small, elongate ovate, subacuminate, conic: *maxillæ* as long as the antennæ. *Antennæ* rather moderate, shortest in the females; finely ciliated in both sexes, stoutest and somewhat pubescent beneath in the males: *head* small, with a tuft of scales; *eyes* large, pubescent; *thorax* slightly crested anteriorly: *body* elongate, densely tufted at the apex, and laterally in the male; somewhat obtuse in the females: *wings* slightly deflexed during repose; the anterior entire, acute at the apex, with the stigmata nearly or quite obliterated; *posterior* obsoletely emarginate on the hinder margin; *legs* moderate, femora and tibiæ stout and densely pilose in the males. Larva naked, with longitudinal streaks: pupa subterranean.

The elongated body, acute repanded anterior wings, with obliterated stigmata and simple transverse fasciaform strigæ, the slightly crested thorax, pubescent eyes, and ciliated antennæ, sufficiently indicate the distinction of this genus from the preceding, to which it seems most nearly allied, some species of the last section especially: the species are æstival.

Sp. 1. turca. *Alis anticis cinereo-rufis, fusco pulverulentis, lineis duabus fuscis lunulâque albidâ.* (Exp. alar. 1 unc. 8—9 lin.)

Ph. No. turca. Linné.—My. turca. Steph. Catal. part ii. p. 73. No. 6146.

The largest species of the genus, of a bright ashy-rufous or ferruginous; the anterior wings minutely irrorated with dusky, with a slightly incurved stout transverse fuscous streak before the middle, and a second, rather undulated and oblique, behind the middle, having a whitish lunule, with a dusky margin between, nearly in the place of the posterior stigma; at the base of the wing is sometimes an abbreviated fuscous striga, and on the hinder margin a series of interrupted black dots: posterior wings fuscous with the margin rufescent; cilia of all the wings rufous: abdomen with the lateral and anal tufts bright rufous.

Caterpillar ochraceous-red; with a whitish dorsal line; beneath yellowish-white, with black streaks on the incisures, which are obscure on the sides; head brown: it feeds on the *Juncus pilosus*:—the imago appears in July.

A rare insect; it has been taken in Epping Forest, near Chigwell-row, and near Bristol: I once found a specimen in the hollow of Coombe Wood, and have seen three or four others captured at the same place.

Sp. 2. grisea. *Alis griseo-rufis, puncto medio albo, strigâque arcuatâ posticâ punctorum minutissimorum nigrorum.* (Exp. alar. 1 unc. 5—7 lin.)

No. grisea. Fabricius?—My. grisea. Steph. Catal. part ii. p. 74. No. 6147.

Bright griseous-red, the male rather brightest; the anterior wings slightly paler on the inner margin; with an arcuated striga of minute black dots towards the hinder margin, and a small white patch faintly resembling a note of interrogation in the place of the posterior stigma: posterior wings deep fuscous, with the fringe rufous. Male of a shining silvery hue beneath; with a fascicle of deep black hairs at the base of the abdomen.

Caterpillar dirty ochraceous or dusky, with a reddish lateral line; it feeds on chickweed and plantain.

Not a very abundant insect; found occasionally at Darentwood and in other parts of the metropolitan district; also in the New Forest, and in Devonshire. "Epping."—*Mr. H. Doubleday.* "Bottisham."—*Rev. L. Jenyns.*

Sp. 3. lithargyria. *Alis anticis ochraceo-fuscis strigis duabus obscurioribus, punctoque medio albo.* (Exp. alar. 1 unc. 1—5 lin.)

No. lithargyria. *Esper?*—My. lithargyria. *Steph. Catal. part ii. p. 74. No. 6148.*

Pale ochraceous-brown; the anterior wings with two obscure strigæ, the anterior slightly undulated, the posterior towards the hinder margin and arcuated; between them is a minute white dot; and behind the posterior one the ground-colour of the wing is darker, with an obscure undulated paler striga; the posterior wings are fuscous, with ochraceous or griseous cilia. Male said to be as in the last, beneath.

Caterpillar griseous, with white streaks and black dots, the first segment brown, with three white lines: it feeds on the plantain.

The only example I have seen of this species is in my collection; it was found in July, 1821, near Brockenhurst, in the New Forest.

Sp. 4. conigera. *Alis anticis rufo-ferrugineis strigis duabus fuscis, punctoque medio albissimo trigono.* (Exp. alar. 1 unc. 4—5 lin.)

No. conigera. *Wien. V.*—My. conigera. *Steph. Catal. part ii. p. 74. No. 6149.*

Head, thorax, and anterior wings, ferruginous or yellowish-red; the latter with a somewhat rectangular transverse fuscous striga before the middle, and an oblique and slightly undulated one behind the middle, the stigmata placed between them; the anterior one is slightly apparent and pale; the posterior also pale yellowish red, with a snowy white triangular spot at its base; a somewhat dusky cloud surrounds the posterior stigma; and towards the hinder margin of the wing is a faint undulated striga; posterior wings reddish-brown, with the base palest and the nervures darkest; cilia of all more or less ferruginous. The sexes are similar, but the insect varies much in the intensity of its colours: I possess one of a remarkably deep hue, captured near Ripley.

Caterpillar griseous, streaked with black and whitish; the head brown, the first segment deep black, with three white streaks: it feeds upon chickweed and grasses.

Not uncommon in Darent-wood; also found at Coombe-wood, near Hertford; in Epping Forest, and in other parts near the metropolis. “Kimpton.”—*Rev. G. T. Rudd.* “Epping.”—*Mr. H. Doubleday.* “Matlock.”—*Rev. F. W. Hope.*

GENUS XCVI.—GRAMMESIA* *mihî.*

Palpi short, scarcely ascending; densely squamous, the terminal joint with its apex only exposed; triarticulate, not very slender, the basal joint above half the length of the second, reniform, contracted at the base, the second sub-

* Γραμμή, lineæ.

cylindric, terminal, elongate-ovate, somewhat acuminate at the apex, about one-third as long as the second: *maxillæ* as long as the antennæ. *Antennæ* rather long, serrated in the males, simple in the females: *head* and *eyes* small, the latter naked: *thorax* stout, woolly: *wings* slightly deflexed; *anterior* with transverse lines, *stigmata* obscure or wanting; entire, rounded behind, the apex obtuse: *legs* rather short, stout: the femora with dense fascicles of hair. Larva naked: pupa subterranean.

It is not without reluctance that I adopt the present genus, which I have termed *Grammesia*, in allusion to the transverse lines on their anterior wings, which give the insect the habit of *Mythimnæ*, to which genus they are evidently very closely allied; but from the observations under the genus *Dypterygia*, it would be inconsistent to continue the genus *Caradrina* in the artificial state as left by *Ochsenheimer*. From *Mythimna* the *Grammesiæ* differ by having the anterior wings obtuse, and by the woolliness of the thorax; and from *Caradrina* by the serrated antennæ of the males, the stoutness of their body, and plain, obscure, transversely lineated wings, by which latter mark they may be readily known from *Segetia*.

Sp. 1. trilinea. *Alis anticis flavo- aut griseo-canis, strigis tribus sesquialterâ fuscescentibus.* (Exp. alar. 1 unc. 3—5 lin.)

No. trilinea. *Wien. V.—Ca. trilinea. Steph. Catal. part ii. p. 74. No. 6152.*

Plain flavescent- or hoary-griseous, thickly dusted with minute fuscous atoms; the abdomen rather paler: anterior wings with three distinct transverse dusky strigæ, the first and third of which occupy the place of the ordinary second and fourth strigæ, and the second traverses between the space usually occupied by the *stigmata*; there is also an abbreviated one at the base: these strigæ vary considerably in their position: the first is slightly undulated, the second a little bent towards the costa, and the third somewhat arcuated; and in general they are equidistant. Posterior wings fuscous, with pale griseous cilia.

Var. β . *Steph. Catal. l. c.*—Differs in having the strigæ approximating towards the inner margin of the wing, and the basal one nearly obsolete.

Var. γ . *Steph. Catal. l. c.*—With the basal half of the wing to the central striga pale rufo-griseous, the posterior half deep ashy- or rufous-brown; the central striga very stout.

Caterpillar ashy-gray, with pale lateral stripes: it feeds on the plantain.

Found, not very uncommonly, in Coombe and Darenth-woods; also at Hertford, and near Ripley; Var. γ is however less frequent.

Sp. 2. bilinea. *Alis anticis fusco-griseis, strigis duabus rectis, stigmatate obsoletissimo interjecti.* (Exp. alar. 1 unc. 4—5 lin.)

No. bilinea. *Hübner.—Ca. bilinea. Steph. Catal. part ii. p. 74. No. 6153.*

Of a deeper colour than the foregoing; which it remotely resembles: anterior

wings griseo-fuscous, with two nearly straight dusky strigæ, accompanied by two paler ones; the basal one placed before the middle, the second towards the hinder margin; between these is placed an obsolete reniform stigma: posterior wings fuscous, with the cilia rufous. The female is of a darker colour, with the strigæ less evident.

Caterpillar unknown.

Few examples of this rare species have yet been detected in Britain. In July, 1815, I fortunately captured a female (the only one I have seen) in Coombe-wood; and I have seen others which have been taken near Birch-wood. "Epping."—*Mr. H. Doubleday.*

GENUS XCVII.—SEGETIA *mih*i.

Palpi slightly ascending, densely clothed with squamose hair; the terminal joint exposed; triarticulate, the basal joint reniform, stouter than the following; the second as long again as the first, a little attenuated towards the apex; terminal minute, ovate, obtuse: *maxillæ* about the length of the antennæ. Antennæ moderate, stout and ciliated in the males, slender and simple in the females: *head* small: *eyes* naked: *thorax* stout, woolly, not crested: *wings* slightly deflexed, short; anterior obtuse and rounded posteriorly, with distinct stigmata: *body* rather short, the male with a tuft at the apex; the female with the apex acute: *legs* with the femora very pilose. Larva naked; *pupa* subterranean.

Ochsenheimer includes the two species of this genus amongst his *Mythimnæ*, forming a section for their reception; but the general habit of the insects, and their autumnal flight, seems to indicate more than a sectional distinction; and if we are to consider the *outline* of any importance in the discrimination of Lepidopterous genera, the dissimilar form of the wings, exclusively of other characters, at once points out their generic pretensions: the different proportions of the palpi, naked eyes, abbreviated anterior wings and body, the former with distinct stigmata, may be pointed out as evident characters to separate the genus from *Mythimna*.

Sp. 1. *xanthographa*. *Alis anticis castaneis aut subfuscis strigis obsoletis tribus saturatioribus stigmatibus ordinariis pallidis.* (Exp. alar. 1 unc. 3—5 lin.)

No. *xanthographa*. *Wien. V.*—Se. *xanthographa*. *Steph. Catal. part ii. p. 74.*
No. 6150.

A variable species: head, thorax, and anterior wings castaneous or dusky, sometimes deep fuscous; the latter with an abbreviated striga at the base, then an irregular one before the stigmata, which are usually pale-yellowish or lutescent, followed towards the hinder margin with a third bent one, formed of minute black spots or connected lunules; between which and the

hinder margin is a slightly undulated pallid streak, edged internally with dusky: cilia fuscous: posterior wings in the male whitish, with the margin more or less fuscous; cilia ochraceous; in the female dusky, with pale cilia. The stigmata are sometimes but little paler than the wings, and have frequently a quadrate dusky or black spot between them: the colour of the wings varies excessively, and the intensity of the markings; in some examples there is a fuscous streak between the stigmata, as in many of the *Orthosiæ*.

Caterpillar dirty yellow, with a pale lateral line, and black streaks and dots behind; head brown, with three dusky streaks: the insect appears in August.

An abundant species throughout the metropolitan district; I have also found it near Hastings, Brighton, and Dover, and in the Isle of Wight. "Netley, Salop, in plenty."—*Rev. F. W. Hope*. "Epping."—*Mr. H. Doubleday*.

Sp. 2. *neglecta*. PLATE 21. f. 2. *Alis anticis obscure cinereis, strigis e punctis minutissimis atris, stigma postica maculâ fuscâ.* (Exp. alar. 1 unc. 7—9 lin.)

No. *neglecta*. *Hübner*.—*Se. neglecta*. *Steph. Catal. part ii. p. 74. No. 6151.*

Head, thorax, and anterior wings, obscure cinereous, sometimes tinted with rosy, and thickly irrorated with very minute fuscous dots; the ordinary strigæ obliterated, and in place of the third an arcuated series of minute black spots, between which and the hinder margin is a slightly undulated striga, dusky within, and pale without: cilia slightly tinted with rosy; posterior stigma with a dusky spot; anterior nearly obsolete: posterior wings fuscous, with the base rather paler, and a darker lunule in the centre.

Rare, at least near London: the only example that I remember to have been captured in the metropolitan district was found in September, 1816, at Birch-wood, and is in my collection. The male, whence the accompanying figure was designed, was captured in the New Forest by J. C. Dale, Esq. "Near Ringwood, in September."—*Messrs. Bentley and Chant*.

GENUS XCVIII.—*CARADRINA*, *Ochsenheimer*.

Palpi rather short, somewhat porrect, a little ascending, squamose, the terminal joint exposed at the apex; triarticulate, slender, basal joint reniform, about one-third the length of the second, which is very long, slightly bent, and a little narrowed towards the apex; terminal, minute, ovate-obtuse: *maxillæ* not longer than the antennæ. *Antennæ* slender, more or less ciliated in both sexes: *head* small, densely squamose: *eyes* small, naked: *thorax* moderately stout, obsolete crested: *wings* slightly deflexed, entire, very glossy; *anterior* with strigæ and distinct stigmata: *body* rather slender, acute at the tip in the female, tufted in the males: *legs* rather short, not very stout: femora with moderate fascicles of hair. Larva naked: pupa subterranean.

Ochsenheimer includes *Grammesia* in his genus *Caradrina*; but those insects, as before mentioned, differ too considerably to allow of their remaining associated with the following, which, in addition to the slenderness of their bodies, may be known by the glossiness of their wings, the conspicuous stigmata and strigæ which adorn the anterior ones, the simplicity of the antennæ in both sexes, and the great disproportion of the articulations of the palpi. The genus may be conveniently divided into two sections; the first embracing those species which have the body rather stout, and all the wings of a deep or dusky hue; the latter, such as have the body slender with the posterior wings nearly white, as indicated in my Catalogue.

Sp. 1. *ambigua?* *Alis anticis griseo-fuscescentibus strigis tribus obsoletis fuscis aliâque posticâ pallescente, stigmatibus albo marginatis.* (Exp. alar. 1 unc. 4—5 lin.)

No. *ambigua?* *Fabricius.*—Ca. *ambigua?* *Steph. Catal. part ii. p. 75. No. 6154.*

Head, thorax, and anterior wings griseous-brown; the latter with three obsolete darker strigæ, the third composed of distinct dusky or black dots, the second placed obliquely, and considerably waved: the stigmata of a deeper hue than the wing, with a slender pale margin; between the posterior one and the hinder margin of the wing is an undulated pallid striga: the posterior wings are whitish, tinged with dusky towards the margin in the male, and brownish in the female.

Caterpillar ferruginous, varied with brown, with a brown head: it feeds on the dandelion and plantain: the imago appears in June.

This and the following insect are too closely allied to each other to be distinct species, but, at present, I am not prepared, from experience, to unite them. They inhabit the same woods, and appear simultaneously, but their differences appear sufficient to constitute species: I have, therefore, with Mr. Haworth, considered them as distinct.

Found in the lanes near Darenth-wood, and on the skirts of the wood itself, and in other places throughout the metropolitan district; but not common.

Sp. 2. *redacta.* *Alis fusco-griseis, strigis tribus obsoletis saturatioribus aliâque posticâ pallescente, stigmatibus albido marginatis.* (Exp. alar. 1 unc. 2—4 lin.)

No. *redacta.* *Haworth.*—Ca. *redacta.* *Steph. Catal. part ii. p. 75. No. 6155.*

Less than the foregoing, and very similar thereto, but the markings more obsolete, and wings of a darker hue; the pale striga towards the hinder margin very much waved: the posterior wings fuscescent, dusky in the female.

Very closely allied to the preceding, of which I cannot but imagine it to be a small and deep-coloured variety. Mr. Haworth says, its "chief difference is that of dimensions;" and truly adds, "that in this obscure section (genus)

constancy of appearance is of more consequence in determining a species, than a few varieties in the markings."

Found with the preceding species in the metropolitan district: near Darenth-wood especially, where I have taken it abundantly. "Netley and Matlock."—*Rev. F. W. Hope.*

Sp. 3. *Alsines. Alis anticis fuscescentibus, stigmatibus ordinariis faciâque mediâ obscurioribus, strigâ externâ dilutiori.* (Exp. alar. 1 unc. 2—3 lin.)

No. *Alsines. Borkhausen.*—Ca. *Alsines. Steph. Catal. part ii. p. 75. No. 6156.*

Closely allied to the last; from which it differs in being of a darker hue, with the ordinary stigmata distinct and brown, with faint pale edges, and having an obscure angulated striga passing between them: the pale striga towards the hinder margin of the wings is scarcely undulated, and in some examples is nearly straight: the posterior wings are dusky, especially in the females.

Caterpillar ashy-gray, with reddish lateral line and brown head: it feeds on plantain: the imago appears in June.

Not very common, frequenting gardens: found throughout the metropolitan district. I have received the insect from the New Forest and from Devonshire.

Sp. 4. *implexa. Alis anticis griseo-ferrugineis strigis quatuor saturatioribus unâque valdè undulatâ pallidiori; stigmatibus fuscis.* (Exp. alar. 1 unc. 1—2 lin.)

No. *implexa. Hübner ?*—Ca. *implexa. Steph. Catal. part ii. p. 75. No. 6157.*

Paler than the preceding insect: head, thorax, and anterior wings rusty or yellowish-griseous, with four distinct darker or fuscous strigæ, the first abbreviated at the base, the second rather oblique and considerably undulated, the third placed between the stigmata, broad and subrectangular; the fourth much arcuated, composed of lunules, and placed behind the posterior stigma; between which and the hinder margin is a distinct and strongly waved pale one, edged internally with fuscous; on the margin itself is an interrupted black line: posterior wings pale ochraceous brown, the base paler, the hinder margin with an interrupted black line, as in the anterior wings.

Known by its paler hue, and the distinctness and number of the transverse strigæ on the anterior wings, and especially by the greater undulation of the pale posterior striga.

I have frequently captured this insect at Darenth-wood, particularly one evening in July, 1820, when, in company with my late friend, Mr. Blunt and his brother, the Rev. W. Blunt, we secured nearly 800 specimens of Noctuidæ, in less than four hours, amongst which were no less than 51 species, including, amongst others equally rare, two examples of *Thyatira batis*.

Sp. 5. *lævis*. *Alis cano subrufescentibus, strigis obsoletissimis punctoque medio fusco, posticis perfuscis.* (Exp. alar. 1 unc. 3—4 lin.)
 No. *lævis*. Haworth.—*Ce. lævis*. *Steph. Catal. part iii. p. 75. No. 6158.*

Very obscure: the strigæ nearly as in *Se. xanthographa*, but more slender and obsolete, scarcely visible unless with a lens: the anterior stigma wanting; the posterior reniform, the margin alone apparent, with a black dot at its base: the cilia of the anterior wings dull reddish, of the posterior paler.

Of this and the following species I have given Mr. Haworth's description, as they do not appear to me really distinct from *Ca. Alsines*, of which *Ca. implexa* may also prove to be an extraordinary variety only, as indicated in my Catalogue.

Taken at Darenth wood and near London, in the beginning of July.

† Sp. 6. *sordida*. *Alis sordido-rufescentibus strigis duabus obsoletissimis punctoque pone medium fuscis.* (Exp. alar. 1 unc. 4 lin.)
 No. *sordida*. Haworth.—*Ca. sordida*. *Steph. Catal. part ii. p. 75. No. 6159.*

“Anterior wings rufescent, with two nearly obliterated strigæ behind the middle: the ordinary stigmata extremely obsolete, the margin alone visible; the anterior orbicular; the posterior reniform, fuscous on its inner side: on the posterior margin of the wing is a series of minute spots: the posterior wings are paler.”

Described nearly as above by Mr. Haworth, from a specimen in the collection of the late Mr. Jones: I have never seen the insect, neither am I aware of its locality.

Sp. 7. *Morpheus*. *Alis anticis cinereo-ochraceis maculis ordinariis fasciâque externâ obscurioribus; posticis albidis.* (Exp. alar. 1 unc. 3—4 lin.)
Ca. Morpheus. *Ochsenheimer?*—*Steph. Catal. part ii. p. 75. No. 6160.*

Pale-ochraceous or flavescent-ash, with the base and posterior margin of the anterior wings beyond the ordinary arcuated striga of a deeper colour or fuscous, the stigmata of the same hue, and a few obscure fuscous clouds, being the rudiments of strigæ, on the disc: posterior wings pale yellowish-white, with the margin and a central lunule dusky: head, thorax, and abdomen concolorous griseous-ash.

The insect from which the above description was drawn up appears to differ so considerably in colour from all my specimens of the following species, that I am induced to consider it as distinct, especially as there are other and similar examples, captured at the same time and place, in the collection at the British Museum: they resemble the figure referred to by Ochsenheimer, in the *Papillons d'Europe*, as his *Ca. Morpheus*, which he considers synonymous with the *No. Sepii* of Hübner.

Taken in Devonshire; and I once captured the female at Hertford.

Sp. 8. Sepii. *Alis anticis griseis nebulosis, fasciâ posticâ undatâ stigmatibusque subdistinctis maculæformibus fuscis; posticis albidis.* (Exp. alar. 1 unc. 2—4 lin.)

No. Sepii. *Hübner.*—Ca. Sepii. *Steph. Catal. part ii. p. 75. No. 6161.*

Head, thorax, abdomen, and anterior wings deep fuscous or griseous, the latter clouded with dusky or fuscous, with spots of the latter colour on the costa; the ordinary strigæ are confused with the fuscous clouds, and the stigmata are rather indistinct; behind the posterior stigma is a broad dusky fascia, edged externally with an undulated pale clouded fimbria, which reaches to the edge of the wing, where it is obscurely spotted with fuscous: posterior wings rather large, ochraceous-white, with a slightly dusky central spot and a marginal fascia; cilia pale ochraceous.

This species varies a little in size and colour.

Caterpillar reddish-brown, with a yellowish dorsal line and reddish lateral streaks: it feeds on the *Convolvulus sepium*: the imago appears in June.

A common species in gardens, on the borders of woods, and in shady lanes, throughout the metropolitan district.

Sp. 9. *cubicularis.* *Alis anticis canescentibus nebulosis, punctis quatuor marginis anterioris nigris, strigæque posticâ undulatâ subrufâ extus pallidâ: posticis albidis margine fusco.* (Exp. alar. 1 unc. 1—3½ lin.)

No. *cubicularis.* *Wien. V.*—Ca. *cubicularis.* *Steph. Catal. part ii. p. 75. No. 6162.*

Head and thorax hoary-ash; anterior wings the same, clouded with fuscous, the ordinary strigæ rather indistinct; the costa with four conspicuous black spots towards the base, placed equidistantly, the fourth opposite to the posterior stigma; the stigmata small dusky; the reniform one more or less spotted on its edge with pure white, especially towards the inner margin of the wings; between this stigma and the hinder margin is first the ordinary bent striga, composed of lunate dusky marks; and, secondly, an undulated pale striga, usually bordered on its inner margin with triangular arrow-shaped red spots; the hinder margin, except the anal angle and the cilia, fuscous: posterior wings whitish, with the hinder margin and the nervures at the apex dusky.

This species varies exceedingly: in some examples the strigæ are nearly all obliterated, and in others they are remarkably distinct: the rufous spots towards the hinder margin of the anterior wings are sometimes wanting, while occasionally they are nearly united into a broadish rufous striga; all the varieties however are characterized by the four dark spots on the costa.

Caterpillar feeds on the *Valeriana Locusta*: the imago is found in the middle of June.

Common in gardens and meadows throughout the metropolitan district. I have captured the insect in Birch-wood.

Sp. 10. *superstes*. *Alis anticis cinereo-canescensibus fusco pulverulentibus strigisque punctatis; posticis albidis.* (Exp. alar. 1 unc. 3—4 lin.)

Ca. *superstes*. *Ochsenheimer?* Steph. Catal. part ii. p. 75. No. 6163.

Rather larger than the last, which it greatly resembles: the head, thorax, and anterior wings are of a hoary ash, the latter clouded with dusky, and irrorated, especially towards the base, with fuscous; stigmata very small, the anterior fuscous, minute, the posterior slender, sublunate, internally pale, with a minute white dot on its edge; between this and the hinder margin is an undulated striga, rufescent interiorly and pale without, the margin itself midway from the posterior stigma is fuscous, slightly clouded with cinereous, with a series of subtrigonal dusky or black dots on the extreme edge; cilia ashy-brown: posterior wings whitish, with the nervures and margin dusky: cilia ashy-white.

Found in similar places with the foregoing, but much less frequent.

Sp. 11. *glareosa*. PLATE 21. f. 1.—*Alis anticis cinerascensibus, maculâ subquadratâ nigrâ inter stigmatâ ordinariâ, strigisque duabus costalibus abbreviatis, interruptis, versus basin; posticis albis.* (Exp. alar. 1 unc. 2—4 lin.)

No. *glareosa*. *Esper.*—Ca. *glareosa*. Steph. Catal. part ii. p. 75. No. 6164.

Head, thorax, and anterior wings, pale hoary-ash; the latter with an abbreviated striga at the base, composed of two black streaks; between which and the anterior stigma is a second striga, composed of three distinct spots, the central one being triangular and largest, and from the third an obscure dusky line, with a pale internal edge, traverses the wing to the inner margin; between the posterior stigma and the hinder margin are two pale strigæ, the first edged internally with pale fuscous, and slightly bent; the second very faint, and a little undulated; the space between sometimes dusky; on the hinder margin is a row of faint cinereous spots; the stigmata are large, pale, and indistinct, and between them is a subquadrate or triangular black spot: posterior wings and cilia white, with a yellowish tinge: antennæ griseous.

This beautiful insect, which is admirably represented in Plate 264. f. 416 a. of the *Papillons d'Europe*, has not been very frequently met with in England: my specimens were captured in the neighbourhood of Birch-wood; others have been taken, I believe, in the New Forest, and one in Devonshire.

GENUS XCIX.—GLÆA, *Hübner*.

Palpi very short, porrect, horizontal, triarticulate, not very robust, clothed with elongate scales, the terminal joint concealed; the basal joint nearly as long as the second, a little bent, the second more slender than the first, slightly curved, and narrowed towards the tip; terminal joint minute, ovate, obtuse: *maxillæ* shorter than the antennæ. *Antennæ* rather long, stout, generally

simple in both sexes and ciliated; sometimes a little serrated in the males: *head* small, with a dense tuft of hair between the antennæ: *eyes* small, naked: *wings* generally entire, incumbent, anterior more or less castaneous: *thorax* stout, pilose, with an abbreviated dorsal tuft towards the front: *body* generally depressed, with the sides and apex considerably tufted: *legs* moderate; femora not very pilose. Larva naked, or slightly hairy; pupa subterranean.

The Glææ of Hübner may be known from the foregoing genera by their depressed bodies and bright castaneous hue; and, like the Caradrinæ, their wings are very glossy: they are chiefly autumnal insects, but the first species is vernal: by their flattened bodies they resemble the Amphipyrae and Pyrophilæ, but they may be readily known from those genera by their stout, elongate antennæ, abbreviated horizontal palpi, central thoracic tuft, &c. Ochsenheimer has discarded Hübner's name for this genus, and applied that of Cerastis; his reason for so doing I am not aware of; but as it is contrary to the precepts of the best naturalists to use the names employed in other departments of nature—upon which point Fabricius remarks strongly, “nomina absurda insectis plurimis ab idiotis imposita sunt,” instancing *Cervus volans* (*Lucanus*), *Ursus* (*Bombyx*), *Leopardus* (*Sphinx*), &c.—it is obviously advisable to revert to the original name, as Cerastis was originally employed to designate a serpent.

A. The body scarcely depressed. (Antennæ slightly serrated in the male.)

Sp. 1. rubricosa. *Alis anticis rufis costâ usque ad medium pallidiore maculis quatuor fuscis, ad apicem concolore punctis tribus albidis.* (Exp. alar. 1 unc. 4—6 lin.)

No. rubricosa. *Wien. V.*—Gl. rubricosa. *Steph. Catal. part ii. p. 76. No. 6165.*
—No. rufa. *Entom. Trans. pl. 5. fig. sup.*

A beautiful and variable species: head, thorax, and anterior wings bright castaneous red; the two former immaculate, the latter, sometimes of a deeper hue, and prettily marbled with bluish; the costa generally pale from the base to a little beyond the middle, with four distinct fuscous spots; the apex concolorous with the wings, with three minute white dots; the ordinary strigæ are rather obsolete, and of a paler hue than the wing; the anterior stigma is round and apparent, the posterior one rather large and obscure: the posterior wings are reddish-brown, the cilia rufescent; the abdomen is castaneous-red on its sides and apex.

Caterpillar griseous, with a pale dorsal hue, each segment with two white dots; it feeds on the *Rumex acutus*: the imago appears towards the end of March.

Of this rare insect several specimens were captured at Beachamwell in the spring of 1817, by J. Scales, Esq., who kindly supplied me with a series: it was also taken about the end of March, 1820,

by my late friend E. Blunt, Esq., at Darenth-wood; in which locality it has likewise been found within these two years.

B. The body depressed. a. *Wings entire.*

† Sp. 2. *rubiginea. Alis anticis flavis ferrugineo undatis, punctis numerosis irregularibus fuscis.* (Exp. alar. 1 unc. 4 lin.)

No. *rubiginea. Wien. V.—Gl. rubiginea. Steph. Catal. part ii. p. 76. No. 6166.*

Head and thorax immaculate rusty-yellow; anterior wings griseous-yellow, with several undulated ferruginous strigæ, and numerous irregular fuscous spots, especially towards the hinder margin; the ordinary strigæ are also present, and at the base of the posterior stigma is a large and more conspicuous black spot: posterior wings fuscous, with the cilia fulvous.

Caterpillar slightly hairy, brownish, with a black spotted longitudinal dorsal line, the hirsuties griseous.

The only indigenous specimen of this very distinct and conspicuous species that has come beneath my observation was obtained by Dr. Leach from a friend in the country (but I know not the exact locality), and by him deposited in the collection at the British Museum.

Sp. 3. *Vaccinii. Alis anticis ferrugineis venosis fusco strigatis, strigæque posticâ punctorum fuscorum.* (Exp. alar. 1 unc. 3—4 lin.)

Ph. No. *Vaccinii. Linné.—Gl. Vaccinii. Steph. Catal. part ii. p. 76. No. 6168. Albin. pl. xxiii. f. 34.*

Head, thorax, and anterior wings dusky ferruginous, the latter with the nervures paler, with a fuscous striga, accompanied by a paler one before, and a second arcuated one behind, the stigmata: there is also a bent one between the stigmata; towards the hinder margin is a series of fuscous dots, placed on an irregular broad pale-castaneous fascia: cilia fusco-ferruginous, with paler trigonate spots at the base: stigmata, with the margin alone, conspicuous; posterior one with a black spot at the base: posterior wings of a glossy reddish-brown, with rufous cilia.

The tint of colour and the intensity of the markings vary greatly: some of the varieties approach so very closely to the two following species, that I cannot but consider all of them as belonging to one variable insect; but as I am not certain, I have preferred following Hübner and Haworth, to uniting them without satisfactory proof of their identity.

Caterpillar rusty-brown, with a paler lateral line, the collar and tail black, striated with white: it feeds on the black and red whortleberries (*Vaccinium Myrtillus* and *V. Vitis idæa*), bramble, &c.: the imago is produced in September.

Not uncommon in woody places near London: at Darenth and Peckham woods I have frequently taken it in the larva state; and

also at Hertford and Ripley. It is found in Norfolk and in Devonshire.

Sp. 4. *spadicea*. *Alis anticis fusco-spadiceis vix nebulosis, stigmatè postico basi fusco.* (Exp. alar. 1 unc. 3—4 lin.)

No. *spadicea*. *Hübner.* Gl. *spadicea*. *Steph. Catal. part ii. p. 76. No. 6169.*

Haworth says of this species: anterior wings nearly of an uniform, somewhat castaneous, hue, a little clouded with fuscous, the costa, towards the hinder margin, with a few pallid spots, as in several others: in other respects similar to the foregoing (Gl. *Vaccinii*).

There is something in the aspect of this insect which gives it the appearance of being distinct; an opinion which Dennis and Schiffermüller, Hübner, Haworth, and others, have entertained, though I suspect improperly. Ochsenheimer unites it with Gl. *Vaccinii*.

Found with the preceding throughout the metropolitan district, not uncommonly.

Sp. 5. *subnigra*. “*Abdomine maris subdepresso, alis (anticis) castaneo-nigris fasciâ pallidâ posticâ subinterruptâ, ex maculis confluentibus.*”—Haw. (Exp. alar. 1 unc. 3—4 lin.)

No. *subnigra*. *Haworth.*—Gl. *subnigra*. *Steph. Catal. part ii. p. 76. No. 6170.*

Abdomen less depressed than in the two last and following species: thorax and anterior wings of one colour (castaneous black), with the costa towards the hinder margin a little spotted with white (the wings near the hinder margin with a pale subinterrupted fascia): posterior wings fuscous, the cilia scarcely rufescent.

This is also a doubtful species: the above is nearly the description of Mr. Haworth, who first gave it as distinct; but I conceive it may be only a suffused variety; of which I have seen at least a dozen examples.

Inhabits the same places, and taken at the same time, as the two preceding insects, but rarely.

Sp. 6. *polita*. *Alis fusco-ferrugineis nitidulis strigis venisque reticulatim cinereo-pulverulentibus.* (Exp. alar. 1 unc. 3—4 lin.)

No. *polita*. *Wien. V.*—Gl. *polita*. *Steph. Catal. part ii. p. 77. No. 6171.*

This differs from Gl. *Vaccinii* in having the wings rather more glossy and dusky; the anterior with the nervures pale rusty-ash, with a row of ferruginous spots towards the hinder margin: in other respects similar to the insect just mentioned.

Caterpillar pale testaceous, with scattered black dots: it feeds on the *Taraxicum* according to Schiffermüller, who, with Hübner and others, considers the insect distinct from Gl. *Vaccinii*. Ochsenheimer appears doubtful upon the point, but Treitschke unites them.

Also taken in company with the three last described, but less abundantly than the two first.

b. *Anterior wings dentate.*

Sp. 7. *Satellitæ*. *Alis anticis dentatis brunneis aut rufo-castaneis fusco strigatis, maculâ subtriangulari pallidiori inter punctula duo.* (Exp. alar. 1 unc. 4—7 lin.)

Ph. No. *Satellitæ*, Linné. *Don.* v. pl. 168.—Gl. *Satellitæ*. *Steph. Catal. part ii.* p. 76. No. 6167.

A most variable insect: the head, thorax, and anterior wings are usually brown, more or less tinted with castaneous: the latter are slightly dentate on the hinder margin, and somewhat obscurely strigated, the strigæ placed as usual, the posterior one being considerably waved; the anterior stigma is scarcely visible, or completely obliterated, and in place of the posterior one is a somewhat triangular spot, with two minute dots placed opposite the hinder angles; those spots vary exceedingly in colour, being snowy white, yellow, luteous, castaneous, or pale fuscous, with all intermediate shades, but invariably paler than the ground colour of the wing, which also varies in different examples: the posterior wings dusky, with rufous cilia.

Caterpillar black or greenish, with a narrow whitish lateral line, and some yellowish marks on the collar and anal segment: it feeds upon various plants, such as the bramble, sloe, gooseberry, oak, beech, &c., and does not hesitate to attack other larvæ, sparing not even its own species, whence it has obtained the name of the "*Monster*," in common with the larva of *Cosmia trapetzina*: the imago (called the *Satellites*, in allusion to the spots on the anterior wings,) is found toward the middle or end of September.

An insect of universal occurrence throughout the metropolitan district: it is also found in the New Forest, and in Devonshire. "Epping."—*Mr. H. Doubleday.*

GENUS C.—AMPHIPYRA, *Ochsenheimer.*

Palpi elongate, triarticulate, recurved above the head, clothed with short compact scales, elongated on the basal joint, the terminal joint very long, exposed, acute, and distinct; basal joint shorter than the terminal; reniform, second as long again as the first, and more robust, slightly bent, obliquely truncate at the apex; terminal slender, acute; *maxillæ* scarcely so long as the antennæ. *Antennæ* rather short, slender, slightly ciliated in both sexes: *head* small, with a short pointed crest; *eyes* large, rather prominent, naked: *thorax* not crested, somewhat depressed: *wings* very glossy, anterior denticulate, incumbent; posterior of brilliant hue: *abdomen* rather depressed, especially in the females; both sexes with pilose tufts on the sides and at the apex: *legs* rather stout. Larva naked, with a pyramidal elevation in the anal segment: pupa folliculated.

Amphipyra, the following genus, and *Dypterygia*, are remarkable from having the palpi somewhat recurved; this genus may, however, be readily known by the superior length of their terminal joint, and

by the compactness and smoothness of the scales which clothe the palpi throughout; also by the lively colouring, especially of the posterior wings.

Sp. 1. *pyramidea*. *Alis anticis fuscis, strigis tribus undatis repandis, maculâque ocellari flavescens; posticis cupreis, costâ latissimè fuscâ.* (Exp. alar. 1 unc. 8 lin. —2 unc.)

Ph. No. *pyramidea*. *Linné.*—*Don.* vi. pl. 193.—*An. pyramidea.* *Steph. Catal.* part ii. p. 77. No. 6172.

Head, thorax, and abdomen fuscous; the lateral tufts on this last of a deeper hue, with pale tips; anterior wings deep fuscous, more or less varied with griseous, with three undulated repanded yellowish strigæ, edged with fuscous; the first before the middle of the wing, the second behind the middle, the last towards the hinder margin; between the two first the anterior stigma, which alone is visible, is placed; this is yellowish, with a black or fuscous pupil; posterior wings bright copper-colour, with the anterior margin fuscous. This beautiful insect varies exceedingly; in some specimens the general colour is pale griseous-yellow, with the usual markings; in others of a deep fuscous, with the posterior wings of a dingy copper-colour.

Caterpillar green, with a whitish dorsal and lateral line, and a large conical protuberance on the anal segment:—it feeds on the oak: the imago is found in the beginning of August.

Not very abundant near London; found sometimes in beating the oaks in Coombe-wood, Richmond Park, and Epping Forest: in great profusion near Brockenhurst, in the New Forest, during the summer of 1821. “Epping.”—*Mr. H. Doubleday.* “Coles-hill.”—*Rev. W. T. Bree.* “Stoke Bliss, Herefordshire.”—*Rev. F. W. Hope.*

GENUS CI.—PYROPHILA *mihî*.

Palpi rather elongate, recurved, triarticulate, clothed with short velvety scales, the terminal joint short, stout, conical, obtuse, about half the length of the basal, which is slender, considerably bent, above half the length of the second; the latter rather stouter than the basal, slightly curved, obliquely truncate at the apex: *maxillæ* not so long as the antennæ: *antennæ* rather long, very slender, slightly ciliated in both sexes: *head* moderate, with a dense crest between the antennæ: *eyes* rather prominent, naked: *thorax* not crested: *wings* incumbent, entire, very glossy, stigmata obsolete, colours uniform; posterior somewhat metallic, obscurely indented: *abdomen* depressed, especially in the females, with a tuft at the apex: *legs* moderate; *tibiæ* rather stout. Larva naked, without any caudal appendage: pupa folliculated.

Pyrophila may be known by the sombre colours which tint its glossy wings, combined with the recurvation of its palpi: from

Amphipyra it may be distinguished by the shortness of the terminal joint of the palpi in their natural state, as well as by its colours, and the absence of stigmata. From the two following genera the shortness of the clothing of the palpi, exclusively of other differences, obviously characterize it; its metamorphosis is also dissimilar.

Sp. 1. Tragopogonis. *Alis anticis murino-fuscis punctis nigris tribus approximatis in medio; posticis lividis.* (Exp. alar. 1 unc. 3—4 lin.)

Ph. No. Tragopogonis. Linné.—Py. Tragopogonis. Steph. Catal. part ii. p. 77. No. 6173.

Head, thorax, and abdomen immaculate mouse-coloured brown; anterior wings of the same colour, with three black spots in the middle, one in the place of the usual anterior stigma, the others placed transversely in lieu of the posterior stigma; between these and the hinder margin is an obscure, slightly waved, pale fascia: posterior wings of a livid brown, with the hinder margin darker. Caterpillar green, with five longitudinal white lines, and a few whitish spots on the sides: it feeds on the Goatsbeard (*Tragopogon pratense*), Spinach, Dock, Larkspur, &c.:—the imago is produced in June.

Not very uncommon: I have repeatedly taken the larvæ at Hertford, and the imago occasionally at Darent-wood. “Coleshill and Allesley.”—*Rev. W. T. Bree.*

Sp. 2. tetra. *Alis anticis perfuscis punctis tribus obsoletis fuscis, quatuorque costalibus albis; posticis cinereo-ferrugineis.* (Exp. alar. 1 unc. 4—5 lin.)

No. tetra. Fabricius.—Py. tetra. Steph. Catal. part ii. p. 77. No. 6074.—Ph. No. Tragopogonis. Don. vii. pl. 223. f. 2?

Very closely allied to the last: head and thorax as in that insect; abdomen cinereous; anterior wings of a deep brown, with three very obsolete dusky spots in the centre, and four distinct white ones on the costa towards the apex: posterior wings rusty-ash.

Caterpillar green, with a whitish dorsal and two reddish lateral lines; the head small: it feeds on various plants, and is supposed to attack apiaries:—the imago is found in June.

Not common near London; frequenting gardens: I have received specimens from Bristol and Devonshire. “Epping.”—*Mr. H. Doubleday.*

GENUS CII.—NÆNIA *mihi.*

Palpi rather long, porrect, ascending, triarticulate, the two basal joints clothed with elongate capitate scales, terminating in an acute point anteriorly, at the apex of the second joint, apical joint slender, elongate, exposed, covered with abbreviated scales; basal joint of equal length with the terminal, and slightly

bent, the second nearly as long again, more slender than the first, a little attenuated at the apex; terminal linear, very slender, slightly acuminate: *maxillæ* longer than the antennæ. *Antennæ* short, slender in the females, ciliated internally in the males: *head* small, with a crest between the antennæ: *eyes* rather prominent, naked: *thorax* stout, with an anterior and posterior crest: *abdomen* slightly depressed, with a carina in the male: *wings* incumbent, faintly denticulate: *legs* short, rather stout. Larva naked, with the anal segment a little elevated: pupa folliculated, with a single spine at the apex.

With this genus Ochsenheimer and Treitschke unite *Phalæna Maura* of Linnæus, than which nothing can be more unnatural, their only resemblance consisting in the dinginess of their colours: I have therefore divided them, as no possible advantage can be gained by their union. *Nænia* may be readily known by the peculiar bifid appearance of the apex of the palpi, arising from the elongation of the scales—thereby remotely resembling those of *Triphæna*—combined with the highly crested thorax, dingy, reticulated, and subcrenated wings; exclusively of the structure of the palpi.

Sp. 1. *typica*. *Alis fuscis, anticis pallido reticulatis, stigmatibus albido marginatis.* (Exp. alar. 1 unc. 6—10 lin.)

Ph. No. *typica*. Linné.—Næ. *typica*. *Steph. Catal. part ii. p. 77. No. 6176.*—*Albin. pl. xv. f. 21.*

Head and thorax fuscous; the latter with some ash-coloured and black atoms on the crest: anterior wings fuscous, with the nervures pale hoary or whitish; an irregular striga of whitish and black patches at the base, a slightly waved interrupted whitish transverse striga, margined on each side with black before the anterior stigma, then a third striga, arising between two black spots on the costa, opposite the posterior stigma, suddenly bent outwards at its origin, terminating behind the middle of the inner margin, and bordered on each side with black lunules; beyond this, near the posterior margin, is a fourth narrow undulated one, suddenly angulated near the costa, and bounded on the inner edge with some irregular black spots; on the margin of the wing itself is a row of black trigonate spots; a quadrate spot between the stigmata, and an oval one behind the posterior black: stigmata cinereous with pale margins; with sometimes a third indistinct one, as in most of the *Agrotes*: posterior wings plain fuscous, with paler cilia.

This species varies considerably; in some examples the strigæ are merely indicated by their dusky margins, while in others they are nearly white.

Caterpillar griseous, the sides dusky, with three pale streaks: it feeds on the Nettle, Houndstongue, Willow, &c.: the pupa is brown, enclosed in a web; and the imago is produced towards the end of June.

Common throughout the metropolitan district, frequenting banks where nettles abound. "Bottisham."—*Rev. L. Jenyns*. "Epping."—*Mr. H. Doubleday*. "Common in Salop."—*Rev. F. W. Hope*.

GENUS CIII.—DYPTERYGIA *mihi*.

Palpi conspicuous, ascending, slender, triarticulate; the two basal joints clothed with elongate scales, the apical joint considerably exposed, covered with short scales, linear, and as long as the basal one, which is slightly bent and more robust than the second; the latter is about one half as long again as the first, slightly attenuated towards the apex: *maxillæ* moderate. *Antennæ* very short, rather stout, simple in both sexes, ciliated within and pubescent in the male: *head* slightly crested; *eyes* small, naked: *thorax* robust, thick, crested on the back: *wings* incumbent; anterior short, broad, subtriangular, subdentate; posterior ample: *body* rather stout, crested on the back: *legs* short, posterior tibiæ robust, compressed, with a fascicle of hair on the outer edge. Larva naked, with a conical protuberance on the anal segment: pupa folliculated, with four apical spines.

Perhaps of all the groups of Noctuidæ, contained in the works of Ochsenheimer, there is none which includes so heterogeneous an assemblage as his genus *Xylena* (*Xylina* Treit.), or which is constructed upon more artificial principles, the various members of which it is composed scarcely agreeing in any one particular, excepting in the resemblance of their colour to wood; in fact, their discrepancies of habit and structure are so great, that I doubt the propriety of the juxta-position of this and the three following genera, which form a portion of the group in question. Few entomologists are ignorant of the manner in which those common insects, *Phalænæ putris* and *polyodon*, Linné, repose; the former with *incumbent* wings, the superior *crossing each* other, and closely applied to its subdepressed body; the latter with *deflexed* wings *meeting over* its slightly elevated and crested back;—characters which have been stated, in a comment upon the genus *Gortyna*, to be of sufficient importance to divide the Noctuidæ into *sections*, but which are conveniently omitted, when they serve to disunite *genera* that have been previously united. As the abundance of several of the insects (especially of the two above-mentioned) belonging to this group, will enable any one to verify what I have above advanced—and as I conceive the cause of science and of truth will be best answered by separating, rather than by uniting, such discordant insects, and as I am, moreover, a strenuous advocate for the application of generic terms, in lieu of the almost useless (though occa-

sionally needful) substitution of sectional divisions*. I shall merely add, that *Dypterygia* may be at once distinguished from the three following genera, by its highly crested thorax, slender, nearly vertical palpi, with the terminal joint considerably exposed, and when denuded elongate-linear subacute; abbreviated subtriangular-ovate tristigmatiferous anterior wings, and other less obvious characters; exclusively of its dissimilarity in the larva and pupa states.

Sp. 1. *Pinastri*. *Alis anticis nigris, margine posteriori anguloque ani cinereo-fuscis.* (Exp. alar. 1 unc. 5—6 lin.)

Ph. No. *Pinastri*. *Linné. Don. x. pl. 347. f. 2.*—*Dy. Pinastri. Steph. Catal. part ii. p. 77. No. 6175.*

Head and thorax deep black, the crest on the latter tipped with deep ashy-brown; anterior wings also black, with the edges of the stigmata of a deeper hue, the costa with a few fuscous streaks, and with a few white dots near the tip, the inner margin ashy-brown, uniting to a large undulated spot of a similar hue, with darker longitudinal streaks at the anal angle, and resembling an expanded bird's wing, the apex pointing towards the hinder margin; this spot is bounded towards the base of the wing with black, and a longitudinal streak of that colour is placed in the centre of each arcolet of the wing at the apex, between it and the costa, near the latter is a pale rusty-ash cloud; cilia with ashy streaks: posterior wings fuscous with cinereous cilia: abdomen pale fuscous.

Caterpillar dirty-brown, sprinkled with deeper spots, with two paler longitudinal lines and some dusky oblique ones: it feeds on the *Rumex acetosa* and *R. acetosella*: the pupa is dirty brown, placed in a soft folliculus on the surface:—the imago is produced in June.

Not a common species: I have twice found the insect on palings near Coombe-wood, and possess a specimen captured at Brick-wood. “Near Norwich.”—*C. M. Curtis, Esq.* “Newington Green.”—*Mr. Bentley.*

GENUS CIV.—XYLINA.

Palpi short, nearly horizontal, rather slender, triarticulate, densely clothed with compressed scales; the terminal joint more or less exposed, elongate-ovate,

* That the genera in this work are not in all instances carried to the greatest extent, may be judged from the fact, that writers who have simultaneously passed over the same ground, have so far corroborated my views as to propose several of the genera which I have adopted, and to subdivide others; *ex gr.* Dr. Horsfield divides the *Polyommata* by the addition of the genus *Pithecopis* (to include *Po. Argiolus*, v. i. p. 85):—Boisduval has *Orthorinia* for *Ptilodontis*, *Asteroscopus* for *Petasia*, *Euchelia* for *Deiopeia*, &c.:—De Jean divides *Sphodrus* into *Sphodrus* and *Pristonychus*; and Mr. Kirby has recently divided the genus *Dyticus* into two, calling those species which have the elytra smooth in both sexes *Leionotus*.

subovate, the two other joints of nearly equal length, the basal rather stoutest: *maxillæ* as long as the antennæ: *Antennæ* simple, more or less ciliated in the males, rarely subserrated: *head* small, with a dense frontal crest: *eyes* naked, rarely pubescent: *thorax* quadrate, with a central anterior crest, the shoulders sometimes prominent: *legs* incumbent; anterior long, narrow, sublinear, obsoletely dentate on the hinder margin, posterior short: *body* rather short, with the back more or less elevated with a carina, which is sometimes crested; the apex with a small tuft in the male, rather acute in the female. Larva naked or slightly pilose: pupa folliculated, its apex unidentate.

Ochsenheimers's, or rather Treitschke's, concise definition of this genus is so truly general and indefinite, that it will clearly include a host of species that he has placed elsewhere; it is consequently difficult to say which is the typical species: I shall, therefore, (though perhaps improperly) employ the term *Xylina*, as long since printed in my Catalogue, to designate such species of the group in question as are distinguished by the characters above given, and which may be readily known by the following external marks: elongate, sublinear, obsoletely dentate anterior wings, quadrate slightly crested thorax; somewhat abbreviated body, slightly depressed in the females, with its apex subtriangular; exposed terminal joint to the palpi, and incumbent wings: in some respects this genus is remotely allied to *Cucullia*, but the metamorphosis is widely different, and the pupa is destitute of the singular appendage which forms so conspicuous a character in those of the *Cucullia*.

A. Eyes pubescent. (*Antennæ* of males subserrate.)

Sp. 1. *conspicillaris*. *Alis anticis cinereo fusco nigroque nebulosis, marginem internam versus albicantibus, posticis albidis, fusco-venosis.* (Exp. alar. 1 unc. 6—7 lin.)

Ph. No. *conspicillaris*. *Linné.*—*Xy. conspicillaris.* *Steph. Catal. part ii. p. 78. No. 6182.*—*Ph. No. leuconota. Don. xiii. pl. 453. f. 3.*

Head hoary, thorax the same, or whitish-ash, transversely striated anteriorly, with a dusky longitudinal dorsal vitta: anterior wings obsoletely striated, deep fuscous black, with the inner margin generally more or less broadly whitish, united to an interrupted oblique striga, reaching nearly to the apex of the costa; stigmata obscure, a third, or teliform one, sometimes present, their margins alone conspicuous; posterior wings whitish or white, with a narrow dusky marginal border; the nervures also dusky; cilia white.

Var. β . *Steph. Catal. No. 6183.*—Head and thorax pale hoary-ash, the latter immaculate: anterior wings as in the last, with a large ovate pale ashy-white patch on the costa, reaching from the anterior stigma to the hinder margin. This rare insect varies considerably; in some examples the anterior wings are nearly of an uniform cinereous, striated with a deeper hue, as in *Xy. pulla*: in others the colours are very dark.

Caterpillar dirty green, with a yellowish-white lateral line edged with brownish: it feeds on the *Astragalus Onobrychis*, &c.:—the imago is formed towards the end of May.

A rare species; two or three specimens have been taken between Birch-wood and Bexley; and I possess a pair captured in Bulstrode Park by the late Duchess of Portland.

B. Eyes naked. (Antennæ simple in both sexes.)

Sp. 2. *rhizolitha*? *Alis anticis canis, nebulosis, lineolâ baseos superné bifidâ serieque punctorum nigrorum ad marginem posticum.* (Exp. alar. 1 unc. 6—8 lin.)

No. *rhizolitha*. *Hübner?*—Xy. *Lambda?* *Steph. Catal. part ii. p. 78. No. 6177.*

Head and thorax hoary, the latter with a black arch, edged posteriorly with white, in front: anterior wings also hoary, with darker clouds, a black abbreviated lineola at the base, terminating in two or three twigs, another slightly curved forming an edge to the posterior stigma, between which and the inner margin of the wing is a third united to a black hook in the place of the teliform stigma of the *Agrotis*: on the hinder margin is a row of minute black dots; the ordinary strigæ are more or less apparent, but suddenly bent near the costa, and the stigmata distinct but obsolete: the posterior wings are deep fuscous with the cilia paler.

In some specimens the markings are nearly obliterated, and the wings scarcely clouded.

Caterpillar downy, green, spotted with white, with a bluish dorsal line: it feeds on the oak:—the imago appears in the autumn.

Not very common: I have once or twice found the insect at Hertford and at Coombe-wood, and in other parts of the metropolitan district. “Netley, Salop.”—*Rev. F. W. Hope.* “Epping.” *Mr. H. Doubleday.*

† Sp. 3. *pulla.* *Alis anticis nigro-cinereis, maculâ medio obsoletâ albidis; posticis fusco-venosis.* (Exp. alar. 1 unc. 8 lin.)

No. *pulla.* *Wien. V.?*—Xy. *pulla.* *Steph. Catal. part ii. p. 78. No. 6178.*

Somewhat resembling the last, but rather of a different colour: head and thorax dusky-ash; anterior wings of a deep ash-gray, with a dusky spot at the border and several deeper ash-coloured strigæ, with an obsolete whitish central spot, and a pale striga near the hinder margin; the cilia with fuscous stripes: posterior wings whitish with the nervures dusky or fuscous.

Caterpillar green, with whitish spots and lateral line:—the imago appears in the autumn.

A specimen of this insect is in the collection at the British Museum: it was captured at Woodside near Epping in 1817.

Sp. 4. *semibrunnea.* PLATE 21. f. 3.—*Alis anticis angustioribus subnebulosis, extûs cinereo-brunneis, intûs brunneo-fuscis.* (Exp. alar. 1 unc. 7 lin.)

No. semibrunnea. *Haworth.*—*Xy. semibrunnea.* *Steph. Catal. part ii. p. 87.*
No. 6179.

Head and thorax reddish or ashy-brown, with the sides of the latter and apex of the crest of a deeper hue or nearly black; anterior wings with the costal half deep ashy-brown or reddish-ash, the inner half of the same hue more or less clouded with fuscous-brown, the clouds disposed longitudinally, with an oblique bent pale streak or hook dividing the broadest cloud towards the apex of the wing, somewhat as in *Cucullia Scrophulariæ* and *Verbasci*: towards the base are some pale angulated streaks and a deeply angled one near the hinder margin; the stigmata are rather indistinct, and behind the posterior one is an obscure arcuated striga composed of very minute black dots: the cilia are clouded with pale and deeper brown: the posterior wings pale ashy-brown, with the margin darker, the nervures and a small central spot rather dusky: abdomen, with its dorsal tufts, tipped with dark fuscous-brown.

A rare insect near London; I possess a specimen that was captured at Coombe-wood, and obtained a pair from the Marshamian cabinet.

Sp. 5. petrificata. PLATE 23. f. 1.—*Alis anticis latioribus griseo fuscoque striatis, lineolâ baseos alterâque versus marginem interiorem atro-brunneis, stigmatibus pallidioribus.* (Exp. alar. 1 unc. 8—8½ lin.)

No. petrificata. *Wien. V.*—*Xy. petrificata.* *Steph. Catal. part ii. p. 78. No. 6180.*

Pale ochraceous or griseous-brown; anterior wings the same, with darker clouds; a longitudinal streak at the base, and another on the disc towards the middle of the inner margin, of a deeper brown; the stigmata pale ochraceous; behind the posterior one is an arcuated striga composed of a double series of minute fuscous dots; behind which is a pale deeply angulated striga, with a few elongate-triangular ochraceous-brown streaks on its inner edge: the margin is dotted with fuscous; cilia ochraceous, with darker clouds; posterior wings ochraceous-brown, with the base paler; an obsolete transverse striga of fuscous spots a little behind the middle, and a darker lunule on the disc towards the base: cilia and abdomen ochraceous.

This species resembles the preceding, as *Cucullia Scrophulariæ* does *C. Verbasci*: it is variable; some examples being of a darker hue than the one I possess.

A comparison of the accompanying figures of this and the preceding insect, executed from fine and perfect specimens in my collection, will sufficiently point out their obvious dissimilarity: there is a beautiful pair of each species in the British Museum; and Mr. Haworth and Mr. Marshall each possess specimens of both insects: it is therefore astonishing that the species should hitherto have remained confounded, when such opportunities were afforded for their elucidation.

Caterpillar bright green, with white spots and a broad white dorsal stripe, and a narrow white streak on each side; head glossy: it feeds on various trees, such as the elm, oak, lime, sloe, &c.: and the imago appears in June.

The pair of this insect in the British Museum were taken near London, I believe, by Mr. Neale: those in Mr. Haworth's cabinet he obtained from Mr. Francillon's collection; and mine was kindly given to me by Captain Blomer, who captured the insect near Teignmouth, Devon. "Near Sidmouth, Devon."—*T. Marshall, Esq.*

Sp. 6. putris. *Alis anticis flavo-albidis, margine anteriori stigmatibusque fuscis, strigâque geminatâ punctorum nigrorum.* (Exp. alar. 1 unc. 3—5 lin.)

Ph. No. putris. *Linné.*—*Xy. putris.* *Steph. Catal. part ii. p. 78. No. 6183.*
Albin. pl. lxxix. f. a—d.

Head yellowish, with two dusky longitudinal streaks: thorax anteriorly yellowish, posteriorly fuscous; anterior wings pale-yellowish or ochraceous, with the costa fuscous; the stigmata rather obsolete, the anterior orbicular, fuscous, frequently with a pale margin; the posterior also fuscous, with a pale margin and a flexuous whitish streak in the middle; from this to the hinder margin extends a double oblique fuscous striga; and at the anal angle is a fuscous spot; between the posterior stigma and the hinder margin is a geminated striga of black spots, placed parallel with the latter; the hinder margin itself, and the tips of the cilia, are also spotted with black: the posterior wings are pale-ochraceous or fuscous, with the hinder margin spotted with brown: cilia pale: abdomen yellowish.

Caterpillar yellowish-brown, spotted with black, and striated with pale yellow and whitish, with a yellowish dorsal line: the head brown-black: it feeds on grasses: the imago appears about the middle of June.

Not uncommon in many places throughout the metropolitan district, frequenting hedges, weedy banks, and gardens; also the vicinity of woods and grassy places. "Epping."—*Mr. H. Doubleday.*

GENUS CV.—CALOCAMPA* *mihi.*

Palpi short, oblique, robust; triarticulate, densely squamous, the terminal joint concealed, basal much shorter than the second and more robust, terminal ovate truncate: *maxillæ* the length of the antennæ. *Antennæ* rather short, stout in the males, and ciliated beneath: *head* small, with a dense frontal crest: *eyes* naked, small: *thorax* quadrate, with a small anterior crest: *wings* convoluted or incumbent; anterior elongate, sublinear, denticulated on the hinder margin: *body* short, depressed, the apex with a small tuft in the male. Larva smooth: pupa folliculated, with two elongate spines at the apex.

* *Καλος pulcher, καμπη eruca.*

Generic terms, it has been justly observed, may be considered as mere aids to the memory, by being applied to dissimilarly constructed objects. Until therefore it can be shown that *long* and *short*, *narrow* and *broad*, *concealed* and *exposed*, *robust* and *gracile*, &c. are synonymous terms, so long must I consider this genus distinct, either from *Dypterygia* or *Xylophasia*. *Calocampa* has the anterior wings long, narrow, and nearly linear; the terminal joint of the palpi (which are robust) completely concealed, short, the abdomen abbreviated, thorax scarcely crested, &c. *Dypterygia*, on the contrary, has the anterior wings short, broad and subtriangular-ovate; the terminal joint of the palpi (which are slender) considerably exposed, elongate, the abdomen rather elongated, the thorax strongly crested, &c.; while *Xylophasia* and *Xylina* have the terminal joint of the palpi more or less exposed, and other distinguishing characters, as noticed under each genus respectively: stronger proofs therefore cannot be advanced to show the absurdity and inutility of a genus composed without the slightest comment of the above-mentioned genera, and of the folly of drawing up what are termed *generic* characters from one species only, as in such cases, the more rigidly such characters are drawn up, the less generic but more *specific* they become; and, consequently, instead of instructing, they only serve to mislead the student.

Sp. 1. *exoleta*. *Alis anticis parte anteriori fusco, interiori cinereo nebulosis, maculis duabus oblongis.* (Exp. alar. 2 unc. — 2 unc. 3 lin.)

Ph. No. *exoleta*. *Linnè*.—*Xy. exoleta*. *Curtis*, vi. pl. 256.—*Ca. exoleta*. *Steph. Catal. part ii. p. 79. No. 6184.*

Head griseous; thorax brown in front, with its back dusky, the apex paler, with a few scattered black atoms; anterior wings pale-reddish ochre or cinerascenscent, with the base faintly striated with dusky, the costa rather fuscous toward the base, the inner margin clouded with the same colour within, the posterior margin fuscous, clouded with cinereous; the cilia brown, with black spots; stigmata large, the anterior ear-shaped, the posterior larger, with a black dot at its base, and two oblong spots on its hinder margin, the lower one extending towards an elongate black streak, with a faint one adjoining near the posterior margin of the wing: posterior wing grayish-brown, with the margin and a discal lunule darker; cilia ochraceous: abdomen griseous, the back fuscous towards the apex.

Caterpillar green, darkest on the back, with large white spots on the back, and smaller ones on the sides, the latter with a yellow line above the smaller spots, and a red one beneath: it is polyphagous, feeding upon lettuce, spinach, broom, bramble, asparagus, &c.:—the imago appears in the autumn, but some pupæ remain till the following April or May before they change.

Not common: it occurs in gardens and in woody places: I have taken it at Darenth-wood, and possess a specimen captured near Plymouth: it has been found near Oxford; and in several places near London.

Sp. 2. *vetusta*. *Alis anticis parte anteriori pallidè, interiori obscurè fuscis, maculâ oblongâ unicâ.* (Exp. alar. 1 unc. 10 lin.—2 unc. 2 lin.)

No. *vetusta*. *Hübner*.—*Ca. vetusta*. *Steph. Catal. part ii. p. 79. No. 6185.*—*Ph. No. exoleta*. *Don. vi. pl. 187?* imago.

Closely allied to the preceding, but totally different in the larva state: it differs chiefly in having the anterior wings of a bright reddish ochre on the costa, and of an obscure fuscous within, with the anterior stigma nearly obsolete, the posterior distinct, with a single black spot adjoining, and the longitudinal streak of the former species nearly absorbed in the fuscous ground of the inner margin: the thorax and posterior wings are of a deeper hue, and the abdomen is less clouded towards the apex.

Caterpillar dirty green, spotted with whitish, with a yellowish dorsal and whitish lateral line, the stigmata red: it feeds on *Carex*: the imago, like the last, appears in the autumn.

Donovan appears to have figured this species by mistake for *Ca. exoleta*. He consequently is the first English writer who furnishes us with a knowledge of the insect in question, notwithstanding he erroneously considered it as the *Ph. No. exoleta* of Linné.

A rare species: the only locality that I am aware of is Darenth-wood, where the insect has been taken several times.

GENUS CVI.—XYLOPHASIA* *mîhi*.

Palpi rather elongate, slightly ascending; triarticulate; the two basal joints densely clothed with elongate scales, the terminal considerably exposed; the basal joint rather shorter and more robust than the second, the terminal elongate-ovate, somewhat acute: *maxillæ* as long as the antennæ. *Antennæ* simple, more or less ciliated, or pilose, in the males; *thorax* quadrate, with a small crest in front: *wings* deflexed, anterior rather elongate, subtriangular, the base being narrowed; hinder margin more or less denticulated: *body* elongated, stout, not depressed, the back carinated, each segment with a dorsal crest; apex, in the male, with a large tuft, in the female, narrowed, sublinear, with a small tuft. Larva naked: pupa subterranean, with a spine at the apex.

Xylophasia may be distinguished with facility from *Calocampa* by the exposed terminal joint of its palpi, elongated and distinctly carinated body, which has the apex with a large tuft in the male,

* Ξυλον lignum, φασις apparitio.

and elongate-linear with a small tuft in the female; broad, somewhat triangular anterior wings (which are deflexed during repose), the slenderness of the antennæ, and in other less evident characters; and from *Xylina*, by the broad subtriangular wings, elongate robust body, and longer, ascending palpi, &c.

Sp. 1. lithoxylea. *Alis anticis flavo-ochraceis, maculâ costali margineque postico irregularitèr ferrugineo-fuscis; posticis pallidis lunulâ mediâ fimbriâque fuliginosis.* (Exp. alar. 1 unc. 9—11 lin.)

No. lithoxylea. *Fabricius.*—*Xy. lithoxylea. Steph. Catal. part ii. p. 79. No. 6186.*

Ochraceous: eyes black: head and thorax with a few pale rusty-brown markings; anterior wings pale yellow ochreous, with irregular darker fuscous or ustulated streaks and clouds, several of the former placed obliquely on the costa, one towards the centre, somewhat broader; at the base is a conspicuous darker streak, and near the base, on the inner margin, is a second, and a little behind the middle, on the disc, towards the anal angle, is a third flexuous one, with an ustulated cloud adjoining on its costal edge: behind this is an obscure arcuated striga of extremely minute fuscous dots; and on the hinder margin two rusty-brown spots, forming an irregular border to the wing: posterior wings pale, with the margin and a costal lunule dusky, the nervures, and a row of marginal dots, fuscous.

The tint of colour, and intensity of the markings, vary considerably; but the insect is invariably of a paler hue than the following; and amongst other characters wants the transverse striga on the posterior wings.

Caterpillar green, with whitish spots and lateral lines: it feeds on the black thorn: the imago appears towards the beginning of July.

Frequents palings and hedges; not uncommon in Epping Forest, and in Copenhagen-fields; at Darenth, Coombe, &c. "Epping."
—*Mr. H. Doubleday.* "Alderley, Cheshire."—*Rev. E. Stanley.*

Sp. 2. sublustris. *Alis anticis cinereo-ferrugineis maculâ costali margineque postico irregularitèr saturatè ferrugineo-fuscis; posticis fuscescentibus lunulâ mediâ strigâque pone medium saturatioribus.* (Exp. alar. 1 unc. 8—10 lin.)

No. sublustris. *Esper.*—*Xy. sublustris. Steph. Catal. part ii. p. 79. No. 6187.*

Considerably resembling the last, but of a deep rusty-ash; the anterior wings are not striated, nor do they possess the lineola near the base on the inner margin, but in the middle of the costa is a deep rusty-brown cloud, extending transversely nearly to the inner margin of the wing, where it is absorbed in a deeper cloud, which terminates in a flexuous darker streak; on the costa are also some obscure lineolæ of similar hue; and behind the posterior stigma is an arcuated striga composed of pale fuscous lunules, the points of which are outwards, and darker; between this and the hinder margin is a very obscure pale striga, having a more distinct angulated portion, resembling the letter W, near the angle, on the costal edge of which, in the middle of the posterior margin, is a triangular deep rusty-brown spot, and on the anal angle

a second, somewhat ovate, spot of similar hue: cilia ferruginous, with brownish clouds at the tip: posterior wings fuscescent, with a central lunule, and a curved transverse striga, darker.

This insect has been likened to the *No. musicalis* of Esper; but that insect is of a pale bluish-ash, with a deep rectangular central transverse fuscous fascia, followed by two rows of very distinct black spots, the hinder margin with a deep fuscous cloud, dividing into five distinct lobes on its inner edge, the apex of the wing of an immaculate hoary-ash, and the base has two rows of black spots placed longitudinally. Esper, in his text, refers this to the *No. lithoxylea* of Fabricius; while that insect and *sublustris* (which are both admirably figured by him) are referred to the *No. petrificata* of that author.

All the specimens I have seen of this insect were taken near Brighton by Mr. Brown.

Sp. 3. *polyodon*. *Alis anticis fusco nebulosis, strigâ posticâ valdè dentatâ albâ; posticis cinereo-fuscis, fimbriâ saturatori, strigâque pallidâ versus angulum ani.* (Exp. alar. 1 unc. 10 lin.—2 unc. 2 lin.)

Ph. No. *polyodon*. Linné—*Xy. polyodon*. *Steph. Catal. part ii. p. 79. No. 6188.*

A most variable species: ashy-brown, thorax with transverse and longitudinal streaks: anterior wings fuscous- or ochraceous-brown, with various black and pale clouds and strigæ; especially three strigæ of the former colour, one at the base, another near the base on the inner margin, and the third between the stigmata and the inner margin; the stigmata are pale, sometimes clouded, the anterior is oblong and placed obliquely; the ordinary strigæ are apparent, and the fourth, near the hinder margin, forms a very prominent feature, being of a very pale cast, sometimes nearly white, very much waved, and acutely angulated, forming, towards the anal angle, a W, which is crowned with three conical black streaks: the posterior wings are ashy-brown, with a dark marginal border, and a pale striga towards the anal angle.

Some specimens are very much clouded with white; others are nearly plain fuscous, with the usual markings, and I possess one of a deep dusky-brown: in fact, scarcely two specimens agree precisely.

Caterpillar dirty-white, thickly spotted with black, with a black head: it feeds at the roots of grass, and very much resembles the larva of an *Agrotis*, excepting its bulk. The imago appears in June and July.

One of our most abundant insects, occurring copiously even in the metropolis itself, frequenting gardens, hedges, and wood sides. "Alderley, Cheshire."—*Rev. E. Stanley.*

Sp. 4. *rurea*. *Alis anticis griseo fuscoque variis, maculâ costali, lineolâ basî versus marginem interiorem fimbriâque irregulari griseo-fuscis.* (Exp. alar. 1 unc. 6—8½ lin.)

No. *rurea*. Fabricius.—*Xy. rurea*. *Steph. Catal. part ii. p. 79. No. 6189.*

Head fulvous: thorax ashy-brown or griseous, with its centre palest: anterior wings pale griseous or ochraceous-red, with various spots and clouds; with

a fuscous lineola at the base of the inner margin, an irregular large subovate spot in the middle of the costa, sometimes nearly obliterated, in which the stigmata are placed; these are rather paler than the wing; the anterior is oblong, subtriangular, the posterior reniform; behind the latter is a geminated bent striga of obscure minute fuscous dots; and in the margin itself is an irregular interrupted fascia, branching inward at the anal angle, and bearing some minute wedge-formed dusky spots at the base of the cilia; at the apex of the costa are a few white spots: the posterior wings are fuscous, with a darker fimbria.

Var. β . Anterior wings of a bright rufous-ochre, with the costa dusky, and two spots of a similar hue on the hinder margin; the stigmata distinct, the anterior nearly uniting to the posterior: behind the latter a pale bent striga.

Caterpillar said to feed on various grasses, the primrose, &c. The imago appears in June, or the beginning of July.

Not very uncommon; taken in various places throughout the metropolitan district. I have frequently captured it at Darent and Hertford. "Netley, Salop."—*Rev. F. W. Hope*. "Epping."—*Mr. H. Doubleday*.

† Sp. 5. *hirticornis*. "*Alis glaucescentibus, fasciâ abbreviatâ terminalique plicatâ: antennis hirto-pectinatis.*"—*Haw.*

No. *hirticornis*. *Haworth*.—*Xy. hirticornis*. *Steph. Catal. pt. ii. p. 79. No. 6190.*

Wings somewhat glaucous, with an abbreviated fascia, and an interrupted terminal fimbria: antennæ deeply ciliated.

The specimens whence the above description was made closely resembled the foregoing species; their chief distinction consisting in the strongly ciliated or somewhat pectinated antennæ: they were formerly in Mr. Hatchett's collection, but were unfortunately destroyed. Whether they were allied to the *Xylena borealis*, Curtis, or what that species is, I am unable to say, unless it be Var. β . of the foregoing insect.

Taken at Darent-wood about twenty years back.

Sp. 6. *combusta*. *Alis anticis fusco-brunneis obsolete nebulosis, stigmatibus oblongis marginibus pallidioribus.* (Exp. alar. 1 unc. 8—9 lin.)

No. *combusta*. *Hübner*.—*Xy. combusta*. *Steph. Catal. part ii. p. 80. No. 6192.*

Head and thorax rusty-brown, the former and crest of the latter sprinkled with cinereous; anterior wings deep fuscous-brown, with some obsolete lighter and darker lineolæ on the costa, and the nervures more or less dusted with pale ochraceous-brown; the stigmata oblong, the anterior oblique, somewhat acute, the margins rather pale; posterior auriform, with an interrupted pale margin, somewhat resembling a figure 3 or 5; on the hinder margin of the wing is an interrupted streak of dusky lunules; the cilia brown, with ochraceous clouds: posterior wings fuscous, with the base rather pale, the margin very dark; cilia dusky-brown, with an ochraceous tinge.

An insect of considerable rarity, few examples only having occurred in Britain: I possess specimens captured at Coombe-wood, and one found at Birch-wood; the species has also been taken in the neighbouring district, three or four instances of its capture at Darent-wood having come to my knowledge: it is found in June.

Sp. 7. epomidion. *Alis griseo fuscoque variis, strigâ posticâ undulatâ pallidâ, stigma antica margine nigro.* (Exp. alar. 1 unc. 4—6 lin.)

No. epomidion. *Haworth.*—Xy. epomidion. *Steph. Catal. part ii. p. 79. No. 6191.*

A beautiful insect: head and thorax deep purplish-brown, the latter with some dark or black longitudinal streaks and dots: anterior wings varied with griseous and fuscous, with bright purplish clouds; a deep black lineola at the base, and a second near the base on the inner margin as in Xy. nivea; anterior to the stigmata is a more or less obscure undulated striga, and behind an arcuated one, composed of pale indistinct lunules, the apex of each black towards the outer margin; on the hinder margin is a clear pale striga, composed of two distinct arches in the middle, and two or three waves at the anal angle; this striga is accompanied by some dusky or fuscous clouds; the hinder margin of the wing spotted with fuscous; the anterior stigma is oblong, and has a deep black margin; the posterior pale, rather obsolete, with its inner edge black, the outer vanishing: posterior wings fuscous, with the base paler, the margin darker, with a pale waved mark near the anal angle, cilia flavescent, with a brown line: abdomen cinereous, the sides and anal tuft purplish.

This beautiful and rather uncommon species does not appear to be very rare in the shady lanes near Ripley, where I have frequently captured it. At the end of June, 1827, I caught in one evening three remarkably beautiful specimens. It occurs in other places near London, having been found at Coombe-wood and in Richmond Park: it likewise inhabits Derbyshire, Yorkshire, and Devonshire, from which counties I have received specimens. “Bath.”—*Mr. Chant.* “Netley.”—*Rev. F. W. Hope.*

Sp. 8. scolopacina. *Alis anticis griseo fuscoque variis, fasciâ posticâ ferrugineâ, strigâque nigrâ pone medium dentatâ, stigmatè postico albo, corpore subgracili.* (Exp. alar. 1 unc. 3—4 lin.)

No. scolopacina. *Esper.*—Xy. scolopacina. *Steph. Catal. pt. ii. p. 80. No. 6193.*

Somewhat resembling the preceding, but smaller, and with the body more slender: the head and thorax are of a pale ochreous, or yellowish brown, with blackish clouds; anterior wings the same, with darker shades; a dusky streak at the base on the inner margin; an abbreviated brownish, or sub-ferruginous fascia, on the middle of the costa, behind the posterior stigma, which is white, with a griseous lunule; a slender arcuated, and very distinct, regularly dentate black striga, followed by a clear ochraceous space, behind

which the posterior margin is rusty-brown, with an undulated pale striga; in the margin are a few triangular darker spots; the cilia are blackish-brown, with paler spots: the posterior wings are dusky, with pale cilia.

This is also a rare insect, at least near London; two examples only having been taken in the metropolitan district: these were found by Mr. King at Coombe-wood, in June, about fifteen years since. The insect, however, appears to occur, though sparingly, near Sheffield, and in other parts of Yorkshire. I am indebted to Mr. Chant for a fine specimen taken by him near the place above mentioned.

† Sp. 9. *rectilinea*. *Alis anticis griseo-cinereis fasciâ latâ centrali margineque postico fusco-brunneo*. (Exp. alar. 1 unc. 6 lin.)

No. *rectilinea*. *Hübner?*—*Xy. rectilinea*. *Steph. Catal. pt. ii. p. 80. No. 6194.*

Head and thorax grayish-ash, with the sides and anterior margin of the latter brownish: anterior wings pale griseous-ash, with a broad central transverse dusky-brown fascia in the middle, being narrowed towards the inner margin, and bordered on each side with a darker undulated striga; at the base, on the inner margin, is a geminated streak of similar hue, with a paler edge, and towards the hinder margin some marmorated spots of similar hue, with a pale waved striga at the anal angle: cilia cinereous, with darker spots: posterior wings fuscous, with the margin dusky, and the cilia pale.

Hübner's figure of this beautiful insect appears to differ a little from the one I have referred to in my Catalogue, from the *Papillons d'Europe*, and which corresponds most admirably with the only example I have hitherto seen, which is in the possession of my friend, T. Marshall, Esq., who informed me he had seen other specimens in the collections in the north:—it must not be confounded with the No. *rectilinea* of Haworth, which belongs to the following genus.

Hitherto found only in the north of England. “Trafford Park, Lancashire.”—*T. Marshall, Esq.*

GENUS CVII.—HADENA, *Schränk.*

Palpi short, rather slender, slightly ascending, clothed with hair and scales, tri-articulate; terminal joint rather exposed, short, subovate; the basal joint curved, in general rather shorter and stouter than the second, which is a little attenuated towards the apex; terminal subovate, obliquely truncate: *maxillæ* about the length of the antennæ. *Antennæ* short, rather stout, in general simple, with the under side ciliated in the males, or obscurely subserrate, with a distinct fasciculus of hair on each joint within: *head* small, with a dense frontal crest; *eyes* large; globose, sometimes pubescent: *thorax* slightly crested: *body* stout, rather elongate, very acute in some females: *wings* slightly deflexed during repose; anterior obscurely denticulate on the hinder margin: in general

of gay colours, sometimes with pale reticulations, and mostly with a pale undulated striga, in which is usually a conspicuous angulation, resembling the letter W, near the posterior margin; stigmata distinct; posterior wings with an obscure emargination towards the costa: larva naked, generally of lively colour: pupa subterranean.

The contents of this genus are of a more diversified nature than could be wished, and the time cannot be far distant before several of the species, especially amongst those which are included in the second section, as divided in my Catalogue, are detached and otherwise distributed; but I confess that at present I know no better place for their reception: the species of the first section are eminently distinguished by the beautiful rich satiny tints of colour which adorn their wings while recent, thence called "*Brocade moths*," and all, by possessing a conspicuous pale striga on the posterior margin of the anterior wings, which is biangulated towards the anal angle, and resembles the letter W; a character which also obtains, though in a less conspicuous degree, amongst several of the species in the neighbouring genera.

Sp. 1. *amica*? PLATE 23. f. 2.—*Alis anticis fusco-cinereoque variis, fuscâ magnâ angulatâ ferrugineâ obscuriore, in quâ stigmatâ ordinariâ posticum magnum auriforme albicante.* (Exp. alar. 1 unc. 11 lin.)

Ha. *amica*. *Treitscke*?—*Steph. Catal. part ii. p. 80. No. 6195.*

Head and thorax fuscous, with a ferruginous patch on the latter: anterior wings varied with cinereous and fuscous; with a broad obscure ferruginous central fascia, somewhat as in the last-described insect, having the ordinary stigmata, and followed posteriorly by a broad hoary ash-coloured striga, with some purplish clouds towards its hinder edge, beyond which is the ordinary undulated pale striga, and the hinder margin, except near the costa, is of a deep chocolate with a violaceous tinge; the anterior stigma is pale and rather indistinct; the posterior large, yellowish-white, with ashy clouds, and two distinct white spots on the hinder margin: the posterior wings are pale fuscous, with a darker central spot and margin.

Whether this large and beautiful species be truly the Ha. *amica* of Treitscke, his short specific character will not allow me to determine, as I am totally unable to decipher his German description, but I have little doubt that such is the case: it is decidedly not the No. *satura* of Hübner, of which the description appears in a subsequent page.

Many years have elapsed since examples of this very handsome species have occurred in England. A fine pair was in the collection of Mr. Francillon, and another in those of Mr. Marsham, and I believe now in that of Mr. Swainson; and a single specimen is in Mr. Vigors' cabinet: of their exact localities I am ignorant.

Sp. 2. *adusta*. *Alis anticis brunneo cinereoque variis, strigis stigmatibusque flavidis: posticis albidis venis margineque externo fuscis.* (Exp. alar. 1 unc. 8—10 lin.)

No. *adusta*. *Esper?*—Ha. *adusta*. *Steph. Catal. part ii. p. 80. No. 6196.*

Head and thorax deep fuscous, with darker shades and spots: anterior wings varied with cinereous and brown, with a pale flavescent undulated striga before, and another behind the middle, united by an indistinct dusky lineola, placed between the stigmata and the inner margin of the wing: the ordinary stigmata are cinereous, the anterior with a black margin: on the posterior margin of the wing is a greatly undulated flavescent striga, and on the margin itself are some deep fuscous sublunate spots: posterior wings whitish, with the nervures and outer margin dusky.

Also a rare species: my specimens were taken at Birch-wood: examples have occurred in other parts of Kent, and at Coombe-wood, but much more rarely at the latter place.

Sp. 3. *satura*. *Alis anticis rufo-fuliginosis, lineolâ nigrâ maculis stigmatibus fasciâque pallidioribus nigro adnatis, posticis fuscescentibus.* (Exp. alar. 1 unc. 8—10 lin.)

No. *Satura*. *Wien. Verz.*—Ha. *satura*. *Steph. Catal. pt. ii. p. 80. No. 6197.*

Closely resembling the preceding species, of which it is possible it may prove to be a variety: the wings are, however, more deeply marked with black, and a very conspicuous straight black lineola unites the third and fourth ordinary strigæ on the anterior wings; at the base of which is a black streak, and a dusky one near the base of the inner margin; the stigmata are pale brownish-ash, with slender black edges, the posterior one somewhat tinted with yellow; on the hinder margin of the wing is a pale striga, composed of numerous acute denticulations, of which two are more conspicuous, and form the usual W mark of the group; the cilia are brownish, interrupted with pale cinereous, and preceded by a series of conical black spots: posterior wings dusky, with the margin, nervures, and a central lunule, of a darker hue.

I possess a pair of this species, which I obtained from the cabinet of the late Mr. Marsham: they somewhat resemble the preceding species, but are of a smaller size, and their colours and markings are sufficiently distinct to prevent their union. I am not aware of their locality, but most probably they were found near London: where the insect has been taken, I believe at Coombe-wood, towards the end of May.

Sp. 4. *remissa*. *Alis anticis pallidè fuscescentibus nebulosis, lineolis duabus basi, arcuque medio crassissimo nigricantibus.* (Exp. alar. 1 unc. 6—8 lin.)

No. *remissa*. *Hüb.*—Ha. *remissa*. *Steph. Catal. pt. ii. p. 80. No. 6198.*

Similar to the following, but considerably paler in colour, especially on the costa

of the anterior wings, with the posterior stigma on the latter much less dented, and somewhat obliterated; the third ordinary striga is barely visible, and is united by a stout black streak to the second, towards the inner margin of the wing, the space anterior to which, on the costa, is fuscous, and bears the ordinary stigmata, white or pale cinereous or ochraceous, the anterior delicately margined with black, the posterior with a black edge on its anterior margin, and vanishing into the ground colour of the wing on its posterior: towards the hinder margin of the wing are two acute dusky or brownish streaks, as in *Calocampa exoleta*, and the hinder margin of the wing is fuscous, with black lunules: cilia fuscous, with pale streaks: posterior wings fuscous.

This species varies considerably in the intensity and brilliancy of its colours and markings, but the less denticulated posterior striga serves to distinguish the varieties from those of the following insect.

Ha. remissa is also a somewhat rare species, though in some places and seasons a considerable number of specimens have occurred: I have taken it occasionally at Coombe and Darenthwoods in June, and near Ripley and Hertford. "Cottingham, Yorkshire."—*A. H. Haworth, Esq.* "Bottisham."—*Rev. L. Jenyns.* "Netley, Salop."—*Rev. F. W. Hope.*

Sp. 5. *oblonga.* *Alis anticis cinereis nebulosis, costâ maculâque oblongâ fuscis, strigâ albidâ posticâ undulatissimâ.* (Exp. alar. 1 unc. 6—8 lin.)

No. *oblonga.* *Haworth.*—*Ha. oblonga.* *Steph. Catal. part ii. p. 80. No. 6199.*

Head and thorax fuscous: anterior wings clouded with fuscous, with the costa of a deeper hue, and having three distinct whitish spots near the apex, which, with the usual stigmata, is of a cinereous hue: the rest of the wings is of a similar tint, with a large wedge-shaped fuscous spot behind, and another oblong darker one in the middle, towards the inner margin; towards the posterior margin is a whitish striga, which is very much waved, and strongly dentate: the posterior wings are whitish, with the nervures and outer margins dusky.

The resemblance between this and the foregoing insect is almost too close to warrant their separation; but as both species vary greatly, and each variety retains its own peculiar, though obscure, characteristics, I have, with Mr. Haworth, considered them distinct, as I conceive that it is not the quantum but the constancy of difference that constitutes a species, as I have elsewhere endeavoured to show. This insect has been taken at Coombe and Darenthwoods, and in Epping Forest: also in Yorkshire.

Sp. 6. *Thalassina.* *Alis anticis fusco cinereoque variis, stigmatibus ordinariis fasciâque repandâ dilutioribus, posticis cinereis.* (Exp. alar. 1 unc. 6—7 lin.)

No. *Thalassina.* *Bork.*—*Ha. Thalassina.* *Steph. Catal. pt. ii. p. 80. No. 6200.*

Somewhat resembling *Ha. satura*, but less, of a more beautiful tint, and with paler and more distinct strigæ, &c.: the head and thorax nearly as in that insect, but of a rich chocolate-brown hue, with some ashy points, and a deep blackish streak on each side at the base of the anterior wings, which latter are of a rich chocolate-brown with a rich purplish-brown tinge, with a pale patch at the base, bounded towards the inner edge by a deep black lineola, the usual anterior striga obsolete, the second and third distinct, pale, and edged with brown, the fourth, on the hinder margin, rather suddenly curved at its origin near the costa, thence to the anal angle nearly straight, except a very distinct biangulated portion, forming the letter W, which is crowned by three acuminate black streaks: the stigmata are edged with black, and a striga of similar hue connects the second and third ordinary strigæ, as in other species of this genus: posterior wings cinereous, palest at the base.

A handsome and by no means rare insect; found throughout the metropolitan district; in Devonshire, Yorkshire, Suffolk, Norfolk, &c.; and I believe pretty generally distributed. "Epping."—*Mr. H. Doubleday*. "Alderley, Cheshire."—*Rev. E. Stanley*. "Netley, Salop."—*Rev. F. W. Hope*. "Bottisham."—*Rev. L. Jenyns*.

Sp. 7. Genistæ. *Alis anticis subdenticulatis argenteo-albis nebulosis, lineolâ basi, liturâ medio, maculisque duabus versùs strigam posticam nigris.* (Exp. alar. 1 unc. 7—8 lin.)

No. Genistæ. *Bork.*—*Ph. dives.* *Don. x. pl. 352. f. 2.*—*Ha. Genistæ. Steph. Catal. part ii. p. 81. No. 6201.*

Of a paler hue than the foregoing species: head and thorax pale whitish or hoary-ash, the latter with a deep-black anterior and lateral line: anterior wings pale silvery white, or hoary, with a clear basal spot on the costa, as in the last-mentioned insect, followed at a short distance by the ordinary second striga, which is of a pale hue and bounded with black posteriorly; the third striga is rather obsolete towards the costa, and is composed of a series of arcuated lines, the points of which extend along the nervures; the space between these strigæ is clouded with brown and bears the stigmata, which are rather large and pale; and behind the third striga whitish, and followed by the usual undulated striga, formed nearly as in the last species, with two distinct black streaks crowning the W: posterior wings whitish-ash, with the margin dusky.

The first sight of this very elegant species seems to remove it from the rest of the genus; its elongated body and more deeply arcuate anterior wings giving it the habit of another group, especially of the *Xylophasiæ*: but its predominant characters seem to point out the present as its proper genus: it is not very common; but is found throughout the metropolitan district and in Devon-

shire: I have taken three or four specimens near Hertford, and a few at Darent-wood, in different years.

Sp. 8. *contigua*. *Alis anticis rubro cinereoque nebulosis, strigâ externâ dentatâ albidâ; posticis albidis fusco venosis.* (Exp. alar. 1 unc. 6—7 lin.)

No. *contigua*. *Wien. Verz.*—*Ha. contigua*. *Steph. Catal. part ii. p. 81. No. 6202.*

A variable and beautiful species: head cinereous: thorax the same, varied with hoary and brown, with an anterior striga and an oblique lateral line black: anterior wings prettily varied or clouded with cinereous fulvous and brown, with a whitish spot on the costa at the base and a larger one towards the inner margin, then an oblique white streak arising from the anterior stigma and terminating in a bifid apex near the third striga, and nearly adjoining a larger patch of similar hue near the anal angle; the posterior portion of the wing is pale or cinereous, with a dentated white striga as in the other species of the genus, the angulated posterior crowned with three or four deep black arrow-shaped streaks: posterior wings whitish, with the nervures and hinder margin fuscous.

The colour of this beautiful insect varies greatly: in some examples the anterior wings are adorned with a brilliant purplish tint, and in others the paler marks are elegantly shaded with yellowish.

Caterpillar green, with the head and two spots on the anterior segment of the body brown; stigmata black: it feeds on various plants, but appears to prefer the broom or ragwort: it occurs in August or September, and the imago in the following June.

Found in considerable abundance in certain years in the larva state on broom, in the neighbourhood of Coombe-wood.

† Sp. 9. *obscura*. *Alis anticis cinereo-fuscis, stigmatibus ordinariis, maculisque basi pallidioribus.* (Exp. alar. 1 unc. 7? lin.)

No. *obscura*. *Haworth.*—*Ha. obscura*. *Steph. Catal. part ii. p. 81. No. 6203.*

“Greatly allied to *Ha. remissa* and its affinities, and probably a variety: anterior wings more obscure, or of a fuscous ash, with a large pale spot at the base of the costa, having deep-black lineolæ adjoining internally: towards the posterior margin is a very obsolete undulated slightly pallid striga: posterior wings ashy-brown.”

The above is nearly Mr. Haworth's description of this obscure insect, which, from an inspection of his specimen, evidently appears to differ from either of the other species, although its characters are perhaps too closely approximating to determine the point satisfactorily, without the occurrence of other specimens.

Of the locality of this species I am not aware.

Sp. 10. *glauca*. *Alis anticis griseis, maculis ordinariis fasciâque dentatâ glaucis; posticis cinereis, ciliis albidis.* (Exp. alar. 1 unc. 3—4 lin.)
 No. *glauca*. *Hübner.*—*Ha. glauca.* *Steph. Catal. part ii. p. 81. No. 6204.*

Head and thorax cinereous, with lutescent clouds and lateral stripe on the latter: anterior wings of a glaucous-ash, rather fulvescent, with three obsolete somewhat pale strigæ, more or less edged with fuscous: the ordinary stigmata glaucous with black or dusky margins, and between them and the inner margin is a bifid ochraceous-ash spot, the point directed towards the anal angle of the wing; on the hinder margin of which is an undulated pale striga, having the W mark less distinct than in the preceding insect: the posterior wings cinereous, with a fulvous tinge, the cilia whitish or ochraceous.

Caterpillar yellowish varied with brown, with a yellowish dorsal line, spotted with black, with some white spots on the sides:—it feeds on the *Tussilago farfara*; and is found about August: the imago appears in June.

This and the two following species, and probably *Ha. ochracea* and *Lithoriza*, differ considerably from the other species of the genus in the structure of their pupæ, which have their hinder segments produced into prominent angles, giving them the appearance of being dentate: the perfect insects also differ too much from the rest, as before mentioned, to allow of their association in the same genus: but at present I have not attempted to disunite them.

Not common: specimens have occurred near London: others near Cheltenham, and in Derbyshire, near Matlock.

Sp. 11. *plebeia*. *Alis anticis cinereo fuscoque variis maculâ stigmatiformi bifidâ strigâque albidis.* (Exp. alar. 1 unc. 3—4 lin.)
 Ph. No. *plebeia*. *Linné?*—*Ha. plebeia.* *Steph. Catal. part ii. p. 81. No. 6205.*

Head and thorax cinereous, the latter with some dusky or black streaks and clouds and lutescent shades: anterior wings cinereous, with three dusky transverse streaks at the base, adjoining a flavescent spot on the inner margin: the ordinary strigæ are not very evident, and between the second and third the stigmata are placed; these are cinereous, and separated by a quadrate dusky or black space, and a bifid cinereous spot is between them and the posterior margin, as in the last described, the intermediate nervures being whitish, with dusky or black spots, forming somewhat of an angle: near the hinder margin is a dentated whitish or flavescent striga, more or less margined with dusky spots; and in the margin itself is a row of black lunules: cilia cinereous: posterior wings ashy-brown, with a fulvescent tint, and darker margin, behind an obscure dentated pale striga.

This singular insect varies considerably in colour; in fact, two specimens scarcely occur exactly similar; and I suspect that the following species will eventually prove a mere variety:—amongst the numerous varieties, the *Noctua dentina* of the Wien. V. has a place; but as the insect is probably the *Ph. No. plebeia* of Linné, I have retained that name, as adopted by Mr. Haworth.

Caterpillar dirty-brown, with reddish clouds and black lateral and dorsal lines;

head glossy black; it feeds on the Dandelion (*Leontodon taraxicum*):—the imago is found in June.

Not uncommon in the neighbourhood of London, and in several other parts; and at Dover, Brighton, in Devonshire, Norfolk, near Birmingham, &c. “Kimpton.”—*Rev. G. T. Rudd.* “Epping.”—*Mr. H. Doubleday.* “Alderley, Cheshire.”—*Rev. E. Stanley.*

Sp. 12. leucostigma. *Alis anticis cinereo-albicantibus arcu obsoleto ex maculis subfulvis composito, in quo stigmata tria albicantia, infimo fisso.* (Exp. alar. 1 unc. 3—4 lin.)

No. leucostigma. *Haworth.*—*Ha. leucostigma.* *Steph. Catal. part ii. p. 81. No. 6206.*

The propriety of continuing this as a distinct species is extremely questionable: it agrees with the foregoing variable insect, as Mr. Haworth says, “in almost every thing, except being much lighter coloured; and in being fulvous or subfulvous, or rusty-flavous, in every part where that is brown or black.”

Taken in Coombe-wood, and in other places with the preceding insect.

Sp. 13. ochracea.—PLATE 23. f. 3. *Alis anticis ochraceis strigis stigmatibusque ordinariis pallidis; posticis albido-fulvescentibus, fimbriâ fuscescente.* (Exp. alar. 1 unc. 3—4 lin.)

No. ochracea. *Haworth.*—*Ha. ochracea.* *Steph. Catal. pt. ii. p. 81. No. 6207.*

Body and anterior wings ochraceous; the latter with the ordinary stigmata pale or whitish, frequently edged with a narrow black line; there is also a third stigmata, as in *Charæas Graminis*, which is usually pale fuscous, with a black edge: the ordinary strigæ, which are placed as in the two last-mentioned species, are pale, but are very frequently accompanied with a series of lunular black spots, as in the figure; the fourth, or posterior one, being considerably waved, with two or three elongate-trigonal dusky or black streaks towards the centre of its anterior edge; in the margin is a series of lunato-trigonal spots of a dusky or black hue; cilia pale luteous: posterior wings fulvescent-white, with a dusky border, and an obscure dusky transverse streak a little behind the middle; cilia luteous. In some examples the wings are nearly immaculate.

Neither this nor the two preceding and the following species properly associate with the true *Hadenæ*, neither do either of them seem allied to the *Polia*, to which genus the present remarkable and very variable species has been lately removed: the singular cleft pale patch on the anterior wings is however closely analogous to that on the same wings of *Ha. contigua* and others.

This rare species has been occasionally taken near London, and at Brighton; and I am indebted to my friend J. Scales, Esq. for a beautiful series captured by him about ten years since (in June), near Beachamwell, Norfolk.

Sp. 14. Lithorhiza. *Alis anticis cinerascenti-fuscis, fasciâ mediâ irregulari fuscâ, stigmatibus duobus ordinariis cinereis subconfluentibus.* (Exp. alar. 1 unc. 3—4 lin.)

No. Lithorhiza. *Bork.*—*Ha. Lithorhiza.* *Steph. Catal. pt. ii. p. 81. No. 6208.*

Head and thorax ashy-brown, with paler transverse shades: abdomen also of the same hue, with its tuft and lateral margins more or less rufescent: anterior wings ashy-brown; with an irregular fuscous fascia in the middle, very much attenuated towards the inner margin, but nearly touching the costa, which is spotted with fuscous; in this fascia the stigmata are placed: they are large, the anterior one composed of two ovate spots, one of which is mostly united to the posterior stigma; a black streak arises at the base of the wing, and unites to the central fascia, and is sometimes continued in a very irregular curved streak to the anal angle; on the hinder margin is a row of irregular subtrigonal fuscous spots; the cilia are very long, cinereous, interrupted by white, with a few black spots at the tip: posterior wings fuscous, the hinder margin with an interrupted darker streak: cilia rosy.

In many points, especially in the early period of its flight, this singular and variable insect differs from the rest of the genus; but I have not ventured to separate it; its comparatively more exposed and hairy palpi, elongate cilia, and obscure posterior striga on the anterior wings, may be noticed as external characters of distinction:—in many respects it approaches towards the genus *Calophasia*.

Not uncommon on trunks of trees, and old palings and walls, during the latter part of April, throughout the metropolitan district. “Southend, in April, 1829.”—*Rev. F. W. Hope.* “Alderley, Cheshire.”—*Rev. E. Stanley.*

Sp. 15. Cucubali. *Alis anticis purpurascanti-fuscis, stigmatibus divergentibus flavicinctis, strigâ purpurascente alterâque ad marginem posticum dentatâ flavescente.* (Exp. alar. 1 unc. 4—5 lin.)

No. Cucubali. *Wien. Verz.*—*Ha. Cucubali.* *Steph. Catal. part ii. p. 82. No. 6209.*

Head and thorax fuscous, mixed with ashy and black atoms: anterior wings of a purplish-brown, with brighter shades of purple, and darker dusky spots and ashy tints; with the ordinary strigæ black or fuscous, the third geminated and placed on a purplish ground, forming a streak of that hue; the fourth is very much dentated or angulated and yellowish; on the hinder margin of the wing itself is a row of interrupted dusky lunules; the stigmata are divergent, and are elongate and slender, with yellowish margins; the cilia are fuscous, interrupted with pale slender and a little clouded with black: posterior wings ochreous brown at the base, the hinder margin with a deep-brown fimbria, with a very obscure pale striga on its inner margin towards the centre of the wing, where is a dusky spot: abdomen ashy-brown, with darker spots on the back.

Caterpillar greenish, varied with cinereous, with obscure dusky spots; it feeds on

the *Lychnis dioica* and *Cucubalus bacci ferus*: the imago appears towards the middle of June.

Far from a common insect: it has however been captured several times at Darent-wood, where I have twice met with it in the lane leading from the village: it has also occurred in Bedfordshire, and near Cheltenham. "Warwick and Allesley."—*Rev. W. T. Bree.*

Sp. 16. *capsincola*. *Alis anticis cinereo fuscoque variis, strigâ posticâ dentatâ albâ, stigmatibus albo marginatis.* (Exp. alar. 1 unc. 3—4 lin.)

No. *capsincola*. *Wien. Verz.*—*Ha. capsincola*. *Steph. Catal. part ii. p. 82. No. 6210.*

Not very dissimilar to the preceding species: head and thorax pale ashy-brown, with hoary spots, and transverse and longitudinal dark streaks; anterior wings of an ashy-brown, with a greenish shade, varied with dusky; the usual abbreviated striga at the base whitish; the second and third strigæ pale-fuscous, edged with dusky, with a whitish spot at their origin on the costa; the fourth or posterior striga white or whitish, slightly undulated and triangulated towards the costa and near the middle; stigmata oblique, slender, margined by a white line and rarely united; cilia brown, interrupted with pale ochreous-ash: posterior wings fuscous-ash, with the margin and a slender central lunule dusky; cilia ashy-brown, with a pale streak at the base.

Caterpillar greenish, with blackish spots, and lateral streaks, and a whitish line beneath the latter; the head glossy-brown: it feeds on the *Lychnis dioica*: the imago appears towards the end of June or beginning of July.

Not uncommon in gardens, and weedy banks throughout the metropolitan district: it also occurs in Devonshire, South Wales, Norfolk, &c. "Bottisham."—*Rev. L. Jenyns.*

Sp. 17. *Saponariæ*. *Alis anticis rufescente-fuscis strigis griseis reticulatis, posticis ochraceo-fuscis fimbriâ fuscâ.* (Exp. alar. 6—8 lin.)

No. *Saponariæ*. *Borkhausen.*—*Ha.?* *Saponariæ*. *Steph. Catal. part ii. p. 82. No. 6211.*

A very distinct species; head brown: thorax ashy-brown, with darker stripes, and yellowish or griseous tippets; anterior wings brown with a rufescent tinge, with the nervures and ordinary strigæ griseous ochreous-white, the basal striga deeply angulated, the second abruptly angulated close to the anterior stigma, and then formed into an arch, the crown towards the base of the wing; the third striga placed as usual, and the fourth is rather abruptly angled near the costa, and then runs nearly parallel with the hinder margin, the usual W mark being very slightly indicated; on the margin of the wing itself is frequently an interrupted row of dark or black lunules: stigmata ashy-brown, with pale margins: cilia brown, interrupted by griseous: posterior wings ochreous-brown with a dusky margin: cilia pale.

Caterpillar greenish, with darker shades: the head and first segment brownish: it feeds on the *Saponaria officinalis* and other plants:—the imago appears towards the end of June, or beginning of July.

Rare; four or five specimens have been captured in my presence at Darent-wood, where I once caught a single specimen: it occurs much more abundantly near Brighton; and is found in Norfolk and near Dover. “Bottisham.”—*Rev. L. Jenyns.*

GENUS CVIII.—HELIOPHOBUS, *Boisduval.*

Palpi rather short, stout, porrect, densely squamose, tri-articulate, the terminal joint exposed, but squamose; the basal joint reniform, rather stouter than, and about one-half the length of, the second, which is attenuated at the apex; terminal joint about half as long as the first, elongate-ovate: *maxillæ* very short. *Antennæ* very strongly bipectinated in the males, the pectinations reaching to the apex, furnished with a few distant bristles in the females: *head* small, pilose in front; *eyes* large, pubescent: *thorax* stout, crested: *wings* rather deflexed during repose, the anterior obscurely denticulate on the posterior margin, which is somewhat ample: the nervures generally pale; posterior slightly notched on the hinder margin, towards the costa, pale with a darker border; *body* rather long, stout, of the male with a large tuft at the apex, of the female rather acute, with a small apical tuft: *legs* short, robust, the *femora* and *tibiæ* very pilose; *posterior tibiæ* with two pair of long spurs. Larva naked: pupa subterranean.

The great dissimilarity of the antennæ in the sexes of the only two known species of this genus, at once point out their pretensions for generic distinction from *Hadena*, with which genus all authors but Boisduval have hitherto united them; however, their very great disparity from the typical species of that genus had long determined me to disunite them therefrom: although the species somewhat resemble the three last species of *Hadena*, they may be distinguished with facility by their elongate antennæ,—the males having them strongly pectinated, and the females furnished with bristles; those of the former sex in *Hadena* being not very long, and more or less ciliated, while those of the latter are simple,—and more especially by the brevity of their maxillæ.

Sp. 1. Popularis. *Alis anticis fuscis albido venosis strigâ subinterruptâ ad marginem posticum flavescente, maculis sagittiformibus atris adnatis.* (Exp. alar. 1 unc. 7—9 lin.)

Bo. Popularis. *Fabricius.*—Ph. typicoides. *Don. xii. pl. 505.*—He. Popularis. *Steph. Catal. pt. ii. p. 82. No. 6212.*

Head deep fuscous; thorax fuscous, with darker shades; with a transverse

pale streak, and a lateral white stripe: anterior wings fuscous, with the nervures whitish, and interrupting the ordinary strigæ, which are dusky: the second and third geminated, the latter composed of lunules; the ordinary stigmata are placed between these, and are of a pale flavescent-ash, with darker shades, the anterior is small and circular, the posterior rather slender, and somewhat lunate: there is a third stigmatiform spot, as in *Charæas Graminis*; this is produced from the second striga, and is slightly margined with cinereous with a black edge; towards the hinder margin of the wing is a yellowish slightly waved striga, accompanied on its inner edge with dark arrow-shaped spots: cilia fuscous, with two pale lines: posterior wings whitish, with a deep fuscous margin, a faint undulated transverse striga, and a minute central spot of the same hue: cilia ochreous: abdomen fuscous, with paler margins to the segments: the base and anterior segment clothed with long white or cinereous hair.

Taken abundantly in certain years near London; and in other parts throughout the metropolitan district. Also found near Royston, Herts, at Dover, and not very uncommon near Plymouth, and in Cornwall:—the female is, however, rare. “Bottisham.”—*Rev. L. Jenyns*. “Netley, not uncommon.”—*Rev. F. W. Hope*.

Sp. 2. leucophæus. PLATE 24. f. 1. *Alis anticis subdentatis griseo albo fuscoque variegatis; thorace anticè fasciâ fuscâ.* (Exp. alar. 1 unc. 8 lin.)

No. leucophæa. *Wien. Verz.*—*He. leucophæus. Steph. Catal. part ii. p. 82. No. 6213.*

Head and thorax anteriorly pale ochreous; the latter posteriorly hoary white, with a few dusky atoms intermixed, and separated from the ochreous portion by an indistinct dusky line (of which the rudiments only remain in the specimen whence the accompanying figure, which is of the natural size, was designed): anterior wings variegated with griseous, white and fuscous; the ordinary strigæ being very indistinct, excepting the second, which is somewhat obvious and regularly waved; the stigmata are large, but rather obscure; they are ashy-brown, with dull white or hoary margins; the posterior margin of the wing is nearly white, a little clouded with dusky near the middle; the cilia ochreous at the base, pale whitish ash or hoary at the tip, with a dusky edge, and obsoletely dentate: posterior wings ashy-white, with a dark fuscous central spot and transverse striga; and a faint dusky marginal border: cilia as above.

Of this very conspicuous insect I have as yet seen but two indigenous females, which were captured in July, 1816, near Bristol, whence Dr. Leach received them, and to whom I am indebted for my fine example.

GENUS CXIX.—MAMESTRA, *Ochsenheimer*.

Palpi short, triarticulate, densely clothed with elongate scales at the base, the terminal joint not very distinctly exposed; the basal joint the length of the terminal, subconic; the following as long again, more slender than the basal, subcylindric, a little bent, and slightly attenuated at the tip, which is obliquely truncate; terminal elongate-ovate: *maxillæ* rather long. *Antennæ* elongate rather slender, simple in both sexes, each joint producing a short bristle on each side, ciliated beneath in the males: *head* rather small, the forehead with a dense crest: *eyes* rather large, globose, pubescent: *thorax* subquadrate, with a bifid dorsal crest: *abdomen* moderate, crested on the back, the apex with a small tuft: *wings* slightly deflexed during repose, anterior obscurely denticulate on their hinder margin, posterior simple: *legs* short, stout: *femora* and *tibiæ* very pilose interiorly; tibial spurs moderate. Larva naked, varied. Pupa subterranean.

The species of this genus are usually of dull and sombre colours, and like the *Hadenæ* they are mostly characterized by having a conspicuous W-like mark, formed by the angulations of the pale posterior striga, on their anterior wings. From the genus just mentioned they may be however known, by the greater simplicity of the antennæ in both sexes, the more denticulate posterior margin of the anterior wings, the obscurity of their colours, and by the dissimilarity in the structure of the palpi. *Ma. Aliena* of *Ochsenheimer* appears rather to belong to the genus *Hama*, to be hereafter described.

Sp. 1. *furva*. *Alis anticis fusco cinereo flavidoque variegatis, maculâ reniformis strigâque externâ albicantibus.* (Exp. alar. 1 unc. 5—7 lin.)
No. *furva*. *Wien. Verz.*—*Ma. furva*. *Steph. Catal. pt. ii. p. 82. No. 6214.*

A dingy species: head and thorax fuscous, the latter with some paler and darker atoms: anterior wings fuscous, with cinereous and yellowish shades, the ordinary strigæ of the last line edged with fuscous, the fourth excepted, which is simple, considerably undulated and bidentate in the middle; the stigmata are rather paler than the rest of the wing, with the margins dusky or black, sometimes with a whitish inner circle; the hinder margin has a row of triangular black spots, the margin itself having a yellowish line; cilia fuscous, interrupted with ochraceous: posterior wings ashy-brown, with the nervures, a central lunule, and the hinder margin darker.

Occasionally taken at Coombe-wood, and in other places near London; but much more abundant near Hull, in Yorkshire. I have found it near Dover, and I believe it has been captured in the vicinity of Brighton. (It ill associates with this genus.)

Sp. 2. Pisi. *Alis anticis rufo ferrugineoque variis, strigâ flavescente undatâ ad marginem posticum, maculâque ad angulam ani.* (Exp. alar. 6—8 lin.)

Ph. No. Pisi. *Linné. Wilkes, pl. vii.*—Ma. Pisi. *Steph. Catal. part ii. p. 83. No. 6215.*

A beautiful and extremely variable species: head and thorax ferruginous-red: anterior wings the same, but variegated, and sometimes with yellowish or fuscous clouds; the ordinary strigæ sometimes obscure, at others yellowish with dusky margins: the stigmata rather large, pale, sometimes clouded in the centre with whitish or yellowish, at others plain; towards the hinder margin is a very distinct, much waved and angulate-dentate yellowish striga, varying a little in intensity, being occasionally of a sulphurous hue or nearly white; towards the anal angle it is dilated into a large maculæform patch: cilia ferruginous-red, interrupted with yellowish: posterior wings ochreous brown, with a lunule, the nervures and margin dusky, the latter with a paler striga near the anal angle: behind the middle is occasionally a transverse dusky striga, and the wings are sometimes entirely of the latter hue: the posterior striga is sometimes interrupted.

Caterpillar slender red-brown or ferruginous, with yellow longitudinal stripes: it feeds on the dock, vetch, pea, broom, and other papilionaceous plants, in the autumn: the imago is produced in the following June.

Very common in certain years in the larva state at Coombe-wood, on Hampstead Heath and in Epping Forest: also found in other places near London, and I believe pretty generally distributed over the south of England. "Dublin."—*Rev. J. Bulwer*, who kindly supplied me with beautiful varieties. "Matlock."—*Rev. F. W. Hope*. "Newcastle."—*W. C. Hewitson, Esq.* "Epping."—*Mr. H. Doubleday*.

Sp. 3. splendens? *Alis anticis rufo-fuscis, strigis tribus saturatoribus, externâ albo terminatâ, stigmatibus pallidioribus.* (Exp. alar. 1 unc. 5 lin.)

No. splendens. *Hübner?*—Ma. splendens? *Steph. Catal. part ii. p. 83. No. 6216.*

Rather less than the last; which it resembles: head and thorax rufous-brown: anterior wings the same, with three darker transverse strigæ, the exterior one terminated by an interrupted white line; the stigmata rather small pale reddish-ash, the anterior immaculate, the posterior with dusky clouds; the cilia interrupted with cinereous: posterior wings ochreous-ash, with the margin, an interrupted transverse striga, central lunule and nervures dusky; cilia flavescens.

A single example of a moth, which answers to Ochsenheimer's specific description of Ma. splendens, was taken in Cumberland in July, 1827, by Mr. Weaver, and is in my cabinet: it is the only one I have seen.

Sp. 4. oleracea. *Alis anticis castaneo-ferrugineis maculâ reniformi lutescente strigâque externâ albâ bidentatâ.* (Exp. alar. 1 unc. 6—7 lin.)

Ph. No. oleracea. *Linné.*—*Ma. oleracea.* *Steph. Catal. part ii. p. 83. No. 6217.*—*Albin. pl. xxvii. f. 4. a—d.*

Head and thorax castaneous, varying in intensity: anterior wings the same, sometimes a little clouded, but in general plain, with the ordinary strigæ obliterated: anterior stigma pale ashy-brown, small, round, sometimes the margin alone conspicuous; posterior fulvous; in some examples the rudiments of a third stigma are visible, they are sometimes fuscous, at others fulvescent: on the posterior margin is a whitish bidentate striga: posterior wings whitish-ash, with a dusky border.

Caterpillar livid, spotted with black, with a fuscous dorsal and lateral whitish line:—it is polyphagus, but prefers cabbage, lettuces, and similar plants: it is found in the autumn; the imago appearing in the spring, towards the end of May.

Very common in gardens in and about London, and throughout the south of England: “Dublin.”—*Rev. J. Bulwer.* “Kimpton.”—*Rev. G. F. Rudd.* “Netley.”—*Rev. F. W. Hope.* “Bottisham.”—*Rev. L. Jenyns.* “Alderley, Cheshire.”—*Rev. E. Stanley.*

Sp. 5. suasa. *Alis anticis fuscis subnebulosis, lineolâ basi interruptâ nigrâ, strigâque posticâ bidentatâ albâ.* (Exp. alar. 1 unc. 4—5 lin.)

No. suasa. *Wien. Verz.*—*Ma. suasa.* *Step. Catal. part ii. p. 83. No. 6218.*

Head and thorax fuscous: anterior wings glossy brown, a little clouded with darker shades: with an acute black lineola at the base, and the margins of the stigmata of the same colour; the stigmata of a pale ashy-brown, and situated between two very obscure rather pale strigæ: towards the posterior margin is a white, deeply bidentate striga, with black arrow-shaped streaks on its anterior margin: the cilia and posterior wings are fuscous.

Caterpillar green, with rufescent and bluish spots and three streaks of the latter colour:—it is polyphagous, feeding upon the cabbage, dock, lettuce, plantain, trefoil, &c.: the imago appears in June.

Of this rare insect I have seen but four examples, three of which were captured near London, and one in Norfolk; my specimen, which is the only female I have seen, was taken at Birch-wood in the beginning of July, 1818: it is rather in a tattered condition.

Sp. 6. nigricans. *PLATE 24. f. 2.*—*Alis anticis subochraceo-nigricantibus, stigmatibus strigisque ordinariis pallidioribus.* (Exp. alar. 1 unc. 8 lin.)

No. nigricans. *Vieweg?*—*Ma. nigricans.* *Steph. Catal. part ii. p. 83. No. 6219.*

Antennæ rusty-luteous; head and thorax pale immaculate dusky-brown, with an ochraceous tinge; anterior wings the same, with obsolete paler and darker

strigæ, and a more distinct slender triangulated one towards the posterior margin: on the costa are several whitish spots, of which the one opposite to the posterior stigma is largest, and adjoins a dusky one: the stigmata are rather obscure, a little paler than the wings, and faintly edged with dusky, and the posterior one with two whitish spots on its hinder edge; on the margin are some indistinct dusky lunate spots: the posterior wings are ochreous white, with the hinder margin and nervures dusky: abdomen dusky-ash.

Two examples of this rare species (the figure of which is rather larger than nature) have hitherto come beneath my observation: one was taken in the New Forest, Hants, or rather, I believe, off Christchurch, by Mr. Bentley, in a bathing-machine, towards the end of June, 1819; and at the end of the following week, a second was picked up by a boy at Darenth-wood: since which period no other specimens have occurred to my knowledge.

Sp. 7. Brassicæ. *Alis anticis fusco-cinereis nebulosis, stigmatibus duabus nigro-cinctis, reniformi albicinctâ, strigâque posticâ bidentatâ albâ.* (Exp. alar. 6—8 lin.)

Ph. No. Brassicæ. Linné.—Ma. Brassicæ. *Steph. Catal. part ii. p. 83. No. 6220. Albin. pl. xxviii. f. 42, 43, &c.*

Head and thorax deep fuscous-black, with cinereous atoms: anterior wings ashy-brown, very much clouded with cinereous, with irregular distinct black strigæ, and another very much undulated and bidentated white one near the posterior margin, which has a row of dusky or black trigonate spots: the anterior stigma is margined with black; the posterior, or reniform one, more or less margined with white; and, as in most of the Agrotæ, there is a third indicated by a black angulated mark: towards the apex of the costa are four white spots: posterior wings fuscous, with the centre and margin darker; cilia pale with a fuscous line.

This species varies considerably in colour; in some examples the cinereous hue predominates, in others the dusky: I possess one example suffused with a rosy tinge, with a distinct ferruginous spot on the inner margin near the base.

Caterpillar very variable green or brown, with white stigmata and an obscure dorsal line: it feeds chiefly upon the cabbage, and is found in the autumn: the imago occurs in the beginning of summer, and remains for a considerable period.

One of the most abundant of the indigenous Noctuidæ, frequenting every garden, and abounding in banks and weedy hedges. "Abundant at Netley."—*Rev. F. W. Hope.* "Bottisham."—*Rev. L. Jenyns.* "Common at Kimpton, and in Yorkshire."—*Rev. G. T. Rudd.*

† Sp. 8. albidilinea. *Alis anticis nigricantibus, strigâ posticâ altè bidentatâ albicante.* (Exp. alar. 1 unc. 7 lin.)

No. albidilinea. *Haworth.*—Ma. albidilinea. *Steph. Catal. pt. ii. p. 83. No. 6221.*

The size and form of the last: the anterior wings with the ordinary stigmata, and a strongly bidentate striga towards the hinder margin whitish.

I do not believe that this insect is truly distinct from Ma. Brassicæ; but rather suspect that it will prove to be merely a suffused variety of that species, having some of the characters, as usual in such cases, apparently more distinct. The original specimen is in Mr. Hatchett's collection, but I believe a second has been found.

Sp. 9. albicolon. PLATE 24. f. 3. *Alis anticis fusco-griseis, maculâ reniformâ punctis duobus albis strigâque externâ flavescente punctatâ.* (Exp. alar. 1 unc. 8—9 lin.)

No. albicolon. *Hübner.*—Ma. albicolon. *Steph. Catal. pt. ii. p. 83. No. 6222.*

Rather larger than Ma. Brassicæ: head and thorax deep cinereous, mixed with paler and darker shades, with an obscure transverse anterior line: anterior wings of similar hue, a little clouded with fuscous, with several rather obscure darker strigæ, and an interrupted, scarcely undulated, series of distinct yellowish spots in place of the posterior striga: stigmata pale cinereous, the posterior slightly clouded, with two distinct white spots adjoining the posterior angle: the third stigma wanting: posterior wings ochraceous-ash, with the border fuscous: cilia pale.

The total absence of the third stigma on the anterior wings, with the row of flavescent spots near their posterior margin, and the pale ochraceous-ash posterior wings, exclusively of its size and dissimilar colour, sufficiently distinguish this insect from Ma. Brassicæ, with which it appears to have been confounded.

Of this plain, but remarkably distinct, insect I have seen six specimens only, which were captured in August, 1827, by Mr. Weaver, in Cumberland.

Sp. 10. Chenopodii. *Alis anticis fusco-cinereis nigro maculatis, stigmatibus tribus, stigmate reniformi nigricante, strigâ posticâ bidentatâ albâ.* (Exp. alar. 1 unc. 4—6 lin.)

No. Chenopodii. *Wien. Verz.*—Ma. Chenopodii. *Steph. Catal. part ii. p. 84. No. 6224. Albin. pl. xxix. f. 44. e—d.*

Head and thorax cinereous immaculate; antennæ fuscous: anterior wings cinereous, with irregular black and pale strigæ and fuscous clouds, with a slender bidentate white striga near the posterior margin, which has a row of minute black spots; the costa is also spotted with dusky-black, with three distinct minute white dots near the apex: the anterior stigma is pale with a dark border, the posterior dusky margined with cinereous and black; there is also a third stigma, as in Ma. Brassicæ, dusky with a black margin, but extremely variable in size: posterior wings cinereous, with the nervures, central spot and margin fuscous.

This insect varies much in colour, and a little in the disposition of its markings. Caterpillar green, with an obscure dorsal and reddish lateral line: it feeds on various pot-herbs like *Ma. Brassicæ* and others of the genus: the imago appears in June.

A very common species, frequenting the gardens and squares of the metropolis itself, and abounding in the former situations throughout its vicinity.

Sp. 11. *Persicariæ*. *Alis anticis nigris, strigis tribus fuscis, unâque posticâ punctorum fulvorum, stigmatè reniformi niveo lunulâ fulvâ.* (Exp. alar. 1 unc. 6—8 lin.)

Ph. No. *Persicariæ*. *Linné. Don. ix. pl. 317.*—*Ma. Persicariæ. Step. Catal. part ii. p. 84. No. 6225.*

Head and thorax black, the latter with a few darker spots; anterior wings also black, with three rather obscure fuscous strigæ, edged with black, and a slightly waved series of fulvous spots near the hinder margin: anterior stigma rather indistinct, with a stigmatiform spot between it and the inner margin, as in the last-mentioned species; posterior stigma pure white, with a fulvous central lunule: on the costa are three or four white spots, and a minute row of the same at the base of the cilia, which are black and indented: posterior wings whitish at the base, with a central lunule, and the hinder margin deep fuscous.

Caterpillar green, with a white dorsal line, and an obscure cloud on the fourth and fifth segment; the tail conic: it feeds on the hop, elder, and other plants; and is found in the autumn: the imago appearing in the following June.

Rather uncommon: I have, however, found several specimens in a garden at Hertford in certain seasons, and occasionally at Ripley; and on Clandon-common, Surrey: it also occurs throughout the metropolitan district. “Allesley.”—*Rev. W. T. Bree.* “Netley.”—*Rev. F. W. Hope.* “Epping.”—*Mr. H. Doubleday.*

APPENDIX.

Page 5. *HEPIALUS hectus.* It should have been remarked, Dr. Leach distinguishes this species in his MSS. as a genus, by the name *Chelonus*, which cannot be retained, as it is preoccupied. “Longnor, Salop, not abundant.”—*Rev. F. W. Hope.* “Rockcliff and Castletown.”—*T. C. Heysham, Esq.*

Page 5. *HEPIALUS lupulinus.* “Rickerby, &c., Cumbs.”—*T. C. Heysham, Esq.* “Abundant in Salop.”—*Rev. F. W. Hope.*

- Page 6. *HEPIALUS humuli*. "In some seasons very abundant near Carlisle."
—*T. C. Heysham, Esq.*
- Page 6. *HEPIALUS velleda*. "Littleton Copse, 30th ult."—*Rev. G. T. Rudd.*
"Newcastle, rarely."—*W. C. Hewitson, Esq.*
- Page 7. *HEPIALUS carnus*. "Littleton Copse, with the foregoing, 29th and
30th ult."—*Rev. J. T. Rudd.*
- Page 8. *ZEUZERA Æsculi*. "Lamberhurst, Sussex."—*Rev. F. W. Hope.*
"Near Southwold, Suffolk."—*W. C. Hewitson, Esq.*
- Page 9. *COSSUS ligniperda*. "Abundant at Matlock in 1828."—*Rev. F. W.*
Hope. "Oak woods in the neighbourhood of Black Hale and Floses."—
T. C. Heysham, Esq. "York, Newcastle, &c."—*W. C. Hewitson, Esq.*
- Page 12. *PYGÆRA bucephala*. "Cummersdale, Rockcliff, Orton, &c."—*T. C.*
Heysham, Esq. "Common in Salop; larvæ called *Highlanders*."—*Rev. F.*
W. Hope. "Yorkshire, and Suffolk, very common."—*W. C. Hewitson, Esq.*
- Page 14. *EPISEMA cœruleocephala*. "Common at Netley in 1828."—*Rev. F.*
W. Hope.
- Page 19. *CERURA Vinula*. "Harraby, Knells, Brampton, &c."—*T. C. Hey-*
sham, Esq.
- In Mr. Children's collection is a remarkable variety of this insect; having the
head and front of the thorax, the hirsuties of the legs and breast of a deep
smoky-black; with the wings considerably suffused with a similar hue, but
with the ordinary strigæ and fascia: it was found near Brighton.
- Page 21. *STAUROPIUS Fagi*. "The male captured several times at Burghfield,
by means of a lighted candle, in the evening."—*Rev. C. S. Bird.*
- Page 25. *LEIOCAMPA dictæa*. "Near Rockcliff."—*T. C. Heysham, Esq.*
- Page 25. *LEIOCAMPA dictæoides*. "Old Brompton."—*Mr. G. Waterhouse.*
- Page 27. *LOPHOPTERYX carmelita*. Var. β . With the anterior wings deep
fuscous, tinted with reddish; the markings as in var. α . Of this variety
there is a beautiful example in the British Museum (the one referred to in
page 28); and a very perfect anterior wing of the same variety was picked
up in Ongar-park, the 22d of April, 1828, by Mr. H. Doubleday, who kindly
transmitted it to me.
- Page 28. *PTILODONTIS palpina*. "Brompton, 1828."—*Mr. G. Waterhouse.*
- Page 33. *PERIDEA serrata*. "Dorking, in 1828."—*Mr. G. Waterhouse.*
- Page 33. *ENDROMIS versicolor*. "Bishop's Castle, and Lenley, Salop."—
Rev. F. W. Hope.
- Page 36. *SATURNIA Pavonia*. "The caterpillar very abundant on Heath on
the Bishop's Castle Hills in 1826."—*Rev. F. W. Hope.* "Yorkshire, and
near Newcastle."—*W. C. Hewitson, Esq.*
- Page 38. *LASIOCAMPA Rubi*. "Rockcliff Moss."—*T. C. Heysham, Esq.*
"York, &c."—*W. C. Hewitson, Esq.*

- Page 40. *LASIOCAMPA* *Quercus*. "Orton Mosses."—*T. C. Heysham, Esq.*
 "Common at Netley in 1828."—*Rev. F. W. Hope.* "Collingbourne-wood
 in profusion."—*Rev. G. T. Rudd.*
- Page 43. *PÆCilocAMPA* *Populi*. "Very abundant near Birmingham."—*Rev.*
F. W. Hope.
- Page 45. *ERIOGASTER* *Lanestris*. "York."—*W. C. Hewitson, Esq.*
- Page 49. *CLISIOCAMPA* *Neustria*. "Davidson's Bank, near Carlisle."—*T. C.*
Heysham, Esq.
- Page 52. *ODONESTIS* *potatoria*. "Near Woodbank."—*T. C. Heysham, Esq.*
- Page 52. *GASTROPACHA* *quercifolia*. "Near Sheffield."—*Rev. F. W. Hope.*
- Page 59. *DASYCHIRA* *pudibunda*. "Black Hale Woods."—*T. C. Heysham,*
Esq. "Near York; larvæ on beech."—*W. C. Hewitson, Esq.*
- Page 61. *ORGYIA* *antiqua*. "Netley, in August."—*Rev. F. W. Hope.*
- Page 61. *ORGYIA* *gonostigma*. "Bagley-wood, Oxfordshire."—*Rev. F. W.*
Hope.
- Page 64. *LEUCOMA* *Salicis*. "Woods near Cummersdale."—*T. C. Heysham,*
Esq.
- Page 67. *HYPERCOMPA* *Dominula*. "Very abundant at Darenth-wood last
 June (1828)."—*Mr. Ingpen.*
- Page 68. *EUTHEMONIA* *russula*. "Common about Birmingham, and near
 Bewdley-forest."—*Rev. F. W. Hope.* "Hen-Moss and Tarn Wadling."—*T. C.*
Heysham, Esq.
- Page 69. *ARCTIA* *Caja*. "Dum-hill, Harkes, &c."—*T. C. Heysham, Esq.*
 "Suffolk, York, Newcastle, &c."—*W. C. Hewitson, Esq.*
- Page 72. *NEMEOPHILA* *Plantaginis*. "Southend, &c."—*Rev. F. W. Hope.*
- Page 74. *PHRAGMATOBIA* *fuliginosa*. "Netley, August and September."—
Rev. F. W. Hope. "Castletown and Rockcliff."—*T. C. Heysham, Esq.*
- Page 77. *SPILOSOMA* *lubricepeda*. "Near Ellerby."—*T. C. Heysham, Esq.*
- Page 78. *DIAPHORA* *mendica*. "Near Norwood."—*Mr. Ingpen.*
- Page 82. *FUMEA* *muscella*. "Hornsey and Highgate-woods."—*Mr. Ingpen.*
- Page 83. *NUDARIA* *mundana*. "Common at Netley."—*Rev. F. W. Hope.*
- Page 90. *CALLIMORPHA* *Jacobææ*. "Kingmoor, Orton, &c."—*T. C. Heysham,*
Esq.
- Page 93. *DEIOPEIA* *pulchella*. "A specimen taken near Oxford, and now in
 the Botanic-garden;—last year found at Gravesend."—*Rev. F. W. Hope.*
- Page 97. *LITHOSIA* *quadra*. "Once taken in Harrison-street, Gray's Inn
 Road."—*Mr. Ingpen.*
- Page 98. *GNOFHRIA* *rubricollis*. Whether there may not be two broods of this
 insect I am not positive, but it is certain that the insect is about for a long
 period; having taken it myself in July, and specimens having occurred so

early as the end of May. "Woods near Black Hale and Castletown."—*T. C. Heysham, Esq.* "Bagley-wood, end of May, very common."—*Rev. F. W. Hope.* "Taken in profusion in 1828, early in June; and this year for this fortnight past,—1st June, 1829."—*Rev. G. T. Rudd.*

Page 102. *TRIPHÆNA orbona.* "Durdan and Floses."—*T. C. Heysham, Esq.*

Page 103. *TRIPHÆNA pronuba.* "New Moss," &c.—*T. C. Heysham, Esq.*

Page 105. *TRIPHÆNA interjecta.* "Netley, very abundant."—*Rev. F. W. Hope.*

Page 106. *TRIPHÆNA Janthina.* "Netley."—*Rev. F. W. Hope.*

Page 107. GENUS *LYTÆA.* This genus, which now contains three indigenous species, in addition to the characters pointed out in the place cited, has the posterior wings with a dark fimbria, and a more or less distinct transverse dusky striga, with a central spot of similar hue; and all the wings very glossy; the anterior considerably rounded at the base.

Sp. 2. *LYTÆA leucographa.* *Alis anticis fusco purpureis albo adpersis, maculis ordinariis albidis.* (Exp. alar. 1 unc. 6 lin.)

Noctua leucographa. *Hübner. fig. 572.*—*Ly. leucographa.* *Steph. Catal. Appendix.*

Head and thorax fuscous, with a mixture of fulvous or rufescent; the latter with a transverse dusky streak, followed by a reddish-brown one: anterior wings reddish-brown, varied with white and ochraceous-yellow, with fine purplish or coppery shades; at the base is a slightly bifid black streak, reaching nearly to the second striga, which is rather indistinct and very irregular; the third is considerably bent behind the posterior stigma, and is united to the second by a small black hook on the inner margin; between the posterior striga and the hinder margin is a very faint interrupted pale waved striga, bearing a row of elongate-triangular spots on its anterior edge; the space between this striga and the posterior margin is plain purplish-brown, with the nervures slightly ochreous; and on the margin are some indistinct black dots: cilia reddish-ochre: stigmata whitish, placed in a dusky or black patch: posterior wings ochreous-white, with a central lunule and two transverse strigæ fuscous.

Caterpillar green, with white and brown spots.

My specimen of this insect was taken near York. Hübner seems to have figured two very distinct insects under the above name.

Sp. 3. *LYTÆA albimacula.* *Graphiphora albimacula,* page 137, which evidently associates better with this genus than with the one under which I have doubtfully placed it: it closely resembles the foregoing.

Page 111. *CHARÆAS Graminis.* "Netley, Salop, 1827 and 1828."—*Rev. F. W. Hope.* "Denton, Holme."—*T. C. Heysham, Esq.*

Page 116. *AGROTIS Segetum.* It appears by a letter received from Mr. Kirby, that instead of the larvæ of this insect, it was slugs that were destroyed in such abundance by Mr. Rodwell.

Page 118. *AGROTIS velligera.* "Occasionally near Netley."—*Rev. F. W. Hope.*

Page 120. *AGROTIS vitta.* "Alderley, Cheshire."—*Rev. E. Stanley.*

- Page 126. *AGROTIS exclamationis*. "In the utmost profusion in July, 1827, near Netley."—*Rev. F. W. Hope*.
- Page 128. *GRAPHIPHORA rhomboidea*. As I suspect that this handsome species is perfectly distinct from the *Noctua rhomboidea* of Esper, I propose calling it *GRAPHIPHORA subrosea*.
- Page 130. *GRAPHIPHORA pyrophila*. "Flisk, not Zetland."—*Rev. Dr. Fleming*.
- Page 131. *GRAPHIPHORA augur*. "Common at Netley."—*Rev. F. W. Hope*.
- Page 133. *GRAPHIPHORA triangulum*. "Rockcliff-moss."—*T. C. Heysham, Esq.*
- Page 136. *GRAPHIPHORA plecta*. "Cambridge."—*C. Darwin, Esq.*
- Page 137. *GRAPHIPHORA albimacula*. See *Lytæa albimacula*, p. 199.
- Page 144. *ORTHOSIA miniosa*. "A single specimen at Netley."—*Rev. F. W. Hope*.
- Page 146. *ORTHOSIA Pistacina*. "Epping."—*Mr. H. Doubleday*.
- Page 149. *ORTHOSIA Upsilon*. "Epping."—*Mr. H. Doubleday*.
- Page 158. *CARADRINA cubicularis*. "Exceedingly abundant, last August, near Netley."—*Rev. F. W. Hope*.
- Page 159. *CARADRINA glareosa*. "Of this insect I have taken a fine pair at Epping; one in July, 1827, the other on the 29th August, 1828."—*Mr. H. Doubleday*.
- Page 161. *GLÆA Vaccinii*. "Kimpton."—*Rev. G. T. Rudd*.
- Page 163. *AMPHIPYRA pyramidea*. "New-moss."—*T. C. Heysham, Esq.*
- Page 165. *PYROPHILA tetra*. "Kimpton."—*Rev. G. T. Rudd*.

* * * The tabular view of the Noctuidæ will be given at the end of the family.

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ERRATA.

- Page 2, line 27, for cocoons, read cocoons.
 47, — 21, for nests, read nest.
 55, — 9 and 14, for pilosæ read pilosi.
 56, — 39, for stronger, read fainter.
 63, — 40, for projections, read proportions.
 88, — 7, for either and or, read neither and nor.
 89, — 32 and 34, for Ce., read Ca.
 90, — 3 and 4, for Ce., read Ca.
 91, — 22, for larger, read longer.
 110, — 29, for Plate 20. f. 1. read Plate 20. f. 2.
 113, — 29, for Plate 20. f. 2. read Plate 20. f. 3.
 119, — 15, for Plate 20. f. 3. read Plate 20. f. 1.
 128, — 34, for rhomboidea. Plate 19. f. 1. 8. read subrosea. Plate 19. f. 1. ♂.

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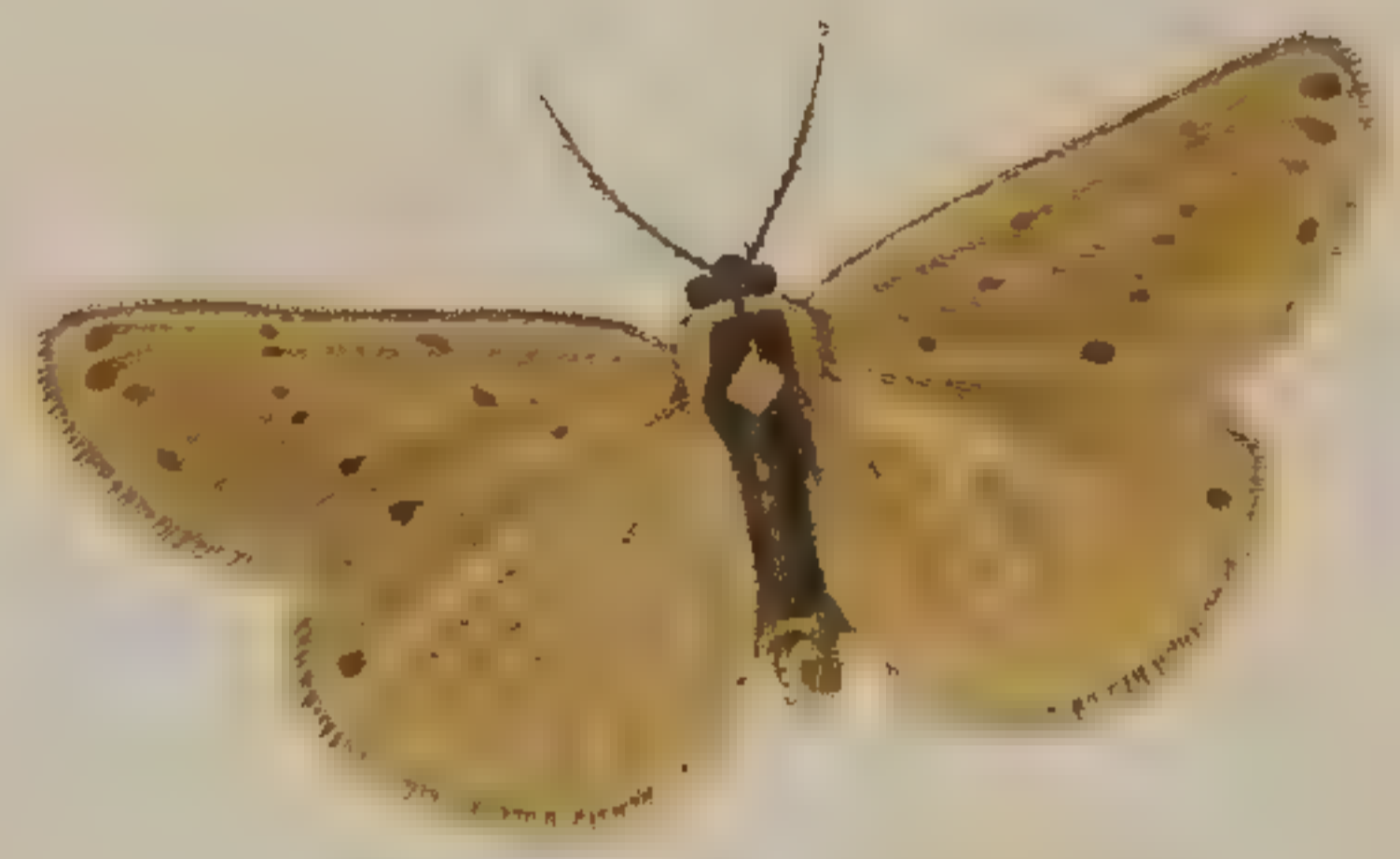


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